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S. HRG. 116–9

HEARING ON THE NOMINATION OF ANDREW WHEELER TO BE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

JANUARY 16, 2019

Printed for the use of the Committee on Environment and Public Works

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SIXTEENTH CONGRESS
FIRST SESSION

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HEARING ON THE NOMINATION OF ANDREW WHEELER TO BE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WEDNESDAY, JANUARY 16, 2019

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The Committee met, pursuant to notice, at 10:03 a.m. in room 406, Dirksen Senate Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Inhofe, Capito, Cramer, Braun, Rounds, Sullivan, Boozman, Wicker, Ernst, Carper, Cardin, Sanders, Whitehouse, Merkley, Booker, Markey, Duckworth, and Van Hollen.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING

Senator BARRASSO. Good morning, and welcome.

This is a formal Senate hearing. In order to allow the Committee to conduct its business, I am going to maintain decorum. That means if there is any disorder or demonstration by a member of the audience, the person causing the disruption will be escorted from the room by the Capitol Police.

With that said, I call this hearing to order.

Today, we are going to consider the nomination of Andrew Wheeler to be Administrator of the Environmental Protection Agency.

Before I speak about Acting Administrator Wheeler's nomination, I want to take a moment to welcome the new members of our Committee, Senators Braun and Cramer. Welcome to the Committee. I know that your experience and expertise will strengthen our Committee and bring fresh perspectives to our debates. Welcome.

I would also like to welcome back all of the old members of the Committee. I look forward to working with each of you as we conduct the Committee's business this Congress, which brings us to the business of today's hearing.

President Trump has nominated Environmental Protection Agency Acting Administrator Andrew Wheeler to serve as the Administrator of the agency. Mr. Wheeler has served as Deputy Administrator of the EPA since April 2018 when the Senate confirmed his nomination with bipartisan support.

Since July of last year Mr. Wheeler has served as the Acting Administrator of EPA. I believe Acting Administrator Wheeler has done an outstanding job of leading the EPA these past 6 months. Under Acting Administrator Wheeler's leadership, the agency has taken a number of significant actions to protect our Nation's environment while also supporting economic growth.

Acting Administrator Wheeler has led efforts to issue common sense regulatory proposals like the Affordable Clean Energy Rule and the revised definition of Waters of the United States; implemented the Committee's 2016 bipartisan reform of the Toxic Substances Control Act in an effective and efficient manner; reduced lead exposure, including through the Federal Lead Action Plan; provided greater regulatory certainty to States, to tribes, to localities, and the regulated community; and has improved enforcement and compliance assistance.

Acting Administrator Wheeler is very well qualified to run the Environmental Protection Agency. Before his leadership roles at the agency, Mr. Wheeler spent 25 years working in the environmental field as a career employee with the Environmental Protection Agency, as this Committee's Clean Air Subcommittee staff director, as then the full Committee staff director and chief counsel, and finally as a consultant for a large variety of energy and environmental clients.

Mr. Wheeler has received broad and bipartisan support. Former Democratic vice presidential candidate and U.S. Senator Joe Lieberman, who served as a member of this Committee while Mr. Wheeler was staff director, stated when Wheeler was nominated for deputy director that "Mr. Wheeler conducted himself in a fair and professional manner. I hope his nomination will receive similarly fair consideration by the Senate." Ranking Member Carper said of Mr. Wheeler at one point, "I think having worked in the agency he actually cares about the environment, the air we breathe, the water we drink, and the planet on which we live."

The EPA Administrator plays a central role in developing and implementing programs and activities focused on fulfilling the EPA's mission of protecting human health and the environment.

We know how well qualified Mr. Wheeler is and when confirmed what a wealth of experience and expertise he is going to bring to this critically important job. I am going to work with Committee members to move this important nomination forward.

I would now like to turn to the Ranking Member for his statement.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thank you, Mr. Chairman.

Mr. Wheeler, welcome. It is good to see you. Thanks for meeting with my staff and me yesterday and on past occasions as well.

Just 1 week ago President Trump nominated you to be the Administrator of the Environmental Protection Agency, the agency you already lead as its Acting Administrator. If I am not mistaken, under the Federal Vacancies Act, you can continue to serve as both the EPA Acting Administrator and the President's nominee for 203 more days.

With many EPA staff members furloughed today, on the 26th day of President Trump's Government shutdown, a number of Democratic members of this Committee are concerned that we are rushing to move forward with your confirmation process.

I realize we do not all agree on this, but my view is that EPA is shut down largely because the President wants Congress to approve an additional $6.5 billion in funding for a 2,000 mile wall along our southern border with Mexico that the Mexicans were supposed to pay for.

Meanwhile, because of the continuing shutdown across our country, our environment and public health are increasingly in jeopardy. With much of EPA shut down, rules are not being written, drinking water and power plant inspections are not being performed, Superfund sites are not being cleaned up, the safety of new chemicals is not being assessed, public meetings are being canceled, and just as important, some 14,000 furloughed EPA employees are unsure if they will be able to afford their mortgages, daycare providers, or grocery and electricity bills.

Some of those furloughed employees appear to have been asked to help prepare for this very hearing. Despite that, this Committee is moving quickly to process your nomination.

I do not believe giving the Acting Administrators a speedy promotion is more urgent and more important than protecting the public from contamination to our air and water and lands. Our priority should be reopening our Government, certainly reopening EPA and the other closed Federal agencies.

The day after Mr. Wheeler was named EPA Acting Administrator last summer, I sent him a letter. In that letter I reminded Mr. Wheeler of the challenge and opportunity he was granted to chart a new course for the agency after the scandal plagued tenure of Scott Pruitt.

Mr. Wheeler is certainly not the ethically bereft embarrassment that Scott Pruitt proved to be. To be fair, he has engaged more frequently and substantively than Scott Pruitt with both Congress and EPA career staff.

I knew that Mr. Wheeler and I would not agree on every issue. We do not, but I had hoped he would moderate some of Scott Pruitt's most environmentally destructive policies, specifically where the industry and the environmental community are in agreement.

Regrettably, my hopes have not been realized. In fact, upon examination, Mr. Wheeler's environmental policies appear to be almost as extreme as his predecessor's despite the promise Mr. Wheeler made when he first appeared before our Committee.

For example, Mr. Wheeler said repeatedly that he agreed with a goal that many of us share, striking a deal between automakers and the State of California on fuel economy and greenhouse gas tailpipe standards.

I have just come from the auto show in Detroit on Monday. The entire auto industry, many Members of Congress, and other stakeholders have repeatedly asked for a compromise that would provide certainty and predictability for the industry.

However, instead of making a serious, vigorous effort to find a win-win outcome he envisioned, Mr. Wheeler signed off on a pro-

posal that preempts California and freezes standards for the better part of a decade.

I learned that the Trump administration now plans to finalize a 0.5 percent annual increase in the stringency of the standards, a rate that is 10 times weaker than the current rules. This will only lead to extensive litigation and uncertainty for our automakers. That is not a win-win outcome, really more a lose-lose.

There is another example of Mr. Wheeler's forgotten promises. Mr. Wheeler recently signed a proposal to remove the legal underpinnings of the mercury and air toxics standards. EPA decided it was no longer "appropriate and necessary" to protect the brains of infants from mercury and air toxic pollution emitted by electric utilities.

By using outdated data and deeming that some benefits like reductions in cancer, birth defects, and asthma attacks are no longer important to consider, EPA is setting a dangerous precedent in putting the MATS rule in legal jeopardy. EPA has gone so far as to request public comment on whether the standards should be eliminated.

Mr. Wheeler says this action is necessary and that the proposal strikes a balance. I just do not think that is true. No court has ordered this action. No utilities are asking for this action. Their proposal is not needed to protect public health.

In fact, the utility industry is in full compliance with the EPA standards, full compliance at one-third of the expected cost. Think about that—one-third of the expected cost. Every stakeholder from coal fired utilities to religious leaders to environmental organizations to chambers of commerce urged this Administration not to take this step.

Surprisingly, Mr. Wheeler has chosen to ignore the course of stakeholders who all hoped that he, EPA, and this Administration would try a more responsible path.

A final example of Mr. Wheeler's failure to lead lies in the agency's reported opposition to submitting to the Senate for ratification the Kigali Treaty to phase out harmful refrigerants. Safer substitutes are made in Texas and Louisiana with American technology by American companies whose investments and jobs are at risk when China dumps cheaper, polluting products onto the market.

Ratification of this treaty is supported by a truly staggering list of stakeholders that range from the American Chemistry Council to the U.S. Chamber of Commerce to Freedom Works to the Sierra Club—almost everyone, it seems, except EPA.

Mr. Wheeler, when you worked with us in the Senate, you were able to identify areas where compromise was possible. It remains my hope that you can reverse course and commit to seize upon the policy "win-wins" like these and others that protect our environment and public health while protecting and providing industry with certainty they need and deserve.

That is what the American people expect and deserve from anyone who has been nominated to lead the Environmental Protection Agency. Based on what we have seen so far, without such commitments, that is not the nominee that we have before us today. I say that with no joy.

Thank you.

Senator BARRASSO. Thank you, Senator Carper.

Senator Inhofe, would you like to introduce Mr. Wheeler?

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. I would like to introduce Mr. Wheeler. I am honored that he invited me to do that. I am very excited about the prospects of taking his temporary job into a permanent job.

It may come as a shock to some of you that I do not totally disagree with my good friend, Senator Carper. I really think that in the midst of the Schumer shutdown is a good time to confirm some of these very important nominees. There is not one more important or a position that is more important than we have right now.

Back when President Trump nominated Andrew as Deputy Administrator, I said there was no one more qualified. Now that he has been Acting Administrator for the past 6 months, Andrew's ability to lead the agency has never been clearer.

After earning a law degree at Washington University in St. Louis at the School of Law, Andrew joined the EPA as a special assistant in the agency's Pollution Prevention and Toxics Office in 1991.

There have been a lot of years and a lot of experience. He was an EPA employee for 4 years, transitioning to the George H.W. Bush administration and then to the Clinton administration, earning three bronze medals for commendable service along the way. For those of you who do not know, the bronze medal is given for "significant service or achievements in support of the agency's mission or for demonstration of outstanding accomplishments in supervision and leadership."

When Andrew left the agency he brought that sense of service and leadership with him to the U.S. Senate where I had a front row seat to his high quality of character and witnessed the dedication he brings to every job and issue.

Andrew started in my personal office as chief counsel, transitioned to staff director for the U.S. Senate Subcommittee on Clean Air, Climate Change, Wetlands and Nuclear Safety. I was Chairman of that subcommittee at that time.

In 2003, when I became Chairman of this Committee, Andrew became the chief counsel. Over the next 6 years, he would eventually become staff director, and we worked closely together on highway bills, energy bills, the Diesel Emissions Reduction Act, the Clear Skies Act, and many other pieces of legislation.

Since leaving the U.S. Senate in 2009 Andy has continued to build on his reputation as a leader in energy and environmental policy and has brought this vast wealth of knowledge and expertise on environmental issues to the EPA.

The Senate confirmed him as Deputy Administrator in April of last year on a bipartisan basis, and he became Acting Administrator in early July. I was lucky enough to attend his welcome speech to the employees of the agency and saw a man who respected the agency and the work the career staffers do.

This is something that is unusual. I do not think Andrew knew I was there in the audience, but there were a couple or 300 people

from the EPA administration. All of them were there with the highest possible respect for Andrew Wheeler.

He has worked on the issues for his entire 28 year career. I am honored that he chose to spend half of that time with me. I believe that the U.S. Senate benefited from his leadership. I know America will as well.

I remember looking at the expressions on the faces of the individuals out there thinking there is room at the top for me, too. There were several hundred people in there who had a career such as Andrew had, starting at the bottom, and here is the top. He has done a great job. I am very excited to look forward to working with him in a new capacity that I have not experienced before.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you very much, Senator Inhofe.

Now I would like to welcome our nominee to the committee, Andrew Wheeler, nominated to be Administrator of the Environmental Protection Agency.

I want to remind you that your full written testimony will be made a part of the record. We all look forward to hearing your testimony. I would invite you to introduce or reintroduce to the Committee your family then please proceed with your testimony.

STATEMENT OF ANDREW WHEELER, NOMINATED TO BE ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. WHEELER. Thank you, Senator.

Joining me today is my nephew Luke Hooper, and he brought along his parents with him and my sister, Liesle, and her husband, Tim. I also have two friends that I met on my first day in law school back in 1987, Judy Kim and Dawn Sydney. Dawn was at my confirmation hearing for the Deputy Administrator position, and today she brought her mother with her, Betty Beveridge, who traveled from Florida to be here today. I want to thank them all for coming today.

Senator BARRASSO. Thank you, and welcome.

Mr. WHEELER. Good morning, Mr. Chairman, Ranking Member Carper, and members of the Committee.

Thank you, Senator Inhofe, for the introduction.

I am honored and grateful that President Trump has nominated me for the position of Administrator of the Environmental Protection Agency. There is no more important responsibility than protecting human health and the environment. It is a responsibility I take very seriously.

Since becoming the Acting Administrator I have focused our efforts on providing greater certainty to the American public: certainty in our EPA programs; certainty to the States, tribes, and local governments; and certainty on how we communicate risk.

Personally, I have also worked to provide more certainty to Congress. Immediately after becoming the Acting Administrator, I reached out to the Chairs and Ranking Members of our authorizing and appropriating committees in both the House and the Senate. I have met in person or by phone with many of you on specific issues of concern, and I will always make myself available.

The American public has a right to know the truth about the health risks they face in their daily lives and how we are respond-

ing. It is our responsibility to explain it to them clearly and consistently. This includes recognizing the progress we have made as a Nation and where more progress still needs to be made.

From 1970 to 2017 U.S. criteria air pollution fell by 73 percent while the economy grew over 260 percent. In addition, we are ranked No. 1 in the world for access to safe drinking water. In addition, in 2018 we finalized 13 major deregulatory actions, saving Americans roughly $1.8 billion in regulatory costs.

Yet there are Americans who have not shared in this progress. It is these Americans that President Trump and his Administration are focused on, Americans without access to safe drinking water or Americans living on or near hazardous sites, often unaware of the health risks they and their families face. Many of these sites have languished for years, even decades.

How can these Americans prosper if they cannot live, learn, or work in healthy environments? The answer is simple. They cannot. President Trump understands this, and that is why he is focused on putting Americans first.

The Superfund program is a perfect example. In fiscal year 2018 EPA deleted all or part of 22 sites from the National Priorities List, the largest number of deletions in 1 year since fiscal year 2005. We are in the process of cleaning up some of the Nation's largest, most complex sites and returning them to productive use.

This past summer I visited the Anaconda and Butte sites in Montana, the first visit to both sites by the head of EPA in nearly 20 years. We are finalizing cleanup plans that will return these lands to productive use, an action which has literally been stymied for decades.

This past September EPA issued a Record of Decision requiring removal of the worst contaminated sediment, including mercury and PCBs, at the Berry Creek site in New Jersey. At the U.S. Smelter and Lead Refinery site in East Chicago, we were able to issue a proposed $25 million cleanup plan that will address lead contaminated soil in Zone 1 of the site.

We have also made safe drinking water a top priority as well.

In May 2018 we convened the first ever National Leadership Summit to help States address the emerging risk associated with PFAS. We also hosted a series of visits in communities directly impacted by PFAS. Using information from these events and other public input, we will release a PFAS management plan in the very near future.

We are also taking important actions to protect our children from the dangers of lead exposure. We proposed stronger dust, lead, and hazards standards and we are updating the lead and copper rule for the first time in over two decades. These actions and more are detailed in the new Federal Lead Action Plan announced in December.

In addition, we are using our grants and financing programs to help communities replace lead surface lines and upgrade their water infrastructure. Under President Trump, EPA has issued seven WIFIA loans totaling over $1.5 billion. Combined, these projects will help finance over $3.5 billion in infrastructure investments while creating over 6,000 jobs. That is just the beginning.

This past year we invited an additional 39 projects from across the Nation to apply for the WIFIA loans that would help finance $12 billion in infrastructure and create up to 183,000 jobs.

On the air side, we have launched common sense reforms such as the Cleaner Trucks Initiative. By working closely with States and the private sector, we will reduce NO_x emissions from heavy duty trucks which are not required by statute or court order, but it makes sense to do.

Finally, we proposed three major rulemakings on our new Waters of the U.S. definition, the Affordable Clean Energy Rule, and the Safe Vehicles Rule in conjunction with the Department of Transportation.

Through our regulatory reforms, the Trump administration is proving that burdensome Federal regulations are not necessary to drive environmental progress. What makes our actions effective and durable is our commitment to vigorously enforce them.

In fiscal year 2018 EPA enforcement actions required the treatment, disposal, or elimination of 809,000,000 pounds of pollutants and waste, almost twice as much compared to 2017. We also entered the largest settlement in the history of the enforcement of the Risk Management Program with responsible parties spending $150 million on major safety improvements.

I am proud of our accomplishments, and I know that none of it would be possible without our talented and dedicated EPA career staff. Just last week EPA and the Department of Justice announced a $490 million settlement with Fiat Chrysler for cheating U.S. emission standards.

For 3 years Fiat Chrysler told us their vehicles were compliant, yet it was EPA engineers in Ann Arbor who caught them cheating. Then they proved how they were cheating, and that was no easy task.

Defeat devices are hidden in vehicle software which contains more than 100 million lines of code. To give you an idea of what the EPA staff had to deal with, an F–22 fighter jet has less than 2 million lines of code, and a Boeing 787 has around 14 million lines of code.

I am proud and grateful for a talented career staff that was able to detect and expose these defeat devices. This is just one of many examples of the expertise our career staff brings to the agency and one of the many reasons that I miss our furloughed employees and look forward to getting them back to work as soon as possible.

Thanks to the hardworking public servants, pollution is on the decline. Our focus now is to accelerate this decline, particularly in communities where it poses the most immediate and lasting harm.

Thank you for your time. I look forward to answering your questions.

[The prepared statement of Mr. Wheeler follows:]

Statement of Andrew Wheeler

Nominated to be Administrator,

U.S. Environmental Protection Agency

January 16th, 2019

Good morning, Mr. Chairman, Ranking Member Carper, and members of the committee.

I am humbled and grateful that President Trump has nominated me for the position of Administrator of the Environmental Protection Agency. If confirmed, it would be a true honor to lead the Agency where I began my career over 20 years ago.

There is no more important responsibility than protecting human health and the environment. It is a responsibility I take very seriously.

Since becoming Acting Administrator, I have focused our efforts on providing greater certainty to the American public: certainty in our EPA programs; certainty to the states, tribes, and local governments; and certainty on how we communicate risk.

Personally, I have also worked to provide more certainty to Congress. Immediately after becoming Acting Administrator, I reached out to the chairs and ranking members of our authorizing and appropriating committees in both the House and the Senate. I have met in person or by phone with many of you on specific issues of concern, and I will always make myself available.

The American public have a right to know the truth about the health risks they face in their daily lives and how we are responding. It is our responsibility to explain it to them clearly and consistently. That includes recognizing the progress we have made as a nation and where more progress still needs to be made.

From 1970 to 2017, U.S. criteria air pollution fell by 73 percent while the economy grew over 260 percent. In addition, we are ranked number one in the world for access to safe drinking water.

At the same time, we are advancing the President's regulatory reform agenda. In 2018, EPA finalized 13 major deregulatory actions, saving Americans roughly $1.8 billion in regulatory costs. To date, under President Trump, EPA has finalized 33 major deregulatory actions saving Americans almost $2 billion.

The U.S. is the gold standard for environmental progress. Yet, there are Americans who have not shared in this progress.

It is these Americans that President Trump and his administration are focused on – Americans without access to safe drinking water or Americans living on or near hazardous sites, often unaware of the health risks they and their families face. Many of these sites have languished for years, even decades.

How can these Americans prosper if they cannot live, learn, or work in healthy environments? The answer is simple. They cannot. President Trump understands this. And that is why he is focused on putting Americans first.

There may be no better example than our success in the Superfund program. In Fiscal Year 2018, EPA deleted all or part of 22 sites from the National Priorities List, the largest number of deletions in one year since Fiscal Year 2005.

And we are in the process of cleaning up some of the nation's largest, most complex sites and returning them to productive use.

This past summer, I visited the Anaconda and Butte sites in Montana – the first visit by the head of EPA in nearly 20 years. We are finalizing cleanup plans that will return these lands back to productive use, an action which has literally been stymied for decades.

This past September, EPA issued a Record of Decision requiring removal of the worst contaminated sediment, including mercury and PCBs, at the Berry's Creek site in New Jersey. The selected remedy is an interim step, while we work to issue a final plan where the legally responsible parties would conduct and pay for a $300 million cleanup with oversight by EPA.

One of the sites on the Administrator's Emphasis List for immediate action is the U.S. Smelter and Lead Refinery site in East Chicago. By prioritizing this site, we were able to issue a proposed $25 million cleanup plan that will address lead-contaminated soil in Zone 1 of the site.

Looking ahead, we will expand on our efforts in 2019 by working with the Department of Defense to revitalize former defense properties.

These achievements will directly improve the lives of those who reside near these sites – most often low-income, minority, and disadvantaged Americans. They are the ones that deserve our full and immediate attention.

That is why we have also made safe drinking water a top priority.

In May 2018, EPA convened its first-ever National Leadership Summit to help states address the emerging risks associated with per- and polyfluoroalkyl substances (PFAS). The summit included representatives from over 40 states, tribes, and territories; 20 federal agencies; Congressional staff; associations; industry groups; and non-governmental organizations.

Following the Summit, the agency hosted a series of visits in communities directly impacted by PFAS. Using information from these events and other public input, we will release a PFAS Action Plan in the very near future.

We are also taking important actions to protect our children from the dangers of lead exposure. We proposed stronger dust-lead hazard standards, and we are updating the lead and copper rule for the first time in two decades. These actions and more are detailed in the new Federal Lead Action Plan, which we announced in December alongside the Department of Health and Human Services and the Department of Housing and Urban Development.

In addition, we are using our grant and financing programs to help communities replace lead service lines and upgrade their water infrastructure. Under President Trump, EPA has issued seven loans through the Water Infrastructure Finance and Innovation Act (WIFIA) program totaling over $1.5 billion. Combined, these projects will help finance over $3.5 billion in infrastructure investments while creating over 6,000 jobs.

That's just the beginning. This past year, we invited an additional 39 projects across the nation to apply for WIFIA loans that would help finance nearly $12 billion in water infrastructure and create up to 183,000 jobs.

When it comes to reducing air pollution, we have launched common-sense reforms, such as the Cleaner Trucks Initiative. Since 2000, nitrogen oxide (NOx) emissions in the U.S. have been reduced by 52 percent. However, it is estimated that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025, and it's been nearly 20 years since EPA last set NOx emissions standards for heavy-duty trucks. By working closely with states and the private sector, we will reduce NOx emissions from heavy-duty trucks, which is not required by statute or court order but makes sense to do.

In order to provide greater certainty for manufacturers and confidence for American consumers, EPA has worked hard to meet the deadlines set by the bi-partisan 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act, which amended the Toxic Substances Control Act. Over the past year, EPA once again met its obligations by releasing guidance and policy on confidential business information, a strategy to reduce animal testing, a final mercury reporting rule, and a final fees rule.

What makes our actions effective and durable is our commitment to vigorously enforce them. In Fiscal Year 2018, EPA enforcement actions required the treatment, disposal, or elimination of 809 million pounds of pollutants and waste – almost twice as much compared to 2017. We also entered into the largest settlement in the history of our enforcement of the Risk Management Program with the responsible party spending $150 million on major safety improvements.

As an Agency, we can't improve how we carry out our responsibilities unless we can accurately measure our progress. Under President Trump, EPA launched a comprehensive management system, the EPA Lean Management System (ELMS), to identify, track, and enhance critical Agency processes.

This past year, we initiated deployment of ELMS in three regions and scheduled deployment in the rest of the agency for Fiscal Year 2019. We created over 600 performance measures across all national programs and regional offices. For the first time, EPA is reviewing its performance via these new measures and taking corrective action on a monthly, rather annual basis. We're already seeing dramatic improvements, such as reducing the backlog of new permit applications older than six months by 34 percent between June and November 2018.

Our accomplishments also extend to extraordinary events and issues that transcend our nation's borders. Over the past two years, highly dedicated and experienced EPA employees have conducted almost 500 emergency response and removal actions, while at the same time

responding to six nationally significant hurricane events, several of the most destructive wildfires in U.S. history, a Super Typhoon, and a volcanic eruption.

In October, I signed a memorandum of understanding with the Israeli Ministry of Environmental Protection to advance our collaboration on pressing environmental challenges, such as innovation in the water sector and the remediation of contaminated lands. Most notably, in December, I signed the trilateral Environmental Cooperation Agreement with Canada and Mexico on behalf of the U.S. It contains the most comprehensive set of enforceable environmental obligations of any trade agreement to date, including first-time provisions to address pressing environmental issues such as air quality and marine litter.

Finally, consistent with the President's directives, we proposed three major rulemakings, and I'll say a brief word about each.

First, our new proposed waters of the U.S. definition would provide farmers and landowners the certainty they need to grow more crops, build more homes, and create more jobs. In line with President Trump's February 2017 Executive Order, our proposal would replace the 2015 definition with one that follows the Clean Water Act and respects the primary role of the states in managing their land and water resources. For the first time, we are clearly defining the difference between federally protected wetlands and state protected wetlands.

Second, the proposed Affordable Clean Energy (ACE) rule would adhere to the four corners of the Clean Air Act and allow states to set emissions standards that protect human health while ensuring access to affordable, reliable energy. When ACE is fully implemented, the rule would help reduce U.S. power sector CO2 emissions by 34 percent below 2005 levels.

Third, EPA and the Department of Transportation proposed the Safer Affordable Fuel-Efficient (SAFE) Vehicles rule, which would reduce the cost of new vehicles so that more Americans can purchase newer, cleaner, and safer cars and trucks.

The average age of vehicles on the road today is at a record high – roughly 12 years old. In 1990, the average age was approximately eight years old. Research shows that passengers are more likely to be killed in older vehicles compared to newer ones. Compared to keeping the 2012 standards in place, our preferred option would reduce the cost of owning a new car by more than $2,300. These savings would help more Americans purchase newer cars, thereby improving the environment and saving lives – approximately 1,000 lives annually.

Through our deregulatory actions, the Trump Administration has proven that burdensome federal regulations are not necessary to drive environmental progress. Certainty, and the innovation that thrives in a climate of certainty, are key to progress.

I am proud of our accomplishments, and I know that none of it would be possible without our talented and dedicated EPA career staff.

Just last week, EPA and the Department of Justice announced a $490 million settlement with Fiat Chrysler for cheating U.S. emissions standards.

For three years, Fiat Chrysler told us that their vehicles were compliant. Yet, it was EPA engineers at our National Vehicle and Fuel Emissions Laboratory and the Office of Transportation and Air Quality that caught them cheating. And then they proved how they were cheating. That was no easy task.

Defeat devices hidden in vehicle software can have more than 100 million lines of code. To give you an idea of what EPA staff had to deal with, an F-22 fighter jet has less than 2 million lines of code and a Boeing 787 has around 14 million lines. So I am proud and grateful for our talented and dedicated career staff that was able to detect and expose these defeat devices.

Thanks to our hardworking public servants, pollution is on the decline. Our focus now is to accelerate its decline, particularly in communities where it poses the most immediate and lasting harm.

Thank you for your time, and I look forward to answering your questions.

U.S. Senate Committee on Environment and Public Works
Hearing entitled, "Hearing on the Nomination of Andrew Wheeler to be Administrator of the Environmental Protection Agency"
January 16, 2019
Questions for the Record for Mr. Andrew Wheeler

Ranking Member Carper:

Your responses to questions for the record from the Committee's August 1, 2018 hearing left much to be desired. Many questions did not receive specific responses, which is troubling given that the Committee did not receive your answers for four months. Please ensure that your responses to these questions are not similarly deficient. Moreover, in light of the Agency's insistence on moving forward quickly with your confirmation hearing and the use of furloughed staff to prepare you for it, please do not attempt to justify a failure to provide any of the responses or requested materials on the shutdown, absent a concurrent request that further action on your nomination be postponed until after the EPA re-opens.

I appreciate your questions for the record following up on my January 16, 2019, confirmation hearing. The EPA has demonstrated that it takes inquiries from Congress very seriously. The Agency provided a thorough job of responding to the Questions for the Record from my prior confirmation hearing, and we are doing the same here while protecting our ability to complete reasoned and deliberative rulemaking on the actions that are in process. I am discouraged to learn from the Questions for the Record for this hearing that you found my answers deficient from a previous hearing although that concern has not been raised during our handful of meetings and discussions with you since that time. While maintaining those important executive branch equities, I will ensure that the longstanding practice of providing timely responses to Congressional inquiries continues, including producing documents as appropriate. If confirmed, I look forward to continuing to work with you and your staff to provide the information that Congress needs to perform its proper legislative function.

Questions on the Trump Administration's Proposed Fuel Economy and Greenhouse Gas Tailpipe Standards Rollback

I asked you a number of questions on this topic following your testimony at the August 1, 2018 hearing. You failed to provide specific responses. Please do so now promptly, and answer the additional questions, especially in light of your statement at the hearing that "We know that we need to finalize our [fuel economy and greenhouse gas tailpipe standards] proposal by March 30."

1. During the development of the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-26 Passenger Cars and Light Trucks", EPA officials met with OMB and NHTSA officials to convey their concerns about the proposal several times. They left numerous documents with OMB officials that are now part of the rulemaking docket[1].These

[1] https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453

documents indicate that there are significant problems with the model that was used by NHTSA to develop the proposal to freeze fuel economy and greenhouse gas tailpipe standards from 2020-26. One such example is a document titled "Email_5_-_Email_from_William_Charmley_to_Chandana_Achanta_-_June_18,_2018%20(1).pdf". This 122 page long document includes a number of PowerPoint presentations EPA made to OMB and NHTSA staff along with additional documentation and analysis.

a. The document notes that "EPA analysis to date shows significant and fundamental flaws in CAFE model (both the CAFE version and the "GHG version")…. These flaws make the CAFE model unusable in current form for policy analysis and for assessing the appropriate level of the CAFE or GHG standards." Do you believe that each of these flaws were fully remedied before the rules were proposed? If so, please list the specific remedies that addressed each of EPA's concerns. If not, will you ensure that all necessary technical input from EPA's Office of Transportation and Air Quality is incorporated into the final rule in order to ensure that the rule cannot be successfully over-turned in court on grounds that the model on which it is based is significantly or fundamentally flawed?

As I explained in responding to a similar question arising out of my August 1, 2018 hearing before the Committee, the documents you reference were made available by EPA in the rulemaking docket, because they are part of the documentation of interagency review of the draft proposed rule. EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts.

In particular, with respect to the CAFE model, I would point out, that, as outlined in the Notice of Proposed Rulemaking, available at Docket No. EPA–HQ–OAR–2018–0283, having reviewed comments on the subject and having considered the matter fully, the agencies determined it is reasonable and appropriate to use DOE/Argonne's model for full-vehicle simulation, and to use DOT's CAFE model for analysis of regulatory alternatives. Using the CAFE model allows consideration of the following factors: the CAFE model explicitly evaluates the cost of compliance for each manufacturer, each fleet, and each model year; it accounts for lead time necessary for compliance by directly incorporating estimated manufacturer production cycles for every vehicle in the fleet, ensuring that the analysis does not assume vehicles can be redesigned to incorporate more technology without regard to lead time considerations; it provides information on safety effects associated with different levels of standards and information about many other impacts on consumers, and it calculates energy impacts (i.e., fuel saved or consumed) as a primary function, besides being capable of providing information about many other factors within EPA's broad Clean Air Act discretion to consider. *See* 83 Fed. Reg. 43,000-01.

As work on this rule is ongoing, it would not be appropriate for me to comment on whether, as you put it, "each of these flaws were fully remedied before the rules were proposed." We will be developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

b. One of the main contributors to the NHTSA conclusions that the augural standards would cause thousands of additional deaths is NHTSA's "consumer choice" module, which asserts that making the fleet more fuel efficient will cause people to keep their less safe, older vehicles for longer, and that this will mean there are more unsafe vehicles on the road (because newer vehicles have more safety technologies). The document states that EPA believed this NHTSA model was flawed, because it predicts an additional 26 million non-existent vehicles would be in the 2016 fleet and 46 million additional non-existent vehicles in the 2030 fleet. For context, this would represent a 15-20% increase in registered vehicles. The document also notes that this problem appeared to be un-remedied several months after EPA first raised it. Was this problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the consumer choice model as it predicts fleet turnover, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "this problem [was] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

c. The document also found that NHTSA's consumer choice model predicts an unexplained, and apparently fictitious 10-15% increase in vehicle miles traveled (VMT). Specifically, the model somehow predicts people will drive an extra 239 billion miles in 2016 and 302 billion more miles in 2030. The increased deaths associated with higher efficiency standards in the NHTSA model are highly correlated to VMT (more driving equals more accidents equals more deaths). It would thus seem that EPA believes that the NHTSA safety numbers are predicated on an entirely fictitious driving scenario. Was this problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the consumer choice model as it predicts VMT, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "this problem [was] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

d. The document also notes that NHTSA does not accurately model the manner in which automobile manufacturers trade credits as part of their compliance strategies, observing that NHTSA does not assume that compliance credits are traded between manufacturers' car and truck fleets (which is the manufacturers' current practice), and that this has the effect of over-estimating compliance costs. Was this modeling problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the modeling of credit trading, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "this modeling problem [was] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

e. The document observes that NHTSA's model overestimates the costs of particular technologies compared to their actual costs and use in the real world. The model also reportedly selects the most expensive technology packages to meet the standards, which overestimates the most cost-effective ways to do so by $1-2,000 per vehicle. Do you agree that manufacturers would be more likely to select the most cost-effective set of technologies with which to meet standards, rather than the least cost-effective set of technologies? If not, why not? Was this problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the modeling of technology cost and technology selection, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "this problem [was] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

f. The document stated that the NHTSA model omitted the benefits of some fuel-efficient technologies entirely, while others were erroneously inputted into the model. For example, 'start/stop' technology, a technology that causes engines to automatically shut off while vehicles are stopped in traffic (and thus use no fuel), is estimated to have a negative effect on fuel-efficiency, which is simply not plausible. Were these problems remedied in the proposed rule? If so, how? If not, will you ensure that they are remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the modeling of fuel-efficient technologies, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "these problems [were] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

g. The document observed that NHTSA's model appears to add vehicle miles travelled in unexplained ways. For example, it observed that as many as 25 billion more miles of driving were predicted in a given year, even when the rebound effect (a measure of how much extra driving consumers are expected to do as a result of having more fuel-efficient vehicles) was set to 0 percent. The document observes that NHTSA's model actually predicts less driving when the rebound effect was set to 20 percent (meaning 20% more driving by consumers in more fuel-efficient vehicles would have been included in the model) than when it was kept to 0 percent. This suggests that NHTSA's model is incapable of predicting anything accurately, separate and apart from whether one agrees with its policy premise. Was this problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the modeling of VMT, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether, as you put it, "this problem [was] remedied in the proposed rule." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

h. The document states that NHTSA's "Proposed standards are detrimental to safety, rather than beneficial" once NHTSA's modeling errors were corrected. In fact, EPA found that the proposed standards result in "an average increase of 17 fatalities per year in VYs 2036-2045" relative to the current standards. Do you agree with this conclusion? If not, why not?

With respect to the modeling of safety effects, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to respond to your query whether I "agree with this conclusion." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

i. The document states that the NHTSA model projects that the current standards result in 8,000 fewer new automobiles sold annually in CYs 2021-2032, but that the used vehicle fleet would grow by 512,000 vehicles per year. That means that for every new fuel-efficient vehicle that consumers do not purchase (because NHTSA predicts their costs will be too high), somehow an additional 60 used vehicles will remain in the fleet. Do you agree that this scenario is simply implausible in the real world, as the EPA document points out? If not, why not? Was this problem remedied in the proposed rule? If so, how? If not, will you ensure that it is remedied before the EPA rule is finalized in order to avoid litigation that will result in the rule being overturned on grounds that the model on which it is based is significantly or fundamentally flawed?

With respect to the modeling of new sales and fleet size, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query whether I "agree that this scenario is simply implausible in the real world." We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

j. In draft comments submitted to OMB on June 29, EPA commented that more than 90% of the net benefits for which the proposed rule to freeze fuel economy and greenhouse gas tailpipe standards takes credit are in fact benefits associated with vehicles manufactured prior to 2021. EPA attributed this to NHTSA's flawed consumer choice model, and questioned whether these could technically be attributable to the actual post-2021 rule. What would the net benefits of the preferred alternative— and for each of the other seven alternatives included in the NPRM — be if the agencies were to compare the costs to the benefits of cars manufactured within the MY 2021-29 cohort timeframe?

With respect to the modeling of benefits, EPA and NHTSA are working collaboratively in developing this proposed rule and working through modeling methods and technical inputs and assumptions is a necessary and critical aspect of the agencies' joint rulemaking development efforts. As this work is ongoing, it would not be appropriate for me to comment on your query regarding the "net benefits of the preferred alternative" and the other alternatives. We are developing responses to the issue you raise here as part of our joint effort to finalize this important rule. We will not take definitive positions on any issues until the rule is final.

2. Please provide a list of all EPA employees or contractors who have been working on the fuel economy and greenhouse gas tailpipe standards rule since December 29, 2018, including a description of what precisely each individual has been doing and how much time they have spent on each task.

I and other Senate-confirmed senior managers have conferred on this rule. No career employees worked on the rulemaking during the shutdown.

3. I have been informed that on July 20, 2018, prior to the finalization and public release of the proposed roll-back, you received a briefing from EPA's career staff that consisted of about 20 slides (and a 3-page appendix) and lasted about an hour. The briefing described EPA career staff's significant concerns with the proposed rule, including their concern that the proposal "does not include EPA's technical assessment or input," that NHTSA failed to incorporate any of EPA's technical analysis or feedback, and that it was clear to EPA that "NHTSA doesn't want to engage EPA on technical aspects of NHTSA's analysis." That briefing also included the staff's request that EPA's logo be removed from the technical analysis document used to support the proposed rollback in light of the fact that no EPA input was included in it.

a. Please provide me with a copy of the briefing slides.

The requested briefing slides include information that relates to a pending or contemplated action by EPA and are therefore deliberative and pre-decisional. We will provide any decisional documents in the administrative record for future final actions and can supply the final version at that time.

b. You have repeatedly asserted in both public and private meetings that the proposed rollback will save lives. For example, in your January 16 nominations hearing you stated that "Under our proposal, we have submitted that there will be 1,000 lives saved a year under our CAFE proposal. I neglected to mention that earlier, but I think that is very important for everyone to understand." Please provide me with a detailed explanation for why you have seemingly discounted the views and technical input of EPA's career staff when making these statements.

I greatly value the views and technical input of EPA career staff. I have not in any way discounted them. As to the analysis of the vehicle safety issues you reference, EPA is working in conjunction with NHTSA on this joint rulemaking, and NHTSA is taking the lead with respect the safety implications at issue.

Further, I would point out, that, as outlined in the Notice of Proposed Rulemaking, available at Docket No. EPA–HQ–OAR–2018–0283, having reviewed comments on the subject and having considered the matter fully, the agencies determined it is reasonable and appropriate to use DOE/Argonne's model for full-vehicle simulation, and to use DOT's CAFE model for analysis of regulatory alternatives. Using the CAFE model allows consideration of the following factors: the CAFE model explicitly evaluates the cost of compliance for each manufacturer, each fleet, and each model year; it accounts for lead time necessary for compliance by directly incorporating estimated manufacturer production cycles for every vehicle in the fleet, ensuring that the analysis does not assume vehicles can be redesigned to incorporate more technology without regard to lead time considerations; it provides information on safety effects associated with different levels of standards and information about many other impacts on consumers, and it calculates energy impacts (i.e., fuel saved or consumed) as a primary function, besides being capable of providing information about many other factors within EPA's broad Clean Air Act discretion to consider. *See* 83 Fed. Reg. 43,000-01.

c. In your testimony, you also stated that the proposed rollback "would decrease the cost of a new car by $2,300." It is my understanding that the briefing you received on July 20, 2018 included a chart showing that NHTSA's per vehicle cost estimates associated with the current standards were more than double EPA's estimates. Please provide me with a detailed explanation for why you have seemingly discounted the views and technical input of EPA's career staff when making these statements.

Again, I have discounted neither the views nor the technical input provided by EPA career staff. As I previously noted, EPA and NHTSA are working collaboratively in this joint rulemaking effort. Further, with respect to the cost modeling, I would point out, that, as outlined in the Notice of Proposed Rulemaking, available at Docket No. EPA–HQ–OAR–2018–0283, having reviewed comments on the subject and having considered the matter fully, the agencies determined it is reasonable and appropriate to use DOE/Argonne's model for full-vehicle simulation, and to use DOT's CAFE model for analysis of regulatory alternatives. Using the CAFE model allows consideration of the following factors: the CAFE model explicitly evaluates the cost of compliance for each manufacturer, each fleet, and each model year; it accounts for lead time necessary for compliance by directly incorporating estimated manufacturer production cycles for every vehicle in the fleet, ensuring that the analysis does not assume vehicles can be redesigned to incorporate more technology without regard to lead time considerations; it provides information on safety effects associated with different levels of standards and information about many other impacts on consumers, and it calculates energy impacts (i.e., fuel saved or consumed) as a primary function, besides being capable of providing information about many other factors within EPA's broad Clean Air Act discretion to consider. *See* 83 Fed. Reg. 43,000-01.

Questions on EPA's Proposed Mercury and Air Toxics Standards Rollback

4. In EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards, it states that, "while there are unquantifiable HAP [hazardous air pollutant] benefits and significant monetized PM co-benefits associated with MATS, the Administrator has concluded that the identification of these benefits is not sufficient, in light of the gross imbalance of monetized costs and HAP benefits, to support a finding that is appropriate and necessary to regulate EGUs under CAA section 112."[2]

[2]EPA, "National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units -- Reconsideration of Supplemental Finding and Residual Risk and Technology Review" (Dec 2018), https://www.epa.gov/sites/production/files/2018-12/documents/frnmatsfindingandrtr_12_2018wdisc.pdf; Hereafter called EPA Revised Supplemental Finding Proposal, 2018.

a. The proposed revision state that, "with the MATS rule in place, the estimated inhalation cancer risk to the individual most exposed to actual emissions from the source category is 9-in-1 million." Such a risk is higher than the 1-in-1 million threshold provided in the Clean Air Act as the threshold to delist a source category. Do any documents in the proposal docket estimate what the inhalation cancer risk would be if the MATS rule was rescinded?

EPA has not proposed to revise the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, electric generating units from the list of source categories subject to regulation under Section 112, nor has it proposed to rescind or weaken the emission standards to which those units are currently subject. The proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review, were it to be finalized, would have no effect on mercury emissions reduction levels required under the existing MATS rule.

b. The Clean Air Act does not permit the delisting of any source category with emissions that pose a cancer risk greater than 1 in 1,000,000 to the most exposed individual, regardless of the cost. Why does the proposal fail to regulate EGUs under Section 112 which pose a far greater cancer risk?

The proposal does not "fail to regulate EGUs"; EPA has proposed to maintain the existing standards. EPA is not proposing to remove, or delist, electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind or weaken the emission standards to which those units are currently subject.

c. Given that we already know the inhalation cancer risk is greater than 1 in 1,000,000, and EPA's proposal asserts that this is "not sufficient" to determine it is "appropriate and necessary" to regulate EGUs under Section 112, what would in EPA's view be a "sufficient" cancer risk to deem that it is "appropriate and necessary" to regulate?

EPA's proposed analysis of the statutory term "appropriate and necessary" is contained in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, available at https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. The language that you quote appears in EPA's discussion of this statutory provision at pages 26-31 and refers to the relationship between the monetized and unmonetized direct and indirect costs and benefits of the 2011 MATS rule, as informed by the Supreme Court's opinion in *Michigan v. EPA*. It is important to note that the EPA is not proposing to remove, or delist,electric generating units from the list of source categories subject to regulation under Section 112, nor has it proposed to rescind or weaken the emission standards to which those units are currently subject. The analysis presented in the NPRM specifically addresses the EGU-specific provision in 112(n) and does

not relate to the references to 1 in 1,000,000 cancer risk found in the delisting provision at section 112(d)(9) and the residual risk review provision at section 112(f)(2).

d. How did the agency weigh "unquantifiable HAP benefits" in the proposal's formal cost-benefit analysis to ensure benefits that could not be monetized are not underrepresented?

With respect to the relationship between unquantifiable HAP benefits and monetized benefits, the bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. EPA expects to receive comments on a number of related issues upon publication of the NPRM in the Federal Register, and it will respond to these comments as part of any final action.

As you will see, the accompanying memorandum presents a summary of costs and the target pollutant benefits that EPA views as pertinent to the appropriate and necessary finding under section 112(n)(1)(A). Target pollutant benefits consist of the quantified and unquantified benefits from reductions in hazardous air pollutants. EPA also estimated that the MATS rule would result in ancillary benefits from the concomitant reduction of non-target pollutants. These include the quantified PM2.5 co-benefits and other unquantified co-benefits that occur as a result of reductions of non-HAP emissions. However, for reasons described in the preamble and based on the specific statutory direction in 112(n)(1)9A), EPA proposes that the HAP benefits, both quantified and unquantified, are the most relevant portion of the analysis for purposes of the appropriate and necessary finding. Therefore, in evaluating the pertinent impacts of this proposed action, EPA has focused on the target pollutant impacts. EPA has proposed to conclude that the quantifiable portion of the target HAP benefits are not even moderately commensurate with the compliance cost of the rule, as the difference between costs and HAP benefits is substantial using either discount rate.

e. Please provide detailed information on all the unquantifiable HAP benefits that were considered in this proposal and explain why EPA could not ascribe a dollar value to these benefits.

With respect to unquantifiable HAP benefits, the bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. EPA expects to receive comments on a number of related issues upon publication of the NPRM in the Federal Register, and it will respond to these comments as part of any final action.

As discussed in the NPRM, even with the substantial monetized particulate matter co-benefits and the significant unquantified HAP benefits associated with MATS, the gross disparity between monetized costs and HAP benefits, which we believe to be the primary focus of the Administrator's determination in Clean Air Act section 112(n)(1)(A), is too large to support an affirmative appropriate and necessary finding. As explained in the MATS Regulatory Impact Analysis, the only health benefit attributed to reducing mercury emissions that the EPA could quantify and monetize was IQ loss in children born to a subset of recreational fishers who consume fish during pregnancy. The EPA also identified benefits associated with regulation of HAP from EGUs that could not be quantified. These effects include impacts of mercury on human health (including neurologic, cardiovascular, genotoxic, and immunotoxic effects), a variety of adverse health effects associated with exposure to certain non-mercury HAP (including cancer, and chronic and acute health disorders that implicate multiple organ systems such as the lungs and kidneys), and effects on wildlife and ecosystems.

5. If a benefit cannot be monetized, do you consider it to be worth less than a benefit that can be monetized? If so, why? If not, why not?

As discussed in the answer to the previous question, EPA evaluated monetized and non-monetized costs and benefits in its NPRM. How EPA treats non-monetized benefits in the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review is explained in the NPRM signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant

benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants.

6. When the 1990 Clean Air Act Amendments were written – which included the current version of Section 112(n)(1)(A) of the Clean Air Act - there were few, if any, quantifiable data available on cancer risks of air toxics and no quantifiable data whatsoever available for non-cancer risks, like birth and neurological defects.[3] Despite the inability to put a dollar amount on the benefits of reducing these air toxics, Congress still found it necessary to require EPA to pursue robust regulations to address major sources of air toxics emissions. At the same time, Congress indicated that it was well aware of the limitations of relying exclusively on cost-benefit analysis when assessing air toxics. In the Senate Committee report on S. 1630 in the 101st Congress, it states, "[T]he public health consequences of substances which express their toxic potential only after long periods of chronic exposure will not be given sufficient weight in the regulatory process when they must be balanced against the present day costs of pollution control and its other economic consequences.[4]" Yet, in EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards, the agency based the decision to reverse its "appropriate and necessary" finding solely on a formal cost-benefit analysis that does not incorporate this clear Congressional intent.

    a. Where in the 1990 CAA's legislative history does EPA believe that Congress required the agency to conduct a formal cost-benefit analysis to make an "appropriate and necessary" determination? Please provide a citation to the relevant portion of the legislative history.

    With respect to legislative history, the bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the NPRM signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Information responsive to your questions, including EPA's understanding of congressional intent with respect to Section 112(n)(1) of the Clean Air Act, may be found in those documents. In particular, pages 24 – 26 of the .pdf version of the NPRM currently available at this link discusses the statutory text, context, and purpose of CAA section 112(n)(1)(A) and the legislative history of CAA section 112. Of particular note, the December 2017 NPRM, in discussing the 2016 supplemental "appropriate and necessary" analysis, states:

[3] Legislative History 1990 Clean Air Act Amendments, H.Rept 101-490 Part 1, 101st Congress (1989-1990).
[4] Legislative History 1990 Clean Air Act Amendments, S.Rept 101-228, 101st Congress (1989-1990).

"The EPA's justification for its equal reliance on the co-benefits of non-HAP emissions when setting the MATS standards in its CAA section 112(n)(1)(A) determination was flawed. The Agency erred in concluding that the statutory text of CAA section 112(n)(1)(A) and the legislative history of CAA section 112 more generally 'expressly support[ed]' the position that it was reasonable to consider co-benefits, and give equal weight to those co-benefits, in a CAA section 112(n)(1)(A) appropriate and necessary finding. 81 FR 24439. The 2016 Supplemental Finding pointed to CAA section 112(n)(1)(A)'s directive to 'perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions by electric utility steam generating units of [HAP] after imposition of the requirements of [the CAA],' and noted that the requirement to consider co-benefit reduction of HAP resulting from other CAA programs highlighted Congress' understanding that programs targeted at reducing non-HAP pollutants can and do result in the reduction of HAP emissions. *Id.* The finding also noted that the Senate Report on CAA section 112(d)(2) recognized that maximum achievable control technology (MACT) standards would have the collateral benefit of controlling criteria pollutants. *Id.* However, these statements acknowledging that reductions in HAP can have the collateral benefit of reducing non-HAP emissions and vice versa, provides no support for the proposition that any such co-benefits should be the Agency's primary consideration when making a finding under CAA section 112(n)(1)(A). Indeed, it would be highly illogical for the Agency to make a determination that regulation under CAA section 112, which is expressly designed to deal with HAP, is justified principally on the basis of the criteria pollutant impacts of these regulations. That is, if the HAP-related benefits are not at least moderately commensurate with the cost of HAP controls, then no amount of co-benefits can offset this imbalance for purposes of a determination that it is appropriate to regulate under CAA section 112(n)(1)(A). *Cf. Michigan*, 135 S. Ct. at 2707 ('One would not say that it is even rational, never mind "appropriate," to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits.')."

* * * *

"In sum, the Agency did not provide any meaningful support for its conclusion that the statutory text and legislative history support placing consideration of co-benefits in a CAA section 112(n)(1)(A) determination on equal footing with the consideration of HAP-specific benefits and, as explained below, the statutory text strongly supports the use of a different approach."

b. Do you agree with Congress' assessment that the benefits of reducing air toxics are not given significant weight in a formal cost-benefit analysis because it is difficult, and sometimes impossible, to put a dollar value on the benefits of reducing air toxic emissions? If not, why not? If so, why?

Regarding this question, with respect to cost-benefit analysis of air toxic emissions reductions, I would direct your attention in particular, to pages 29-31 of the .pdf version of the NPRM (footnotes omitted):

"The total cost of compliance with MATS ($7.4 to $9.6 billion annually) vastly outweighs the monetized HAP benefits of the rule ($4 to $6 million annually). Even with the substantial monetized PM co-benefits and the significant unquantified HAP benefits associated with MATS, the gross disparity between monetized costs and HAP benefits, which we believe to be the primary focus of the Administrator's determination in CAA section 112(n)(1)(A), is too large to support an affirmative appropriate and necessary finding. As explained in the MATS RIA, the only health benefit attributed to reducing Hg emissions that the EPA could quantify and monetize was IQ loss in children born to a subset of recreational fishers who consume fish during pregnancy. The EPA also identified benefits associated with regulation of HAP from EGUs that could not be quantified. These effects include impacts of Hg on human health (including neurologic, cardiovascular, genotoxic, and immunotoxic effects), a variety of adverse health effects associated with exposure to certain non-Hg HAP (including cancer, and chronic and acute health disorders that implicate multiple organ systems such as the lungs and kidneys), and effects on wildlife and ecosystems. The EPA acknowledges the importance of these benefits and the limitations on the Agency's ability to monetize HAP-specific benefits. The EPA agrees that such benefits are relevant to any comparison of the benefits and costs of a regulation. Because unquantified benefits are, by definition, not considered in monetary terms, the Administrator must evaluate the evidence of unquantified benefits and determine the extent to which they alter any conclusions based on the comparison of monetized costs and benefits. The MATS RIA accounts for all the monetized and unquantified benefits of the rule, and the EPA's proposed approach to the cost-benefit analysis in the RIA does not discount the existence or importance of the unquantified benefits of reducing HAP emissions. Instead, after fully acknowledging the existence and importance of such benefits, the EPA proposes to conclude that substantial and important unquantified benefits of MATS are not sufficient to overcome the significant difference between the monetized benefits and costs of this rule. As noted, the unquantified HAP-related benefits of MATS involve only a limited set of mercury and other HAP-related morbidity effects in humans and ecosystems."

7. As mentioned in the previous question, EPA appears to be ignoring Congressional intent when it comes to making "appropriate and necessary" determinations by ignoring the real benefits of reducing exposure to hazardous air pollution, especially those benefits that cannot be monetized. Since EPA is failing to follow the Clean Air Act's requirements, please state what you consider to be a safe level of exposure to a carcinogenic hazardous air pollutant.

   I disagree that EPA is "ignoring [c]ongressional intent" or "failing to follow the Clean Air Act's requirements" in the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review. For an explanation of EPA's position regarding these matters, I would direct your attention to the explanation provided in the NPRM signed on December 27, 2018, and which will be available in the supporting documents in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Information responsive to your questions, including EPA's understanding of congressional intent with respect to Section 112(n)(1) of the Clean Air Act, may be found in those documents. In particular, pages 24 – 26 of the .pdf version of the NPRM currently available at the link discusses the statutory text, context, and purpose of CAA section 112(n)(1)(A) and the legislative history of CAA section 112. Particularly relevant passages are set forth in response to Question 6 above.

8. As mentioned in question #6, EPA appears to be ignoring congressional intent when it comes to making "appropriate and necessary" determinations by ignoring the real benefits of reducing exposure to hazardous air pollution, especially those benefits that cannot be monetized. Since EPA is failing to follow the Clean Air Act, please state what you consider to be a safe level of exposure to an acid gas hazardous air pollutant.

   I disagree that EPA is "ignoring congressional intent when it comes to making 'appropriate and necessary' determinations" or "failing to follow the Clean Air Act" in the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review. For an explanation of EPA's position regarding these matters, I would direct your attention to the explanation provided in the NPRM signed on December 27, 2018, and which will be available in the supporting documents in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Information responsive to your questions, including EPA's understanding of congressional intent with respect to Section 112(n)(1) of the Clean Air Act, may be found in those documents. In particular, pages 24 – 26 of the .pdf version of the NPRM discusses the statutory text, context, and purpose of CAA section 112(n)(1)(A) and the legislative history of CAA section 112. Particularly relevant passages are set forth in response to Question 6 above.

9. As mentioned in question #6, EPA appears to be ignoring congressional intent when it comes to making "appropriate and necessary" determinations" by ignoring the real benefits of reducing exposure to hazardous air pollution, especially those benefits that cannot be monetized. Since EPA is failing to follow the Clean Air Act, please state what you consider to be a safe level of exposure to a heavy metal hazardous air pollutant?

   I disagree that EPA is "ignoring congressional intent when it comes to making 'appropriate and necessary' determinations" or "failing to follow the Clean Air Act" in the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review. For an explanation of EPA's position regarding these matters, I would direct your attention to the explanation provided in the NPRM signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Information responsive to your questions, including EPA's understanding of congressional intent with respect to Section 112(n)(1) of the Clean Air Act, may be found in those documents. In particular, pages 24 – 26 of the .pdf version of the NPRM discusses the statutory text, context, and purpose of CAA section 112(n)(1)(A) and the legislative history of CAA section 112. Particularly relevant passages are set forth in response to Question 6 above.

10. EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards claims the proposal does not, "present a disproportionate risk to children.[5]"

    a. What analysis in the docket shows that rescinding or weakening MATS is not a threat to children's health?

       EPA is not rescinding or weakening the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, electric generating units from the list of source categories subject to regulation under Section 112, nor proposing to rescind or weaken the emission standards to which those units are currently subject. Accordingly, the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review, were it to be finalized, would present no "threat to children's health."

[5] EPA Revised Supplemental Finding Proposal, 2018.

b. What analysis in the docket shows that the benefits of reducing mercury exposure to children from our nation's largest source of mercury is "insufficient" to trigger a determination that it is "appropriate and necessary" to regulate EGUs under Section 112 of the Clean Air Act?

I direct your attention to the document entitled "Residual Risk Assessment for the Coal- and Oil-Fired EGU Source Category in Support of the 2019 Risk and Technology Review Proposed Rule" which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants.

11. Are there currently any EGUs that are not compliant with the Mercury and Air Toxics Standards rule? If so please provide me with a list.

I understand that numerous coal-fired units shut down in whole or in part because of the costs of MATS compliance. Of those that remain operational, certain units firing eastern bituminous coal refuse may have received extensions of state requirements until early 2019. The MATS proposed rule requested comment on several important issues related to these units.

12. Is EPA aware of any blackouts, brownouts or extreme retail consumer price spikes that occurred as a direct result of the Mercury and Air Toxics Standards rule? If so, please share the analysis that demonstrates the connection of these events with the MATS rule.

The direct and indirect compliance cost of MATS measures are in the billions of dollars. It is my understanding that electricity consumers ultimately bear this cost.

13. Prior to implementation of the MATS rule, there were more mercury fish consumption advisories in this country than any other chemical or pollutant combined.

a. Are there still fish consumption advisories for mercury in this country? If so, please provide copies.

Yes. While EPA does not comprehensively track all advisories, States, territories, and tribes provide advice on fish caught in waters in their jurisdiction. EPA has compiled contact information and website for all of these entities and their advisories at: https://fishadvisoryonline.epa.gov/Contacts.aspx. More information on Fish and Shellfish Advisories and Safe Eating Guidelines is available at:

https://www.epa.gov/choose-fish-and-shellfish-wisely/fish-and-shellfish-advisories-and-safe-eating-guidelines.

b. How many states currently have one or more fish consumption advisories for mercury?

States, territories, and tribes provide advice on fish caught in waters in their jurisdiction. EPA has compiled contact information and website for all of these entities and their advisories at: https://fishadvisoryonline.epa.gov/Contacts.aspx.

c. Do you believe consuming mercury-laden fish poses any risk to pregnant women or their unborn babies in this country? If so, why? If so, what is the risk?

I believe that consuming mercury-laden fish poses risk to pregnant women or their unborn babies. More information on these risks is available at: https://www.epa.gov/mercury/health-effects-exposures-mercury.

d. In the docket for the 2018 proposed revision to the Supplemental Cost Finding for MATS, what data does EPA provide that led you to believe there was not a "sufficient" mercury risk from power plants to deem it "appropriate and necessary" to regulate EGUs under Section 112 of the Clean Air Act?

I direct your attention to the document entitled "Residual Risk Assessment for the Coal- and Oil-Fired EGU Source Category in Support of the 2019 Risk and Technology Review Proposed Rule" which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants.

14. In 2011, were coal-fired EGUs the largest source of unregulated mercury pollution in this country? If yes, please include by what order of magnitude coal plants were the largest source over other sources.

In the final MATS rule in 2012, EPA stated: "In 2005, U.S. EGUs emitted 50 percent of total domestic anthropogenic Hg emissions . . . ." (77 FR 9310). This figure did not include non-anthropogenic sources, including volcanic eruptions and emissions from the ocean, or substantial international sources. Estimates of annual global mercury emissions from both natural and anthropogenic sources are in the range of 5,000 to 8,000 metric tons per year, while 2011 U.S. anthropogenic mercury emissions were 52 tons.

Information responsive to your questions may be found in the NPRM signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. More information on mercury emissions can also be found in EPA's National Emissions Inventory at: https://www.epa.gov/air-emissions-inventories.

15. In EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards, the agency is, "soliciting comment, however, on whether the EPA has the authority or obligation to delist EGUs from CAA section 112(c) and rescind (or to rescind without delisting)" the Mercury and Air Toxics Standards (MATS) Rule.[6]

    a. If the agency decides to delist "EGUs from CAA section 112(c)," which I do not believe it has the authority to do, would EPA have the authority to issue mercury and air toxics standards for the utility sector under Section 112 of the Clean Air Act, and would utilities legally be required to run control technologies to meet MATS?

    EPA is not proposing to rescind or weaken the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, EGUs from Section 112. As noted on pages 32 – 33 of the .pdf version of the NPRM currently available at https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants, EPA is proposing to conclude that reversing the Clean Air Act section 112(n)(1)(A) determination, if finalized, would not have the effect of removing EGUs from the CAA section 112(c)(1) source category list.

    b. If the agency rescinds the MATS rule, which I do not believe EPA has the authority to do, would that not only weaken the standards, but remove them altogether? If MATS is removed, would utilities have any legal responsibility to run currently-implemented control technology used to comply with MATS?

    EPA is not proposing to rescind or weaken the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, EGUs from Section 112. As noted on pages 32 – 33 of the .pdf version of the NPRM currently available at https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants, EPA is proposing to conclude that the reversal of the Clean Air Act section 112(n)(1)(A) determination, if finalized, would not have the effect of removing EGUs from the CAA section 112(c)(1) source category list.

[6] EPA Revised Supplemental Finding Proposal, 2018.

16. During your confirmation hearing, several members expressed concerns about EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards. During an exchange on this issue with Senator Cardin, you stated that, "on MATS, I don't think you can roll back a regulation that has been fully implemented. And the MATS requirements for the pollution control equipment has been fully implemented. And I don't believe, I honestly do not believe that that equipment will be turned off or removed under our proposal."

    a. If you "don't think you can roll back a regulation that has been fully implemented" as you stated to Senator Cardin during your confirmation hearing, then why is your agency requesting comment on EPA's authority and potential obligation to delist EGUs from Section 112 of the Clean Air Act and/or rescind the MATS rule?

    EPA is not proposing to rescind or weaken the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, EGUs from Section 112. The bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. EPA expects to receive comments on a number of related issues upon publication of the NPRM in the Federal Register, and it will respond to these comments as part of any final action. As noted on pages 32 – 33 of the .pdf version of the NPRM currently available at the link, EPA is proposing to conclude that the reversal of the Clean Air Act section 112(n)(1)(A) determination, if finalized, would not have the effect of removing EGUs from the CAA section 112(c)(1) source category list. It is appropriate for EPA to take account of, and seek comment on, issues of relevance to the proposed action, in the interests of increasing the legal defensibility and policy soundness of any final determination in this matter.

    b. Have the courts ever vacated an EPA rule that has been implemented? If yes, which rules, and did it ever result in control technology being uninstalled or turned off?

    Over the years, courts have found various EPA rules to be contrary to law or otherwise unreasonable, with the rule sometimes being vacated and sometimes not being vacated. In turn, those court actions have had different effects on sources' compliance obligations.

c. Within the revised Supplemental Cost Finding for the Mercury and Air Toxics Standards 2018 proposal, EPA cites that, "[A]gencies have inherent authority to reconsider past decisions and to revise, replace, or repeal a decision to the extent permitted by law and supported by a reasoned explanation." 7 When you stated to Senator Cardin that you, "don't think you can roll back a regulation that has been fully implemented," did that mean you didn't think the agency could do so legally and if so, how does that sync with the argument made in the proposal that the agency has inherent authority to reconsider past decisions?

EPA is not proposing to rescind or weaken the MATS standards that control mercury emissions. EPA is not proposing to remove, or delist, electric generating units from the list of source categories subject to regulation under Section 112, nor proposing to rescind the emission standards to which those units are currently subject. As noted on pages 32 – 33 of the .pdf version of the NPRM currently available at https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants, EPA is proposing to conclude that the reversal of the Clean Air Act section 112(n)(1)(A) determination, if finalized, would not have the effect of removing EGUs from the CAA section 112(c)(1) source category list. As stated in the NPRM, "Consistent with [the D.C. Circuit opinion] *New Jersey*, the EPA is proposing to find that this reversal of the CAA section 112(n)(1)(A) determination, if finalized, would not have the effect of removing EGUs from the CAA section 112(c)(1) source category list. Because EGUs would remain on the CAA section 112(c)(1) source category list, the CAA section 112(d) standards for that category, as promulgated in the MATS rule, would be unaffected by final action on this proposal."

d. If the courts end up vacating the MATS rule because of EPA's decision to finalize its proposal finding that it is no longer "appropriate and necessary" to regulate under Section 112, would you still stand by your comments to Senator Cardin that you "honestly do not believe that that equipment will be turned off or removed?" If so, legally speaking, what would require utilities to run control technologies currently being used to meet MATS if the MATS rule were to be vacated or rescinded?

I stand by my testimony. EPA's proposal would not rescind or weaken the MATS standards. Otherwise, EPA has not established a position on the speculative issue your question raises.

[7] EPA Revised Supplemental Finding Proposal, 2018.

e. Please list all the section 126 petitions your agency has during this Administration in which petitioners have expressed concerns that a utility upstream is turning off or not optimizing installed air control technologies and as a result is creating ozone transport concerns for downwind states. Please identify which of these petitions were rejected since you became Acting Administrator.

Section 126 of the Clean Air Act gives a state the authority to ask EPA to set emissions limits for sources of air pollution in other states whose emissions contribute significantly to nonattainment or interfere with maintenance of one or more National Ambient Air Quality Standard (NAAQS) in the petitioning state. Information on Clean Air Act Section 126 petitions related to ozone NAAQS are available at: https://www.epa.gov/ground-level-ozone-pollution/ozone-national-ambient-air-quality-standards-naaqs-section-126. Below are links to Section 126 petitions related to the 2008 or 2015 ozone NAAQS submitted since 2016 and their current status:

- **New York Petition - May 2018: https://www.epa.gov/ground-level-ozone-pollution/new-york-section-126-petition-may-2018.**
- **Delaware Petition - November 28, 2016: https://www.epa.gov/ground-level-ozone-pollution/delaware-section-126-petition-november-28-2016.**
- **Delaware and Maryland Petitions - November 2016: https://www.epa.gov/ground-level-ozone-pollution/delaware-and-maryland-126-petitions-november-2016.**
- **Delaware Petition - August 8, 2016: https://www.epa.gov/ground-level-ozone-pollution/delaware-126-petition-august-8-2016.**
- **Delaware Petition - July 7, 2016**
- **Connecticut Petition - July 2016**

In most cases, we have denied such petitions because: (1) they were inadequately justified by the applicant; and/or (2) other programs have adequately addressed upwind emission sources.

f. Are you aware of any situation since you have served at EPA under this Administration, when a utility has turned off or not fully optimized their installed controls? If so, please list and explain all situations.

I am not aware of any situation in that time frame in which a utility has violated its obligations under the Clean Air Act and regulations and permits issued thereunder by turning off or not fully optimizing their installed controls.

17. OMB has also long recognized the limitations of a formal cost-benefit analysis, especially when benefits cannot be fully monetized. OMB's 2003 Circular A-4 requires EPA and other agencies to conduct a complete regulatory analysis that "includes a discussion of non-quantified as well as quantified benefits and costs. When there are important nonmonetary values at stake, you should also identify them in your analysis so policymakers can compare them with the monetary benefits and costs."[8] In addition, OMB clarifies in Circular A-4 that all ancillary benefits should be counted in any rule analysis, directing agencies to "look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking." OMB also states when an agency, "can estimate the monetary value of some but not all of the ancillary benefits of a regulation, but cannot assign a monetary value to the primary measure of effectiveness, you should subtract the monetary estimate of the ancillary benefits from the gross cost estimate to yield an estimated net cost."[9] Why does EPA believe it not necessary to review all the benefits – including ancillary co-benefits – in EPA's analysis (which is based only in part on the regulatory impact analysis prepared for OMB and responsive to its guidance), that is being used to make its "appropriate and necessary" determination under Section 112(n)(1)(A)? Why are those benefits required to be counted in any other benefit assessment analysis for any other regulatory action, but not proposed to be included here?

The bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Information responsive to your questions may be found in those documents. EPA expects to receive comments on a number of related issues upon publication of the NPRM in the Federal Register, and it will respond to these comments as part of any final action.

For example, the accompanying memorandum presents a summary of costs and the target pollutant benefits that EPA views as pertinent to the appropriate and necessary finding under section 112(n)(1)(A). Target pollutant benefits consist of the quantified and unquantified benefits from reductions in hazardous air pollutants. EPA also estimated that the MATS rule would result in ancillary benefits from the concomitant reduction of non-target pollutants. These include the quantified PM2.5 co-benefits and other unquantified co-benefits that occur as a result of reductions of non-HAP emissions. However, for reasons described in the preamble and based on the specific statutory direction in 112(n)(1)(A), EPA proposes that the HAP benefits, both quantified and unquantified, are the most relevant portion of the analysis for purposes of the appropriate and necessary finding. Therefore, in evaluating the pertinent impacts of this proposed action, EPA has focused on the target pollutant impacts. EPA has

[8] 68 FR 58366
[9] 68 FR 58366

proposed to conclude that the quantifiable portion of the target HAP benefits are not even moderately commensurate with the compliance cost of the rule, as the difference between costs and HAP benefits is substantial using either discount rate.

18. In determining it was no longer "appropriate and necessary" to regulate utilities under Section 112 in EPA's 2018 proposed revision to the Supplemental Cost Finding for the Mercury and Air Toxics Standards –

    a. Did EPA use any data beyond what was included in the 2011 MATS Regulatory Impact Analysis? If so, please describe it. If not, why not?

    EPA's proposed action utilizes information from the 2011 Regulatory Impact Analysis (RIA) as well as an updated comparison of costs and target pollutant benefits in a memorandum to the rulemaking docket. The bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. EPA expects to receive comments on a number of related issues upon publication of the NPRM in the Federal Register, and it will respond to these comments as part of any final action.

    The NPRM notes that the MATS RIA accounts for all the monetized *and* unquantified benefits of the rule, and the EPA's proposed approach to the cost-benefit analysis in the RIA does not discount the existence or importance of the unquantified benefits of reducing HAP emissions. After fully acknowledging the quantified benefits of reducing HAP emissions, the EPA proposes to conclude that substantial and important unquantified benefits of MATS are not sufficient to overcome the significant difference between the monetized benefits and costs of this rule. The EPA has provided an updated comparison of costs and target pollutant benefits in a memorandum to the rulemaking docket. The actual costs and benefits of the MATS rule may differ from the EPA's analysis. However, as explained in the accompanying memorandum, given that the CAA section 112(n)(1)(A) finding is a threshold analysis that Congress intended the Agency would complete prior to regulation, the EPA believes it is reasonable for purposes of this reconsideration to rely on the estimates projected prior to the rule's taking effect, *i.e.*, the estimates of costs and benefits calculated in the 2011 RIA. In addition, even assuming that actual costs and benefits differed from projections made in 2011, given the large difference between target HAP

benefits and estimated costs, the outcome of the Agency's proposed finding here would likely stay the same.

b. Did EPA consider updating the costs estimate to reflect the actual installation and operating costs required to meet MATS or consider accounting for costs already incurred by the utility industry? If so, why was this information not included in the proposal? If not, why not?

As noted above, EPA's proposed action utilizes information from the 2011 Regulatory Impact Analysis (RIA) as well as an updated comparison of costs and target pollutant benefits in a memorandum to the rulemaking docket. The actual costs and benefits of the MATS rule may differ from the EPA's analysis. However, as explained in the accompanying memorandum, given that the CAA section 112(n)(1)(A) finding is a threshold analysis that Congress intended the Agency would complete prior to regulation, the EPA believes it is reasonable for purposes of this reconsideration to rely on the estimates projected prior to the rule's taking effect, *i.e.*, the estimates of costs and benefits calculated in the 2011 RIA. In addition, even assuming that actual costs and benefits differed from projections made in 2011, given the large difference between target HAP benefits and estimated costs, the outcome of the Agency's proposed finding here would likely stay the same.

c. Did EPA consider updating the benefits data to include the best available science? If not, why not? If so, why was this information not included in the proposal?

As noted above, EPA's proposed action utilizes information from the 2011 Regulatory Impact Analysis (RIA) as well as an updated comparison of costs and target pollutant benefits in a memorandum to the rulemaking docket. The actual costs and benefits of the MATS rule may differ from the EPA's analysis. However, as explained in the accompanying memorandum, given that the CAA section 112(n)(1)(A) finding is a threshold analysis that Congress intended the Agency would complete prior to regulation, the EPA believes it is reasonable for purposes of this reconsideration to rely on the estimates projected prior to the rule's taking effect, *i.e.*, the estimates of costs and benefits calculated in the 2011 RIA. In addition, even assuming that actual costs and benefits differed from projections made in 2011, given the large difference between target HAP benefits and estimated costs, the outcome of the Agency's proposed finding here would likely stay the same.

19. Under the George W. Bush Administration, EPA stated that "benefits calculations relying solely on IQ decrements are likely to underestimate the benefits to cognitive functioning of reduced mercury exposures."[10] Do you agree with this statement? If so, why? If not, why not?

    As explained in detail in the signed NPRM, it is well known that certain benefits of HAP reductions are not quantifiable. We nevertheless give appropriate consideration to unquantifiable benefits in the NPRM.

20. In a recent residual risk proposal, EPA has stated "any reduction in HAP emissions would be expected to provide health benefits in the form of improved air quality and less exposure to potentially harmful chemicals."[11] Does this statement apply to reductions in HAPs for all Section 112 listed source categories, including EGUs? If not, why not? If so, why? Please list all the acid gases, heavy metals, and other hazardous air pollutants (by name) that are emitted by electric generating units that contribute to particulate matter pollution. If reducing these HAPs also reduces particulate matter, wouldn't reducing particulate matter be a direct benefit of the regulation, not a co-benefit?

    Information responsive to your questions may be found in the notice of proposed rulemaking and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits are available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. The MATS rule requirements to limit emissions of mercury and other HAP are discussed on pages 41 – 51 of the .pdf version of the NPRM currently available at the link.

[10] EPA, Regulatory Impact Analysis of the Clean Air Mercury Rule, (March 2005) https://www3.epa.gov/airtoxics/utility/ria_final.pdf.
[11] 83 FR 46262

21. In 2003, then-EPA Assistant Administrator for Air and Radiation Jeff Holmstead testified before the House Energy and Commerce Committee on the difficulty of quantifying the benefits of reducing air toxic emissions from power plants, saying: "These estimates [for Clear Skies] do not include the many additional benefits that cannot currently be monetized but are likely to be significant, such as human health benefits from reduced risk of mercury emissions, and ecological benefits from improvements in the health of our forests, lakes, and coastal waters."[12] Is this also true for MATS?

    As explained in detail in the signed NPRM, it is well known that certain benefits of HAP reductions are not quantifiable. We nevertheless give appropriate consideration to unquantifiable benefits in the NPRM.

22. EPA has tried to bridge the air toxic data gaps to better monetize benefits through various stakeholder workshops over the years. The latest workshop in 2009 concluded that monetizing all air toxic benefits is still not possible, making a cost benefit analysis "difficult" to do for any action involving hazardous air pollutants. Finding that, "[F]or many chemicals on the [Clean Air Act hazardous air pollutant] list, the information on potential health effects is so limited that quantitative benefits analysis is not feasible...This lack of information is in contrast to the criteria air pollutants for which there is extensive human exposure or epidemiological data on the health effects at ambient-exposure levels...characterizing the health effects of air toxics at ambient levels can be subject to a very high level of uncertainty; thus, using these health effects in economic benefits assessment is difficult."[13] Do you agree that monetizing all air toxic benefits is still not possible and "using these health effects in economic benefits assessment is difficult" if not impossible? If not, why not? If so, why?

    EPA continues to work to quantify and monetize key costs and benefits for its regulations. Information on economic and cost analysis for air pollution regulations, including monetization of costs and benefits, is available at: https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations. Additional information responsive to your questions may be found in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits is available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants.

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[12] Statement of EPA Assistant Administrator Jeff Holmstead, Hearing Before the U.S. House of Representatives Energy and Air Quality Subcommittee of the House Energy and Commerce Committee entitled "The Clear Skies Initiative: A Multipollutant Approach to the Clean Air Act," (July 8, 2003), https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf.

[13] Gwinn et al, "Meeting Report: Estimating the Benefits of Reducing Hazardous Air Pollutants—Summary of 2009 Workshop and Future Considerations," Environ Health Perspectives. 2011 Jan; 119(1): 125–130, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018491/.

23. Do you agree with the American Academy of Pediatrics, which has stated there is no safe level of mercury exposure for children in the womb? If not, why not?

It should be recognized, as a fundamental threshold matter, that under Clean Air Act section 112, EPA's general obligation when analyzing existing MACT standards with regard to the regulation of hazardous air pollutant emissions, including mercury emissions from EGUs, is, under the residual risk provision in 112(f)(2), to provide an ample margin of safety to protect public health. The D.C. Circuit Court of Appeals has held that EPA is not obligated to establish "zero-risk" standards under section 112, *NRDC v. EPA*, 824 F.2d 1146, 1152 (D.C. Cir. 1987). EPA's proposal explains why EPA believes that the existing MATS standards do provide an ample margin of safety to protect public health, *see especially* page 103 of the .pdf version available at https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants.

For information on the health effects of mercury exposures, please see EPA's website: https://www.epa.gov/mercury/health-effects-exposures-mercury.

Further information responsive to your question as to EPA's assessment of the pediatric health impacts of mercury exposure may be found in the NPRM signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. In the meantime, the signed NPRM and an accompanying factsheet and memorandum on compliance costs, hazardous air pollutant (HAP) benefits, and ancillary co-pollutant benefits is available at: https://www.epa.gov/mats/regulatory-actions-final-mercury-and-air-toxics-standards-mats-power-plants. Additional information on economic and cost analysis for air pollution regulations, including monetization of costs and benefits, is available at: https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations.

24. According to EPA's 2018 Supplemental Cost Finding proposal, EGUs emitted 29 tons of mercury annually prior to the implementation of the rule. What populations were most susceptible to mercury exposure and is mercury easily removed from the environment once it gets into the environment?

How someone's health may be affected by an exposure to mercury depends on a number of factors: the form of mercury (for example, methylmercury or elemental (metallic) mercury); the amount of mercury in the exposure; the age of the person exposed (the fetus is the most vulnerable); how long the exposure lasts; how the person is exposed – breathing, eating, skin contact, etc.; and the health of the person exposed. For more information on the health effects of mercury exposures, please see EPA's website: https://www.epa.gov/mercury/health-effects-exposures-mercury. More current information on mercury emissions can also be found in EPA's National Emissions Inventory at: https://www.epa.gov/air-emissions-inventories.

25. Are there states in which utilities may no longer seek rate recovery from public utility commissions for the capital costs and/or operating costs of air pollution control equipment for which there is not a legal requirement to operate that equipment? If so, please identify the states.

Because EPA is not the national energy regulator, it does not compile such information. I suggest seeking information from the Department of Energy, the Federal Energy Regulatory Commission, or state public utility commissions themselves. However, if this question is directed at our MATS proposal, we do not believe it will remove the legal requirement for the equipment.

26. Are there states in which public utility commission rules or practices allow ratepayers or any third parties to mount challenges to power plant company rate recovery from public utility commissions for the capital costs and/or operating costs of air pollution control equipment for which there is not a legal requirement to operate that equipment? If so, please identify the states.

Because EPA is not the national energy regulator, it does not compile such information. I suggest seeking information from the Department of Energy, the Federal Energy Regulatory Commission, or state public utility commissions themselves. However, if this question is directed at our MATS proposal, we do not believe it will remove the legal requirement for the equipment.

27. Can you identify all third parties who urged the agency, or OMB, not to propose to rescind the "appropriate and necessary" finding or the MATS rule? In particular, please identify the positions urged by the Edison Electric Institute; Utility Air Regulatory Group; the American Public Power Association; the National Rural Electric Cooperative Association; the Clean Energy Group; any electric utility company; any state or local air pollution control agency or their associations; any public health or environmental non-governmental organization. Which groups supported the proposed changes?

EPA expects that interested third parties will submit comments setting forth their position on this issue. All comments submitted to Docket No. EPA-HQ-OAR-2018-0794 will be available for public inspection and will be carefully considered by EPA in taking final action. Materials provided to OMB in the context of Executive Order 12866 meetings can be found at: https://www.reginfo.gov/public/do/eom12866SearchResults. I do not recall any of the aforementioned groups reaching out to me prior to this proposal.

Questions on the Kigali Treaty

28. I have learned that counter to your implication in our private meeting, there have in fact been interagency meetings in which Bill Wehrum and other EPA officials participated to discuss the Kigali Amendment to the Montreal Protocol. Moreover, I have also been informed that EPA officials have stated at these meetings that EPA does not wish the treaty to be submitted for ratification.

    a. Please list the dates of and attendees at each such meeting.
    b. Do you share Mr. Wehrum's opinion that the Treaty should not be submitted to the United States Senate for ratification, or authorize him to convey this view at the meetings that have occurred?

    Principal meetings on this issue occurred prior to my becoming Acting Administrator. I have not been briefed on this issue by my career staff and I am reserving judgement until that time.

    The White House is leading an interagency process to consider the implications if the U.S. decides to ratify the Kigali Amendment. If a decision were made to seek ratification, the President would send the Amendment to the Senate for advice and consent.

29. U.S. businesses across the entire HFC supply chain are transitioning away from HFCs and taking advantage of new global markets. The US industries that use or produce fluorocarbons directly employ more than 593,000 Americans with an annual payroll in excess of $34 billion, and sales of $206 billion. The overall contribution of the fluorocarbon industries network to US economic activity is more than 2.5 million jobs and goods and services valued at more than $630 billion annually. As I mentioned at the hearing - American industry, both users and producers of HFCs, strongly support the ratification of the Kigali Amendment to the Montreal Protocol because it encourages domestic manufacturing of next generation alternatives and technologies and provides businesses a predictable transition away from HFCs. Various studies clearly show that ratification of Kigali will benefit American manufacturing jobs with little to no impact to consumers and an obvious benefit to the environment.

    a. Do you support the ratification of the Kigali Amendment to the Montreal Protocol? If not, why not?

    The White House is leading an interagency process to consider the implications if the U.S. decides to ratify the Kigali Amendment. If a decision were made to seek ratification, the President would send the Amendment to the Senate for advice and consent.

b. What will you commit to do to help facilitate the transition away from HFCs toward innovative next-generation technologies?

EPA's responsibility in this area is bound by its authority to regulate under Title VI of the Clean Air Act. In those situations where it is appropriate, matters related to the transition away from HFCs will be taken into account in the development of implementing regulations.

c. EPA conducted a cost-benefit analysis of the Montreal Protocol and the HFC phasedown that I believe shows that the ratification of Kigali will be a benefit to American businesses and American consumers. This study has not been released to the public yet. Will you immediately make the results of that study public? If not, why not and when will it be public?

Any analysis of costs and benefits by EPA is still undergoing review and includes information that relates to a pending or contemplated executive action and is therefore deliberative and pre-decisional.

d. What challenges does EPA face in achieving these benefits and what will EPA, under your leadership, do to successfully overcome these challenges?

As I noted previously, the White House is leading an interagency process to consider the implications if the U.S. decides to ratify the Kigali Amendment. If a decision were made to seek ratification, the President would send the Amendment to the Senate for advice and consent. Until such time as those actions may take place, it would be premature for me to speculate about the challenges the EPA may face and how those challenges may be addressed and resolved.

More information on EPA's efforts on ozone layer protection is available at: https://www.epa.gov/ozone-layer-protection.

30. It is my understanding that EPA has prepared analysis of the consumer cost benefits of the Montreal Protocol, including projected benefits to US consumers from the implementation of the HFC phasedown consistent with the Kigali amendment to the Protocol.

a. Will you immediately make the results of that study public? If not, why not and when will the agency release this report?

The White House is leading an interagency process to consider the implications if the U.S. decides to ratify the Kigali Amendment. Any analysis of costs and benefits by EPA is still undergoing review and includes information that relates to a pending or contemplated executive action and is therefore deliberative and pre-decisional.

b. Please share with the Committee this analysis and the key findings from EPA's work.

Any analysis of costs and benefits by EPA is still undergoing review and includes information that relates to a pending or contemplated executive action and is therefore deliberative and pre-decisional. Should the analysis be finalized in connection with any future final action we will provide any decisional documents in the administrative record for those actions and can supply the final version at that time.

Questions on the Methylene Chloride Ban

31. When I raised my concerns at the hearing about EPA's failure to finalize a methylene chloride ban that sufficiently protects both consumer and commercial users against its severe risks (as your chief of staff committed to my staff would occur at the time former Administrator Pruitt first announced his plans to finalize the ban), you stated that "It is at OMB, it is ready to go as soon as the Federal Register opens. That is something that I have taken seriously, and it is something that we have spent a lot of time, I have spent a lot of personal time on that issue. And I hope we can get that out as quickly as possible."

    a. Has EPA determined that methylene chloride poses an unreasonable risk to workers?
    b. Do you agree that the majority of reported deaths due to methylene chloride exposure have occurred in a work setting, even when workers have undergone hours of training and followed all recommended precautionary measures?
    c. Do you agree that the OSHA standard for methylene chloride exposure is more than 20 years old14, and that OSHA told EPA that it does not believe the OSHA standard is protective enough given the risks to workers that were identified by EPA?
    d. Do you agree that as part of its analysis, EPA assessed whether a training program for the proper use of respirators for methylene chloride paint strippers could be effective, and concluded it would be too costly and would likely result in companies voluntarily using alternatives to methylene chloride?
    e. How long does EPA expect it will take to finalize its proposal entitled "Methylene Chloride; Commercial Paint and Coating Removal Training, Certification and Limited Access Program" once it publishes this insufficiently protective approach to addressing occupational methylene chloride exposures?
    f. How long does EPA expect it will take to finalize its consumer ban on methylene chloride?

Yes, under certain circumstances, methylene chloride not only can pose danger, but has also caused worker deaths. EPA submitted a final rule for methylene chloride paint and coating removal to OMB for interagency review on December 21, 2018, prior to the lapse in appropriations. Questions regarding the scope, implementation, and timing of

[14] https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0231-0153

the final rule, and associated EPA actions, will depend on the outcome of the interagency review process.

Questions on PFAS

32. The Agency for Toxic Substances and Disease Registry (ATSDR) announced its draft toxicological profile for PFAS on June 21, 2018, covering a total of 14 perfluoroalkyl substances. Due to inadequate data for 10 of the compounds, ATSDR could establish Minimum Risk Levels (MRLs) for only 4 of the PFAS chemicals. These MRLs are not the same as the current EPA Lifetime Health Advisories (LHAs) for PFOA and PFOS, but the new profiles indicate potential health impacts at lower concentrations that EPA's LHAs, which are set at 70 parts per trillion (ppt). Several states have established drinking water standards substantially lower than EPA's 70 ppt LHAs for PFOS and PFOA—some in the range of the equivalent levels reflected by the ATSDR profile, or about 7 ppt for PFOS and 11 ppt for PFOA. Is EPA evaluating these state actions and the ATSDR findings and incorporating the latest science in its regulatory process?

    The EPA supports and has been engaged in the efforts of our state and federal partners, including ATSDR, to develop information related to PFAS. The EPA continues to take concrete steps, in cooperation with our federal and state partners, to address PFAS and ensure all Americans have access to clean and safe drinking water.

    The EPA is evaluating PFOA and PFOS under the regulatory determination process, which builds on the work the agency completed in the health advisories for PFOA and PFOS and is an important step in the process for establishing a National Primary Drinking Water Regulation.

    As a part of the evaluation, the EPA will continue to carefully review the draft ATSDR Toxicological Profile and will consider all newly available scientific information, including the science used to develop state standards.

33. When EPA conducted its Unregulated Contaminant Monitoring Rule (UCMR) 3 monitoring, it identified 63 drinking water systems[15] with combined PFOA and PFOS levels that exceeded EPA's health advisory levels. However, according to former EPA officials, EPA also received data related to PFAS detected at levels below EPA's health advisory level. For each category below, please provide a list of drinking water systems (including their location) whose UCMR 3 occurrence data fell into the specified range.

    a. Systems whose levels exceeded the combined PFOA and PFOS health advisory levels.
    b. Systems whose combined PFOA and PFOS levels were between 60-70 ppt.
    c. Systems whose combined PFOA and PFOS levels were between 50-60 ppt.
    d. Systems whose combined PFOA and PFOS levels were between 40-50 ppt.

[15] https://pfas-1.itrcweb.org/wp-content/uploads/2018/01/pfas_fact_sheet_regulations__1_4_18.pdf

e. Systems whose combined PFOA and PFOS levels were between 30-40 ppt.
f. Systems whose combined PFOA and PFOS levels were between 20-30 ppt.

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, the EPA has established the health advisory levels at 70 parts per trillion. EPA fact sheets state that when both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

The EPA worked with states and public water systems (PWSs) to characterize the occurrence of six PFAS in the nation's drinking water served by PWSs by including six PFAS in the third Unregulated Contaminant Monitoring Rule (UCMR3) under the Safe Drinking Water Act (SDWA). From 2013-2015, at least one sample of drinking water was collected and analyzed for six PFAS in nearly 5,000 PWSs across the nation, accounting for approximately 80 percent of the U.S. population served by PWSs (approximately 250 million people).

Under the UCMR3, the EPA found that 1.3 percent of the participating PWSs (63 out of 4,920 PWSs reporting) had at least one sample that measured PFOA, PFOS, or a combined value for PFOA and PFOS at concentrations greater than 70 ppt. The EPA found 4.0 percent of PWSs (198 out of 4,920 systems) reported results for which one or more of the six PFAS (PFOA, PFOS, perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), (perfluoroheptanoic acid) PFHpA, or perfluorobutane sulfonate (PFBS)) was measured at or above the minimum reporting limit (MRL) during one or more sampling events at one or more sampling locations.

The final UCMR3 data set is publicly available on the UCMR occurrence data web page (https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule) as are the instructions for importing the UCMR3 results (https://www.epa.gov/sites/production/files/2016-08/documents/instructions-importing-viewing-ucmr3-results.pdf) to filter, analyze, or view the analytical data under various scenarios, including the specified ranges in the question. However, please note the UCMR3 MRL for PFOA was 20 ppt and for PFOS was 40 ppt. The EPA has no numeric results below the MRLs.

Questions on Past Commitments

34. In Chad McIntosh's September 2, 2018 letter to me, he made several commitments. For each of the following commitments drawn from that letter, please indicate whether the commitment has been met. If it has not been met, why not, and by what date will it be met?

a. "If confirmed, I will commit to working directly with the National Tribal Caucus (NTC), a national body of tribal advisors who focus primarily on identifying and addressing national, cross-media and emerging tribal environmental issues. I will commit to meeting with the NTC on at least an annual basis. In practice, discussions will likely occur on a monthly basis. I will commit to meeting with the entire National Tribal Operations Committee on an annual basis."
b. "In addition, I commit to meeting with each of the Regional Tribal Operations Committee (RTOC) at least on an annual basis with my EPA regional counterparts, and commit to participating in key tribal meetings such as the National Congress of American Indians Annual Convention"
c. "Should I be confirmed, I will enhance the strength of Tribal representation within EPA by hiring a member of a federally recognized tribe to be the Director of the American Indian Environmental Office within the Office of International and Tribal Affairs."

Assistant Administrator McIntosh's nomination was confirmed by the United States Senate on January 3, 2019. He officially began as Assistant Administrator on January 18, 2019.

Prior to his confirmation by the US Senate, in his capacity as Senior Counsel to the Administrator, Chad McIntosh attended meetings with various tribal leaders in order to better understand EPA's federal responsibilities and the interests and concerns of the tribes. Last fall, Mr. McIntosh participated in meetings with the Governor of the Pueblo of Santa Clara and Tribal Council representatives of the Nez Perce Tribe, as well as tribal organizations and associations, including the Alaska Native Village Cooperation Association. He also attended the EPA Region 9 Regional Tribal Operations Committee (RTOC) meetings, with EPA Region 9 Regional Administrator, Mike Stoker, in late October.

In his capacity as the Assistant Administrator for International and Tribal Affairs here at EPA, Mr. McIntosh is the Agency-lead for the National Tribal Operations Committee (NTOC) meeting, consisting of National Tribal Caucus representatives and EPA Senior Leadership. The NTOC meeting is being scheduled in Washington, D.C. in February, depending on the current government shutdown. I plan to co-chair the NTOC meeting when it is scheduled; Chad McIntosh and other Assistant Administrators and Regional Administrators will also attend.

Every year, Mr. McIntosh will meet with the Regional Tribal Operations Committees in each of the 10 EPA regions. The Regional Administrators and Mr. McIntosh take these meetings very seriously as a way to carry out EPA's responsibilities with Tribes and to consult and communicate with the Tribes. In addition, he will attend key Tribal meetings and directly visit Tribes throughout the year.

The role of EPA's American Indian Environmental Office is very important. He is working with EPA's human resources office and with his colleagues here at the Agency

to identify and appoint a member of a federally recognized tribe to be Director of the American Indian Environmental Office as soon as possible.

Now that he is confirmed as his letter noted and which is key to fulfilling these commitments, I know that Mr. McIntosh will do everything in his power to meet his commitments throughout his appointment in an ongoing and transparent fashion.

35. In your January, 2019 letter to me, you made several commitments. For each of the following commitments drawn from that letter, please indicate whether the commitment has been met. If it has not been met, why not, and by what date will it be met?

    a. "EPA will withdraw its OMB submission to propose revisions to these [worker protection] rules and will not make any changes to the designated representative and minimum age provisions."

    The Agency has been developing proposals concerning the Agricultural Worker Protection Standard (WPS) rule, including changes to the designated representative and minimum age provisions, and application exclusion zone (AEZ) provisions. The Agency has also been developing changes to the Certification of Pesticide Applicators (CPA) rule. Although the subject matter associated with these potential changes has been subject to wide ranging public stakeholder meetings and public comments, EPA will withdraw its OMB submission to propose revisions to these rules and will not make any changes to the designated representative and minimum age provisions. It may consider proposing revisions to the AEZ provision in the WPS rule, but to no other substantive provision in the WPS rule. If such a proposal is issued, it would be subject to a public notice and comment period of no less than 90 days. I will follow through on the commitments in my January 2019 letter to you.

    b. The Agency will promptly submit the methodology for deciding how to collect and evaluate scientific research related to a chemical's safety that was recently developed by the Office of Chemical Safety and Pollution Prevention (OCSPP) to the National Academy of Sciences (NAS) for peer review and feedback.

    Because it is important that all of the Agency's chemical safety efforts comply with the requirements in the law as well as the regulations implementing the law regarding the Agency's use of the best available science, the EPA will, promptly submit the methodology for deciding how to collect and evaluate scientific research related to a chemical's safety that was recently developed by the Office of Chemical Safety and Pollution Prevention (OCSPP) to the National Academy of Sciences (NAS) for peer review and feedback and, at the same time EPA will use the Frank R. Lautenberg Chemical Safety for the 21st Century Act Section 26(o) mandated advisory committee, a FACA committee, whose purpose is to provide independent

advice and expert consultation with respect to the scientific and technical aspects of issues related to TSCA, to provide its independent advice on the methods used by OCSPP to collect and evaluate scientific research in the first ten risk evaluations. I also commit to make public the review, feedback and any recommendations received from both the NAS and the advisory committee within 30 days of their receipt. Finally, EPA will incorporate feedback and recommendations as appropriate. I will follow through on the commitments in my January 2019 letter to you.

Questions on the Shutdown

36. Please describe how the on-going government shutdown is affecting EPA's efforts to –

    a. Provide guidance to state drinking water programs; and
    b. Coordinate with states to keep toxic chemicals out of drinking water and respond to contamination events.

EPA used carryover funding to keep the Agency open through December 28—one week beyond the lapse in appropriations, which occurred on December 21—and of course the lapse has now ended. During the shutdown, EPA had staff available to work on excepted activities such as providing emergency guidance to states and water systems when significant risk to human health occurs, conducting emergency response activities for contaminated drinking water, and providing assistance as necessary for other situations posing a danger to the public. For example, the State of New Jersey recently requested EPA staff to conduct critical work related to lead exposure in Newark. However, the EPA was not able to provide routine, non-emergency guidance or technical support to state drinking water programs during the government shutdown. Further information on EPA's shutdown procedures and activities that occurred during the lapse in funding can be found in the *U.S. EPA Contingency Plan in the Event of a Government Shutdown* (https://www.epa.gov/2018lapse/us-epa-contingency-plan-event-government-shutdown).

37. Please provide an update on when you expect the following EPA regulatory actions to be completed assuming the government shut-down ends by a) February 15 2019 or b) April 1, 2019.

    - National Primary Drinking Water Regulations for Lead and Copper (revisions to the so-called Lead and Copper Rule) – proposed rule expected in February 2019 according to the Fall 2018 Unified Agenda.
    - National Primary Drinking Water Regulations: Regulation of Perchlorate (pursuant to a consent decree entered by the U.S. District Court for the Southern District of New York, EPA was supposed to propose a Maximum Contaminant Level Goal (MCLG) for perchlorate in drinking water no later than October 31, 2018 and finalize the MCLG no later than December 19, 2019).

- Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water (EPA proposed regulations to implement section 1417 of the Safe Drinking Water Act on January 17, 2017 with a stated goal in the Unified Agenda of finalizing that rule by June 2019).

The EPA is working aggressively to develop proposed major revisions to the Lead and Copper Rule, which was last significantly updated in 1991. It is a complicated rulemaking, but EPA anticipates sending proposed revisions to OMB this spring. The same rulemaking team is working on the Lead Free Rule which the EPA plans to finalize in 2019. The EPA intends to maintain these rulemaking schedules; however, the agency will continue to evaluate the schedules in light of the government shutdown and make necessary adjustments. The consent decree deadline for the perchlorate rulemaking was extended to April 30, 2019, to reflect the additional time required to address extensive peer reviewer recommendations to improve the scientific tools the agency is using to inform the proposed rule which was not anticipated at the time the decree was entered. The consent decree includes a provision that automatically extends deadlines in the event of certain circumstances outside the reasonable control of the EPA, such as lapses in government funding.

38. EPW staff contacted your office via email on January 9, 2019 requesting the names of the 6 EPA staff deemed "*necessary to perform activities expressly authorized by law*" and the 12 EPA staff deemed "*necessary to the discharge of the President's constitutional duties and powers*" in EPA's December 31, 2018 shutdown contingency plan.
On January 10, 2019 a member of your staff replied via email, writing "*It has been difficult with limited resources to pinpoint. Still working on this.*" To date, no additional response failed to that email request has been received.

Also on January 10, 2019, members of the EPW committee sent you a letter requesting information about any EPA staff that had been or was currently engaged in work related to your nomination. To date, no response to that letter has been received.
On the evening of January 14, 2019, reports surfaced that you had updated EPA's contingency plan to increase the number of EPA staff deemed "*necessary to the discharge of the President's constitutional duties and powers*" from 12 to 28, and increased the number of EPA staff deemed "*necessary to perform activities necessarily implied by law*" from zero (0) to 12.

During your confirmation hearing you also admitted in an exchange with Senator Van Hollen that certain EPA staff were brought back to work from furlough during the government shutdown to prepare you for this hearing;

> *Senator Van Hollen. And that there are approximately 891 who are on the job, is that approximately right?*
>
> *Mr. Wheeler. That sounds pretty exact, 891. It varies from day to day. We bring back people to work on specific issues.*

Senator Van Hollen. Right. Including some that you brought on to prepare for this hearing, is that right?

Mr. Wheeler. Yes, Senator.

a. Please list the names and official titles of the 6 EPA staff deemed "necessary to perform activities expressly authorized by law" in EPA's December 31, 2018 shutdown contingency plan.
b. Please list the names and official titles of the 12 EPA staff deemed "necessary to the discharge of the President's constitutional duties and powers" in EPA's December 31, 2018 shutdown contingency plan.
c. Please list the names and official titles of 28 EPA staff deemed "necessary to the discharge of the President's constitutional duties and powers" in EPA's January 14, 2019 contingency shutdown plan.
d. Please list the names and official titles of the 12 EPA staff deemed "necessary to perform activities necessarily implied by law" in EPA's January 14, 2019 contingency shutdown plan.
e. For each EPA staff member described in questions (a) through (d), please provide their work schedules and an accounting of each hour worked by each of those staff, as applicable, on any work activity related to your nomination or the confirmation process, and a description of the task or work function performed during that time.
f. Please submit all letters, emails, memoranda, or other written or electronic correspondence prepared, transmitted, or received by each EPA staff member described in questions (a) through (d) that relates to your nomination or confirmation process.
g. At any time since December 29, 2018, has any EPA staff member not encapsulated by questions (a) through (d) engaged in work activities related to your nomination or the confirmation process?
h. If your answer question (g) is yes, please list the names and official titles of those individuals.
i. If your answer to question (g) is yes, please submit all letters, emails, memoranda, or other written or electronic correspondence prepared, transmitted, or received by those EPA staff member(s) that relates to your nomination or the confirmation process.
j. If your answer to question (g) is yes, please submit work schedules and an accounting for hours worked by each of those EPA staff, as applicable, on any work activity related to your nomination or the confirmation process, including a description of the task or work function performed during that time.
k. Please list the names and official titles of the 12 EPA staff deemed "necessary to perform activities implied by law" that were added to EPA's contingency plan for the first time on January 14, 2019? What change in law or circumstance occurred between December 31, 2018 and January 14, 2019 lead you to add those 12 EPA staff after you originally estimated that no EPA staff would be necessary to perform activities implied by law?

l. What work activities are the 12 EPA staff deemed "necessary to perform activities implied by law" by the January 14, 2019 EPA shutdown contingency plan engaged in? Are any of those 12 EPA staff engaged in work activities or functions related to your nomination or the confirmation process?
m. Were any of the additional EPA staff added to the December 29, 2018 EPA shutdown contingency plan by the January 14, 2019 EPA shutdown contingency plan engaged in work activities or functions related to your nomination or confirmation process prior to January 14, 2019?
n. If your answer to question (m) is yes, please list the names and official titles of any such EPA staff member or members.

OMB Circular A-11, Section 124.2 defines 5 categories of employees that must be accounted for in the Contingency Plan:

- **Their compensation is financed by a resource other than annual appropriation;**
- **They are necessary to perform activities expressly authorized by law;**
- **They are necessary to perform activities necessarily implied by law;**
- **They are necessary to the discharge of the President's constitutional duties and powers;**
- **They are necessary to protect life and property.**

Attached, please find a list of excepted employees. All excepted employees were instructed to only work the number of hours that were needed to complete their excepted duties. The number of excepted employees also fluctuated depending on the needs of the organization. While the majority of EPA's excepted employees were excepted as necessary to protect life and property, we had personnel numbers under 3 other categories:

- **The Agency's Presidentially appointed/senate confirmed individuals are necessary to perform activities expressly authorized by law.**
- **In the January 14th Contingency Plan, 12 individuals were deemed necessary to perform activities necessarily implied by law. These employees, from the Office of the Chief Financial Officer, were added to process payments for services rendered for excepted activities where there is an imminent threat to the safety of human life and property and funds are available.**
- **Individuals working on the Acting Administrator's hearing preparation were identified as necessary to the discharge of the President's Constitutional duties and powers. This number increased between the December 31st and January 14th Contingency Plans according to the work needed to directly support the Hearing preparation activities.**

39. Have any EPA contractors, sub-contractors, or independent contractors performed work activities or functions related to your nomination or the confirmation process since December 29, 2018? If so, please list the names and official titles of those individuals.

No.

40. How many total hours have been spent by you and EPA staff discussing, researching or otherwise preparing for your nomination and the confirmation process, including your confirmation hearing testimony and responding to questions for the record?

It is difficult to estimate hours by me or EPA staff discussing, researching, or otherwise preparing for the nomination hearing. However, I can advise you that I met with each program office once or twice to discuss a variety topics and programs they suggested to highlight and specific questions I had within the work of each program office. I followed those individual meetings with a meeting with all offices to ensure that I had a comprehensive review of our activities and programs to be able to fully answer Congressional questions. I do not believe we are able to assign a specific number of hours to the process for all individuals involved. However, I do hope this description of our general preparation will be helpful to you.

41. In 2017 EPA conducted roughly 12,000 inspections to make sure that air, water and toxic waste rules were being complied with. That's more than 230 each week. How many inspections has EPA conducted in the approximately three weeks since December 29, 2018?

EPA did not conduct any routine, planned civil enforcement inspections since December 29, 2018, until the agency reopened after January 25, 2019. Criminal investigations continued, including laboratory support for those investigations. Emergency response personnel continued to respond as appropriate to accidental releases. Superfund personnel continued to do work, including soil, air and water sampling, at sites that may present an imminent threat to the safety of human life or to the protection of property. In addition, this question assumes that inspections are conducted evenly throughout the year. In actuality, the majority of inspections occur during the summer and warmer months.

a. Has the ability of EPA's pollution inspectors to monitor air emissions been impacted or diminished in any way by the federal government shutdown, yes or no?

Entities regulated under the Clean Air Act remain subject to requirements to monitor, record, and report air emissions in accordance with federal and state regulations and permits.

b. Has EPA's ability to monitor and test for water contamination been impacted or diminished in any way by the federal government shutdown, yes or no? If yes, please describe the impact of halted inspections during the shutdown on human health and the environment.

Entities regulated under the Clean Water Act remain subject to requirements to test and monitor for water contamination in accordance with their permits. NPDES permit holders should be continuing to submit discharge monitoring reports to either state systems or EPA's data system (ICIS).

Reviewing those monitoring results was not considered an excepted activity under EPA's lapse plan, so staff did not review monitoring and test results during that time.

Now that the government has reopened, EPA plans to update ICIS with submissions that were made during the shutdown.

42. I recently learned that samples of GenX, an unregulated, PFOA-like contaminant used to make nonstick cookware and other products, are sitting in refrigerators near the Lower Cape Fear River in Fayetteville, North Carolina because EPA's lab in Athens, GA has been shut down.

a. Please confirm whether this is true.

It is our understanding, during the shutdown, that North Carolina Department of Environmental Quality (NCDEQ) held approximately seven samples/week in NCDEQ's Regional Office in Fayetteville. We also understand the NCDEQ is explored options for alternative analysis of the samples. Region 4 intends to promptly determine the number of remaining samples needing analysis and provide support to NCDEQ now that the Agency has returned to work.

b. If so, please provide a list of similar situations where EPA's ability to monitor and test for water contamination has been affected by the government shutdown.

As noted in response to question 41, where PFAS are subject to permit limitations, monitoring data should continue to be collected and reported by the permit holder. In addition, all Chemours facilities in North Carolina, West Virginia and New Jersey are subject to a TSCA section 5(e) order that requires monitoring of PFAS releases. Information on any activities undertaken in support of PFAS related enforcement investigations is confidential. However, except in cases involving imminent threats to the safety of human life or to the protection of property EPA enforcement investigations were suspended during the shutdown.

EPA/ORD is also providing technical support to several other states in addition to North Carolina relating to possible PFAS water contamination. These states include New Hampshire, New Jersey, West Virginia, New York, Michigan, and Minnesota. The government shutdown impacted EPA's ability to provide the requested technical support to these states as well, including delays in analyses and reporting of PFAS in environmental media and in the development of additional study plans for future analyses of PFAS.

43. I recently learned that EPA has had to stop sampling air emissions in Louisiana for chloroprene.

    a. Please confirm whether this is true.
    b. If so, please provide a list of similar situations where the ability of pollution inspectors to monitor air emissions been impacted or diminished due to the government shutdown.

The Denka community air monitoring for chloroprene at six locations in LaPlace, Louisiana is continuing as part of EPA's activities to protect public health. News outlets incorrectly reported that EPA air monitoring had ceased during the shutdown and EPA reached out to the reporter with correct information on January 2 and 3, 2019, respectively. EPA also notified the state of Louisiana, citizen's science advocate Wilma Subra, and Louisiana Environmental Action Network (LEAN) President Marylee Orr of the reporting error. EPA posted the latest set of quality assured data from November on its website (https://www.epa.gov/la/laplace-st-john-baptist-parish-louisiana) on December 26, 2018.

Denka is the only facility with chloroprene emissions so there are no other similar situations.

44. I have heard that EPA was forced to cancel a public hearing on cleanup proposals for the former West Calumet Housing Complex in East Chicago, Indiana.

    a. Please confirm whether this is true.

EPA proposed an Amendment to Record of Decision for the residential area (Zone 1) for the USS Lead facility in East Chicago, Indiana on November 7, 2018. EPA held a public hearing on November 29, 2018 in East Chicago, IN to provide opportunity for input on the proposed remedy for Zone 3 of the USS Lead Superfund site. Members of the East Chicago community requested a second opportunity to provide public comment prior to the January 14, 2019 public comment deadline. EPA granted this request and

scheduled a second public hearing for January 10, 2019. This hearing was postponed due to the partial federal government shutdown.

b. EPA's Office of Land and Emergency Management, which oversees cleanup of Toxic Superfund sites, is currently down from 468 staffers to 3. Has Superfund site monitoring or oversight been impacted or diminished in any way during the government shutdown as compared to the same time period last year? If so, please quantify all such impacts.

The number of employees that were excepted working nationwide on Superfund issues was dynamic and varies by region since the agency directs work to meet specific needs as allowed by law. EPA Headquarters and Regional excepted staff in the Superfund Program continue to respond at sites or incidents where there was an imminent threat to the safety of human life or to the protection of property. Ongoing work at Superfund sites also continued without EPA involvement up to the point that additional EPA direction or funding is needed. Now that the government has reopened, cleanup activities requiring new funding will restart and sites where cleanup activities had been stopped or shut down are able to commence.

45. Have you or any member of EPA staff directed EPA's Office of General Counsel (OGC) to engage in any work since December 29, 2018? Please provide this Committee with a comprehensive list of the types and scope of work performed by OGC staff since December 29, 2018, noting specifically any task that relates to (i) your nomination or confirmation hearing; (ii) pending or ongoing regulatory matters; and (iii) enforcement actions or consent decrees.

The Office of General Counsel (OGC) worked on excepted activities since December 29, 2018 providing significant legal advice on permissible activity during the shutdown. OGC appropriations law experts responded to questions from numerous EPA offices regarding whether certain agency activities could continue during the lapse in appropriations and have engaged regularly with OMB counsel to ensure excepted functions comport with legal requirements. In consultation with the Department of Justice (DOJ), OGC sought to extend court filing deadlines and court-ordered deadlines to take regulatory actions. In instances where an extension was not granted, the Agency worked with DOJ to draft required filings and continued work on pending regulatory actions to meet court-ordered deadlines. OGC also provided legal review and counsel connected to preparing for the confirmation hearing and responding to post-hearing Questions for the Record.

46. On December 28, 2019, EPA tweeted: "Due to a lapse in appropriations, EPA websites and social media will not be regularly updated. . . . In the event of an environmental emergency threatening the safety of human life or to protect certain property, epa.gov will be updated with appropriate information." Aside from a post on January 10, 2019 announcing an enforcement settlement with Fiat Chrysler, EPA's social media accounts have been silent since EPA closed on December 29, 2018. However, on the day of your confirmation hearing, January 16, 2019, EPA's Twitter feed began posting messages promoting your nomination, including encouraging the public to watch your hearing, quoting statistics from your testimony, and posting an op-ed from Chairman Barrasso praising your nomination. On that same day, EPA also issued press releases to reporters with Chairman Barrasso's op-ed and your written testimony.

    a. Have you or any member of EPA staff directed EPA's Office of Public Affairs (OPA) to engage in any work since December 29, 2018?

    A portion of the staff within the EPA's Office of Public Affairs engaged in work during the shutdown. This work included preparing the Acting Administrator for his confirmation hearing, participating in preparatory briefings, drafting briefing documents, coordinating a comprehensive list of Agency accomplishments, as well as preparing the Acting Administrator's opening statement for the confirmation hearing. In addition, OPA staff worked on the communications materials for the Fiat Chrysler enforcement settlement announcement with the Department of Justice, in order to comply with a court order. Other activities included responding incoming press inquiries about Superfund and Emergency Removal sites that fall under the environmental emergency threatening the safety of human life or property category. Finally, OPA assisted the Acting Administrator in tweeting condolences to the family of former EPA Administrator Doug Costle, on his passing.

    b. Do you consider your nomination or confirmation to constitute an "environmental emergency threatening the safety of human life" or property? If so, do you believe your nomination and confirmation warranted requiring furloughed OPA staff to draft and post on social media accounts?

    Work associated with my nomination and confirmation is pursuant to the President's constitutional appointment power, and necessary to allow the Senate to fulfill its constitutional role of advice and consent on the President's nominees. All EPA staff working on the nomination hearing were acting in response to those authorities. This work constitutes an excepted activity that occurred during the lapse in appropriations for the following reasons. First, it falls under the President's constitutional authority under the Appointments Clause and is necessary for the President's discharge of that authority. And, second, as the legislative branch has enacted appropriations for FY 2019 and is not subject to the lapse in the appropriations, my participation in the scheduled hearing was necessary for

the Congress's funded function to be effective (and my absence from my own confirmation hearing would significantly damage the Committee's confirmation hearing), and was therefore necessarily implied to continue during EPA's lapse in appropriations. This is consistent with the December 13, 1995 Office of Legal Counsel decision, *Effect of Appropriations for Other Agencies and Branches on the Authority to Continue Department of Justice Functions During the Lapse in the Department's Appropriations.* The OMB General Counsel concurred with EPA that I could prepare for and participate in his confirmation hearing and receive support from EPA staff as necessary to prepare for and participate in the hearing.

c. Please provide this Committee with a comprehensive list of the types and scope of work performed by OPA staff since December 29, 2018, noting specifically any task that relates to (i) your nomination or confirmation hearing; (ii) pending or ongoing regulatory matters; and (iii) enforcement actions or consent decrees.

A portion of the staff within the EPA's Office of Public Affairs engaged in work during the shutdown. This work has included OPA staff worked on preparing the Acting Administrator for his confirmation hearing, participating in preparatory briefings, drafting briefing documents, coordinating a comprehensive list of Agency accomplishments, as well as preparing the Acting Administrator's opening statement for the confirmation hearing. In addition, OPA staff worked on the communications materials for the Fiat Chrysler enforcement settlement announcement with the Department of Justice, in order to comply with a court order. Other activities included responding incoming press inquiries about Superfund and Emergency Removal sites that fall under the environmental emergency threatening the safety of human life or property category. Finally, OPA assisted the Acting Administrator in tweeting condolences to the family of former EPA Administrator Doug Costle, on his passing.

47. Tens of thousands of EPA staff and contractors were furloughed after the federal government was shut down and others have been asked to work for little or no pay.

I sympathize with those impacted by the shutdown. I remember experiencing a shutdown as a career EPA employee in the 1990s. As a general matter, the Privacy Act of 1974 limits the types of information about individuals that federal agencies can collect and how that information can be maintained. EPA has not collected the information referenced in this question, as that information has no connection with our specific statutory mission, and my understanding is that these types of records would not be excepted from the Privacy Act in any event.

a. How many EPA staff or contractors have missed or made late rent or mortgage payments, or are facing eviction or foreclosure?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

b. How many EPA staff or contractors have missed or made late student loan payments during the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

c. How many EPA staff or contractors have missed payments on auto loans or leases during the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

d. How many EPA staff or contractors have missed credit card payments, or incurred credit card interest as a result of their inability to make those payments?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

e. How many EPA staff or contractors have been unable to pay for child care during the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

f. How many EPA staff or contractors have been unable to pay medical expenses for themselves or their families during the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

g. How many EPA staff or contractors have filed for unemployment benefits?

The EPA has posted guidance generated from the Office of Personnel Management to assist its employees with any financial challenges they are facing during the shutdown. Currently, a total of 1,645 EPA employees have applied for unemployment benefits as of January 22, 2019. We do not have any information on the nonfederal workforce. The EPA does not have any way to track any other specific information regarding EPA employees or contractors' financial hardships during this time period.

h. How many EPA staff or contractors have attempted to get part-time or temporary jobs during the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

i. How many EPA staff or contractors have had their credit scores impacted by the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

j. How many EPA staff or contractors have applied for private loans to make ends meet during the shutdown? How many were rejected?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

k. How many EPA staff or contractors have been forced to spend money from their savings accounts, retirement accounts, 401ks, pension funds, or children's 529 college funds as a result of the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

l. How many EPA staff or contractors have been forced to secure, or attempt to secure private loans or additional lines of credit as a result of the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

m. How many EPA staff or contractors have been forced to pawn or sell personal effects or real property as a result of the shutdown?

It is inappropriate for the EPA to collect, maintain, or disseminate such personal information for any of its employees or contractors.

48. It is my understanding that the EPA-managed projects listed below have stopped due to the shutdown.

a. Please confirm whether that is true for each project.

No emergency responses were halted during the shutdown.

b. In addition, please supplement this list with additional similar projects around the country that are halted because of the shutdown.
   i. Camp Fire, Paradise, CA (household waste cleanup)

      The activities associated with the cleanup of household waste resulting from the Camp Fire continued during the shutdown.

   ii. Whiting Metals, Whiting, Indiana (cited for harmful levels of airborne lead)

      Air Monitoring via EPA's XACT monitor continued during the shutdown at the Whiting Metals site in Whiting, IN with IDEM, the state environmental agency, conducting some routine maintenance on the equipment. IDEM continues to conduct filter-based monitoring on site, collecting a sample every third day.

   iii. SH Bell, East Liverpool, Ohio (fence line monitoring, cited for airborne manganese)

      Although US EPA oversees the ambient air monitoring performed at SH Bell, East Liverpool, OH, the operation and maintenance is conducted by the company and is required to continue through an enforceable document. SH Bell East Liverpool is required by its consent decree with the US Department of Justice and US EPA to perform monitoring. The obligation for the facility to continue monitoring was not impacted by the temporary interruption of EPA's oversight during the partial government shutdown.

   iv. SH Bell, Chicago, Illinois (fence line monitoring, cited for airborne manganese)

      Although US EPA oversees the ambient air monitoring performed at SH Bell, Chicago, IL, the operation and maintenance is conducted by the company and is required to continue through an enforceable document. SH Bell Chicago is required to monitor by a Clean Air Act Section 114 Information Request that was issued by US EPA. The obligation for the facility to continue monitoring was not impacted by the temporary interruption of EPA's oversight during the partial government shutdown.

   v. Watco, Chicago, Illinois (fence line monitoring, cited for airborne manganese)

      Although US EPA oversees the ambient air monitoring performed at Watco, Chicago, IL, the operation and maintenance is conducted by the company and is required to continue through an enforceable

document. Watco is required to monitor by a Clean Air Act Section 114 Information Request that was issued by US EPA. The obligation for the facility to continue monitoring was not impacted by the temporary interruption of EPA's oversight during the partial government shutdown.

vi. Sterigenics, Willowbrook, Illinois (ethylene oxide)

EPA Air Monitoring sample collection continued during the partial government shutdown. The Office of Air Quality Planning and Standards has been analyzing the data.

vii. CII Rain Carbon, Robinson, Illinois (cited for airborne particulate matter)

Although US EPA reviews the ambient air monitoring performed at CII Carbon, Robinson, IL, the operation and maintenance is conducted by the company and is required to continue through an enforceable document. CII Carbon is required to monitor by a Clean Air Act Section 114 Information Request that was issued by US EPA. The obligation for the facility to continue monitoring not impacted by the temporary interruption of EPA's oversight during the partial government shutdown.

viii. NASCO, Chicago, Illinois (awaiting results of metal and particulate matter monitoring

Although US EPA reviews the ambient air monitoring performed at NASCO, Chicago, IL, the operation and maintenance is conducted by the company and is required to continue through an enforceable document. NASCO is required to monitor by a Clean Air Act Section 114 Information Request that was issued by US EPA. The obligation for the facility to continue monitoring was not impacted by the temporary interruption of EPA's oversight during the partial government shutdown.

ix. General Iron, Chicago, Illinois (cited for Volatile Organic Compounds)

There is no pending testing to be performed at General Iron.

x. USS Lead, East Chicago, Illinois (superfund emergency removal for lead, relocation of residents, soil removal)

The USS Lead cleanup did not stop work due to the shutdown. The residential yard cleanups were suspended prior to the shutdown due to the winter weather. It is anticipated that cleanup will start again in the spring as previously planned.

xi. St. Regis Paper Co., Cass Lake, Minnesota (clean-up of dioxin, pentachlorophenol, PAHs)

The remedial site does not have any active cleanup occurring at this time. The shutdown did suspend progress on finalizing a proposed cleanup plan for public comment.

xii. Lukenheimer Foundry, Cincinnati Ohio (clean-up of heavy metals, corrosives, ignitable wastes)

This removal action was suspended during the shutdown.

xiii. Graveyard Auto, Clarksville, Indiana (clean-up of leaking drums)

EPA has secured drummed waste onsite in a Conex box at the site. The remaining site activities, including waste disposal and soil excavation, are on hold pending action memo approval, which was suspended during to the shutdown.

xiv. C&H Mineral, Hubbel, MI (clean-up delayed of arsenic, lead)

This time-critical removal action did not stop due to the shutdown. The site is located in Upper Peninsula of Michigan, and construction was suspended due to the weather. It is scheduled to begin in the spring or as soon as weather condition permit construction.

49. EPA's Safe Drinking Water Information System (SDWIS) identifies which public water systems are in violation of drinking water standards and provides information on the severity of each violation. Unfortunately, a recent assessment of SDWIS drinking water reports indicates a major drop in enforcement actions. It appears that as a result of the government shutdown, EPA did not make its quarterly Dec 31, 2018 update to SDWIS. This means that communities will not have the most up-to-date information on the quality of their drinking water.

    a. Please confirm whether it is true that EPA is unable to update SDWIS because of the government shutdown.
    b. If you answered the first question in the affirmative, please explain the rationale behind your determination to allocate resources away from updating drinking water contamination data and to your confirmation hearing preparations.

The EPA did not complete its quarterly update of SDWIS before December 31, 2018 and will perform the update now that when Congress has provided appropriations for the agency. The data entered in SDWIS is provided by the communities that collected the data, meaning they already have access to their own drinking water quality

information. SDWIS contains information about public water systems and their violations of the EPA's drinking water regulations, as reported to the EPA by the states. The state agency with primary enforcement responsibility has access to the compliance data and is responsible for enforcing any public notification requirements to ensure that water systems provide safe water to their customers. Updating SDWIS, a federal database, does not satisfy the requirements of an excepted activity under the Anti-Deficiency Act, therefore EPA could not perform updates during the government shutdown.

Questions on Congressional Correspondence

50. For approximately the past year and a half, EPA has consistently provided documents I have requested in oversight letters at the same time or earlier than the same materials were being provided to Freedom of Information Act (FOIA) requestors or House Committee Chairs. Will you commit to continuing this practice of providing me with responsive materials at the same time they are provided to House Committee Chairs and FOIA requestors, or sooner? If not, please explain why not.

    Yes.

51. Since you took the helm at EPA as Acting Administrator on July 6, 2018, I and members of this Committee have sent you many letters containing document requests that remain unanswered. A number of letters that were sent to your predecessor also lack complete responses. By what specific date should we expect to receive EPA's complete response to each of the following letters?

    a. April 4, 2017 – letter on political appointees' obstruction of career staff's estimates related to the implementation of the HONEST Act

       EPA provided a response on August 23, 2017.

    b. April 6, 2017 and April 14, 2017 – letters on EPA's withdrawal of an Information Collection Request sent to the oil and gas industry

       EPA provided a response on May 31, 2017.

    c. April 7, 2017 – letter on EPA's plans to rescind the Clean Power Plan

       EPA provided a response on May 9, 2017.

    d. August 31, 2017 – letter on secrecy at EPA

       We look forward to continuing to work with your staff to provide a response.

e. October 25, 2017 – letter detailing concerns about the lead and copper rule

EPA provided a response on January 29, 2018.

f. October 26, 2017 – letter on EPA's decision to repeal the Clean Power Plan

EPA provided a response on November 28, 2017.

g. December 13, 2017 – letter on EPA's Sue and Settle Directive

EPA provided a response on January 30, 2018.

h. January 9, 2018 – letter on Mr. Pruitt's appointment of two scientists to serve on EPA's Federal Advisory Committees who have financial conflicts of interest

We look forward to continuing to work with your staff to provide a response.

i. January 18, 2018 – letter on a range of topics, including TSCA, climate change, and fuel efficiency standards

EPA provided a response on May 10, 2018.

j. January 19, 2018 – letter on Mr. Pruitt's meetings with industry

EPA provided a response on August 21, 2018.

k. January 19, 2018 – letter on transparency, enforcement, and various other concerns

EPA provided a response on August 2, 2018.

l. March 6, 2018 – letter on Mr. Pruitt's wasteful spending

EPA provided a response on August 21, 2018.

m. March 12, 2018 – letter on EPA's decision to repeal emissions standards for glider trucks

EPA provided a response on October 16, 2018.

n. March 14, 2018 – letter on EPA's reversal of the once-in-always-in policy

EPA provided responses on June 6, 2018, and July 9.

o. April 3, 2018 – letter on Mr. Pruitt's decision to reverse EPA's prior determination on greenhouse gas tailpipe standards

EPA provided a response on June 6, 2018, and subsequent link to documents responsive to this letter on November 21.

p. April 3, 2018 – letter on Mr. Pruitt's December 2017 trip to Morocco

We look forward to continuing to work with your staff to provide a response.

q. April 9, 2018 – letter on Mr. Pruitt's use of Safe Drinking Water Act authority to award large pay raises to favored aides

A link to documents responsive to this request was sent on August 31, 2018. We look forward to continuing to work with your staff to provide a response.

r. April 12, 2018 – letter on Mr. Pruitt's multiple ethics and wasteful spending practices

A link to documents responsive to this request was sent on May 4, 2018, August 21, and November 20. We look forward to continuing to work with your staff to provide a response.

s. April 24, 2018 – letter on EPA's drafting of the secret science rule and its major flaws

We look forward to continuing to work with your staff to provide a response.

t. May 3, 2018 – letter on EPA's signing of a Cooperative Research and Development Agreement with Water-Gen

We look forward to continuing to work with your staff to provide a response.

u. May 15, 2018 – letter on reports that the White House prevented the release of a study concluding that PFAS poses a danger to human health at lower levels than set by EPA

EPA provided a response on May 21, 2018.

v. May 17, 2018 – letter on EPA's significant delay of the IRIS assessment on formaldehyde

EPA provided a response on July 5, 2018.

w. May 21, 2018 – letter on Mr. Pruitt's compliance with rules governing his legal defense fund

EPA provided a response on July 31, 2018.

x. June 27, 2018 – letter on EPA's reduced enforcement of the Clean Water Act

We look forward to continuing to work with your staff to provide a response.

y. November 15, 2018 – letter on EPA's federal advisory committees

We look forward to continuing to work with your staff to provide a response.

z. December 3, 2018 – letter on the Trump Administration's preparation and release of the Fourth National Climate Assessment

We look forward to continuing to work with your staff to provide a response.

aa. December 6, 2018 – letter regarding EPA's compliance with GSA's travel regulations

We look forward to continuing to work with your staff to provide a response.

bb. December 19, 2018 – letter requesting communications between industry and EPA about fuel economy or greenhouse gas tailpipe standards

We look forward to continuing to work with your staff to provide a response.

cc. January 10, 2019 – letter requesting documents related to the government shutdown and use of furloughed staff to prepare you for your confirmation hearing

We look forward to continuing to work with your staff to provide a response.

dd. January 10, 2019 – letter on Diane Hendricks' $50,000 contribution to Scott Pruitt's legal defense fund

We look forward to continuing to work with your staff to provide a response.

Questions on other Clean Air Act issues

52. The Ozone Transport Commission has documented electric generating units (EGUs) that appear to have turned off their nitrogen oxide (Nox) controls. What are the public health and environmental impacts of these actions? Are downwind states including Maryland, Delaware and Connecticut adversely impacted by transported NOx and/or ozone?

The Clean Air Act's "good neighbor" provision requires EPA and states to address interstate transport of air pollution that affects downwind states' ability to attain and maintain National Ambient Air Quality Standards (NAAQS). Specifically, Clean Air Act section 110(a)(2)(D)(i)(I) requires each state in its State Implementation Plan (SIP) to prohibit emissions that will contribute significantly to nonattainment of a NAAQS, or interfere with maintenance of a NAAQS, in a downwind state.

EPA has determined that the Cross-State Air Pollution Rule (CSAPR), the CSAPR Update, and the CSAPR Close-out (finalized 12/6/18) fully address states' good neighbor obligations for the 1997 and 2008 ozone NAAQS and the 1997 and 2006 PM2.5 NAAQS. For power plants covered by this program for cross-border ozone, nitrogen oxide emissions have dropped by over 20 percent - roughly 80,000 tons - just since the 2016 ozone season.

The recently finalized CSAPR Close-out rule determined that emission reductions under the CSAPR Update will sufficiently control transported ozone pollution with respect to the 2008 ozone NAAQS in states covered by the Update. EPA is actively working with states to provide the technical tools and information to facilitate "good neighbor" state plans addressing interstate transport under the 2015 ozone NAAQS. More information on EPA's efforts to address interstate ozone transport is available at: https://www.epa.gov/interstate-air-pollution-transport.

53. In your August 1, 2018 hearing before the EPW Committee, you said you could not "predict with certainty" the effects EPA's rollbacks would have on transport pollution and attainment status for states. In part, that is because at the time EPA had not modeled any of the effects these rules may or may not have on states. Since that time, has EPA modeled the effects of the proposed clean air regulations and changes in guidance on air pollution and transport pollution?

The U.S. is a global leader in clean air progress, and EPA expects these trends to continue in the future. For example, as part of its effort to provide data and analyses to support state planning efforts, EPA projects that nearly all areas of the country will meet the 2008 and 2015 ozone standards in the early 2020s. These projections are based on an air quality modeling platform which includes emissions, meteorology and other inputs for a base year as well as emissions for a future analytic year base case. EPA projections are based on a number of key inputs, including on-the-books rules. For the actions identified, EPA regularly conducts accompanying analyses to evaluate relevant regulatory impacts.

This progress builds upon recent trends which are not driven solely by Clean Air Act requirements. Between 2007 and 2017, emissions of nitrogen oxide (NOx), the key contributor to ground-level ozone, have dropped in the U.S. by more than 40 percent. For power plants that EPA and states regulate to address cross-border ozone contributions, NOx emissions dropped by 77,000 tons (21 percent) just between the 2016 and 2017 ozone seasons. From 1970 to 2017, the combined emissions of the six key pollutants regulated under the National Ambient Air Quality Standards dropped by 73 percent, while the U.S. economy grew more than 260 percent and the population continued to expand.

a. If the Affordable Clean Energy Act goes final, how will that affect downwind pollution and the states' ability to meet attainment status for all National Ambient Air Quality Standards (NAAQS), and State Implementation Plans (SIPs), since EPA estimates there will be an increase in sulfur dioxide and ozone pollution from this rule?

   The proposed Affordable Clean Energy (ACE) rule is projected to significantly reduce emissions, including sulfur dioxide (7,000 to 15,000 tons), and nitrogen oxides (8,000 to 15,000 tons). The Clean Power Plan (CPP) was stayed by the Supreme Court and thus never achieved any emission reductions.

b. If EPA rescinds MATS, how will that affect downwind pollution, the states' ability to meet attainment status for all NAAQS and SIPs?

   EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind the emission standards to which those units are currently subject.

c. What are the effects of the "once in, always in" change in guidance on downwind pollution, the states' ability to meet attainment status for all NAAQS and SIPs?

   In a 2007 proposed rule, EPA projected that rescinding the "once in, always in" policy would result in an overall reduction in emissions. Further, a rulemaking currently underway to implement the January 2018 interpretive rule, rescinding the "once in, always in" policy, will provide further information regarding the expected emission consequences of this action.

d. What are the effects of the New Source Review changes in guidance on downwind pollution, the states' ability to meet attainment status for all NAAQS and SIPs?

   EPA does not expect the improvements it has been making to the New Source Review program to have any adverse effects on states' ability to meet

attainment status. Where EPA is following up on its NSR guidance with rulemaking, appropriate analyses addressing this matter will be undertaken.

e. How will the changes in regulating methane emissions from oil and gas affect downwind pollution, the states' ability to meet attainment status for all NAAQS and SIPs?

EPA's proposed targeted improvements to the 2016 New Source Performance Standards for the oil and gas industry would streamline implementation, reduce duplicative EPA and state requirements, and significantly decrease unnecessary burdens on domestic energy producers. The accompanying regulatory impact analysis (RIA), which discusses the emissions impacts of this proposal, is available at: https://www.epa.gov/sites/production/files/2018-09/documents/oil_and_natural_gas_nsps_reconsideration_proposal_ria.pdf. The RIA notes that, due to the high degree of variability in ozone and particulate matter responsiveness to volatile organic compounds, EPA did not evaluate the effects on attainment status.

54. Can you name three policies you have formally proposed (not just announced that you will propose) or implemented that the scientific community believes will actually lead Americans to breathe LESS toxic air pollution than they would have had all the protective rules implemented by President Obama stayed in place?

Virtually all of EPA's recent Clean Air Act proposed and final actions would result in continued reductions of air pollution, including hazardous air pollutants, criteria pollutants like ozone and particulate matter, as well as greenhouse gases. For example, the proposed Affordable Clean Energy rule is projected to significantly reduce emissions, including 2030 reductions of carbon dioxide (12 to 27 million tons), sulfur dioxide (7,000 to 15,000 tons), and nitrogen oxides (8,000 to 15,000 tons). I would note that the Clean Power Plan was stayed by the Supreme Court and thus never achieved any emission reductions. In addition, on November 13, 2018, EPA announced the Cleaner Trucks Initiative, a future rulemaking to update standards for nitrogen oxide (NOx) emissions from highway heavy-duty trucks and engines. Over the last decade, NOx emissions in the U.S. have dropped by more than 40 percent. Nonetheless, EPA expects that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025. Updating these standards will result in NOx reductions from mobile sources and could be one important way that allows areas across the U.S. to meet National Ambient Air Quality Standards for ozone and particulate matter. Updating the standards will also offer opportunities to reduce regulatory burden through smarter program design.

55. During the August 1, 2018 EPW hearing, I asked you several questions for the record regarding the Renewable Fuel Standard (RFS) and my continued concerns about the volatility in the RFS compliance trading system used by EPA, known as the Renewable Identification Number (RIN) market. Despite promises to act on this issue, I've seen no action to date from EPA on the issue of RIN market manipulation and still do not have a clear answer on how EPA is coordinating with other agencies to address this issue. I was extremely disappointed by your August 1st hearing answers and ask that you please provide greater clarity.

    a. Please provide the dates, times and details of any communication, including any emails and phone calls, between the Commodity Futures Trading Commission (CFTC) and EPA since the CFTC-EPA memorandum of understanding on RIN market manipulation was signed.

    EPA regularly works with other agencies, including the CFTC, on implementation and continued improvement of the Renewable Fuel Standard program. CFTC has a wealth of expertise in terms of rooting out market manipulation and improving the overall function of our nation's commodities markets. EPA has been working with CFTC technical staff to assess what tools or structural approaches could be employed in the RIN market to reduce any manipulation, provide greater transparency and establish stability. Most recently, EPA's transportation team had an extensive conversation with the CFTC regarding these ongoing efforts. Pursuant to President Trump's direction, the agency plans to propose a RIN market reform rule in 2019 that will be followed by a public notice and comment period. We appreciate your interest in these issues and will keep you updated as they progress.

    b. CFTC has stated publicly that it provided EPA with recommendations on what data EPA should be collecting to mitigate RIN market manipulation. Please provide CFTC's recommendations and explain why EPA has refused to make this information public.

    EPA has ongoing dialogue with the CFTC and continues to work consistent with the existing MOU. CFTC has provided recommendations on a number of options aimed at improving the RIN market including the collection of necessary data. Many of CFTC's recommendations will be reflected in our forthcoming proposed RIN market reform rule. Once complete, the proposed rule will be made public and will be subject to a notice and comment period.

c. In your answers to my August 1st hearing questions you indicated your staff had only met with Federal Trade Commission (FTC) staff one time. Was that an accurate assessment? Has the number changed since August 1, 2018? And if true, why isn't EPA having ongoing conversations with FTC on this issue?

My understanding is that, from January 2017 to August 2018, EPA had one conversation with the FTC dedicated to this topic. Recent conversations regarding market stability and associated improvements have primarily been with the CFTC. Through the exchange of information among our agency experts, the CFTC expertise has proven to be the most helpful and applicable in terms of developing out the forthcoming proposed RIN market reform rule. Once a draft of the forthcoming proposed rule is complete, subject to appropriations, it will be submitted to the Office of Management and Budget for interagency review, which will provide the FTC an opportunity to review and provide comment.

d. Your answers to my August 1st hearing questions suggest that your staff only shared RIN data with CFTC from 2010 to August 2016. Why hasn't EPA shared any RIN data with CFTC since August 2016?

EPA shared the above-referenced data because both agencies were working to respond to a specific request from the Renewable Fuels Association, which alleged manipulation during a specific timeframe - 2010 to 2016. After review of that information, the CFTC did not find any misbehavior in the market. Outside of that specific request, EPA and CFTC continue to have regular contact to assess options for improving the RIN market. As previously mentioned, many of CFTC's recommendations will be reflected in our forthcoming proposed RIN market reform rule, which will be subject to a public notice and comment period.

e. The State of California has created a dashboard to provide weekly, monthly, quarterly and annually trading data for its own renewable fuel program. After talking to many stakeholders involved in that process, it seems that California's renewable fuel trading dashboard has been able to provide valuable insight into trading and helped reduced market volatility. EPA can easily create a similar dashboard today and not wait for rulemaking. You have already created a dashboard for small refinery waivers, why hasn't EPA created a RIN dashboard that provides the public weekly, quarterly and annual RIN trading data?

EPA posts RIN transactional and compliance information on our RFS Data website. We are open to comments and suggestions for improving and expanding program and market insight. Currently, information is updated the third Thursday of each month to reflect all transactions submitted through the end of the prior month. Last year, we implemented revisions to the website to incorporate additional data through a more interactive dashboard. Please visit the following link for additional

information: https://www.epa.gov/fuels-registration-reporting-and-compliance-help/public-data-renewable-fuel-standard.

f. The CFTC has successfully used position limits to protect against excessive speculation and market manipulation, which helped stabilize markets. In addition, Canada and California have also used position limits as effective market controls to help reduce market credit hoarding. Canada, specifically, has done so regarding their own RFS program with success. Are position limits being considered in any efforts to improve RIN market transparency and has EPA had any discussions with the CFTC about establishing position limits for the RFS RIN market? If not, why not?

Yes, as part of the ongoing conversations EPA has discussed position limits as a means to improve the RIN market. As previously mentioned, many of CFTC's recommendations will be reflected in our forthcoming proposed RIN market reform rule, which will be subject to a public notice and comment period.

g. Has EPA had any discussions with Canada about their biofuel market credit controls? If so, can you elaborate on those discussions? If not, why not?

I am not aware of interactions with Canada on these issues.

56. With a significant non-compliance rate, why isn't EPA's Office of Enforcement and Compliance Assurance enforcing the manufacturer emission reporting requirements under the residential wood heater New Source Performance Standards rules?

OECA has been successfully working with wood heater manufacturers and retailers, who are mostly small business owners, in providing compliance assistance to help them comply with the regulations. In general, the Agency worked with them on any outstanding certification issues, and, when necessary, addressed observed deficiencies/potential violations during the certification process without collecting any penalties or taking other formal enforcement.

57. In your testimony, you highlighted EPA's announcement that it will officially begin the process to set a new national nitrogen oxide (NOx) emissions standard for heavy-duty vehicles.

a. States have been asking EPA to take this action for over two years. Why is EPA waiting until early 2020 to propose regulations?

On November 13, 2018, EPA announced the Cleaner Trucks Initiative (CTI), a future rulemaking to update standards for nitrogen oxide (NOx) emissions from highway heavy-duty trucks and engines. Over the last decade, NOx

emissions in the U.S. have dropped by more than 40 percent. Nonetheless, EPA expects that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025. Updating these standards will result in NOx reductions from mobile sources and could be one important way that allows areas across the U.S. to meet several National Ambient Air Quality Standards. Updating the standards will also offer opportunities to reduce regulatory burden through smarter program design. As I am sure you recognize, the development of a technically and legally sound rulemaking proposal for an action of this significance and complexity takes time.

b. Will you finalize a rule in time to help states that have ozone nonattainment concerns meet their SIP requirements for the ozone NAAQS?

EPA intends to finalize the rule as expeditiously as possible, consistent with its responsibility to ensure that any final rule is well supported. We expect this action to reduce NOx emissions and obtain NAAQS.

c. What ozone reduction metric will you use to determine whether the proposal is adequately protective of public health?

We expect the rulemaking to evaluate the appropriate metric to evaluate emission reduction.

d. Emissions control technologies are able to reduce NOx emissions by 90%, down to .02 g/bhp-hr, at approximately $500-1000 per diesel truck by 2024 or earlier. Alternative fuel vehicles such as those with natural gas engines already achieve those reductions. How does this estimated cost compare to the current or projected range of cost-effectiveness of stationary control technologies that might otherwise have to be implemented to achieve the same NOx reductions in ozone nonattainment areas?

These are issues that we expect to be addressed during the rulemaking.

The timeline announced in November will allow full engagement with stakeholders and the opportunity to assess policy considerations identified in your question. More information on the CTI is available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/cleaner-truck-initiative.

Questions on EPA's Use of Science

58. The EPA recently disbanded its 20-member Particulate Matter Review Panel (PMRP) and decided not to convene the Ozone Review Panel. In addition, EPA announced that the responsibility of those two panels to advise on EPA's 5-year review of the National Ambient Air Quality Standards (NAAQS) will be transferred to the significantly smaller seven-member Clean Air Science Advisory Committee (CASAC), and such review will occur on an accelerated schedule. Notably, CASAC's draft comments to you dated December 10, 2018 recommend that you reconvene the PMRP and warns that the accelerated schedule is too short.

    a. Given that your decision to eliminate the first two larger expert panels, transfer the workload to the much smaller CASAC, and speed up the review will have a direct impact on the quality of review conducted, did you consult with CASAC on the accelerated schedule in the memo or the consequences of doing away with panels before you took those actions? If not, please explain why not.
    b. Several members of CASAC have expressed doubt that they have the needed expertise to review the science on particulate matter. Do you still believe that members of this CASAC are qualified to do the work you have asked of them? If so, please explain why.
    c. One of the areas of expertise that is lacking on CASAC is epidemiology, which would information CASAC's understanding of the impacts of particulate matter on early death and heart attacks. Do you believe that CASAC can conduct an informed review of the NAAQS given the absence of this crucial subject matter expertise? If so, please explain why.

CASAC is a seven-member committee, required under Section 109 of the Clean Air Act, which provides critical advice related to National Ambient Air Quality Standards (NAAQS). The membership includes at least one member of the National Academy of Sciences, one physician, and one person who represents a state air pollution control agency. In October 2018, EPA announced the appointment of five new members to the chartered CASAC. More information on CASAC and its members is available at: https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC.

I believe the current CASAC has the experience and expertise needed to serve in this capacity as well as to complete the reviews for the particulate matter and ozone NAAQS. The chartered CASAC is filled with qualified, independent experts who have decades of experience working on ozone and particulate matter issues and a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. EPA also has the ability to seek advice from other experts to assist CASAC as needed for these reviews.

Tasking the chartered CASAC with overseeing these reviews ensures the early engagement of the advisors who ultimately provide advice to EPA, and this action is consistent with the Clean Air Act, regulations implementing the Federal Advisory Committee Act, and CASAC's charter. In May 2018, EPA issued a memorandum

outlining a "Back-to-Basics" process for NAAQS under the Clean Air Act. This memo ensures that EPA and its independent science advisors follow a transparent, timely, and efficient process in reviewing and revising public health- and welfare-based NAAQS. Consistent with the memo, EPA intends to finalize any necessary revisions to the ozone and particulate matter NAAQS by the end of 2020.

EPA welcomes feedback during all stages of these reviews from members of the scientific community and public. The Committee has received feedback from a number of outside experts during recent public meetings and teleconferences.

59. Please provide a copy of the IRIS Handbook that has been completed but is not yet published.

The IRIS Handbook is being revised in response to additional comments received from the Agency, and has not concluded the interagency review process. We intend to provide the Handbook when the revision is completed.

Questions on other Clean Water Issues

60. It has been a very long time since Washington, DC struggled with its lead in drinking water discovery, and it has been four years since the drinking water crisis erupted in Flint, MI.
    a. How many lead service lines in Flint have been replaced as of December 31st, 2018?
    b. Administrator Pruitt made lead—especially in drinking water—an agency priority, declaring a "War on Lead" in February 2018. Approximately 5000 municipalities across the country exceeded the 15 parts per billion standard in place at the time of his declaration. How many of those municipalities now comply with that legal limit?
    c. What has EPA done to facilitate that compliance?
    d. Having admitted a failure of oversight in the Flint situation, could you describe how EPA has since strengthened its oversight of state drinking water programs?

The EPA recently received a status report from the City of Flint regarding its ongoing efforts to identify and replace lead service lines, an effort funded in part through the Water Infrastructure Improvements for the Nations Act (WIIN Act). According to the City of Flint: "As of January 14, 2019 there have been 20,131 service lines replaced or identified as copper. The City of Flint has approximately 28,400 active residential water accounts. We have approximately 8269 lines left to identify or replace. If we assume 20% of the remaining 8269 lines to be lead and need replacement we have approximately 1,654 lead service lines remaining in the system. At this time weather is allowing the project to continue and these numbers are subject to change." The City has evaluated connections to more than 15,000 homes and has identified and replaced lead or galvanized steel service lines to over 7,000 homes.

The EPA supports the Michigan Department of Environmental Quality (MDEQ) in its continued efforts to work with the City of Flint and all other public water systems to improve drinking water quality throughout the State of Michigan. This includes working with the City and MDEQ to ensure that the requirements of the EPA's Emergency Order and amendment are being addressed. The drinking water system in Flint has returned to compliance with the Lead and Copper Rule (LCR) and the EPA is committed to supporting the City and State in their efforts to ensure the delivery of a safe and sustainable water supply to the residents of Flint.

The EPA has also reached full agreement with the Inspector General (IG) on the actions the agency will implement in response to the Flint, Michigan IG Report. The EPA's actions to address the IG's recommendations are well underway. For example, the EPA is working aggressively to update the LCR and is working with states to ensure full implementation of existing LCR requirements. That engagement includes working with state, local, tribal and other stakeholders to identify LCR implementation challenges and provide technical assistance and communication tools to address those challenges. To improve technical knowledge and implementation of the LCR and its corrosion control requirements, for example, the EPA conducted approximately 30 in-person technical trainings across the country in all ten EPA regions over the last two years. This full-day training focused on optimal corrosion control treatment to improve compliance and reduce lead exposure at the tap through successful implementation of corrosion control treatment. The training also provided participants, including states, technical assistance providers and water utility operators, an opportunity to work through case studies, analyze actual water system data and participate in interactive activities. Over the last two years, the EPA also hosted its LCR 3-Part Webinar series and monthly webinars for small systems; conducted national training on sample site selection; provided individual trainings to the National Rural Water Association and the State of California; and hosted a three-day online training with Guam and Hawaii. In 2018, the EPA's Office of Research and Development and the Office of Water hosted the National Drinking Water Workshop with 400 participants in attendance. This workshop included multiple sessions on lead testing, lead service line replacement, and other LCR topics. It also included a two-hour discussion between states, the EPA, academia experts and workshop participants on key issues and implementation challenges related to the LCR.

The EPA also collaborates with states and public water systems to update our nation's drinking water infrastructure, including important projects to reduce lead in drinking water. The FY 2019 President's Budget request included $863.2 million for the Drinking Water State Revolving Fund, allowing states to finance high priority infrastructure investments, including the replacement of lead service lines to protect human health. The FY 2018 Omnibus appropriation provided $50 million for three new grant programs under the WIIN Act. These funds will help public water systems meet Safe Drinking Water Act requirements, provide funding for infrastructure projects that reduce the presence of lead in drinking water, and assist schools and childcare facilities with voluntary lead testing programs. In addition, the Water Infrastructure Finance and Innovation Act (WIFIA) program is inviting 39 projects in 16 states and

Washington, D.C. to apply for loans totaling over $5 billion to help finance over $10 billion in water infrastructure investments, in FY 2019, but not all of those projects are associated with lead. Multiple projects selected in FY18 involve reducing lead or other contaminants and address aging infrastructure.

As indicated in the EPA's response to the IG Report, the agency has also worked to strengthen its oversight of state drinking water programs nationwide. For example, in response to the EPA's, New England states', and water utility proactive measures, as of August 2018, more than 99% of the public water supply systems in New England that are obligated to meet requirements of the LCR are meeting the drinking water lead action levels. Recognizing that there is no safe level of lead in drinking water, the 1991 LCR set a health-based maximum contaminant level goal of zero. The LCR also established an action level of 0.015 mg/L (15 ppb) for lead. Exceedance of the lead action level is not a violation but rather results in the public water system having to take actions to reduce lead exposure, which could include optimizing corrosion control, removing lead service lines, and conducting public education. Failure to take such actions results in a violation of the LCR that is called a treatment technique violation.

A 2016 analysis prepared by an environmental nongovernmental organization indicated that 5,363 community water systems had violated the LCR based on 2015 SDWIS data. According to the report, the analysis included counts of violations for failure to take actions to reduce lead exposure, to test, or to report test results. The majority of these community water systems receiving violations had a treatment technique violation. Based on the most recent data in SDWIS, approximately 97% of these treatment technique violations have returned to compliance. Since 2016, the EPA and the states have enhanced oversight and collaboratively provided targeted technical assistance to address compliance with the complex and challenging LCR requirements. This assistance has improved the states' technical capabilities to address LCR violations and aid systems in achieving compliance with the LCR.

61. Please explain EPA's intentions regarding the discharge of partially treated or "blended" sewage from wastewater treatment plants.

    a. Does EPA intend to propose regulations permitting discharge of partially treated or blended sewage from wastewater treatment plants? If so, when?
    b. If so, under what circumstances (i.e., what thresholds of rainfall, etc.)?
    c. Does EPA have evidence that such discharges are safe for public health and the environment? If so, please provide it.
    d. In EPA's assessment, how effective are so-called "side-stream" technologies, proposed by treatment plant operators, as an alternative to their historic treatment methods?

The EPA is currently engaged in rulemaking to address longstanding questions regarding permit compliance in wet weather events. The agency is working with stakeholders as we prepare options for the proposed rulemaking. No final decisions

regarding the content of the proposed rule have been made at this time. The EPA will consider all appropriate information regarding the relationship between wet weather discharges and compliance with water quality standards during the rulemaking process, including, for example, resources like a 2014 public forum the EPA facilitated on potential public health impacts associated with wet weather discharge events. Documents from that forum are available at: https://www.epa.gov/npdes/npdes-experts-forum-public-health-impacts-wet-weather-blending-documents. The EPA will also consider available treatment, cost and related data on potential side-stream technologies as it continues its stakeholder outreach and proposed rulemaking.

62. As you know, the proposed WOTUS Rule you and the Army Corps of Engineers propose is notably lacking in specifics related to some of the necessary details the public needs to fully consider the implications of your proposal, much less address the numerous and potentially rule-obliterating questions posed in the preamble.

    a. With that concern in mind, please provide estimates of the miles and acres affected for the following categories of waters covered by the proposed rule (please provide this information on a state-by-state basis):
        i. The number of miles of ephemeral streams;
        ii. The number of miles of intermittent streams;
        iii. The acres of wetlands without a surface water connection to any "waters of the United States" as the December 2018 proposal would define that term;
        iv. The acres of wetlands without a surface water connection to any "waters of the United States" as the December 2018 proposal would define that term plus those wetlands with a surface water connection only to intermittent streams; and
        v. The acres of ponds that will not qualify as "waters of the United States" as the December 2018 proposal would define that term.

    b. To further assist our consideration of the proposed rule, please provide the following information (also on a state-by-state basis) for each of the categories of waters identified in response to question 16(a) above:
        i. The population served by drinking water systems with source water protection areas containing any of the waters identified above.
        ii. Any dischargers permitted under the National Pollutant Discharge Elimination System to discharge to any of the waters identified above.
        iii. Any facilities subject to the oil spill prevention, control, and countermeasure program because of their potential to affect any of the waters identified above.
        iv. Any of the waters identified included on a state list submitted to EPA pursuant to section 303(d)(1) of the Clean Water Act.
        v. Any enforcement action under the authority of section 309 of the Clean Water Act, in which the water body about which the violation was alleged

was any of the waters identified above. This includes any compliance order, civil or criminal action, or assessed administrative penalty.

vi. Any jurisdictional determination (either preliminary or approved) by the U.S. Army Corps of Engineers which assessed whether a water body was a "water of the United States" and for which the subject water was any of the waters identified above.

vii. Any activity for which an applicant has sought a federal license or permit and which may result in a discharge into any of the waters identified above, for which the state has granted, denied, waived, or provided conditional certification pursuant to section 401 of the Clean Water Act.

The EPA and the Department of the Army provided significant, substantive supporting documentation for the proposed "waters of the United States" rule that was posted to our website in December along with the pre-publication text of the proposed rule and its preamble. See https://www.epa.gov/wotus-rule/step-two-revise. The documents entitled "Resource and Programmatic Assessment for the Proposed Revised Definition of 'Waters of the United States'" and "Economic Analysis for the Proposed Revised Definition of 'Waters of the United States'" identify, where possible, how the proposed definition might affect categories of water resources across the country and potential effects on Clean Water Act programs. The agencies have also identified data limitations that prevent quantitative national estimates for many Clean Water Act programs, due in large part to the fact there is no nationwide map depicting "waters of the United States" under previous regulations nor that could identify waters that would be jurisdictional under the proposal.

With regard to water resources, state-based information on ephemeral, intermittent, and perennial stream miles and wetland acreage as mapped in the National Hydrography Dataset and National Wetlands Inventory, respectively, is presented in Table A-1 of the Economic Analysis. The numbers and percentages of streams and wetlands by category presented in Table A-1, however, do not equate to a quantification of waters that will or will not be jurisdictional under the proposed rule or existing regulation. The agencies discuss potential impacts of the proposal on Clean Water Act section 303, 311, 401, 402, and 404 programs and other relevant federal regulations in the Economic Analysis and Resource and Programmatic Assessment. Regarding data limitations, see for example the discussion in Section II.C. of the Economic Analysis and Section 4 of the Resource and Programmatic Assessment Appendix A. With respect to section 404 permitting, see for example Table 3 of the Resource and Programmatic Assessment Appendix A summarizing the total number of waters by category in the Army's fiscal year 2013-2017 approved jurisdictional determination data under pre-2015 practice. Note that in addition to the analyses discussed in the documents supporting the proposal, the agencies maintain websites that contain specific information on the jurisdictional determinations completed under section 404. See http://corpsmapu.usace.army.mil/cm_apex/f?p=340:11:0::NO and https://watersgeo.epa.gov/cwa/CWA-JDs/.

In Clean Water Act enforcement cases, the EPA would have gathered evidence to support a claim that there is a discharge to a navigable water or a tributary of a navigable water or a wetland adjacent to a water of the United States applying the EPA's 1988 regulations, the 2003 *SWANCC* legal memorandum, and the 2008 *Rapanos* guidance. However, those documents all lack the clarity of the December 2018 proposed rule. For example, none of them use the 2018 proposal's definitions of "intermittent," "ephemeral," and "adjacent wetlands," and do not define "tributary." Accordingly, the factual records the agency would have developed to support a claim of jurisdiction do not lend themselves to categorizing enforcement actions as you have requested.

Senator Booker:

63. Following the passage of the newly strengthened Toxic Substances Control Act (TSCA), EPA proposed two rules banning certain uses of trichloroethylene (TCE). EPA has since delayed finalizing these bans for more than 2 years and has stated its intent to ignore exposure to TCE from releases into air, water, and land in a review of the chemical.

    a. Are you aware that TCE is a known carcinogen linked to neurological damage and birth defects that is polluting the air, land, and water in my state and in states across the country?
    b. Will you commit to finalizing the proposed bans on TCE within 90 days in order to protect the health of children and workers while you continue the broader risk evaluation of TCE under TSCA?
    c. Will you commit to ensuring that EPA incorporates all known releases of and exposure to TCE, including through air, soil, and water, in its ongoing risk evaluation of TCE?

EPA has determined that the most-appropriate approach for addressing TCE exposures identified in the proposed rule is to evaluate those exposures in the risk evaluation currently being conducted using the scientific standards required by the Lautenberg Act amendments to TSCA. The risk evaluation will include all releases and exposure pathways that are appropriate under the conditions of use described in the TCE problem formulation document. As required, EPA will evaluate the risks to sensitive subpopulations identified as relevant to the evaluation, including children and workers as appropriate. The draft risk evaluation will be subject to public comment and scientific peer review, and the final risk evaluation is expected to be published by the end of 2019. This does not preclude EPA from finalizing the proposed TCE rule.

64. One positive action taken under Administrator Pruitt was EPA's commitment to finalizing a ban proposed for all consumer and most commercial uses of methylene chloride in paint strippers. The record EPA assembled two years ago to support the need for a ban on most commercial as well as consumer uses is clear: Allowing such products to stay on the market based on reliance on increased labeling, protective equipment, or training requirements will not protect the public's or workers' health. It now appears that you are rolling back that

commitment and planning to limit the ban of this highly toxic and acutely lethal chemical to consumer uses only.

a. Are you aware that workers constitute the vast majority of the more than 50 deaths from these uses, and that any failure to or delay in protecting workers will lead to more deaths?
b. Will you commit to finalizing a ban for all consumer and most commercial uses of methylene chloride, as originally proposed by the EPA?

Yes, under certain circumstances, methylene chloride not only can pose danger, but has also caused worker deaths. The EPA submitted a final rule for methylene chloride paint and coating removal to OMB for interagency review on December 21, 2018, prior to the lapse in appropriations. Questions regarding the scope, implementation, and timing of the final rule and associated EPA actions will depend on the outcome of the interagency review process.

65. As you know, your predecessor declared a "War on Lead" in February 2018 due to the harmful effects this toxic metal can have on human health. As you also know, the legal limit on lead in drinking water is 15 ppb. When the "War on Lead" was announced, approximately 5000 municipalities across the country exceeded that number.

a. To date, how many of those municipalities have come within the legal limit?

Recognizing that any level of lead in drinking water poses some risk, the 1991 Lead and Copper Rule (LCR) set a health-based maximum contaminant level goal of zero. The LCR also established an action level of 0.015 mg/L (15 ppb) for lead. Exceedance of the lead action level is not a violation but rather results in the public water system having to take actions to reduce lead exposure, which could include optimizing corrosion control, removing lead service lines, and conducting public education. Failure to take such actions results in a violation of the LCR that is called a treatment technique violation.

A 2016 analysis prepared by an environmental nongovernmental organization indicated that 5,363 community water systems had violated the LCR based on 2015 SDWIS data. According to the report, the analysis included counts of violations for failure to take actions to reduce lead exposure, to test, or to report test results. The majority of these community water systems receiving violations had a treatment technique violation. Based on the most recent data in SDWIS, approximately 97% of these treatment technique violations have returned to compliance. Since 2016, the EPA and the states have enhanced oversight and collaboratively provided targeted technical assistance to address compliance with the complex and challenging LCR requirements. This assistance has improved the states' technical capabilities to address LCR violations and aid systems in achieving compliance with the LCR.

66. Environmental Justice is something that I am very concerned about. As you know, low income communities, communities of color and indigenous communities are disproportionately located near and harmed by sources of pollution. So I appreciated that in your opening statement that under your leadership EPA was focused on helping the communities that are on the front lines of pollution. But unfortunately it seems to me that the actions you have already taken at EPA will cause great harm in these communities.

As I testified at my hearing, I take very seriously the matter of environmental justice. In the course of developing all of the proposed actions you have cited, the EPA has given careful consideration to whether the action, if finalized, would have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations or indigenous peoples as, the EPA is required to do by Executive Order 12898 and its environmental justice policies. Provided below are specific citations to the EPA's findings in this regard with respect to each of the actions with which you have expressed concerns.

a. Can you please explain how your proposal to repeal and replace the Clean Power Plan will increase protections for human health and the environment in low income communities, communities of color and indigenous communities?

   I direct your attention to the discussion found at 83 Fed. Reg. 44,797 (Aug. 31, 2018). This includes EPA's evaluation of the requirements of Executive Order 12898, https://www.govinfo.gov/content/pkg/FR-2018-08-31/pdf/2018-18755.pdf.

b. Can you please explain how your proposal to weaken oil and gas methane standards will increase protections for human health and the environment in low income communities, communities of color and indigenous communities?

   I direct your attention to the discussion found at 83 Fed. Reg. 52,090 (Oct. 15, 2018). This includes EPA's evaluation of the requirements of Executive Order 12898, https://www.govinfo.gov/content/pkg/FR-2018-10-15/pdf/2018-20961.pdf.

c. Can you please explain how your proposal to delay deadlines for landfill emission guidelines will increase protections for human health and the environment in low income communities, communities of color and indigenous communities?

   I direct your attention to the discussion found at 83 Fed. Reg. 54,532 (Oct. 30, 2018), https://www.govinfo.gov/content/pkg/FR-2018-10-30/pdf/2018-23700.pdf.

d. Can you please explain how your proposal to delay deadlines for wood smoke standards will increase protections for human health and the environment in low income communities, communities of color and indigenous communities?

Finally, I direct your attention to the discussion found at 83 Fed. Reg. 61,585 (Nov. 30, 2018). This includes EPA's evaluation of the requirements of Executive Order 12898, https://www.govinfo.gov/content/pkg/FR-2018-11-30/pdf/2018-26083.pdf.

67. According to the most recent Regulatory Agenda, EPA is still considering a proposal to rollback key updates from the 2017 Chemical Disaster Rule. Last July, I asked that you withdraw the proposed modifications to the existing safeguards that protect communities, especially low-income communities, indigenous communities, and communities of color, from toxic chemicals stored in industrial facilities across the country. What is particularly troubling is that it appears that you are continuing to move forward with the rollbacks even though EPA's own findings show that there is evidence that risks from Risk Management Programs (RMP) facilities disproportionately fall on minority and low-income neighborhoods.

a. What is the status of this work?

We are carefully reviewing comments on the May 2018 proposal. We will work to make sure the Risk Management Program continues to reduce risk while taking into account homeland security concerns with a focus on what actually works in the field.

b. Given your testimony that you intend to focus on protecting communities suffering most from pollution, will you commit to not move forward with this proposal that will place undue burden on those who are most at risk?

As I testified, I take very seriously our responsibility to protect environmental justice communities. EPA gives careful consideration to whether a proposed action, if finalized, would have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations or indigenous people as the EPA is required to do by Executive Order 12898.

A successful Risk Management Program is a high priority for me. For example, in 2018, EPA entered into its largest-ever settlement in the history of enforcing the RMP, valued at approximately $150 million worth process safety improvements. Enforcement and compliance assurance of the RMP program is a National Compliance Initiative.

EPA is committed to promoting improved coordination between local emergency response planners and the regulated industry to ensure that local plans are effective, and responders are adequately informed.

68. Will you provide a date certain by when you will withdraw from OMB review EPA's proposal to revisit the minimum age requirement under the Worker Protection Standard (WPS) and Certification of Pesticide Applicators (CPA) rules, and the designated representative provision of the WPS, in accordance with your commitment to Senator Carper as set forth in your January 2019 letter?

    As of January 28th, the Office of Management and Budget withdrew the Worker Protection Standard and Certification of Pesticide Applicators rules.

69. Will you provide a date certain by when you will remove the above-referenced actions from EPA's regulatory agenda?

    As of January 28th, the Office of Management and Budget withdrew the Worker Protection Standard and Certification of Pesticide Applicators rules.

70. Will you commit to withdraw EPA's proposal to revisit the application exclusion zone (AEZ) established in the revised Worker Protection Standard?

    a. If not, if and when EPA does revisit the AEZ, will you commit to uphold the law and ensure that any revision to the AEZ will protect workers and other persons from pesticide exposure – including exposure from pesticide drift – as required by FIFRA?

    I will follow through on those specific commitments in my January 2019 letter to Senator Carper. I also commit to ensuring that any future proposed revisions to the AEZ will be consistent with FIFRA and protective of workers and other persons.

71. Will EPA commit to seeking input from the FIFRA Scientific Advisory Panel regarding risks to workers and others associated with pesticide drift, as well as how to ensure that there is no unreasonable adverse effects to workers and bystanders from pesticide drift resulting from pesticide application?

    EPA utilizes the best available science in estimating potential risks to workers and bystanders from pesticide applications. To the extent that new science becomes available that necessitates that the agency reconsider its long-standing assessment methodologies for estimating worker and bystander risks, the agency would likely seek review of these proposed methodologies by the FIFRA Scientific Advisory Panel.

72. Will EPA confirm that it will not propose any rule revising the WPS or CPA without first consulting with the FIFRA Scientific Advisory Panel?

Section 25 of FIFRA requires EPA to submit proposed regulations to the FIFRA Scientific Advisory Panel for comment before issuing these proposals for public comment. In developing any regulations, EPA will follow these statutorily required procedures.

73. Will EPA commit to considering the dangers and realities associated with requiring additional personal protective equipment (including the risk of heat stress) when conducting pesticide registration reviews?

When considering whether to require additional personal protective equipment, EPA considers the potential for other risks, including heat stress, during the decision-making process.

Senator Boozman:

74. Acting Administrator Wheeler: There is research taking place in my state and across the United States that would benefit from innovations in plant breeding, such as gene editing. The United States Department of Agriculture (USDA) and Food and Drug Administration (FDA) have been working to quickly develop proposals that will allow these innovations to occur, and grant clarity to my constituents as well as other stakeholders on how gene edited products will be treated. EPA has regulatory oversight over gene edited plants that would produce pesticide-like substances, and yet has not offered any thoughts on the issue thus far. Would you commit EPA to working with FDA and USDA to develop a consistent, interagency approach, in order to grant clarity to affected stakeholders?

If confirmed, yes, I commit to continue working with FDA and USDA to develop a consistent, interagency approach, in order to grant clarity to affected stakeholders.

75. Acting Administrator Wheeler: As you know, the Vessel Incidental Discharge Act (VIDA) was signed into late last year. This was an important measure that will have a long-lasting impact on commercial vessel operators in my state. It's important to start the implementation process for VIDA as soon as possible. Notwithstanding the shutdown's effect on Agency personnel, can you give the Committee some insight on whether the Agency has begun to address VIDA implementation?

Prior to the government shutdown, the EPA had begun implementation of the VIDA legislation. Initial discussions with the U.S. Coast Guard were also held, and the agencies is prepared to move forward with implementing the legislation now that the shutdown has ended.

76. Acting Administrator Wheeler: There is scientific evidence showing ethanol blends above 10 percent can harm older vehicles, small engines (such as lawn mowers), boat engines and motorcycles and is incompatible with the existing retail gasoline infrastructure. What will you do to ensure that the annual RFS-mandated volumes protect the current U.S. vehicle fleet and existing infrastructure?

The Agency has two measures in place to protect against mis-fueling. First, the Clean Air Act section 211(f)(4) "substantially similar" waiver that allows E15 to be put into commerce, includes conditions applicable to fuel manufacturers designed to minimize the possibility of mis-fueling. Second, in conjunction with this section 211(f)(4) waiver, EPA issued the so-called "Mis-fueling Mitigation Rule" under its section 211(c) regulatory authority. This rule extends the 211(f)(4) protections to all entities in the fuel production and delivery chain.

More information is available at: https://www.epa.gov/gasoline-standards/final-rule-regulation-mitigate-misfueling-vehicles-and-engines-gasoline. In addition, the RFS program also evaluates the broader effects of biofuels. In 20218, EPA released Biofuels and the Environment: The Second Triennial Report to Congress, a report required under the 2007 Energy Independence and Security Act. The report can be found at: https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=IO&dirEntryId=341491.

Senator Braun:

77. During your testimony, you stated that you consider yourself an avid conservationist. I was glad to hear you say that you are working to reduce the timetables of superfund cleanup, particularly in situations where the health of young children may be at risk. I remain interested in working closely with you on your conservation efforts.

One area in particular where I would like to cooperate regards the agencies work facilitating private conservation projects. Can you provide a few examples of where EPA has been able to step in and aid private citizens in conservation efforts?

EPA has been actively working with and in support of private and public conservation projects. In August 2018, EPA, the Fourmile Watershed Coalition, and the Four Mile Protection District entered into a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Good Samaritan settlement agreement at the Black Swan Restoration Reach Site in Boulder County, Colorado. The agreement allows these non-liable parties to protect water quality by removing mine tailings from a stream, without fear of incurring Superfund liability. EPA has been pursuing similar agreements with other private parties at other sites.

Also, EPA has a robust Superfund Redevelopment Initiative that actively supports ongoing or potential activities by private and public parties with a focus on future use opportunities, such as by issuing Ready for Reuse site analyses, coordinating remedial actions with reuse plans, promoting long-term stewardship by local private and public partners, and identifying and promoting innovative approaches to conservation and cleanup activities such as through reusable energy sources and coordination with health-based activities. EPA would be happy to work with Congressional staff on any other efforts to aid private citizens in conservation efforts.

78. In November 2016, the EPA published a proposed rule known as the Renewables Enhancement and Growth Support (REGS) Rule. The draft rule proposed a wide range of technical fixes and commented on a number of regulatory issues that biofuel stakeholders have long hoped to address. While the EPA completed the notice and comment process on the REGS rule almost two years ago, the Agency never implemented a final rule.

    a. Can you provide update on the status of the proposed REGS rule and, in particular whether the EPA currently has a timetable for completing this rulemaking?
    b. Is EPA contemplating including various proposals from the REGS rule as a part of other related priority rulemakings such as the RFS reset?

In November 2016, EPA proposed the Renewables Enhancement and Growth Support (REGS) rule and sought public comment on a variety of topics, including on designing an electric RIN-generation program. EPA has not finalized the proposal and continues to evaluate feedback regarding issues like feedstock eligibility, double counting, and verification. At this time, we do not have a timeline to share regarding when further decisions will be made. EPA takes very seriously the interest in this rule and the concerns of the biomass power industry, and I believe we need to resolve these key policy considerations before finalizing the proposal or pursuing alternative regulatory actions as appropriate. More information on the proposal is available at: https://www.epa.gov/renewable-fuel-standard-program/proposed-renewables-enhancement-and-growth-support-regs-rule.

Senator Cardin:

79. In your view, what is the EPA's role in holding the Chesapeake Bay jurisdictions accountable for reducing pollution and meeting target dates, and the role of the Chesapeake Bay Total Maximum Daily Load (TMDL) in that accountability process?

In coordination with the Bay states, the EPA took the lead in the development of the Chesapeake Bay TMDL and the agency's expectation is that Bay states will implement the TMDL in accordance with all applicable legal requirements. We remain committed to working with our state partners to ensure such a result, including reviewing the next phase of watershed implementation planning and evaluating actual reductions in pollutant loading versus targeted reductions. Where the EPA determines that sufficient

progress is not being made, the agency will consider using its federal oversight authorities under the Clean Water Act.

80. As EPA Administrator, will you commit to submitting the Kigali Amendment to the Montreal Protocol to the U.S. Senate for ratification? Please explain why or why not.

    The White House is leading an interagency process to consider the implications if the U.S. decides to ratify the Kigali Amendment. If a decision were made to move towards ratification, the President would send the Amendment to the Senate for advice and consent.

81. Under the EPA's Safer Affordable Fuel Efficient (SAFE) Vehicles Rule for Model Years 2021-2026, the EPA's preferred option of "freezing" existing Corporate Average Fuel Economy (CAFE) and tailpipe carbon dioxide standards for passenger cars and light trucks at model year (MY) 2020 levels for both programs through 2026 will increase U.S. fuel consumption and will result in significant increases in emissions of nitrogen oxide (NOx). The Chesapeake Bay TMDL incorporates air deposition load allocations that account for the emission reductions anticipated by the Chesapeake Bay watershed jurisdictions and other states in the larger Chesapeake Bay airshed. Can the EPA account for the impact of the increase in emissions on the expected decreases in nitrogen deposition in the Chesapeake Bay that are reflected in the Chesapeake Bay TMDL?

    The proposed Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule and its accompanying documents evaluate the potential impacts, including on non-greenhouse gas pollutants like nitrogen oxides, under a range of alternatives. The preliminary regulatory impact analysis, for example, evaluated potential effects for model years through 2029 for greenhouse gases, criteria pollutants (including carbon monoxide, volatile organic compounds, nitrogen oxides, sulfur dioxide, and particulate matter), fuel consumption, vehicle miles traveled, and fatalities. More information is available at Docket No. EPA-HQ-OAR-2018-0283. To my knowledge, an analysis of the proposal's specific impacts on Chesapeake Bay nitrogen deposition has not been conducted.

82. Emissions will also increase under the EPA's proposed Affordable Clean Energy (ACE) Rule that proposes to alter how facilities calculate emissions increases that trigger New Source Review. Please provide an estimate for the Chesapeake Bay airshed of the difference in NOx reductions that were expected to be achieved by implementing the existing New Source Review Program under the ACE Rule versus the Clean Power Plan.

    We would note that the Clean Power Plan (CPP) was stayed by the Supreme Court and thus never achieved any emission reductions. Taking this into account, relative to not taking any regulatory action the proposed Affordable Clean Energy (ACE) rule is projected to significantly reduce emissions, including 2030 reductions of carbon dioxide (12 to 27 million tons), sulfur dioxide (7,000 to 15,000 tons), and nitrogen oxides (8,000

to 15,000 tons). To my knowledge, an analysis of the proposal's specific improvements to Chesapeake Bay nitrogen deposition has not been conducted. To my knowledge, an analysis of the specific impacts on Chesapeake Bay NOx reductions has not been conducted.

83. According to the Environmental Integrity Project's report, "Undermining Protections for Wetlands and Streams: What the Trump Administration's Proposed Rollback of Wetlands Regulations Means for the Chesapeake Bay Region" (December 12, 2018), which uses laser mapping data collected by federal researchers and the University of Maryland, there are 34,560 acres of scattered wetlands called "Delmarva potholes" on the Delmarva Peninsula that would be no longer be subject to federal protections under the proposed revised definition of "waters of the United States." These wetlands help reduce agricultural runoff pollution into the Chesapeake Bay. Do you agree that removing federal protections could mean less flood protection for infrastructure on Maryland's Eastern Shore and more pollution flowing into the Chesapeake Bay and its tributaries?

    The EPA remains committed to the protection of navigable waters consistent with applicable legal authorities while recognizing the important role that states like Maryland play in the protection and management of their resources. For example, I understand that Maryland will be addressing pollutant reduction strategies for the Chesapeake Bay in its upcoming Phase III watershed implementation plan, which could include appropriate management strategies for Delmarva potholes and other important aquatic features in Maryland.

84. During the hearing, there was disagreement about whether California should be able to set its own standards for fuel economy and tailpipe carbon dioxide emissions from new passenger cars and light trucks. Please state how you will protect the ability of states that have adopted California's new vehicle emissions standards under section 177 of the Clean Air Act, including Maryland, to maintain their commitments to air quality?

    EPA and the National Highway Traffic Safety Administration (NHTSA) have jointly proposed a rulemaking for greenhouse gas (GHG) emission and fuel economy standards, respectively, affecting light-duty vehicles for the 2021 through 2026 model years. EPA also proposed to revoke the waiver of preemption currently in place which allowed California (and a number of other states that have adopted the California standards) to adopt their own GHG standards and the zero-emission vehicle program. The proposed legal basis for withdrawing the California Waiver is described in the notice of proposed rulemaking and accompanying documents, available at: Docket No. EPA-HQ-OAR-2018-0283. EPA received a wide range of public comments on the proposal and is carefully reviewing those comments. I am committed to working with California and Section 177 states as EPA and NHTSA determine a path forward consistent with the Clean Air Act and the goal of one national program.

85. Maryland state officials asked the EPA to reconsider its decision not to impose tougher pollution standards on certain Midwestern power plants, despite documentation that their emissions contribute significantly to Maryland's ground-level ozone pollution problem, about two-thirds of which is estimated to come from out-of-state sources, and that emission controls are already installed. Will you work with the State of Maryland in order to ensure that federal health-based air quality standards protect downwind states?

    I will work with the State of Maryland to ensure that EPA standards protect downwind states.

86. Will you work with Congress to finalize a ban on the organophosphate insecticide chlorpyrifos? Please explain your position.

    EPA is always willing to provide our scientific expertise to Congress. As required by FIFRA, chlorpyrifos is undergoing registration review. EPA is committed to fully evaluating this pesticide using the best available science.

Senator Duckworth:

87. I am extremely concerned that U.S. Environmental Protection Agency (EPA) is failing to meet its statutory duties when issuing and reviewing permits. I am also concerned that EPA political staff are failing to adequately address concerns raised by career staff regarding impacts of industrial pollution on the Great Lakes.

    EPA Region 5 reportedly provided a Foxconn facility, to be located in South-east Wisconsin, latitude to draw millions of gallons of water from Lake Michigan and to negatively impact adjacent wetlands. Similarly, EPA career staff have raised concerns regarding the Polymet Mine's water permit application in Minnesota, which remain unaddressed. Public reports indicate that EPA Region 5 staff prepared comments raising concerns with Polymet's water pollution permit application, but were discouraged by political appointees from sharing their concerns with the Minnesota Pollution Control Agency (MPCA).

    Will you commit to immediately releasing comments or concerns raised by EPA staff regarding the Foxconn project and the Polymet Mine application?

    The EPA followed standard processes for reviewing the Foxconn and Polymet projects, including internal deliberations regarding the facts associated with and the application of legal requirements to those projects. The EPA will initiate a search for responsive documents and update the Senator's office on the status of that search as soon as feasible.

    Regarding the Polymet project and associated permit, the EPA staff worked closely with their counterparts at MPCA to address the EPA comments and questions related to the pre-proposed NPDES permit. Prior to MPCAs final permit decision, several

meetings and conversations occurred between career EPA and MPCA staff. All concerns, observations or questions from the EPA Region 5 staff, regarding the Polymet NPDES permit, were communicated to MPCA and helped inform the state's final decision. Ultimately, MPCA made the decision to issue the permit and the EPA staff and regional leadership decided not to issue formal comments on the final permit.

88. The Renewable Fuel Standard (RFS) directs EPA to set annual Renewable Volume Obligation (RVO) levels. These blending mandates increase each year until 2022. However, under the Trump Administration, EPA has provided dozens of "hardship" waivers, reducing the mandate by billions of gallons of renewable fuels. EPA's abuse of these hardship waivers have financially harmed farmers in Illinois while lining the pockets of our Nation's most profitable oil companies. Last year, EPA proposed a "reset" regulation for the RFS triggered by its abuse of these waivers.

    What is your timeline for the release, public comment period and final rule of the reset regulation? How will EPA determine future RVO target levels? Do you expect EPA to reduce RVO target levels for conventional, advanced or cellulosic biofuels? Please identify which categories of biofuel will be impacted by the reset regulation.

    The statutory predicate for EPA to conduct a "reset" rulemaking has now been triggered pursuant to the agency's use of its volume waiver authority under Clean Air Act section 211(o)(7). It is important to note that this waiver authority is separate and distinct from the small refinery waiver authority under section 211(o)(9), and EPA's exercise of the latter authority did not factor in the statutory triggering of "reset" pursuant to section 211(o)(7)(F).

    The agency plans to propose a "reset" rule in 2019. Because of the nested nature of the biofuel categories, each category will be impacted by the reset regulation. EPA will still be required to do a separate Renewable Volume Obligation (RVO) each year.

    We will keep you informed of the progression of the reset proposal and provide further details once the proposal is complete. In addition, after the proposal is complete and published in the Federal Register, all interested parties will have the opportunity to submit comments or additional information to the agency regarding the proposal.

89. Part of EPA's obligation under existing law is to identify, assess and register new forms of renewable fuel for the Renewable Identification Numbers (RIN) Market. However, EPA appears to have a multi-year backlog for congressionally-approved registration and pathway applications.

    In fiscal year 2017, EPA approved 14 new pathways. In 2018, EPA approved 11. EPA works hard to continue to improve the pathways applications process and make decisions on a timely basis. The agency has a range of proposals under development that will provide additional clarity and streamline the pathways process for those

feedstocks, including some that will be proposed in the "reset" rule. EPA expects to propose those rules in early 2019. We will keep you updated on the progression of these pathways improvements.

90. How many registrations and pathway applications are currently pending under the RFS? How many registrations and pathway applications did EPA approve in fiscal years 2017 and 2018? What is delaying the approval of applications and how will you address this backlog?

In fiscal year 2017, EPA approved 14 new pathways. In 2018, EPA approved 11. Currently, there are 21 pending pathway applications. EPA works hard to continue to improve the pathways applications process and make decisions on a timely basis. The agency has a range of proposals under development that will provide additional clarity and streamline the pathways process for those feedstocks, including some that will be proposed in the "reset" rule. EPA expects to propose those rules in 2019. We will keep you updated on the progression of these pathways improvements.

Senator Ernst:

91. Under the Coordinated Framework for the Regulation of Biotechnology, the Department of Agriculture, the Food and Drug Administration, and the Environmental Protection Agency have regulatory authority over the products of plant biotechnology. EPA's regulatory authority falls under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and is specific to "plant incorporated protectants," or "PIPs." New breeding methods such as gene editing allow plant breeders to work within a plant's gene pool to make changes that could have occurred naturally or through conventional breeding, albeit more precisely and efficiently.

    USDA recognized this in Secretary Perdue's March 2018 policy statement on plant breeding innovation. This includes methods such as gene editing that will be increasingly used by plant breeders to produce new plant varieties that are indistinguishable from those that could be developed through traditional breeding methods. Under FIFRA, EPA has the statutory authority to clarify the existing exemption for PIPs derived through conventional breeding includes those applications of plant breeding innovation, such as gene editing that could be achieved through conventional breeding.

    a. Will EPA commit to coordinating with USDA and FDA to ensure a clear and consistent regulatory pathway for products of plant breeding innovation, such as gene editing, in a way that does not stifle innovation in U.S. agriculture?

If confirmed, yes, I commit that EPA will continue to coordinate with USDA and FDA to ensure a clear and consistent regulatory pathway for products of plant breeding innovation, such as gene editing, in a way that does not stifle innovation in U.S. agriculture.

92. In several recent meetings with me, you committed to proposing a rule that would provide relief to the glider truck industry. When do you expect this rule to be proposed? Please provide an approximate date.

We continue our work to formulate an effective solution. We are focusing on establishing an emission standard that is not predicated on the industry going out of business or substantially reducing economic growth potential while also using the appropriate source of authority, such as authority for remanufactured engines under the Clean Air Act. We are also assessing the most appropriate means for analyzing costs and benefits associated with a future rulemaking, including comparing remanufactured glider trucks to used trucks as gliders tend to be bought in lieu of used and not new tucks. While we do not yet have a firm schedule for completing a rule, we plan to move ahead as expeditiously as practicable.

93. At your confirmation hearing, you indicated that lower RIN prices did not necessarily mean that there is less "economic hardship" for small refineries, and that RIN prices were just "one factor" in determining whether or not a refinery faces a "disproportionate economic hardship" so as to justify receiving an SRE.

    a. Besides purchasing RINs, what "other factors" contribute to obligated parties' costs in complying with the RFS?
    b. Is there a scenario where lower RIN prices do not alleviate obligated parties' "economic hardship" under the RFS?

When we consider the economic viability of a small refinery that has applied for a small refinery exemption, we look at a wide range of factors that are laid out two Department of Energy (DOE) studies. As the 2011 report states, "Disproportionate impacts consist of Disproportionate Structural and Disproportionate Economic measures." The factors considered under Disproportionate structural impact include:

- **Access to capital/credit.**
- **Existence of other business lines besides refining and marketing.**
- **Local market acceptance of renewables.**
- **Percentage of diesel Production.**
- **Application of state regulations.**

The factors considered under disproportionate economic impact include:

- **Relative refining margin measure.**
- **Renewable fuel blending (% of production).**
- **Presence in a niche market.**
- **Whether RINs are a net revenue or cost.**

For additional information and the full report, please refer to https://www.epa.gov/sites/production/files/2016-12/documents/small-refinery-exempt-study.pdf.

94. At your confirmation hearing, you stated that it is not viable to "reallocate" biofuel volumes that are waived as part of the RFS's SRE provision to other obligated parties. Beyond resorting to reallocation, are there any other options at EPA's disposal to mitigate the negative effect that SREs have on biofuel demand? For example, in setting Renewable Volume Obligations (RVOs), does EPA have authority to:

    a. Reduce the use of the cellulosic waiver authority to intentionally draw down the carryover RIN bank?
    b. Allow for the partial backfilling of missing cellulosic volumes with non-cellulosic advanced biofuels to reflect the fact that hardship waivers will be more frequently granted?

Your question ultimately goes to the factors that we consider in setting annual RVOs. The factors you cite – *i.e.*, the number of carry-over RINs and the availability of advanced biofuels – are among the many factors we consider each year when we propose and promulgate the RVOs.

95. In responding to a question on small refinery waivers, you noted that geography played a role in awarding these waivers. Where in the small refinery waiver section of the Renewable Fuel Standard does it state that geographic location is a factor that can be considered, or determinative, in the decision to issue a small refinery exemption?

The statute is not specific as to the full range of factors we can or should consider in assessing small refinery exemption applications. We have long held the view that the effect of geographic locations is a relevant consideration.

96. Well into 2017 both the Obama and Trump Administration's readily reviewed and approved facility registrations to produce cellulosic ethanol from corn kernel fiber through a peer-reviewed process. However, since November of 2017 several new registrations for cellulosic production utilizing corn kernel fiber technology have been delayed indefinitely for approval, since EPA has decided to not accept peer-reviewed methods as provided in statute by the Renewable Fuel Standard for approving registrations, even when the registrations use the same methods as the Trump Administration had already accepted.

    The delays caused by EPA has created unnecessary uncertainty for the ethanol industry, technology providers, and their investors. As a result, tens-of-millions of gallons of cellulosic biofuels have not been produced, diminishing the demand for corn at a time when our producers are facing low commodity prices. This hits Iowa particularly hard where more than 15 ethanol plants are already making cellulosic ethanol derived from

corn kernel fiber in their facilities, but because of the delays in registration they are unable to receive the D3 cellulosic RIN they are entitled to under the law. As a result of losing out on the D3 RIN, plants in my state have lost out on up to $65 million in economic value that would greatly benefit our rural communities and farmers during this time of uncertainty for the agricultural industry.

a. Will the EPA begin reviewing and approving new registration applications for cellulosic ethanol derived from corn kernel fiber under the existing peer-reviewed processes used prior to November 2017?
b. What steps will the agency take to restart the review process of these registrations after a 15-month delay?

We continue to actively consider applications to generate cellulosic RINs through the conversion of corn kernel fiber. The analytical issues are particularly difficult to resolve. We believe we are making progress and hope to soon resolve the outstanding issues.

Senator Gillibrand

97. PFAS pollution has been linked to very serious health problems. Drinking water contamination from these chemicals in the village of Hoosick Falls, New York, and at least 172 other communities across the county, has been linked to a number of cases of cancer and thyroid disease. The Department of Health and Human Service's PFAS study released in June of last year revealed that the minimal risk level for human exposure to two types of PFAS chemicals, PFOA and PFOS, should be seven to ten times lower than the level previously recommended as safe by the EPA. In the EPA's new PFAS management plan submitted to the Office of Management and Budget, what level of human exposure to PFAS does the EPA recommend as safe?

The EPA will continue to work with our federal, state, tribal, and local partners on response actions and research into the health impacts of PFAS substances. The EPA will consider any information, including the HHS PFAS study, that may inform our approach to PFOA, PFOS, and other PFAS. The EPA's PFAS action plan will outline the agency's approach to identifying and understanding PFAS exposures and addressing the PFAS challenge. The action plan is currently undergoing interagency review. The EPA will be prepared to discuss the contents of the plan as soon as interagency review is complete, and the plan is public. The Agency continues to provide technical assistance to the state of New York, which has taken the lead role in addressing the PFAS issues in Hoosick Falls.

98. In the EPA's PFAS Management plan, what cleanup standard has been put in place to ensure the effective and timely remediation of PFAS chemicals in communities in New York and across the country?

The EPA's PFAS action plan will outline the agency's approach to identifying and understanding PFAS exposures and addressing the PFAS challenge. The action plan is currently undergoing interagency review. The EPA will be prepared to discuss the contents of the plan as soon as interagency review is complete, and the plan is public.

99. If confirmed, will you commit to increase transparency about PFAS chemicals by adding those chemicals to the Toxic Release Inventory?

EPA is evaluating all of its statutory authorities to increase transparency about PFAS chemicals.

100. When will the EPA begin the process of establishing an enforceable standard for PFAS under the Safe Drinking Water Act?

The EPA is currently evaluating PFOA and PFOS under the Safe Drinking Water Act (SDWA) regulatory determination process, which is a critical next step in determining whether to establish a National Primary Drinking Water Regulation. This process builds on previous efforts the EPA has performed to evaluate and address PFOA and PFOS, including for example publishing health advisories for these chemicals, adding PFOA and PFOS as priority contaminants to the SDWA Contaminant Candidate List for regulatory consideration, and collecting monitoring data for six PFAS compounds, including PFOA and PFOS, from drinking water systems across the country as part of the third Unregulated Contaminant Monitoring Rule.

Under the SDWA, the EPA must consider three criteria when making a determination to regulate a contaminant:

- **The contaminant may have an adverse effect on the health of persons.**
- **The contaminant is known to occur or there is a high chance that the contaminant will occur in public water systems often enough and at levels of public health concern.**
- **In the sole judgment of the Administrator, regulation of the contaminant presents a meaningful opportunity for health risk reductions for persons served by public water systems.**

If the EPA makes a determination to regulate PFOA and PFOS, the SDWA requires that, prior to issuing a drinking water standard, the agency must undertake a number of actions, including developing a health risk reduction and cost analysis, consulting with the National Drinking Water Advisory Council, seeking recommendations from the Science Advisory Board, and publishing a proposed regulation for review and comment. The EPA is committed to performing all mandatory actions under the SDWA as it continues its regulatory evaluation.

101. It is my understanding that the EPA is close to making a decision on whether to issue a certificate of completion for the remedial actions carried out by General Electric under its consent decree for the Hudson River Superfund site. I am very concerned that the EPA may issue the certificate of completion despite the EPA's own acknowledgement in its draft 5-year review report that the remedy is not yet protective of human health and the environment. In December, the New York State Department of Environmental Conservation (NYSDEC) released a report based on extensive sampling, and found that in many instances, there has not been a significant decline in PCB concentrations in the Hudson River and its ecosystems.

The National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, and New York State—the three Natural Resource Trustees for the Hudson River—all have stated publicly that the cleanup is incomplete and that it will take decades longer than projected by the EPA for the river to meet the numeric goals of the 2002 Record of Decision. Will you hold off on issuing the Certificate of Completion until the numeric goals of the Record of Decision have been met and the remedy is protective of human health and the environment?

Region 2 was glad to provide a detailed briefing on the status of the Hudson River PCBs Superfund site provided to your staff on December 21, 2018. That briefing focused, in particular, on General Electric's request for a "Certification of Completion of the Remedial Action," and EPA's second Five-Year Review (FYR) report for the site.

Prior to the shutdown, EPA had projected that it would be in a position to make a decision regarding General Electric's request for the certification early in 2019. EPA also projected that early in 2019 it would be in a position to finalize the second FYR report.

It is important to note that these decisions were technically to have been made a year ago but were set aside so that EPA could join the New York State Department of Environmental Conservation (NYSDEC) in a joint, rigorous review of all sediment and fish data collected by both agencies.

It is also important to note that the Five-Year Review and any issuance of the Certificate of Completion of Remedial Action exist as separate constructs, each responding to a distinct set of conditions/considerations. Effectively;

1. **The purpose of the Five-Year Review is to determine whether the remedy selected for the site is protective of human health and the environment.**

2. **The purpose of the issuance of the Certification of Completion of the Remedial Action is to confirm the completion of EPA-defined tasks related to the execution of the dredging remedy called for in the 2006 Consent Decree. This action is not dependent upon a determination of protectiveness in the Five-Year Review.**

A more detailed treatment of both the Five-Year Review and the "Certification of Completion of the Remedial Action" is provided below.

A. Five-Year Review

In May 2017, EPA took the unusual additional step of releasing for public comment a draft of the second FYR Report. EPA conducted three public meetings during the 90-day comment period. The 1000-page draft report found that the remedy is not *yet* protective of human health and the environment; but that it is expected to be so after the natural attenuation element of the remedy occurs over a period of more than five decades, as projected in the Record of Decision (ROD) issued in 2002. The draft FYR indicated that PCB concentrations in fish in the Upper Hudson were declining but had not reached protective levels. Because dredging ended in late 2015, less than two years earlier, only limited post-dredging data was available for the draft FYR, though the fish, sediment and water data available at that time were consistent with the 2002 ROD projections.

EPA received over two thousand comments on the draft second FYR Report and has been carefully reviewing these before finalizing the report. The National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, and New York State recommended that EPA conclude the remedy is *not* protective, arguing the remedy did not go far enough to remove PCBs from the river, and that the time for fish recovery will be longer than anticipated by the 2002 ROD.

In advance of finalizing the second FYR Report, EPA has undertaken an in-depth and intensive evaluation of post-dredging sediment and fish tissue data that had become available since the draft report. In collaboration with the NYSDEC, EPA in 2018 conducted an extensive technical review of the results from some 1,200 sediment samples taken by NYSDEC in 2017, along with the results from hundreds of sediment samples taken by GE under EPA's direction in 2016. The review also considered post-dredging fish tissue data. EPA and NYSDEC senior leadership and technical staff met several times during 2018 to discuss these data and their interpretation. A detailed Technical Memorandum setting out the results of this collaborative, in-depth review will be included with the issuance of the final FYR Report.

B. Certification of Completion of the Remedial Action.

This matter is separate from the FYR, with a different purpose and subject to different legal criteria. Under the terms of the 2006 judicial Consent Decree (CD) between EPA and General Electric, GE has requested that EPA issue a "Certification of Completion of the Remedial Action" (COC) which would confirm that GE performed all "Remedial Action" activities – i.e., the dredging,

capping, habitat restoration, and deconstruction/decontamination of the sediment processing facility – required of the company under the CD.

The "Certification of Completion of the Remedial Action" is one of three certifications that GE may request under the CD. These are: (1) the "Certification of Completion of Phase 1 Field Activities," which was provided to GE in 2012; (2) the "Certification of Completion of the Remedial Action" or COC, which GE requested in early 2017 and which is now under consideration by EPA; and (3) the "Certification of Completion of the Work," which certifies that all work required under the CD has been completed, and which will not be available to GE for many decades.

The term "Remedial Action" is explicitly defined in the CD as *not* including the operation, maintenance and monitoring (OM&M) phase that follows the dredging. The remedy selected in the 2002 ROD for the Hudson River PCBs Superfund site was designed to address the most highly contaminated areas in the Upper Hudson River through active remediation – dredging and, where necessary, capping – followed by allowing the river to recover naturally through "monitored natural attenuation" (also called "monitored natural recovery") that is expected to continue to reduce PCB levels in surface sediment over time throughout the river. The 2002 ROD set a remediation goal of 0.05 mg/kg of PCBs in the fish (a level that would allow people to eat fish from the river once a week) and projected that meeting that goal will require more than five decades of natural recovery after the completion of the dredging. The active dredging work, and the decades-long natural attenuation or recovery process, are both explicit and essential components of the selected remedy.

As previously noted, the term "Remedial Action" as used in the CD specifically excludes the OM&M period, when much of the natural attenuation is expected to occur. The "Remedial Action," as that term is used in the CD, consists only of the dredging itself and the other construction work done by GE under the CD.

The CD states: "If EPA concludes ... that the Remedial Action has been performed in accordance with this Consent Decree, EPA will so certify in writing to [GE]." Pursuant to this provision of the CD, in early Calendar Year 2017 GE requested that EPA issue the COC. Under the CD, EPA was to have responded to that request within one year. EPA has delayed its response to GE's request for the COC until EPA finalizes its second FYR Report, which includes the above-referenced assessment of sediment and fish data carried out in collaboration with NYSDEC.

It is important to note that the CD includes "reopener" provisions under which EPA can require GE to perform additional remedial work, if specified conditions are met. The reopener can be triggered at any time (whether or not the Certification of Completion of the Remedial Action has been issued) if EPA receives new information which, along with other information (including

previous data and analyses), causes EPA to determine that the remedy will not be protective of human health and the environment, and that specific additional work will achieve such protectiveness. EPA receives new information on a regular, recurring basis as new fish tissue, water quality and sediment data are gathered. EPA has long stated that it will take up to eight or more years of post-dredging fish tissue data to reach a scientifically reliable conclusion about the rate of recovery of the fish.

In conclusion, work on both EPA's response to GE's request for the certification, and the second FYR report, was suspended during the government shutdown. EPA will now resume work on these matters and make determinations on each.

102. Will you meet with relevant local stakeholders before you decide whether to issue the Certificate of Completion to have a more complete discussion of this issue?

EPA headquarters and Region 2 officials have had multiple meetings with concerned local stakeholders over the past several years. Region 2 Administrator Lopez and staff have also met and spoken frequently about this issue with NYSDEC Commissioner Basil Seggos (and his staff) as well as with representatives of the New York State Attorney General's office. Additionally, meetings and/or telephone conferences have been held with NOAA, the US Fish & Wildlife Service, and interested members of Congress. EPA representatives have met regularly with the Community Advisory Group for the Hudson River PCBs Superfund site, which includes members from a number of local stakeholder organizations. EPA does not currently anticipate holding additional meetings with local stakeholders prior to reaching a decision on GE's request for the "Certification of Completion of the Remedial Action" as required by the 2006 judicial Consent Decree.

103. Have you personally read the Fourth National Climate Assessment?

Yes, I have read the Fourth National Climate Assessment.

104. To date, how many briefings or discussions have you had with EPA employees on the topic of the Fourth National Climate Assessment since it was released in November?

I have had one formal briefing by the career EPA staff on the Fourth Assessment and requested additional briefings which have not taken place yet due to the shutdown. I had a couple of informal discussions regarding the assessment around the time of my Washington Post interview.

105. Have you been personally briefed by the EPA scientists and career staff who participated in the drafting and preparation of the Fourth National Climate Assessment?

Yes, I had one formal briefing by the career EPA employees who participated in the preparation of the Fourth Assessment.

106. Please list all individuals not currently employed by the EPA that you have discussed the Fourth National Climate Assessment with, including but not limited to, members of the White House staff and other Administration officials, lobbyists, and business executives.

As part of a regularly scheduled phone call with the National Economic Council, and in a couple White House meetings, I recall this issue being raised. I do not recall having discussed the Assessment with anyone and in particular, I do not recall having discussed it with any officials at the Office of Science and Technology Policy, or any White House component or working group which may been involved in the preparation of the report. Finally, I do not recall having discussed it with any lobbyists or business executives. I have been asked about the Assessment by reporters.

107. In your opinion, what are the key actionable findings for the EPA in the Fourth National Climate Assessment?

I still have additional briefings from my career staff planned which have not yet taken place, so I am reserving judgment on actionable findings. One of the key takeaways in my opinion is that the press did not fully understand the various scenarios and I believe more work needs to be done communicating the findings in assessments such as these in the future.

a. How do you intend to incorporate those findings into EPA you decision making should you be confirmed?

I have prioritized risk communication in all that we do at the Agency and I believe the government needs to be more proactive in explaining findings from such reports since the media did a poor job reporting on the assessment. I am sure that there will be other findings as we continue to examine the assessment.

108. As Acting Administrator, what specific actions have you taken to date in response to the Fourth National Climate Assessment?

I still have additional briefings from my career staff planned which have not yet taken place, so I am reserving judgment on actionable findings.

109. Is protecting the lives of pregnant women and children from mercury poisoning is an "appropriate and necessary" role for the EPA?

Of course, I care about protecting the lives of pregnant women and children from the harmful effects of all forms of pollution. Clean Air Act Section 112(n)(1)(A) specifies the finding that must be made to authorize EPA to regulate power plants under Section 112. Please see the NPRM signed on December 27, 2018 for our proposed interpretation of Section 112(n)(1)(A), including the term "appropriate and necessary."

110. How is EPA calculating the benefits of protecting the health of pregnant women and children from mercury poisoning in its cost-benefit analysis for the proposed changes to Mercury and Air Toxics Standards?

EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind the emission standards to which those units are currently subject. The bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794.

111. Do avoided harms associated with a rulemaking, including reduced childhood development delays, need to be monetized to count as part of a cost-benefit analysis?

EPA regularly incorporates avoided harms, including non-monetized effects, in its regulatory actions in a manner consistent with statutory requirements.

112. In evaluating the costs of a rulemaking, do you believe that externality costs – for example costs to society and public health costs from impacts of a pollutant -- should be considered in addition to the financial costs of compliance?

EPA often evaluates externalities, including societal and public health impacts, in its regulatory actions in a manner consistent with statutory requirements.

113. Will you support continued funding for the EPA's geographic programs, including the Long Island Sound Study and Great Lakes Restoration Initiative?

I recognize the importance of these large regional water bodies to the neighboring communities and the nation. EPA's FY 2019 budget request focuses and prioritizes funding on core programs with a national scope and unique federal role and EPA has a number of core programs that address environmental issues in these watersheds. I also understand and support the role the EPA can play as a convener in certain regional

multi-state programs such as the Great Lakes, at the same time recognizing the importance of the local communities and states in leveraging resources and ensuring progress. The Long Island Sound Study also addresses an important natural resource. We will work closely with the states to make continued progress within the levels appropriated by Congress.

114. The interstate transport of ozone and particulate matter is a serious environmental and public health problem in New York. Cross-state air pollution contributes to death and illness in our state and damages our natural resources. Such pollution generated in upwind states also interferes with New York's ability to meet its legal obligation to attain the national standards set by EPA.

    a. What impacts will the Clean Air Act regulatory actions taken by the EPA during the Trump Administration have on ozone and cross-state air pollution on downwind states like New York?
    b. What is the scientific basis for your response to (a)?

The Clean Air Act's "good neighbor" provision requires EPA and states to address interstate transport of air pollution that affects downwind states' ability to attain and maintain National Ambient Air Quality Standards (NAAQS). Specifically, Clean Air Act section 110(a)(2)(D)(i)(I) requires each state in its State Implementation Plan (SIP) to prohibit emissions that will contribute significantly to nonattainment of a NAAQS, or interfere with maintenance of a NAAQS, in a downwind state.

EPA's Cross-State Air Pollution Rule (CSAPR), the CSAPR Update, and the CSAPR Close-out (finalized 12/6/18) fully address states' good neighbor obligations for the 1997 and 2008 ozone NAAQS and the 1997 and 2006 PM2.5 NAAQS. For power plants covered by this program for cross-border ozone, nitrogen oxide emissions dropped by over 20 percent - roughly 80,000 tons - just since the 2016 ozone season.

The recently finalized CSAPR Close-out rule determined that emission reductions under the CSAPR Update will sufficiently control transported ozone pollution with respect to the 2008 ozone NAAQS in states covered by the Update. EPA is actively working with states to provide the technical tools and information to facilitate "good neighbor" state plans addressing interstate transport under the 2015 ozone NAAQS. More information on EPA's efforts to address interstate ozone transport is available at: https://www.epa.gov/interstate-air-pollution-transport.

In March 2018, EPA received a petition submitted by the state of New York under section 126 of the Clean Air Act. The petition requests that the EPA make a finding that emissions from certain sources in nine states (Illinois, Indiana, Kentucky, Maryland, Michigan, Ohio, Pennsylvania, Virginia and West Virginia) contribute significantly to nonattainment of, or interfere with maintenance of the 2008 and 2015 ozone national ambient air quality standards in New York. EPA will work to respond to the petition

and more information is available at: https://www.epa.gov/ground-level-ozone-pollution/new-york-section-126-petition-may-2018.

Senator Markey:

115. As part of the recent revamp of the Toxic Substances Control Act (TSCA), the EPA received the specific authority to address high-risk uses of three extremely dangerous chemicals: trichloroethylene (TCE), methylene chloride, and N-methyl pyrrolidone (NMP). The Obama Administration proposed to ban several uses of these chemicals outright in 2016, but neither you nor former Administrator Pruitt have put a single one of these bans into effect.

    a. Yes or no, does methylene chloride pose a danger to workers, like painters and builders, who handle that chemical?
    b. Can you commit to ensuring that everyone is protected from this deadly chemical by finalizing the exact ban proposed by the EPA two whole years ago—which has yet to be done, even after Scott Pruitt publicly promised to do so?

Yes, under certain circumstances, methylene chloride not only can pose danger, but has also caused worker deaths. The EPA submitted a final rule for methylene chloride paint and coating removal to OMB for interagency review on December 21, 2018, prior to the lapse in appropriations. Questions regarding the scope, implementation, and timing of the final rule and associated EPA actions will depend on the outcome of the interagency review process.

116. The EPA Integrated Risk Information System (IRIS) program completed revisions of its formaldehyde assessment in the fall of 2017. In reports accompanying the Consolidated Appropriations Act of 2017, both chambers of Congress directed that the agency contract with the National Academy of Sciences (NAS) to conduct an external peer review of the revised IRIS formaldehyde assessment. Accordingly, EPA has already provided $1 million to the NAS for this purpose. The January 2018 EPA IRIS report to Congress indicated that "IRIS plans to deliver an External Review of its Formaldehyde Assessment for public comment and peer review in FY18." I have repeatedly inquired about the status of the IRIS formaldehyde assessment and repeatedly requested that EPA advance the assessment to finalization—a process that involves intra- and inter-agency review, external peer review by the NAS, and public comment.

    a. Will the IRIS program continue to work on and finalize its formaldehyde assessment? If not, why not?

    Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent

Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

Additionally, EPA regulates formaldehyde emissions as a hazardous air pollutant under the Clean Air Act, specifically regulates emission from composite wood products, and remains part of the inventory emissions under regular EPA National-Scale Air Toxics Assessments which EPA uses to model nationwide air concentrations and exposures and provides estimates of the potential cancer risk from breathing an air toxicant.

b. Please provide the timeline and agenda items that will allow EPA to complete the remaining steps in the review process for the revised IRIS formaldehyde assessment.

   i. When will the agency initiate the intra-agency review process?

   Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

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   ii. When will the agency initiate the inter-agency review process?

   Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

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iii. When will the agency release the revised assessment for public comment and peer review?

Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

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iv. When will EPA finalize the IRIS formaldehyde assessment?

Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

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which EPA uses to model nationwide air concentrations and exposures and provides estimates of the potential cancer risk from breathing an air toxicant.

c. Will you commit to providing the revised IRIS formaldehyde assessment to NAS for peer review by no later than the end of calendar year 2019?

Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

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d. Please explain why formaldehyde is absent from the 2018 IRIS Program Outlook.

Because IRIS assessments are major investments in both time and resources, in an August 10, 2018 Memorandum to Agency program offices I requested an update of top priorities for IRIS assessments. Formaldehyde was not identified as a top priority. Program offices identified Hexavalent Chromium, Inorganic Arsenic, Mercury salts, Methylmercury, PCBs, varieties of PFAS, and Vanadium. Should the priority needs change, we will move forward with the draft IRIS formaldehyde assessment. Program offices are able to nominate new assessment needs at any time.

Additionally, EPA regulates formaldehyde emissions as a hazardous air pollutant under the Clean Air Act, specifically regulates emission from composite wood products, and remains part of the inventory emissions under regular EPA National-Scale Air Toxics Assessments which EPA uses to model nationwide air concentrations and exposures and provides estimates of the potential cancer risk from breathing an air toxicant.

e. Please explain the process used to develop the 2018 IRIS Program Outlook, from first inception to completion. In your response, please identify the program and regional offices, including the names of specific individuals, consulted or otherwise involved. Please also identify any other organizations and specific individuals consulted or otherwise involved.

In August 2018, I asked that the IRIS prioritization be reaffirmed across EPA. All agency programs responded to this request though OCSPP and OAR did not provide a list of priorities. Regional responses were coordinated through the programs.

An additional prioritization exercise concluded in late November 2018 and resulted in the current IRIS Outlook posted to the IRIS website in December 2018.

117. To what extent, when, and in what capacity was David Dunlap, Deputy Assistant Administrator for Research and Development in EPA's Office of Research and Development, involved in the development of the 2018 IRIS Program Outlook? Please be very specific.

On August 10, 2018, on my behalf, Jennifer Orme-Zavaleta, Principal Deputy Assistant Administrator for Science, ORD, delivered a memorandum to the Assistant Administrators and their deputies. As laid out in this memo, the programs were asked to identify priorities for future IRIS assessments as part of the Agency's continuing effort to ensure IRIS assessment activities are focused on the most important Agency needs. Additionally, these priorities needed to be verified by program leadership and be accompanied by the signature of each program's Assistant Administrator or acting Assistant Administrator. Each program was given complete latitude to select its own priorities.

Before his departure from the Agency, Dr. Richard Yamada had been responsible for driving the programs towards a final list of priority chemicals responsive to this request. Mr. Dunlap was appointed Deputy Assistant Administrator on September 30, 2018 replacing Dr. Yamada. Mr. Dunlap inherited Dr. Yamada's responsibility with respect to this memo. Shortly after his arrival, Mr. Dunlap urged the Assistant Administrators to complete the task and to follow the directions given in the original, August memo, including the need for the appropriate signatures.

After these priorities with proper signatures were received, a summary memo was sent on December 4, 2018, announcing the seven chemicals for priority IRIS assessment (PFAS counts as one but covers five substances). The list of seven chemicals was then announced to the public via the Agency's website.

118. Mr. Wheeler, you wrote in your testimony that "[t]here is no more important responsibility than protecting human health and the environment."

    a. Would the proposed Mercury and Air Toxics Standards (MATS) rule you proposed result in less mercury being emitted from power plants, yes or no?

Because EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind or weaken the emission standards to which those units are currently subject, the proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review, were it to be finalized, whould have no effect on mercury emissions beyond the effect of the MATS standards themselves.

119. The Harvard "Six Cities" study, which linked air pollution and mortality risk, is a key study used in assessing many air quality regulations. In 2011, the EPA estimated that the control of particulate air pollution saved 160,000 lives in 2010, and that it will save 230,000 lives in 2020.

    a. Under the EPA's proposed "Strengthening Transparency in Regulatory Science" rule, would the EPA be able to use the Six Cities study?

    EPA is still in the process of reviewing approximately 9,000 unique, i.e. non-mass mailer public comments and conducting internal deliberations as part of the regulatory development process. No decisions have been made concerning implications for the use of specific studies.

    b. As Administrator, do you see any danger in moving forward with the "Strengthening Transparency in Regulatory Science" rule and eliminating the use of studies like the Six Cities study?

    As indicated above, the rule is still under development. No decisions have been made concerning implications for the use of specific studies.

120. Do you commit to allowing EPA scientists to continue to conduct research free from political interference and communicate with the public about their findings, including discussing it at conferences and with the media?

Yes. Consistent with EPA's Scientific Integrity Policy, EPA scientists conduct the highest quality research focused on the priorities of EPA's program offices, regions, and states. Adhering to scientific practices of quality assurance and peer review, EPA scientists are encouraged to publish their findings and present them at scientific conferences held throughout the world. EPA's Office of Public Affairs coordinates responses to media inquiries and EPA scientists have been available to address questions raised by the media.

121. At a recent meeting of the EPA Clean Air Scientific Advisory Committee (CASAC), multiple members of CASAC expressed doubt that they had the scientific experience to manage reviewing the science on particulate matter, which includes divergent scientific fields from epidemiology, to toxicology to data science to instrumentation.

    a. Do you still believe that this CASAC has the requisite expertise to provide you with advice on particulate matter?
    b. Epidemiology is a key subject for assessing the health impacts of particulate matter such as early death and cardiovascular illness, yet not a single epidemiologist is on CASAC. How can CASAC adequately assess the science on particulate and health, when its members do not have expertise in key fields like epidemiology and when there is no particulate matter review panel?
    c. Has CASAC consulted with outside experts on PM and ozone standards? If so, with whom?

CASAC is a seven-member committee, required under Section 109 of the Clean Air Act, which provides critical advice related to National Ambient Air Quality Standards (NAAQS). The membership includes at least one member of the National Academy of Sciences, one physician, and one person who represents a state air pollution control agency. In October 2018, EPA announced the appointment of five new members to the chartered CASAC. More information on CASAC and its members is available at: https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC.

I believe the current CASAC has the experience and expertise needed to serve in this capacity as well as to complete the reviews for the particulate matter and ozone NAAQS. The chartered CASAC is filled with qualified, independent experts who have decades of experience working on ozone and particulate matter issues and a diverse set of backgrounds in fields like toxicology, engineering, medicine, ecology, and atmospheric science. EPA also has the ability to seek advice from other experts to assist CASAC as needed for these reviews.

Tasking the chartered CASAC with overseeing these reviews ensures the early engagement of the advisors who ultimately provide advice to EPA, and this action is consistent with the Clean Air Act, regulations implementing the Federal Advisory Committee Act, and CASAC's charter. In May 2018, EPA issued a memorandum outlining a "Back-to-Basics" process for NAAQS under the Clean Air Act. This memo ensures that EPA and its independent science advisors follow a transparent, timely, and efficient process in reviewing and revising public health- and welfare-based NAAQS. Consistent with the memo, EPA intends to finalize any necessary revisions to the ozone and particulate matter NAAQS by the end of 2020.

EPA welcomes feedback during all stages of these reviews from members of the scientific community and public. The Committee has received feedback from a number of outside experts during recent public meetings and teleconferences.

122. Under the Whistleblower Protection Enhancement Act of 2012, any non-disclosure agreement, whether written or oral, must include statutory language notifying employees of their whistleblower rights.

a. How does the EPA consistently make its employees aware of this right? Please provide examples.

The U.S. Environmental Protection Agency is committed to ensuring that all employees are aware of their rights to be free from prohibited personnel practices including retaliation for whistleblowing. To that end, the Agency issues annual notifications to employees by email and the email includes a link to the U.S. Office of Special Counsel website which includes specific information about OSC's mission, authority and procedures. I have attached my October 25, 2018, notification to the Agency. Specifically, the OSC is an independent federal investigative and prosecutorial agency that protects federal employees from prohibited personnel practices, including whistleblower retaliation and unlawful hiring practices. OSC also provides an independent, secure channel for disclosing and resolving wrongdoing in federal agencies.

Additionally, employees can disclose allegations of wrongdoing to the Office of Inspector General via the OIG's anonymous hotline.

In addition, the Whistleblower Protection Enhancement Act of 2012 directs Inspectors General to designate a Whistleblower Protection Coordinator. The Coordinator's role is to educate agency employees about prohibitions on retaliation for protected disclosures and educate agency employees who have made or are contemplating making a protected disclosure about the rights and remedies against retaliation for protected disclosures.

b. If there was an official finding, internally or externally, that a whistleblower was retaliated against by a member of your staff for a lawful disclosure, how would you respond and what consequences would you recommend that the retaliator face?

If there were an official finding that a supervisor engaged in whistleblower retaliation, the Agency would follow the requirements of the Chris Kirkpatrick Whistleblower Protection Act, S. 585, of 2017. While fact patterns can differ greatly, the Agency would thoroughly review the case and respond as it best deemed appropriate in accordance with the law. As the Agency's annual email notifications highlight, the Agency firmly supports whistleblower rights and protections.

Senator Merkley:

123. In 2009 the EPA issued under its Clean Air Act authority a science-based finding that greenhouse gas emissions endanger public health and welfare. This finding was made after a long public comment period with thousands of comments received and considered.

In *Massachusetts v. EPA*, the Supreme Court held that "greenhouse gases fit well within the Clean Air Act's capacious definition of 'air pollutant,'" and noted that the Act defines "welfare" similarly broadly to include effects on weather and climate. EPA has issued a request for comment on developing a new endangerment finding under Section 111(b) of the Clean Air act for "an already listed category" of pollutant. Revisiting this process would be unprecedented.

Will you commit to respecting the previous scientific process and commit to not revisiting the EPA's 2009 greenhouse gas endangerment and contribution findings?

As I have stated multiple times, I do not intend to reconsider those findings. Having said that, as Administrator, I cannot commit to take any particular action or prejudge the outcome of any matter that might come before me, as I have a responsibility to ensure that whatever actions the EPA might take under the Clean Air Act are within the lawful scope of the EPA's authority under the Act, reflected reasoned decision making, and are taken after providing public notice and comment as appropriate.

124. The Mercury and Air Toxics Standards (MATS) have been tremendously successful and that utilities have already invested significant resources towards abating this type of pollution, and support keeping the standard in place.

But on December 28th, the EPA, under your leadership, said it was no longer "appropriate and necessary" to regulate mercury and toxic air pollution from coal- and oil-fired plants.

In the *Michigan vs. EPA* case in 2015, the Supreme Court ruled that the EPA should have considered the costs at the same time that it decided whether it is was "appropriate and necessary" to regulate hazardous air emissions from power plants. The EPA complied with the ruling by submitting a Supplemental Finding in 2016 to the MATS rule, which examined industry costs and public health benefits.

Under the Trump Administration, the EPA then chose to reopen this Supplemental Finding and focus on attempting to undermine this vital health protection. You claimed that this done under the Supreme Court's mandate.

Please state the exact legal mandate that directs the EPA to revise the MATS rule that was not fulfilled by the EPA's Supplementation Finding in 2016.

EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind or weaken the emission standards to which those units are currently subject. The bases for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. The EPA has reexamined the cost analyses presented in the 2016 Supplemental Finding and proposes to determine that neither of the Finding's approaches to considering cost satisfies the Agency's obligation under CAA section 112(n)(1)(A) as interpreted by the Supreme Court in *Michigan*.

125. You further stated that the Clean Power Plan was withdrawn in compliance with the courts. However, the Supreme Court has never issued a determination on the legality of the Clean Power Plan. Instead, the Supreme Court simply stopped implementation while litigation continued. It has three times upheld the EPA's authority to set limits on carbon pollution.

    Additionally, the Affordable Clean Energy plan proposed has been shown by the study "The Affordable Clean Energy Rule and the Impact of Emissions Rebound on Carbon Dioxide and Criteria Air Pollutant Emissions" published in *Environmental Research Letters*, to potentially increase pollution in certain states.

    Please provide the EPA's analysis showing the impacts on individual plants and state level emissions.

    If EPA career staff disagree with the findings of the *Environmental Research Letters* study, I ask that you provide the scientific and cost-benefit justification for the disagreement.

The Clean Power Plan (CPP) was stayed by the Supreme Court and thus was never implemented and never achieved any emission reductions. The proposed Affordable Clean Energy (ACE) rule is projected to significantly reduce emissions, including 2030 reductions of carbon dioxide of 12 to 27 million tons. As you can appreciate, we currently are in the midst of a rulemaking and are actively working to formulate a final rule. We will take your concerns into consideration as we complete the rule. Further information responsive to your questions may be found in the Notice of Proposed Rulemaking (NPRM) for the ACE rule, published at 83 Fed. Reg. 44,746 (Aug. 31, 2018) and in the supporting documents in the docket for this action, EPA-HQ-OAR-2017-0355.

126. In the New Source Performance Standards (NSPS), EPA reduced requirements on monitoring fugitive methane emissions. The EPA finds it would increase the leakage of methane by 380,000 short tons and additionally allow increases in the release of VOCs and other harmful air pollutants.

Why were the increases in VOC and other harmful air pollutants not included in the cost-benefit analysis?

On September 11, 2018, EPA proposed targeted improvements to the 2016 New Source Performance Standards for the oil and gas industry that streamline implementation, reduce duplicative EPA and state requirements, and significantly decrease unnecessary burdens on domestic energy producers. This oil and gas targeted improvements package is expected to save up to approximately $484 million in regulatory costs from 2019 – 2025 or $75 million annually. The accompanying regulatory impact analysis discusses the inclusion and exclusion of certain costs and benefits, and is available at: https://www.epa.gov/sites/production/files/2018-09/documents/oil_and_natural_gas_nsps_reconsideration_proposal_ria.pdf. This analysis included an evaluation of changes in methane, VOC, and HAP emissions.

127. Numerous studies including "Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites" published in *Environmental Science and Technology*, and "Assessment of methane emissions from the U.S. oil and gas supply chain" published in *Science* have shown methane leak rates to be higher than EPA accounts for.

Given this fact, what is the justification for weakening these standards?

If the methane emissions leak rate of 2-3% were used, instead of the 1.4% EPA currently uses, what would be the impact on this rule and other methane emissions rules?

EPA proposed targeted improvements to the 2016 New Source Performance Standards for the oil and gas industry that streamline implementation, reduce duplicative EPA and state requirements, and significantly decrease unnecessary burdens on domestic energy producers. This oil and gas targeted improvements package is expected to save up to approximately $484 million in regulatory costs from 2019 – 2025 or $75 million annually.

EPA develops an annual report, titled the *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, that tracks U.S. greenhouse gas emissions and sinks by source, economic sector, and greenhouse gas going back to 1990. EPA publishes the draft report in February to allow for public comment prior to publishing the final report by April 15 of every year. More information on the report, including EPA's assessment of methane emissions rates, is available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

128. In 2014, the EPA created the "electric pathway" under the RFS program to accelerate the adoption of electric vehicles, the development of charging infrastructure, and the production of biogas electricity by allowing for the creation of "electric-RINs" or "E-RINs".

Since the program's creation, no E-RIN applications for this pathway have been approved, and there are at least six applications pending. These applications have been submitted by vehicle manufacturers, charging stations, and third party clearinghouses, many of whom have been waiting years to receive a decision from your agency.

Does EPA plan to address an electric RIN-generation program in the near future?

EPA has received a number of comments that are under consideration as the agency continues to develop an e-RINs generation program. There are a range of important considerations including assessing the best methods for robust oversight that are key to successful implementation. While we do not have a date certain for completion of the program, we will continue to work through these important issues and will keep you regularly informed of the program's progress.

Will you commit to addressing this backlog and giving these applicants a response within 90 days?

Per the above answer, the agency does not have a date certain for completion of the e-RINs program, but we will keep you regularly informed of the program's progress.

129. The EPA has proposed a rulemaking that will modify applicable volume targets for cellulosic biofuel, advanced biofuel, and total renewable fuels for the years 2020-2022. As part of this rulemaking, the agency will also be proposing volume requirements for biomass-based diesel for 2021 and 2022. This proposed rulemaking includes several regulatory amendments designed to provide clarity and increase opportunities for renewable fuel production.

Can you explain the method by which the EPA intends to clarify or make changes to those existing regulations?

EPA has not yet proposed the above referenced action. The agency plans to propose a "Reset" rule pursuant to the requirements laid out in Clean Air Act section 211(o) in 2019. Part of that rule will include provisions that will streamline elements of the pathways program. We will keep you informed of the progression of the reset proposal and provide further details once the proposal is complete. In addition, after the proposal is complete and published in the Federal Register, all interested parties will have the opportunity to submit comments or additional information to the agency regarding the proposal.

In addition, can you confirm whether EPA intends to include clarifications to the regulations related to existing alternative pathways for advanced and cellulosic biogas?

Per the above answer, EPA has not yet issued the referenced proposed rule. The agency will keep you informed of the progression of the reset proposal and provide further details once it is complete.

130. The updated Toxic Substances Control Act (TSCA) is supposed to regulate thousands of chemicals used industrially, and in an array of consumer products like paint, cleaning products, mattresses, clothes, insulation, and more. But under both former Administrator Pruitt and under your leadership, the Environmental Protection Agency has taken every opportunity to undermine, not enhance, chemical safety.

In evaluating whether a new chemical might pose an unreasonable risk, the law requires EPA to rigorously review both the intended use of the new chemical and any future uses that are "reasonably foreseen," per the definitions of the conditions of use.

However, the EPA announced in 2017 that the TSCA new chemical review process would not include a consideration of the chemical safety risk across all uses of a new chemical, and instead would allow new chemicals to enter the marketplace after considering only the intended uses identified by the industry applicant

Isn't this in direct contravention of what the law requires?

EPA considers all conditions of use, including reasonably foreseen uses (regardless of whether they are identified by the submitter), when conducting a new chemical review. The Lautenberg Act amendments to TSCA required that conditions of use means the circumstances, as determined by the Administrator, under which a chemical substance is intended, known, or reasonably foreseen to be manufactured, processed, distributed in commerce, used, or disposed of. The identification of reasonably foreseen conditions of use will necessarily be a case-by-case determination and will be highly fact specific.

131. Chemicals are often used for purposes that were never initially considered by the original manufacturer. Research has linked exposure to the chemicals in this now ubiquitous product to health effects ranging from reduced fertility to hormone disruption and DNA damage.

I'm concerned that, rather than evaluating the risk a new chemical may pose in the future, EPA is considering only the potential risk from the uses that the first manufacturer of the chemical initially identifies, even though if that chemical is allowed on the market on that basis without any conditions, other manufacturers are likely to use the chemical for other purposes.

Under this approach, EPA would never consider the combined risks from both intended and other reasonably foreseen uses of the chemical. This could result in a failure to address all of the potential risks of the new chemical, and inadequate protection of human health and the environment.

How do you plan on prioritizing EPA resources to ensure that chemical reviews are implemented as required by TSCA?

If confirmed, will you commit to including in both new and existing chemical risk evaluations ALL reasonably foreseeable future uses of chemicals under review?

New and existing chemical evaluations under TSCA are a top priority for the EPA, and I will ensure that resources are allocated appropriately. EPA considers all reasonably foreseen conditions of use (regardless of whether they are identified by the first manufacturer). The Lautenberg Act amendments to TSCA provided that conditions of use means the circumstances, as determined by the Administrator, under which a chemical substance is intended, known, or reasonably foreseen to be manufactured, processed, distributed in commerce, used, or disposed of.

132. Recently, there have been a number of actions taken by the EPA that undermine resource allocation and implementation of the TSCA reform. The final fee rule establishes the "user fees" Congress authorized EPA to collect from chemical manufacturers and processors to help defray EPA's costs for implementing TSCA. This rule dramatically underestimates costs and lets the industry get away without paying its fair share.

In that fee rule, the agency grossly underestimated not only the costs of reviewing Confidential Business Information claims, but entirely excluded its costs to provide ready access to CBI required under the new TSCA to state governments and other qualified persons, or to provide public access to information that does not qualify for protection from disclosure.

If confirmed to lead the EPA, will you commit to prioritizing sound TSCA implementation by fighting for full funding for the agency, maintenance of and support for the Office of Research and Development's scientific work relevant to the TSCA program, and funding and staffing levels necessary to carry out the statute in a balanced way?

I am committed to working with the Administration and Congress to ensure that the TSCA program is adequately resourced to meet its responsibilities and requirements under the law. As you suggest, the new fees program is an important source of TSCA resources. We have put in place an appropriate fee structure based on reasonable resource estimates and assumptions. The statute gives us the opportunity to revisit those assumptions once we gain experience implementing the program.

133. Asbestos is a known carcinogen that has been banned in more than 60 countries, because there is no safe or controlled use of asbestos.

Would you agree that there is no safe or controlled use of asbestos?

To address serious adverse health impact concerns associated with exposure to asbestos, EPA has started two asbestos actions under its TSCA authorities. The first is to evaluate the uses of asbestos that are still being manufactured and imported into the United States. If EPA's risk evaluation shows that any of those uses presents an unreasonable risk to people or the environment, the law requires EPA to take action to eliminate the risk. The second action EPA has taken is to guard against former asbestos uses coming back, either through domestic manufacture or import into the United States. We are working to finalize a rule requiring that certain asbestos uses that are no longer in commerce in the United States, but existed before EPA's partial asbestos ban in 1989, cannot be restarted without EPA review and regulation. The new efforts we have initiated under our TSCA authorities, will give us a better understanding of where risks from asbestos exposure still exist, so that we can apply the most effective and protective approaches to address them.

134. EPA has proposed a significant new use rule (SNUR) for asbestos that opens the door to resuming several uses of asbestos that ended many years ago.

Instead, would you commit to opposing the asbestos SNUR and permanently banning all uses of asbestos under section 6 of TSCA?

All uses previously banned under EPA's prior Asbestos Ban and Phaseout Rule remain banned. EPA's proposed SNUR would prohibit certain unregulated uses of asbestos and require a review from EPA should anyone seek to initiate those uses, which may result in restrictions, including a decision to maintain the prohibition. Without finalizing this SNUR, these uses can currently commence in the United States at any time without review and regulation from EPA. The SNUR is the only way of assuring that these products do not enter the marketplace until the risk evaluations are completed.

135. Millions of people are still exposed to asbestos every single day, in schools, commercial buildings, construction sites, factories, and homes. Yet EPA's ongoing asbestos risk evaluation does not account for the existing presence and ongoing use of asbestos.

Do you support EPA's decision to ignore this risk by removing it from the scope of the risk evaluation?

Will you pledge to work with this Committee to include legacy use and exposure in EPA's ongoing risk evaluation?

EPA is focusing its risk evaluation on asbestos currently manufactured, imported, processed, or distributed in the United States, which falls within the agency's TSCA jurisdiction. Many existing Federal or State regulations protect against asbestos exposure from legacy uses. EPA would be happy to work with the Committee to elaborate on how legacy uses are currently addressed by EPA and other agencies.

136. The risk evaluation also excludes several types of cancer and lung disease, along with all exposure to asbestos resulting from its release into the environment. Think about the thousands of first responders exposed to asbestos dust after the tragedies of September 11th, 2001, and the resulting cases of lung cancer and mesothelioma. That type of exposure is being excluded from EPA's evaluation.

    Will you commit to removing these exclusions, and instead conducting a thorough and comprehensive evaluation?

I share your concern for first responders exposed to the asbestos dust after the tragedies of September 11, 2001. Because cancer is expected to be the risk driver, in conducting further analysis for the risk evaluation of asbestos, EPA intends to limit the scope of the risk evaluation to lung cancer and mesothelioma in humans. Evaluating these health endpoints will help to ensure that EPA's risk evaluation accounts for other health effects as well. We believe that the health effects identified in the problem formulation document are the appropriate ones to address under the risk evaluation's conditions of use.

137. The semiconductor industry in Oregon is a major employer and economic driver. Approximately 24,000 Oregonians are employed in the semiconductor industry, and it is the state's largest export.

    Several Oregon companies have expressed concern about the shutdown and the potential impact it could have on the review and approval of specialized chemicals needed for semiconductor manufacturing. The industry relies on EPA approval of chemicals with specific functional and performance attributes in its highly advanced and complex manufacturing operations.

    The primary family of chemicals that has triggered concern for companies in my state are known as onium compounds, which are primarily used as photoacid generators in the photolithography process used to manufacture semiconductors. Some of these chemicals are currently in use, some of them are under evaluation. In some cases, chemicals are approved for a temporary period of time (e.g., 6 months), and there is a risk that this period may expire without EPA having the ability to extend the approval.

    What is EPA doing to assure these companies and the public that new chemicals are being reviewed in a timely manner and that time-limited approvals will not lapse during this shutdown?

We have a productive ongoing relationship with the semiconductor industry on the onium compounds, which we appreciate are important to the industry's continued development and U.S. leadership. EPA will keep innovation in mind and ensure that chemicals important to the semiconductor industry, such as the onium compounds, move through new chemicals review as expeditiously as possible consistent with TSCA's requirements for evaluation and management under section 5.

138. The Office of Land and Management, which oversees cleanup of toxic Superfund sites, is currently down from 468 staffers to 3.

Has Superfund site monitoring or oversight been impacted or diminished in any way during the government shutdown as compared to the same time period last year?

The number of employees in excepted that worked nationwide on Superfund issues was dynamic and varied by region since the agency directed work to meet specific needs as allowed by law. EPA Headquarters and Regional excepted staff in the Superfund Program continued to respond at sites or incidents where there was an imminent threat to the safety of human life or to the protection of property. Work at Superfund sites continued without EPA involvement up to the point that additional EPA direction or funding was needed. Cleanup activities requiring new funding will start now that cleanup activities are able to commence.

139. In 2017, EPA adopted a cleanup plan for the Portland Harbor Superfund site in my home state of Oregon, one of the largest sites currently on the EPA's National Priorities List.

In response to intense lobbying from two Potentially Responsible Parties of contamination at the site, EPA has proposed weakening the cleanup standards for the entire cleanup based on a new estimate of cancer risks from a single contaminant – benzo-a-pyrene, a polycyclic aromatic hydrocarbon or PAH – even though other contaminants still persist at the site.

EPA is making this change with incomplete information, before any testing, monitoring, or design is completed for the project – which may reveal additional need for strong cleanup standards. Furthermore, the cleanup plan already provides for a five-year technical review process whereby this new risk assessment can be considered, alongside other public health concerns, to properly weigh whether reduced cleanup is necessary.

Why is the EPA weakening Superfund cleanup standards at the Portland Harbor Superfund site, thereby exposing the public to greater health risks, without the bare minimum information including: baseline monitoring data, an analysis of how this change will increase health risks from fish and clam consumption, or any analysis of cumulative risks posed by the chemical cocktail in the Harbor?

Does the Portland Harbor Superfund site remain a priority for EPA and are you committed to ensure that adequate resources exist for the Agency to support remediation efforts undertaken by PRPs at the site?

The Portland Harbor Superfund site remains a priority for EPA and continues to be included on the Administrator's emphasis list of priority Superfund sites. This designation will help ensure the site has the highest level of attention to move the cleanup forward. The Agency remains committed to providing the resources needed to work with potentially responsible parties to ensure the remedial designs and remedial actions are implemented at this site.

EPA is proposing changes to the January 2017 Portland Harbor Record of Decision (ROD) based on a new toxicological review related to one contaminant, Benzo(a)pyrene (BaP) that was released approximately two weeks after the Record of Decision was signed. (BaP is a Polycyclic Aromatic Hydrocarbon (PAH) which is produced when coal, oil, and gas are burned, spilled, etc.) Based on national research, EPA updated the estimated health risk for BaP in the *Toxicological Review of Benzo(a)pyrene* for people who contact or ingest the chemical.[16] The review updated the oral cancer slope factor for human health risk for BaP from 7.3 to 1 milligram per kilogram per day. Given that humans have less cancer risk from exposure to BaP, EPA evaluated the potential implications on the cleanup remedial action levels (RALs) from exposure to carcinogenic PAHs (cPAHs) to determine whether any areas slated for active cleanup, primarily due to human exposures from direct contact with contaminated sediments or shellfish consumption, no longer presented an unacceptable risk or may no longer require active cleanup.

To address this new information, consistent with EPA guidance, on October 22, 2018, EPA issued a proposed Explanation of Significant Differences (ESD) that proposes changes to the ROD for the Portland Harbor Superfund site. Under the proposed ESD, the changes would be:

- **Updating the beach sediment cleanup levels (CULs) for cPAHs from 12 to 85 mg/kg.**
- **Including a direct sediment CUL for cPAHs of 774 mg/kg applicable to nearshore sediments**
- **Correcting a mathematical error made in calculating the shellfish consumption sediment CULs, changing it from 3,950 to 39.5 mg/kg and updating the shellfish consumption shellfish consumption CUL for cPAHs from 39.5 to 1,076 mg/kg**
- **Updating the target tissue level for cPAHs in shellfish from 7.1 to 51.6 mg/kg**
- **Updating the highly toxic principal threat waste (PTW) threshold from 106,000 to 774,000 mg/kg – applicable to the whole site**
- **Updating the total PAH remedial action level applicable to sediments outside the navigation channel for 13,000 to 30,000 mg/kg**

[16] The toxicological review available in EPA's Integrated Risk Information System (IRIS). https://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=329750

- **For beaches where recreational use is possible based on existing and reasonably anticipated uses and any sediment CULs are significantly exceeded, signage or other educational institutional controls may be used until the CULs are achieved.**

EPA determined that these changes will maintain the protectiveness of the 2017 ROD. All other elements in the 2017 ROD remain unchanged. These overall changes only affect areas where cleanup is driven solely by human health risks based on actual or potential exposures to PAHs and includes Terminal 4, the west side of the Willamette River between river miles 4 and 7, the upper portion of Swan Island lagoon, and the east side of the Willamette River between river miles 2.5 and 3. The amount of PTW is unchanged.

Overall the estimated total remedial area would be reduced from 364 acres to 347 acres (4.7%) if the proposed ESD is implemented. It is estimated the total cubic yards (CYs) of dredging and riverbank excavation would be reduced by 80,000 CYs – from approximately 3.02 million CYs to approximately 2.94 million CYs. The overall costs would be reduced by an estimated $35 million to $1.015 billion.

EPA accepted public comments on the proposed changes through December 21, 2018. Due to the government shutdown, we have not been able to complete the review and evaluation of those comments, but intend to do so when EPA funding is restored.

140. Last year, EPA and NHTSA released a proposal to roll back the Corporate Average Fuel Economy (CAFE) standards. The proposal would freeze fuel efficiency standards, even though many automakers have already invested in technology research and investment. It would also undermine states' abilities to set higher standards for themselves. And it would result in a drastic increase in carbon pollution.

    In order to boost fuel efficiency, at least 1,200 U.S. facilities and 288,000 American workers are building parts and materials. U.S. automakers have invested nearly $64 billion in these facilities. Your proposal would put these investments, these factories, and these workers in jeopardy.

    Will you commit to working with the states that have their own rules in place and NOT preempting those states that maintain stricter standards?

EPA and the National Highway Traffic Safety Administration (NHTSA) have jointly proposed a rulemaking for greenhouse gas (GHG) emission and fuel economy standards, respectively, affecting light-duty vehicles for the 2021 through 2026 model years. EPA also proposed to revoke the waiver of preemption currently in place which allowed California (and a number of other states that have adopted the California standards) to adopt their own GHG standards and the zero-emission vehicle program. The proposed legal basis for withdrawing the California Waiver is described in the notice of proposed rulemaking and accompanying documents, available at: Docket No.

EPA-HQ-OAR-2018-0283. EPA received a wide range of public comments on the proposal and is carefully reviewing those comments. I am committed to working with California and Section 177 states as EPA and NHTSA determine a path forward consistent with the Clean Air Act and the goal of one national program.

141. Based on the sources you have consulted, please describe the scientific consensus on the role of climate change and its relation to more severe wildfire seasons.

I have reviewed the Fourth National Climate Assessment, but I expect to receive future briefings on the causes of wildfires, including the role of active forest management and climate change.

142. In your testimony, you said you would "continue to read the literature" regarding the causes of catastrophic wildfires. I submit the following articles, including the National Climate Assessment, for your review, which find that climate change has increased the area burned in the Western United States:

    a. Vose, J.M., D.L. Peterson, G.M. Domke, C.J. Fettig, L.A. Joyce, R.E. Keane, C.H. Luce, J.P. Prestemon, L.E. Band, J.S. Clark, N.E. Cooley, A. D'Amato, and J.E. Halofsky (2018). "Forests." In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 232–267. doi: 10.7930/NCA4.2018.CH6.
    b. Abatzoglou, J. T., & Williams, A. P. (2016). Impact of anthropogenic climate change on wildfire across western US forests. *Proceedings of the National Academy of Sciences*, 113(42), 11770-11775.
    c. Keeley, J., & Syphard, A. (2016). Climate change and future fire regimes: examples from California. *Geosciences*, 6(3), 37.
    d. Keyser, A., and A. L. Westerling. (2017). Climate drives inter-annual variability in probability of high severity fire occurrence in the western United States. *Environmental Research Letters*, 12(6), 065003.
    e. Davis, R., Yang, Z., Yost, A., Belongie, C., & Cohen, W. (2017). The normal fire environment—Modeling environmental suitability for large forest wildfires using past, present, and future climate normals. *Forest Ecology and Management*, 390, 173-186.

After reading these articles, do you still believe that climate change has a limited role in the changing patterns of wildfires, including longer, more severe wildfire seasons?

Thank you for the suggested articles on the impact of climate change on wildfires. I have also found these sources to be educational as well. "Fire on the Mountain: Rethinking Forest Management in the Sierra Nevada" report by the Little Hoover Commission, the Independent California Oversight Agency[17]. The California agency stated, "a century of mismanaging Sierra Nevada forests has brought an unprecedented environmental catastrophe that impacts all Californians." Likewise, Professor Cliff Mass with the University of Washington stated recently that "The Camp Fire that struck northern California...is a profoundly disturbing environmental disaster of first magnitude...this disaster was both foreseeable and avoidable, resulting from a series of errors, poor judgment, lack of use of available technology, and poor urban planning." Professor Mass also stated that "Global warming is a profoundly serious threat to mankind, but it has little impact on the Camp Fire and many of the coastal California fires of the past few years." As I continue to examine the science of climate change and the potential impacts, I will try to avail myself of the latest science as well as the scientific advice of the career scientists here at the EPA.

Senator Rounds:

143. Acting Administrator Wheeler, under the RFS, the EPA is granted expanded discretionary authority to set volume obligations after 2022. If confirmed, you very well may be leading the EPA at that particular point in time.

    a. In your professional opinion, what is the range of discretionary authority granted to the EPA after 2022?
    b. How do you anticipate conventional corn ethanol being impacted after 2022?
    c. We need a thriving biofuels industry for a variety of national security reasons, including energy independence and diversity. Do you believe that Congress needs to consider statutory changes to account for the negative possibilities post-2022?

To date, EPA has not taken a position on the details of how it will conduct post-2022 program implementation. It is safe to say that responsibility for setting RVO targets shifts to EPA and that the Agency must consider a wide range of factors in determining appropriate RVO targets and RVOs. I look forward to consulting with you on this important issue as we get closer to implementation of these provisions. Congressional statutory direction would provide the best clarity to allow EPA to implement this program post 2022.

[17] Little Hoover Commission, "Fire on the Mountain: Rethinking Forest Management in the Sierra Nevada," (Report Number 242). February 2018, https://lhc.ca.gov/sites/lhc.ca.gov/files/Reports/242/Report242.pdf.

144. Mr. Wheeler, our trade partners are currently deciding how they will approach the use of gene editing in agriculture. To minimize the chance of trade disruptions, it's critical that the U.S. government have a consistent position across agencies that we can encourage other nations adopt. Will EPA collaborate with USDA and FDA in a timely manner to develop a consistent position? Moreover, is this a matter we can expect EPA to commit sufficient resources to moving forward?

If confirmed, yes, EPA will continue to collaborate with USDA and FDA in a timely manner to develop a consistent position. EPA will allocate resources to this matter as provided by Congress.

Senator Sanders:

Vermont

145. In my questions for the record for the hearing to consider your nomination for EPA Deputy Administrator, I asked whether you would commit to continuing the EPA's support for the clean-up of phosphorus in Lake Champlain through the Total Maximum Daily Load (TMDL) standard that the agency established in 2016. You responded that you would "work within the appropriations levels provided to the EPA by Congress."

In your time thus far at the EPA, have you found the appropriations levels provided to the EPA by Congress to be sufficient to ensure that the EPA's Clean Water Act obligations are satisfied in regard to phosphorus levels in Lake Champlain? If so, please provide a timeline for when the EPA will fulfil its obligations under the TMDL. If not, please describe the funding amounts and specific areas for which congressional appropriations have been insufficient to fulfil the EPA's Clean Water Act obligations, as well as your plan for requesting sufficient funds in the EPA's FY2020 budget request.

The EPA is committed to working with the states of Vermont and New York on their implementation of the Lake Champlain TMDLs. Once Congress provides appropriations, the EPA will continue to perform the agency's oversight responsibilities.

Climate Change

146. In November 2018, the U.S. Global Change Research Program released the Fourth National Climate Assessment (Assessment). Do you agree with the Assessment's findings that climate change will cause the following impacts?

If so, please describe how the EPA has factored in each impact to its decision-making in regard to each of the 33 deregulatory actions the EPA has taken under the Trump administration.

a. An increase in extreme weather that is expected to damage infrastructure, ecosystems, and social systems, particularly impacting communities and people that were already vulnerable.

b. A decrease in quality and quantity of water available for people and ecosystems due to intensifying droughts, heavy downpours, reduced snowpack, and poor surface water quality.

c. An increased risk of waterborne and foodborne diseases, heat-related deaths, allergic illnesses, vector-borne diseases, and mental health degradation, which are expected to have the greatest impact on older adults, children, low-income communities and communities of color.

d. A negative impact on the economic, cultural, and physical well-being of Indigenous peoples.

e. Degradation of our ecosystems and their services, such as "...clean air and water, protection from coastal flooding, wood and fiber, crop pollination, hunting and fishing, tourism, and cultural identities."

f. Declining crop yields, worsening livestock health, and decreasing economic vitality of rural communities.

g. An increase in power outages, fuel shortages, and service disruptions due to increased stress on our already aging and deteriorating infrastructure.

h. A continued trend of "rising water temperatures, ocean acidification, retreating arctic sea ice, sea level rise, high-tide flooding, coastal erosion, higher storm surge, and heavier precipitation events [that] threaten our oceans and coasts."

i. A reduction in outdoor economies across the United States.

I have reviewed the Fourth National Climate Assessment at this time, but I expect to receive future briefings from EPA career staff on a number of these topics. How EPA may take account of the Assessment in any future rulemaking will be determined on the record in that rulemaking. At the same time, I will note that EPA's regulatory and de-regulatory actions respecting greenhouse gas emissions have incorporated these potential impacts in decision making through the use of the "social cost of carbon" and the "social cost of methane," in accordance with Executive Order 13783 on Promoting Energy Independence and Economic Growth.

147. During this hearing, I asked you whether you agreed or disagreed with President Trump that climate change is a "hoax." You responded by saying that you have not used the word "hoax" yourself. I took that to mean that you do in fact disagree with President Trump's characterization that climate change is a hoax, but I want to ask again, just to be clear: Do you agree with President Trump that climate change is a hoax? Please provide your answer in the form of a "yes" or "no."

I believe that climate change is real, that the climate is changing, and that mankind has an impact on the climate.

148. During this hearing, I asked whether you are concerned by rising sea levels. You responded that rising sea levels are a concern and that you believe in adaptation (but not mitigation) "absent additional congressional authority." The Supreme Court in *Massachusetts v. EPA* found that the EPA does in fact have statutory authority, and indeed a statutory obligation, to regulate the carbon dioxide emissions that cause climate change.

Given that the EPA does in fact have congressional authority to mitigate climate change by regulating carbon dioxide emissions, would you like to alter your testimony?

Given that the EPA does in fact have congressional authority, and indeed a statutory obligation, to mitigate the causes of climate change, please provide your plan, including a timeline, for issuing regulations on greenhouse gases to bring the United States in line with carbon pollution emissions reduction targets prescribed by the Intergovernmental Panel on Climate Change's "Global Warming of 1.5°C" report.

I believe that my testimony was correct and as I stated at the hearing and have stated many times before, including during both of my previous hearings, we are implementing the *Massachusetts v. EPA* Supreme Court decision, which is why we are moving forward with the ACE proposal to replace the Clean Power Plan. The Clean Power Plan, I believe, as indicated by the historic stay by the Supreme Court, went outside the bounds of the Clean Air Act. We do not have Congressional authority to institute a cap and trade scheme. In order to help mitigate the causes of climate change we are moving forward with both the ACE proposal and the SAFE Vehicles proposal and we intend to finalize them both this calendar year.

Clean Power Plan Replacement

149. On August 21, 2018, the EPA released its proposal to repeal the Clean Power Plan. By the EPA's own estimates, this plan would drastically increase carbon and other pollution emissions from power plants as well as cause as many as 1,400 additional premature deaths, 48,000 new cases of asthma, and 21,000 new missed school days each year compared to the Clean Power Plan. In order to justify this new, weaker rule, the EPA altered its cost-benefit analysis methodology to minimize the new rule's projected damages to the environment and public health. This methodology is described in the EPA's regulatory impact analysis

"Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Unites; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program."

One way in which the EPA's analysis was altered was to ignore the health effects from direct exposure to sulfur dioxide, nitrogen dioxide, and hazardous air pollutants like mercury and hydrogen chloride. According to the EPA's regulatory impact analysis, the EPA did not include these factors in its proposal to repeal the Clean Power Plan due to "data, resource, and methodological limitations," despite their clear negative health impacts.

Given that the EPA's failure to properly consider these factors clearly violates its mission to protect human health and the environment, as well as its statutory obligation under the Clean Air Act to protect and improve the nation's air quality, please describe your plan, including a timeline, for withdrawing the EPA's proposal to repeal the Clean Power Plan.

I disagree that the EPA has failed to properly consider relevant factors in its proposal to repeal the Clean Power Plan. The EPA has not taken final action on its proposal to repeal the Clean Power Plan. The EPA has no plans at this time to withdraw its proposals to repeal or replace the Clean Power Plan. The proposed Affordable Clean Energy (ACE) rule is projected to significantly reduce emissions, including 2030 reductions of carbon dioxide (12 to 27 million tons), sulfur dioxide (7,000 to 15,000 tons), and nitrogen oxides (8,000 to 15,000 tons). The Clean Power Plan (CPP) was stayed by the Supreme Court and thus was never implemented. EPA separately regulates fine particulate matter and ozone under its National Ambient Air Quality Standards (NAAQS). EPA expects continued reductions in emissions and concentrations of these criteria pollutants. Further information responsive to your questions may be found in the Notice of Proposed Rulemaking (NPRM) for the ACE rule, published at 83 Fed. Reg. 44,746 (Aug. 31, 2018) and in the supporting documents in the docket for this action, EPA-HQ-OAR-2017-0355.

Toxics

150. Elevated and unsafe levels of perfluoroalkyl substances (PFAS) have been found in hundreds of sites and at least one municipal water system in Vermont, and have contaminated public water and other natural resources for an estimated 16 million people nationally.

In June 2018, the Agency for Toxic Substances and Disease Registry (ATSDR) released a draft study concerning the health effects of PFAS, including, but not limited to, effects on the growth, learning, and behavior of children, increased cholesterol levels, and increased risk of cancer. Prior to the study's release, Politico reported that officials from the White House, the Office of Management and Budget, the EPA, and the Department of Defense intervened to delay the release of the study in order to avoid a "public relations nightmare." I joined with several of my Senate colleagues in writing to then-

Administrator Pruitt to request information on the EPA officials who intervened in order to delay the release of the ATSDR study. He responded by stating that the EPA did not have authority to release the ATSDR study, which is an answer that did not adequately respond to my concerns. Regardless of the EPA's authority to release or not release ATSDR studies, were you aware of any EPA officials making efforts to delay the release of this ATSDR study? If so, please provide all internal documents and communications in your agency's possession regarding any internal deliberations or discussions about this study for the record. If you are confirmed, will you commit to ensuring that the EPA does not engage in any activities which seek to delay the public release of scientific studies and reports?

On June 20, 2018, ATSDR released a draft Toxicological Profile for perfluoroalkyls for public comment. ATSDR released the draft Toxicological Profile after working collaboratively with the EPA, the Food and Drug Administration, the National Institutes of Health (including the National Institute of Environmental Health Sciences), the National Toxicology Program, the U.S. Geological Survey, and the Department of Defense (DoD). The EPA's participation in reviewing the draft profile was a result of a multi-agency collaboration that is typical for many of these cross-cutting chemical issues. These interagency collaborations take time and are intended to facilitate the development and communication of the best available science, not delay it.

Under my leadership, the EPA will continue to ensure that scientific studies and reports, in support of the agency's regulatory programs, are made available to the public upon completion of all appropriate internal reviews, consistent with applicable legal requirements, to ensure the scientific integrity and accuracy of the information presented.

151. The ATSDR study found that minimal risk levels for certain PFAS chemicals in drinking water should be significantly lower than the EPA's lifetime health advisory level of 70 parts per trillion. Based on the levels identified in the ATSDR study, please explain your plan, including a timeline, for updating the EPA lifetime health advisory level to comport with this new science on the effects of PFAS on human health.

ATSDR's June 20, 2018, draft Toxicological Profile for perfluoroalkyls includes Minimal Risk Levels (MRLs) for four PFAS chemicals: Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonic acid (PFOS), Perfluorononanoic acid (PFNA), and Perfluorohexane sulfonic acid (PFHxS). The EPA supports the efforts of other federal partners, including ATSDR, to develop information related to PFAS. The EPA continues to take concrete steps, in cooperation with our federal and state partners, to address PFAS as part of our overall mission to ensure that Americans have access to clean and safe drinking water. The EPA will continue to carefully review the draft ATSDR Toxicological Profile and will consider any information that may inform our approach to PFOA, PFOS, and other PFAS.

The EPA recognizes that other health agencies, like ATSDR, may issue different health-based values for similar chemicals based on their own statutory mandates, purposes and analyses, including more stringent values that may reflect more conservative assumptions. For example, ATSDR's MRLs for PFOA and PFOS differ by an order of magnitude from the toxicity values that were derived by the EPA in development of the EPA's drinking water health advisories (HAs) due to differences in the critical study selected for PFOA and uncertainty factors applied for PFOS.

ATSDR's MRLs and the EPA's HAs are two different tools that are used in different situations. Drinking water HAs provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. They are a concentration in drinking water that is not expected to cause any adverse human health effects over an exposure period (e.g. 1-day, 10-day, lifetime). The EPA's health advisories are non-enforceable and non-regulatory and provide technical information to state agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. Drinking water HAs are calculated incorporating toxicity (i.e., reference doses or RfDs) and exposure parameters (i.e., drinking water intake, body weight, and other potential sources of exposure).

ATSDR's MRLs are toxicity values that are intended to be used to help public health professionals determine areas and populations potentially at risk for health effects from exposure to a particular chemical. MRLs do not take into account specific exposures like a drinking water HA. MRLs are intended only to serve as a screening tool to help public health professionals decide where to look more closely; they are not intended to indicate a maximum safe exposure level. Drinking water HAs provide non-enforceable technical guidance to state agencies and other public health officials who have the primary responsibility for overseeing drinking water systems. The EPA's HAs for PFOA and PFOS offer a margin of protection for fetuses during pregnancy and breastfed infants as well as for all Americans throughout their life.

The EPA is evaluating PFOA and PFOS under the Safe Drinking Water Act (SDWA) regulatory determination process, which builds on the work the agency completed in the health advisories for PFOA and PFOS and is an important step in the process for considering whether to establish a National Primary Drinking Water Regulation. As a part of the evaluation, the EPA will continue to carefully review the draft ATSDR Toxicological Profile and will consider all newly available scientific information. In addition, the EPA included PFOA and PFOS as priority contaminants on the SDWA Contaminant Candidate List for regulatory consideration. The EPA also collected monitoring data for six PFAS compounds, including PFOA and PFOS, from drinking water systems across the country, from 2013 to 2015, as part of the third Unregulated Contaminant Monitoring Rule.

Under the SDWA, the EPA must consider three criteria when making a determination to regulate a contaminant:

- **The contaminant may have an adverse effect on the health of persons**
- **The contaminant is known to occur or there is a high chance that the contaminant will occur in public water systems often enough and at levels of public health concern**
- **In the sole judgment of the Administrator, regulation of the contaminant presents a meaningful opportunity for health risk reductions for persons served by public water systems**

If the EPA makes a determination to regulate PFOA and PFOS, the SDWA requires that, prior to issuing a drinking water standard, the agency must undertake a number of actions, including developing a health risk reduction and cost analysis, consulting with the National Drinking Water Advisory Council, seeking recommendations from the Science Advisory Board, and publishing a proposed regulation for review and comment. The EPA is committed to performing all mandatory actions under the SDWA as its continues its regulatory evaluation.

152. Several states, including my home state of Vermont, have set health advisories for drinking water containing PFAS chemicals that are significantly more stringent than the EPA's lifetime health advisory level. The most recent update to the Toxic Substances Control Act (TSCA) contained a provision that protects states that had more stringent standards on the books before April 22, 2016 (Sec. 13 State-Federal Relationship, 15 USC § 2617(e)(1)(A)). If confirmed, will you commit to avoiding any actions that would preempt states' ability to enforce health advisory levels for PFAS enacted before April 22, 2016 that are more stringent than the EPA's standards? If you will not make this commitment, please explain why you believe that TSCA prevents states from enforcing more stringent requirements the state had established before April 22, 2016.

The preemption provisions of the Lautenberg Amendments to TSCA contain important directions that address when state actions will be preempted or not. EPA will follow all requirements of the statute with regard to preemption.

153. According to the EPA website, the EPA expected to release a PFAS management plan by the Fall of 2018. During this hearing, you stated that the release of the plan has been further delayed by the current partial government shutdown. However, the plan was clearly also delayed by other factors given that the partial government shutdown did not begin until late December. Please describe all the factors, beside the current partial government shutdown, that have caused the EPA to fall behind schedule in developing this plan to address the presence of toxic PFAS chemicals in communities throughout the country.

The EPA intends to release a PFAS action plan as soon as feasible following completion of the interagency review process. Development of the plan took careful deliberation and extensive coordination with each EPA national program office and the regional offices, including reviewing and assessing the over 100,000 comments received in response to the extensive stakeholder outreach the EPA performed following the

National Leadership Summit the EPA hosted in May 2018. While developing the PFAS action plan, the EPA decided to move forward with several individual actions to ensure priority work continued even though the plan was in development. These include developing and releasing for public comment draft toxicity values for GenX and PFBS, development of recommendations for addressing contaminated groundwater, and other priority actions. The EPA also continued to collaborate with our federal, state and local partners, including coordinating development of the GenX/PFBS toxicity values and performing interagency review on the recommendations for addressing PFOA and PFOS in groundwater.

154. Given that the EPA's current budget to manage PFAS is clearly insufficient to carry out the work needed to craft the PFAS management plan, please describe your plan to increase the EPA's FY2020 budget request relative to FY2019 to ensure that it can release the PFAS management plan a timely manner.

The development of a comprehensive PFAS management strategy is a complex undertaking that required significant engagement with the states, the public and other entities to properly develop. Using what we learned from a National Leadership Summit last May, community engagements, input from our federal partners, and public comments submitted to the EPA through the late fall of 2018, the agency is developing a PFAS action plan. That plan is currently undergoing interagency review. Previous funding levels have not delayed the development or implementation of the PFAS action plan. The EPA intends to release the plan as soon as feasible following completion of the interagency review process and once Congress provides FY19 appropriations for the agency.

155. In April 2017, the EPA decided against continuing the work of the previous administration to ban the pesticide chlorpyrifos, which poisons farm workers, children and rural communities. Chlorpyrifos is toxic and can cause neurodevelopmental harms in children and prenatal exposure can cause lower birth weight, reduced IQ, loss of working memory, attention disorders, and delayed motor development. No amount of it is safe in our food or drinking water. Based on the EPA's mission to protect human health and the environment, please outline the EPA's plan, including a timeline, to establish a ban on chlorpyrifos.

As required by FIFRA, EPA is currently evaluating chlorpyrifos under registration review (reevaluation). EPA has prioritized the chlorpyrifos reevaluation; it is one of nearly 725 pesticide active ingredients that EPA must review by October 1, 2022. EPA scientists are evaluating studies that are now available to EPA on chlorpyrifos in the new risk assessment prepared by the California Department of Pesticide Regulation in August 2018. EPA is also continuing a dialogue with Columbia University to obtain review of the raw data underlying several publications from an epidemiology study conducted by the Columbia Center for Children's Environmental Health (CCCEH). Once all of the relevant studies are assessed and the evaluated, and after considering

public comments, the agency will be in a position to make a final registration review decision for chlorpyrifos.

Additionally, because chlorpyrifos is an organophosphate pesticide, consistent with the FFDCA, EPA must also update the organophosphate cumulative assessment completed in 2006. In order to revise this cumulative assessment, the agency must also complete the underlying single-chemical risk assessments for all of the organophosphate insecticides. Before these assessments can be completed, new studies to support physiologically-based pharmacokinetic (PBPK) modeling need to be received and evaluated. Some of these studies were received in 2018; we anticipate receiving others during 2019. Based upon current resources and study submission schedules, we anticipate that a draft revised update to the organophosphate cumulative risk assessment will likely be issued for public comment in the late 2020 timeframe. Once all of these assessments are completed, and after considering public comments, the agency will be in a position to make a final registration review decision for chlorpyrifos.

On September 24, 2018, EPA also sought a rehearing *en banc* and panel rehearing of an August 2018 Ninth Circuit decision directing EPA to revoke all tolerances and cancel all registrations for chlorpyrifos. EPA is awaiting a response from the court.

Native Rights

156. The Fourth National Climate Assessment projects that Indigenous peoples will suffer some of the worst impacts of climate change due to their dependence on natural resources for their livelihoods and economies. As our natural resources dwindle, many Indigenous peoples may be forced to relocate, risking their cultural and community continuity. Please describe your plan for meeting Indigenous peoples' economic and environmental needs, particularly as they pertain to the preservation of natural resources and tribal treaty rights.

EPA's 1984 Indian Policy is the foundation for EPA's tribal program, which states that while working government to government with tribes, EPA will work to increase tribal governments' capacity to develop environmental programs, consult with tribes and consider their interests and concerns when carrying out our responsibilities in Indian country, and ensure that environmental programs are implemented in Indian country.

This strong foundation continues to guide EPA's work today. I will ensure that the EPA continues its work in protecting human health and the environment in Indian country. This includes ongoing tribal consultation and coordination, management and administration of funding and technical assistance programs, such as the Indian Environmental General Assistance Program, and continued participation with the federal Infrastructure Task Force to collaborate with tribes to seek efficiencies in federal actions around infrastructure, provide funding for infrastructure and promote sustainable practices.

In addition, I will conduct annual meetings with the National Tribal Caucus and other EPA Senior Leadership, collectively the National Tribal Operations Committee, to discuss tribal priorities and identify and address tribal environmental and human health concerns.

157. The EPA's "Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights" requires the EPA to respect tribal treaty rights, which in part means consulting with any tribes which may be impacted by the actions of the federal government.

Please describe the specific actions you have taken, as both EPA Deputy Administrator and Acting EPA Administrator, to ensure that tribes have been consulted and that their input is reflected in the actions taken by the EPA.

Please list the individuals and their affiliation with whom you have met or consulted during your time as both EPA Deputy Administrator and Acting EPA Administrator regarding tribal treaty rights.

If confirmed, will you commit to consulting with tribes regarding all EPA actions which may impact tribal treaty rights, lands, culture, and natural resources? If you will not make this commitment, why are you willing to violate the EPA's policy on tribal treaty rights?

EPA recognizes its responsibility to consult with federally recognized tribes and was one of the first federal agencies to issue a policy on tribal consultation pursuant to Presidential Executive Order 13175. The EPA Policy on Consultation and Coordination with Indian Tribes (Consultation Policy) establishes clear EPA standards for the consultation process, including defining when and how consultation takes place, and establishes management oversight and reporting to ensure accountability and transparency. I will work closely with the OITA Assistant Administrator as the Designated Consultation Official to ensure EPA adheres to the Consultation Policy. Assistant Administrator McIntosh is strongly committed to tribal consultation, and additionally has committed to working closely and meeting regularly with the National Tribal Caucus, meeting at least annually with regional tribal representatives and participating in key tribal engagement opportunities, and strengthening tribal representation at EPA by hiring a member of a federally recognized tribe to be the Director of the American Indian Environmental Office within the Office of International and Tribal Affairs.

In addition, EPA recognizes the importance of upholding tribal treaty rights and its obligation to do so. EPA issued Tribal Treaty Rights Guidance in 2016 to its staff on how to discuss tribal treaty rights under the EPA Consultation Policy. The Guidance outlines affirmative steps for EPA tribal consultations in situations where tribal treaty rights or treaty-protected resources may be affected by an EPA action. During the implementation of this Guidance, EPA will subsequently consider all relevant information obtained to help ensure that EPA's actions do not conflict with treaty

rights, and to help ensure that EPA is fully informed when it seeks to implement its programs and protect treaty rights and resources when it has discretion to do so. To ensure all EPA staff are aware of our consultation roles and responsibilities, among other aspects of our partnership with tribal governments, I have issued mandatory training to all EPA staff on Working Effectively with Tribal Governments.

I have also met directly with tribal leadership and representatives, including:

In July 2018, I met with the National Tribal Caucus Executive Committee (Paula Britton, NTC Chair, Cahto Tribe; Gerald Wagner, NTC Vice Chair, Blackfeet Tribe; and Scott Clow, NTC Secretary, Ute Mountain Tribe), to discuss several areas of concern, including tribal consultation and communication.

In September 2018, I visited EPA Region 8 and again met with Mr. Wagner and the leadership of the Blackfeet Tribe, including Timothy Davis, Chairman, and Iliff "Scott" Taylor, Vice-Chairman and other tribal representatives. During this visit, I also met with the Chairman Ron Trahan and Vice-Chairman Leonard Gray and other tribal representatives of the Confederated Salish & Kootenai Tribes on the Flathead Reservation.

In October 2018, I met with a delegation of Washington tribal leaders, including Brian Cladoosby, Chairman, Swinomish Indian Tribal Community; Nate Tyler, Chairman, Makah Tribe; Shawn Yanity, Chairman, Stillaguamish Tribe; and Russell Hepfer, Vice-Chairman, Lower Elwha Klallam Tribe, as well as Lorraine Loomis, Chair of the Northwest Indian Fisheries Commission and Justin Parker, Executive Director of the Northwest Treaty Tribes.

Also, in October 2018, I met with a group of concerned citizens at the Weir Salmon Traps to discuss the CA Water Quality Control Plan. Mr. John Mills, a member of the Me-Wuk Indians, shared his concerns in consultation of the project.

A January meeting of the National Tribal Operations Committee, including tribal representatives and EPA Senior Leadership will be reschedule to February, depending on the current government shutdown. I plan to co-chair the NTOC meeting when it is scheduled, with robust participation by EPA Assistant Administrators and Regional Administrators.

Clean Water Rule

158. On December 11, 2018, the EPA proposed a revised definition to "Waters of the United States," which would effectively repeal what is popularly known as the "Clean Water Rule." Given that the EPA's proposal will put almost 117 million Americans' water supply at risk, which runs counter to the EPA's mission to protect human health and the environment, please provide a plan, including a timeline, for withdrawing the EPA's proposed repeal of the Clean Water Rule.

The EPA and the Department of the Army are currently engaged in a multi-step rulemaking to propose a repeal of the 2015 Clean Water Rule and replace it with a revised definition for "waters of the United States," consistent with Executive Order 13778, "Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the 'Waters of the United States Rule,'" signed February 28, 2017. The EPA and the Army are currently reviewing over 750,000 comments received in response to the proposed repeal of the 2015 Clean Water Rule and are awaiting publication of the new proposed definition in the Federal Register. The EPA and the Army will consider feedback received in response to the public comment process for the rulemakings as the agencies determine next steps.

Senator Shelby:

159. The Consolidated Appropriations Act of 2018 included language directing the Secretaries of Energy and Agriculture and the Administrator of the Environmental Protection Agency to establish clear and simple policies that reflect the carbon-neutrality of forest bioenergy and recognize biomass as a renewable energy source provided the use of forest biomass does not cause the conversion of forests to non-forest use. I appreciate the EPA issuing guidance in April 2018 stating that future EPA regulatory actions for energy production from stationary sources will recognize biomass from managed forests as carbon neutral. I also appreciate the tri-agency statement in October 2018 affirming these principles.

Mr. Wheeler, would please provide an update on the EPA's progress towards implementing a regulation on carbon neutrality of biomass?

EPA staff have made an in-depth assessment of the various options available for moving forward, including the potential for issuing guidance under the Prevention of Significant Deterioration (PSD) permitting program that would, on a site-specific basis where appropriate, recognize the use of biomass feedstocks as Best Available Control Technology (BACT). Longer-term, EPA is assessing the value of undertaking a rulemaking in this area. If undertaken, EPA estimates that a proposed rule could be developed by the end of this year.

Senator Van Hollen:

160. Last week on January 10th, Energy and Environment Daily reported on some of the trickle down impacts of the shutdown on the functions of the EPA. In that article, Lisa Feldt of the Chesapeake Bay Foundation noted her concerns with the looming deadline in April of this year for the next step in Chesapeake Bay TMDL implementation—the third and final round of watershed implementation plans. Do you expect the EPA to be able to meet this critical April deadline for the Chesapeake Bay if the shutdown continues?

The EPA is fully committed to the Chesapeake Bay program and will be prepared to review the watershed implementation plans to be submitted by the Chesapeake Bay jurisdictions in April.

161. Last week on January 9th, the New York Times reported that the EPA has furloughed most of its roughly 600 pollution inspectors and other workers who monitor compliance with environmental laws. These staff are responsible for detecting violations that endanger human health.

These pollution inspections halted on December 24, 2018.

Eric Schaeffer, a Maryland resident and former Director of EPA enforcement, has said that the shutdown from Dec 16, 1995 to Jan 6, 1996 lead to one of the worst years ever at the EPA in terms of numbers of inspection and enforcement; and that it bogged down EPA inspections for months—not just up until the government reopened.

If the shutdown ends the day you submit your answers to these questions for the record, what impact do you expect the shutdown to have on the number of inspections and enforcement actions the EPA is able to conduct compared to a non-shutdown scenario? What will be the impact if the shutdown continues for another 30 days after the date you submit your answers to these questions for the record?

Few EPA inspections would be scheduled for January because winter weather can impact travel for our inspectors, outdoor facility operations, or the functioning of our monitoring equipment. Accordingly, disruption of any inspections that may have been planned for the month of January is not likely to significantly impact the overall number of inspections in FY2019. However, the shutdown affected planning for future inspections. Now that the shutdown is over we will work to estimate the impact of the shutdown on the number of inspections in FY2019. With respect to enforcement actions, during the shutdown we continued actions that were subject to judicial deadlines but did not initiate new actions unless it was to address an imminent threat to life or property. Thus, the shutdown may reduce the number of new cases opened in FY 2019.

162. A New York Times article from December 2017 found that at that time, over 700 employees had left the EPA since the beginning of the Trump Administration as they are disheartened by the Agency's direction. Of the employees who had quit, retired or taken a buyout package, more than 200 are scientists. An additional 96 are environmental protection specialists, a broad category that includes scientists as well as others experienced in investigating and analyzing pollution levels. Most of the employees who have left are not being replaced. Agency staff said they believed the Trump administration was purposely draining the EPA of expertise and morale.

What is the impact of the drain of scientists out of the EPA in terms of the Agency's long-term abilities to develop and use the best available science? What will the impact of this loss of scientific expertise be on the Agency's ability to protect public health?

The EPA is committed to ensuring that we have the right people in the right positions to accomplish the mission of the agency today and into the future. I am troubled by the assertion that the Administration is seeking to reduce EPA's expertise and disagree completely with that assessment.

Annual attrition of around 5%, or 700 positions is typical and the number of scientists that made up the attrition is not out of proportion to the overall numbers. EPA, like many other federal agencies, is facing the reality of a large percentage of our workforce being retirement eligible. To ensure we have a strong workforce with the correct skillsets, EPA is working on succession planning and utilizing all available hiring authorities, such as Title 42, to attract and retain important scientific expertise.

How do you plan—if confirmed as EPA Administrator—to make your employees feel valued and boost the alarmingly low morale at your Agency? In which areas, if any, will the Agency prioritize hiring of new employees?

Since being named Acting Administrator, and even before that, as the Deputy Administrator, I have made employee engagement a top priority. I have visited each of the 10 EPA regional offices, making it clear that I value and respect the work of the career workforce. Similarly, I have engaged with staff at EPA headquarters, routinely engaging with both political and career staff on important policy matters. On the Acting Administrator's web page: https://www.epa.gov/aboutepa/andrew-wheeler-messages-epa-employees.

I have posted key all employee messages regarding transparency and maintaining the public trust, signaling the high priority I place on these issues. We aim to post my daily calendar on the next day so that staff are fully aware of my internal meetings and outward facing events. At key announcements – e.g., WOTUS, the Federal Lead Action Plan, the Chrysler/Fiat enforcement settlement announcement – I make it a priority to publicly recognize and thank the career employees who are instrumental to the Agency's success.

During the government shutdown, I reached out to all employees via email as well as a phone message, letting them know how much they are missed and how important they and their work is to the Agency. We have a welcome back plan ready for when employees return to work, again emphasizing that they were deeply missed and that I look forward to resuming our day to day work together.

Finally, I have directed our Chief Operating Officer, Henry Darwin, to embark on a robust effort aimed at enhancing employee engagement and leading to a serious uptick in our numbers for the next annual Federal Employee Viewpoint Survey (FEVS) administered by the Office of Personnel Management. I have also asked our Engagement Community of Practice to evaluate our FEVS results around challenges and opportunities, and to collaborate with our regional and program offices to identify actions we can take to make EPA a better place to work.

EPA announced a plan to reorganize the Agency, which includes a plan to eliminate the Agency's science adviser office and merge it into a division in the Office of Research and Development, which EPA claims is a move to "streamline" the Agency. Why would this move not diminish the role of science in decision-making at the EPA?

EPA is not eliminating the office of the Science Advisor. EPA's science advisor has traditionally been the AA for ORD and that practice has not changed. We are only combining the Science Advisor's office with another office performing similar functions to create an Office of Science Advisor, Coordination and Policy. The current Office of the Science Advisor reports to the Assistant Administrator for Research and Development and the new office would do the same. This new office will strengthen coordination of science within ORD and the Agency.

163. As you know, under the *Clean Air Act*, both the EPA and the state of California have authority to regulate greenhouse gas emissions from the tailpipe. Under Section 177 of this act, states can choose, as twelve have done to date, to adopt California's standards in lieu of federal requirements.

Maryland is one of 12 states that follow California's lead on their 2022-2025 fuel economy standards.

The proposed rule that EPA released last year challenges the authority of states like Maryland to regulate emissions from vehicles in order to force a nationwide rollback of fuel economy and vehicle emission standards. This proposed revocation of California and the 12 states' authority is opposed by Maryland's Governor Larry Hogan. On October 26, 2018, Maryland Secretary for the Department of the Environment Ben Grumbles wrote you a letter in which he stated, "Maryland supports the principals of cooperative federalism and urges the agencies not to limit California's authority to adopt or enforce motor vehicle emissions standards or any other state's ability to adopt California's standards."

Can you commit today not to finalize clean car standards that attack state leadership on clean cars, either by revoking California's waiver to enforce its existing 2022-25 standards, or asserting that the Energy Policy and Conservation Act preempts state clean car standards?

EPA and the National Highway Traffic Safety Administration (NHTSA) have jointly proposed a rulemaking for greenhouse gas (GHG) emission and fuel economy standards, respectively, affecting light-duty vehicles for the 2021 through 2026 model years. EPA also proposed to revoke the waiver of preemption currently in place which allowed California (and a number of other states that have adopted the California standards) to adopt their own GHG standards and the zero-emission vehicle program. The proposed legal basis for withdrawing the California Waiver is described in the notice of proposed rulemaking and accompanying documents, available at: Docket No. EPA-HQ-OAR-2018-0283. EPA received a wide range of public comments on the proposal and is carefully reviewing those comments. I am committed to working with California and Section 177 states as EPA and NHTSA determine a path forward consistent with the Clean Air Act and the goal of one national program.

164. Environmental enforcement numbers have decreased since the end of the Obama Administration. One reason for this is that no enforcement engineer or officer has been replaced in any of the 10 Regions.

How do you plan to ensure EPA enforcement is taking place while there are very few inspectors, enforcement officers and lawyers in place to bring enforcement cases in the regional offices? How will you work to address gaps in enforcement staff and initiate the hiring process?

Many environmental enforcement numbers are heavily impacted by large cases. For example, the $305 million civil penalty in the recently settled Fiat Chrysler Automobiles (FCA) case was larger than all the administrative and civil judicial penalties imposed by EPA in FY2009, FY2010, FY2011, FY2012, FY2014, FY2015, and FY2018.

Before Congress enacted the FY 2018 continuing resolution, EPA was under a hiring freeze. When Congress provided funding and an FTE ceiling, that freeze was lifted and OECA and the regional offices are allocating the enforcement FTE in a strategic manner to address the greatest needs. OECA has already hired or is in the process of hiring criminal investigators, attorneys, chemists, analysts, and an engineer. EPA continues to ensure compliance with federal environmental laws by helping to increase state capacity, providing compliance assistance, expanding EPA's self-audit program, using data analytics to target inspections where noncompliance is likely to be found, focusing its enforcement resources on the most impactful cases, and bringing criminal charges against bad actors.

165. Can you walk through the scientific method that, if confirmed, you would want the EPA to use for risk evaluations under TSCA to determine if chemicals have an unreasonable risk and should be regulated? My understanding is that EPA is currently working on draft risk evaluations for 10 chemicals including asbestos and 1-4 Dioxane.

Will EPA be using the Systematic Review framework for TSCA--even though scientists warn that it favors industry science? Will the EPA review include all uses, including reasonably foreseeable and legacy uses, in both new and existing chemical risk evaluations?

The Lautenberg Act amendments to TSCA require EPA to use information in a manner consistent with the best available science and base decisions on the weight of the scientific evidence. EPA is using a structured systematic review process of identifying, evaluating, and integrating evidence in the risk evaluations. The goal of systematic review, including EPA's framework, is to ensure that the EPA review of the science is objective, consistent, and transparent.

EPA will continue to review all conditions of use consistent with the TSCA requirements for new and existing chemical evaluations.

EPA considers all conditions of use, including reasonably foreseen uses (regardless of whether they are identified by the submitter), when conducting a new chemical review. The Lautenberg Act amendments to TSCA required that conditions of use means the circumstances, as determined by the Administrator, under which a chemical substance is intended, known, or reasonably foreseen to be manufactured, processed, distributed in commerce, used, or disposed of.

166. Regarding the MATS rule, in determining that it is no longer "appropriate and necessary" to require power plants to reduce their mercury and air toxic emissions, EPA has decided to base this decision only on some of the quantifiable benefits and all of the costs to industry. The costs EPA uses is also woefully out of date, about two times higher than actual costs. It seems to me that EPA is breaking the "arbitrary and capricious" test by ignoring the co-benefits and other benefits the agency cannot quantify. Under what legal basis, did EPA decide to ignore co-benefits and benefits like reducing birth defects and cancer rates when determining "appropriate and necessary"?

EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind or weaken the emission standards to which those units are currently subject. The basis for EPA's proposed Reconsideration of the 2016 Supplemental Finding and Residual Risk and Technology Review are provided in the notice of proposed rulemaking (NPRM) signed on December 27, 2018, and in the supporting documents which will be available in Docket No. EPA-HQ-OAR-2018-0794. Information responsive to your questions may be found in those documents.

167. As most people know, mercury is a neurotoxin that effects the most vulnerable, children in the womb. Other air toxics like formaldehyde, arsenic and beryllium have long been known to cause cancer. Since you have determined that it is not "appropriate and necessary" to reduce our nation's largest sources of mercury and air toxics through its MATS proposal, does that mean you believe there is a safe level of mercury exposure for developing infants? If so, what are those levels? Is there a safe level of exposing children to carcinogens? If so, what are those levels?

EPA has not proposed to remove or delist electric generating units from the list of source categories subject to regulation under Section 112, nor proposed to rescind or weaken the emission standards to which those units are currently subject. Further, I would direct your attention to the NPRM signed on December 27, 2018, and the supporting documents contained in the rulemaking docket, which provide an explanation of the EPA's position on the matters you raise and which may have information responsive to your questions.

Senator Whitehouse:

168. When we met in my office on January 15, you told me that your proposed rule to freeze the fuel economy and greenhouse gas (GHG) emissions standards for cars and light trucks would actually result in less carbon pollution in certain years than under the existing standards. You repeated this claim at your confirmation hearing.

> However, according to your own rule, GHG emissions would rise under your proposal compared to the existing standards. This predicted increase in GHG emissions is discussed on Federal Register pages 43326 through 43330 of your proposed rule. Please cite to me any support in EPA's proposal for your statements that EPA's proposal would result in reduced GHG emissions compared to the existing standards. Note: please do not tell me what your experts may have told you; I am asking you to provide references from EPA's proposed rule that support your claim that EPA's proposal would reduce GHG emissions compared to the existing standards.

The proposed Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule and its accompanying documents evaluate the potential impacts under a range of alternatives. As I clarified during the hearing, President Obama's approach to setting light duty vehicle standards focused exclusively on energy efficiency and carbon dioxide reductions while the SAFE Vehicles Rule would achieve multiple policy goals by locking in greenhouse gas emissions reductions, protecting lives, and getting older vehicles off the road. The preliminary regulatory impact analysis, for example, evaluated potential effects for model years through 2029 for greenhouse gases, criteria pollutants (including carbon monoxide, volatile organic compounds, nitrogen oxides, sulfur dioxide, and particulate matter), fuel consumption, vehicle miles traveled, and fatalities. Chapter 4 and 5 of NHTSA's draft Environmental Impact Statement also evaluated emissions changes, including for greenhouse gases, carbon monoxide, nitrogen oxide, volatile

organic compounds, particulate matter, and sulfur dioxide, for a range of alternatives. The draft EIS found that directions and magnitudes of changes in emissions were not consistent across all pollutants due to the complex interactions between emission rates, technologies, increases in vehicle miles traveled, and other factors. As outlined in the preamble to the proposed rule, decisions about the inclusion of certain compliance flexibilities could result in less stringent standards and trade-offs with improved vehicle performance. EPA and NHTSA sought public comment on a wide range of options, including related to the current compliance credit system and options for curtailing, reforming or expanding it. More information is available at Docket No. EPA-HQ-OAR-2018-0283.

169. You also told me in our meeting that EPA's proposed rule to replace the Clean Power Plan (CPP) would result in almost exactly the same reduction in carbon pollution as the CPP. You repeated this claim at your confirmation hearing.

> However, according EPA's proposed rule as printed in the Federal Register , GHG emissions would be higher under your proposal than under the CPP. This predicted increase in GHG emissions is discussed on page 44784.
> Please cite to me any support in EPA's proposal for your statements that your proposal would result essentially the same GHG emissions reductions as the CPP. Note: please do not tell me what your experts may have told you; I am asking you to provide me references from EPA's proposed rule that support your claim that EPA's proposal would result in the same GHG emissions reductions as the CPP.

EPA projects that, compared to a no Clean Power Plan (CPP) scenario, the Affordable Clean Energy (ACE) rule will reduce carbon dioxide (CO2) emissions in 2025 by between 13 and 30 million short tons. Illustrative scenarios suggest that when states have fully implemented the ACE rule, U.S. power sector CO2 emissions could be around 34% below 2005 levels. In the final CPP, EPA projected that that rule would result in U.S. power sector CO2 emissions of 32 percent below 2005 levels. CO2 emissions in the power sector have steadily declined in recent years due to a range of factors including: market forces, technology improvements, regulatory and policy changes. As a result, the industry has increased the use of natural gas and renewable energy sources. These trends have resulted in CO2 emission reductions even as the U.S. has sustained economic growth and job gains across the economy—and this has all happened without the CPP ever going into effect, due to it's being stayed by the Supreme Court. The ACE rule will continue this trend. Further information responsive to your questions may be found in the Notice of Proposed Rulemaking (NPRM) for the ACE rule, published at 83 Fed. Reg. 44,746 (Aug. 31, 2018) and in the supporting documents in the docket for this action, EPA-HQ-OAR-2017-0355.

170. How many meetings with Trump administration officials for Bob Murray and/or Murray Energy did you arrange, attempt to arrange, and/or attend?

To the best of my knowledge and memory (I no longer have access to my calendar from my former firm) I arranged and attended three meetings with Trump Administration officials on behalf of Murray Energy.

171. Please list, with date, time, and people present (as applicable) every meeting with the Trump administration you arranged, attempt to arrange, and/or attended with or on behalf of Bob Murray and/or Murray Energy? Please also provide the time, date, and people present for any preparation sessions for such meeting(s).

The first two meetings I arranged/attended were held on March 29, 2017. The first was with Secretary Perry and several of his staff. The second meeting was with the NEC energy advisor. In addition to myself, attendees included Mike Carey and Robert Murray, both with Murray Energy. The only preparatory sessions would have been in the morning, the same day as the meetings, and would have only included Mr. Murray, Mr. Carey, and myself. Sometime in April, I arranged and attended a meeting with the NEC labor advisor. The other attendees were Mike Carey and Robert Murray.

172. At how many of these meetings was the Murray "action plan" discussed?

The purpose of the meetings was not to discuss the Murray Action Plan. The first two meetings were to discuss potential assistance from the Department of Energy to help the coal-fired utility sector. Mr. Murray gave Secretary Perry a copy of his plan at the beginning of the meetings as an FYI. The topic of the meeting was the DOE assistance which, in my understanding, is not covered by the action plan. The third meeting discussed specific labor issues.

After I joined the Agency in April 2018, I was invited to a meeting at DOE to discuss the potential use of section 202 of the Energy Power Act to assist the coal-fired utility sector. Since I considered this topic to be a logical outgrowth of my March 29, 2017 meeting, I recused myself from the issue and amended my ethics agreement to reflect the recusal.

173. You told me at your first confirmation hearing on Nov. 8, 2017 that you didn't remember where you saw the Murray "action plan" and you didn't remember the context in which it was discussed. Do you stand by that answer today? If not, please correct the record.

I stand by my answer. I recommended to all my clients that they draft "action plans" or "wish lists" for the incoming Administration. My former firm did the same thing at the beginning of the Obama Administration and I am told that they did the same thing at the beginning of the Bush Administration. I further recommended that my clients

deliver their recommendations on their own letterhead. We supplied contact information for both Presidential campaigns and transition teams as well as the contact information for the incoming Trump officials. In some cases, we assisted clients in developing their lists, in other cases the clients did it on their own. Murray Energy is a highly sophisticated corporation; they developed their list on their own and took it upon themselves to deliver it to high-ranking officials, which I believe to be more impactful.

174. EPA announced that this June it will finalize amendments to the 2015 Coal Ash Rule, which incorporate elements of EPA's March 2018 proposal to weaken the protective standards of the rule, including eliminating the rule's nationwide cleanup standards. In March 2017, you met with Secretary Perry to discuss the Murray action plan which, among other things, proposed a complete suspension of the 2015 coal ash rule. The plan was accompanied, by six draft Executive Orders for President Trump that would further rescind coal safeguards. One Executive Order directed immediate suspension of the "operation and implementation" of the Coal Ash Rule, directed EPA to attempt to stop ongoing litigation against the agency concerning the rule, and instruct the EPA to amend the rule to prohibit citizen suits to enforce the rule.

    a. Are you familiar with this Executive Order? ("Presidential Executive Order on Restoring the Rule of Law, Federalism, Economic Growth, and Reducing Regulatory Costs by Reviewing the Final Rule on Disposal of Coal Combustion Residuals from Electric Utilities (the "CCR Rule"), Published on April 17, 2015 By the United States Environmental Protection Agency, 80 Fed. Reg. 21302 (2015)")

        Through the press, I am familiar with the draft Murray Executive Orders.

    b. Did you write or review this Executive Order?

        I did not write or review the draft Executive Order. I do not remember any of the draft orders being attached to the action plan that I saw.

    c. If so, do you believe that you should recuse yourself from further review and oversight over EPA's efforts to weaken the Coal Ash Rule?

        Does not apply.

175. The following questions relate to federal ethics laws and regulations:

    a. President Trump promised to end corruption in Washington. Would you agree that applying and enforcing federal ethics laws and regulations, and the Trump "Ethics Pledge," are important tools to do that?

        Yes, I would.

b. This is the second time you've come before the Senate for advice and consent. Would it be fair to say that by now you are personally familiar with federal ethics requirements?

I received ethics training from EPA career ethics officials upon joining the Agency, and I am personally familiar with the many ethics requirements. If questions regarding ethics issues arise, I routinely seek and abide by the advice of career ethics officials.

c. Are you aware that federal regulations and the Trump "Ethics Pledge" prohibit political appointees from working on particular matters on which they previously represented clients as well as from meeting with former clients?

I am aware that federal ethics regulations do provide certain restrictions and the Trump Ethics Pledge provides additional restrictions. I signed a Recusal Statement in May of 2018, shortly after my confirmation as Deputy Administrator and have abided by checking with career ethics officials with any questions.

d. If you learned that an EPA employee violated federal ethics regulations or the Trump "Ethics Pledge," would you take this matter seriously?

Yes, I do take the ethics issues seriously.

e. Do you promise to take all steps within your power to ensure that EPA employees abide by all applicable ethics requirements? Does that include disciplining employees who violate those requirements as appropriate?

I will work to make sure EPA employees abide by all applicable ethics requirements. In fact, in my first month as the Acting Administrator I convened an all-hands political staff briefing on ethics issues by EPA career ethics professionals and White House Counsel. Breaches of ethics obligations could include discipline where appropriate.

176. Did you ever bundle, solicit, or gather donations for any 501(c)(4), 527, political action committee, or any other outside spending group? If so, list the organizations by name, the dates during which you engaged in this activity, and the approximate amounts you raised.

I have not bundled, solicited, or gathered donations for any 501(c)(4), 527, political action committee, or other outside spending groups. I have cohosted fundraisers for candidates for election or re-election to Congress, so my name has appeared on invitations for events. Opensecrets.org listed me as a bundler for Mitt Romney's 2012 Presidential campaign. I am not sure what criteria they used to determine that title but I did invite a number of people who attended a few of his events. My name appeared on

invitations for membership for both the Washington Coal Club and the National Energy Resource Organization when I was an officer in both organizations. Neither of these organizations would be considered outside spending groups, although both are non-profits.

177. Do you commit to provide all information responsive to the previous question to EPA ethics officials so they can assess whether that activity raises conflicts of interest or an appearance that you cannot conduct your duties impartially?

I believe I have already provided all of the relevant information to the EPA career ethics officials. If there is additional information they need, I would be happy to comply.

178. You and I have discussed the serious economic risks of climate change the last two times we have met. I have provided you with numerous reports and articles detailing these risks.

a. The first of these economic risks is the risk of a coastal real estate crash. This is what Freddie Mac, the federal home mortgage backer, has to say about climate risk:

"[R]ising sea levels and spreading flood plains nonetheless appear likely to destroy billions of dollars in property and to displace millions of people. The economic losses and social disruption may happen gradually, but they are likely to be greater in total than those experienced in the housing crisis and Great Recession."

This is what the Union of Concerned Scientists has to say:
"In the coming decades, the consequences of rising seas will strain many coastal real estate markets – abruptly or gradually, but some eventually to the point of collapse – with potential reverberations throughout the national economy."

This is what the insurance industry trade magazine *Risk & Insurance* has to say:

"These bellwether locations [Miami, Atlantic City, and Norfolk] signify a growing and alarming threat; that continually rising seas will damage coastal residential and commercial property values to the point that property owners will flee those markets in droves, thus precipitating a mortgage value collapse that could equal or exceed the mortgage crisis that rocked the global economy in 2008."
Freddie Mac estimates that between $238 billion and $507 billion worth of real estate will be below sea level by 2100, and UCS estimates that nearly 2.5 million residential and commercial properties worth $1.07 trillion will be at risk of chronic flooding by 2100. The First Street Foundation studied the impact of rising seas and increased flooding on real estate in the southeast, and found that

coastal real estate in the southeast has already lost $7.4 billion in value since 2005 because of sea level rise.
Many of the rollbacks you've proposed since assuming the helm at EPA – freezing automobile fuel economy and greenhouse gas emissions standards, replacing the Clean Power Plan, weakening methane leak inspection and repair standards, weakening carbon pollution emission standards for new power plants – would all result in increased carbon pollution compared to the regulatory regimes they are designed to replace.
Did you consider the potential for a coastal property real estate crash and the associated economic costs when considering these proposals? If so, please cite to me where in these proposed rules or in the accompanying regulatory impact analysis this is discussed. If not, why did you not consider this serious economic risk when designing these proposals?

b. The second of these economic risks is the risk of a carbon bubble. This is what Mark Carney, the Governor of the Bank of England has to say:
"The exposure of UK investors, including insurance companies, to [stranded assets] is potentially huge."
This is what the head of insurance supervision at the Bank of England has to say:
"As the world increasingly limits carbon emissions, and moves to alternative energy sources, investments in fossil fuels and related technologies [...] may take a huge hit."
This is what academics at University College London have written:
"Our results suggest that, globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2 degrees Celsius."
This is what academics at Cambridge have written:
"Our conclusions support the existence of a carbon bubble that, if not deflated early, could lead to a discounted global wealth loss of US$1 – 4 trillion, a loss comparable to the 2008 financial crisis."
Many of the rollbacks you've proposed since assuming the helm at EPA – freezing automobile fuel economy and greenhouse gas emissions standards, replacing the Clean Power Plan, weakening methane leak inspection and repair standards, weakening carbon pollution emission standards for new power plants – would all result in increased carbon pollution compared to the regulatory regimes they are designed to replace.
Did you consider the potential for a carbon bubble and the associated economic costs when considering these proposals? If so, please cite to me where in these proposed rules or in the accompanying regulatory impact analysis this is discussed. If not, why did you not consider this serious economic risk when designing these proposals?

The record for each of the proposed actions cited in your question is available for review. At the same time, I will note that EPA's regulatory and de-regulatory actions respecting greenhouse gas emissions have incorporated these potential impacts in decision making through the use of the "social cost of carbon," in accordance with

Executive Order 13783 on Promoting Energy Independence and Economic Growth.

179. Are there any circumstances under which written EPA protocols for selecting members of EPA's various science advisory boards should be departed from? If so, please describe the circumstances that would justify departing from established member selection protocols.

At this time, I cannot envision any circumstances under which EPA's written protocols would not be followed when selecting members for its various scientific advisory boards.

180. Dr. Nancy Beck is currently overseeing the implementation of the reformed TSCA legislation. Dr. Beck has developed her own systematic review process for assessing the quality of the scientific studies upon which it will rely to determine the safety of the chemicals it reviews. The first chemical to undergo a risk evaluation under the reformed TSCA is Pigment Violet 29 (PV29). In its draft risk assessment, EPA concluded that PV29 is safe.

EPA's draft risk assessment's conclusion that PV29 is safe relied in part on two studies by German chemical giant BASF. These studies were conducted in 1976 and 1978. Using Dr. Beck's systematic review process, EPA concluded that these two studies were of "medium" quality. Yet BASF, in a regulatory filing with the European Chemicals Agency, admitted that these same studies were "not reliable."

a. Should EPA's risk assessments be relying on studies whose own industry sponsors admit that they are "not reliable?"
b. Why was Dr. Beck allowed to create her own systematic review process for the TSCA program?
c. Why was EPA's own IRIS-developed systematic review process, which has been positively reviewed by the National Academies, not adopted for use for the TSCA program?
d. Will you commit to me that going forward, the TSCA program will not use any systematic review process that has not first been examined by the National Academies?

The Lautenberg Act amendments to TSCA require EPA to use information in a manner consistent with the best available science and base decisions on the weight of the scientific evidence. Scientists in EPA's Office of Chemical Safety and Pollution Prevention have developed a structured systematic review process of identifying, evaluating, and integrating evidence in the risk evaluations. The goal of systematic review, including EPA's Systematic Review framework, is to ensure that the review of the science is objective, consistent, and transparent. The TSCA program has coordinated with other program offices, including the IRIS program, throughout the process of developing the systematic review framework. We released a working draft of the Systematic Review framework in June, and EPA is currently working to address

public comments received on the framework. EPA also will submit our methodology to the National Academy of Sciences (NAS) for peer review and feedback. Regarding PV-29, EPA evaluated the studies under its Systematic Review framework and looks forward to receiving and reviewing comments from the public and peer reviewers on our implementation of the approach.

181. In a final rule published in 2014, EPA approved a new cellulosic biofuel pathway that allows producers additional options to comply with the standard. EPA deemed that charging electric vehicles with renewable electricity derived from cellulosic biogas would create cellulosic biofuel credits, and several companies applied to EPA to get approval under this new pathway (known as the "e-rin" pathway). EPA in late 2016, held an additional comment period to identify and solicit comment on how to administer the e-rin pathway to avoid double counting as well as address other complexities. Since the 2016 rule, the EPA has over two years to review several pending applications and has yet to take any administration action. In my meeting with you, you discussed that there are several outside groups interested in generating the RIN and thus it's a complicated issue. I agree, but that doesn't mean that EPA should not put dedicated staff toward figuring out this issue and providing guidance on how to develop e-rins under the RFS.

    a. Has EPA reviewed the comments from the 2016 proposed rule on how to successfully administer this pathway? If so, why has EPA not taken an action in 2 years to clarify necessary changes if they are needed?
    b. If the pathway was originally approved in 2014 and EPA has already finished a public comment on how to administer the pathway, why has EPA not been able to develop a mechanism to administer the program in nearly 5 years?
    c. Do you commit to having staff work on developing a credit transfer program, to avoid double counting, and review the 40+ applications that have been pending for e-rins at EPA since 2016?

EPA has continued to study this issue. The "e-rin pathway" is particularly difficult for EPA to implement. There typically are several entities in the chain from electricity production to ultimate use in an electric vehicle. Predictably, we have received feedback from many entities in the chain indicating they all want full credit for any RINs generated under this pathway, which would lead to over-counting. More importantly, there are complex challenges related to generating the data needed to ensure the integrity of the program to prevent error and fraud. We continue to work on this pathway and hope to find workable solutions.

182. EPA has an important role in supporting the growth of biofuels, thereby adding diversity to the nation's fuel mix within the transportation sector. EPA's work is especially important within the advanced and cellulosic fuels markets where advances in technologies have the potential to bring important new low-carbon fuels to the market.

Last August, when you testified before this Committee, you committed to providing "certainty within EPA programs" in order to be a better partner with the private sector, as appropriate, in order to provide the clarity and transparency it needs to grow and create jobs.

While work on several efforts related to biofuels are currently being processed within EPA, one effort which remains unresolved and where uncertainty remains is the work related to biointermediates.

As you may know, the Environmental Protection Agency initiated work to address this topic via EPA-HQ-OAR-2016-0041-0196 in May of 2015. A proposed rule was published in November, a public meeting was held in December 2016, and the comment period closed in February 2017. While additional issues beyond the topic of biointermediates were included in EPA-HQ-OAR-2016-0041-0196, a wide range of entities and comments were submitted in support of providing certainty for biointermediates.

To date though, action on the specific issue of biointermediates has not moved forward and the lack of progress has added uncertainty into this segment of the renewable transportation fuel market.

In the proposed rule, the Environmental Protection Agency noted that it may be "preferable for economic or practical reasons for renewable biomass to be subjected to substantial pre-processing at one facility before being sent to a different facility where it is converted into renewable fuel." The Environmental Protection Agency also noted that biointermediates will "likely provide an important component of the growth in renewable fuel production in the future, particularly for advanced and cellulosic biofuels," and proposed "changes in the RFS regulations to clearly specify requirements that apply when renewable fuel is produced through sequential operations at more than one facility."

a. First, given that the Environmental Protection Agency issued a proposed rule regarding biointermediates in 2016 and has since received and reviewed more than forty comments relating to the biointermediates proposal, has the Environmental Protection Agency considered moving forward and providing certainty on the matter of biointermediates in 2019?
b. Second, should you be confirmed, can you provide any certainty whether the Environmental Protection Agency will successfully incorporate biointermediates into one of the pending proposed rules in the unified regulatory agenda on renewable fuels such as the pending rulemaking which proposes modifying the applicable volume targets for cellulosic biofuel, advanced biofuel, and total renewable fuel for the years 2020 – 2022, especially since the abstract for that rule states that it will cover volume modifications, as well as "several regulatory amendments designed to provide clarity and increase opportunities for renewable fuel production."

Biointermediates is one of several issues addressed in the REGs proposal. In November 2016, EPA proposed the Renewables Enhancement and Growth Support (REGS) rule and sought public comment on a variety of topics, including on designing an electric RIN-generation program. EPA has not finalized the proposal and continues to evaluate feedback regarding issues like feedstock eligibility, double counting, and verification. At this time, we do not have a timeline to share regarding when further decisions will be made. EPA takes very seriously the interest in this rule and the concerns of the biomass power industry, and I believe we need to resolve these key policy considerations before finalizing the proposal or pursuing alternative regulatory actions as appropriate. More information on the proposal is available at: https://www.epa.gov/renewable-fuel-standard-program/proposed-renewables-enhancement-and-growth-support-regs-rule.

183. Do you think there should be a standardized social cost of carbon? Is the social cost of carbon greater than zero dollars per metric ton? If so, what is the most accurate social cost of carbon in 2018 and what is the best way to calculate this number?

President Trump's Executive Order 13783 on Promoting Energy Independence and Economic Growth, called for agencies to follow OMB Circular A-4 when calculating the social cost of carbon for use in benefit-cost analysis. In accordance with the Executive Order and consistent with OMB Circular A-4, EPA assessed the impacts of changes to carbon emissions on the United State. EPA's application of the Social Cost of Carbon is presented in several of our regulatory impact analyses. See, for example, "Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program," https://www.epa.gov/sites/production/files/2018-08/documents/utilities_ria_proposed_ace_2018-08.pdf. This analysis presents a distribution of estimates based on thousands of model runs. Using a discount rate of 3 percent, the average domestic climate benefit for a one ton reduction in carbon in 2030 is $8 (2016$). Using a discount rate of 7 percent gives an average estimate of $1 for a ton of carbon reduced in 2030.

184. Do you agree with the majority of scientists that anthropogenic climate change is happening?

   a. If so, do you agree there are costs to inaction as well as costs to action?
   b. Do you believe the American public should have to pay for the costs of inaction—the storm damaged homes, lost crops, and failing fisheries?
   c. Do you believe that these costs of inaction have a value that can be calculated? Is the value greater than zero?

Yes, the climate is changing and anthropogenic GHG emissions are contributing to the change. As noted in response to Question 178, above, we account for the "social cost of carbon" in all relevant rules.

185. A 2007 legal challenge prompted the courts to direct the government to further quantify the costs and benefits of a ton of carbon pollution in federal government rulemakings. Specifically, the U.S. Court of Appeals for the 9th Circuit agreed that in quantifying the benefit of cutting carbon pollution but admonished that the value is "certainly not zero."[18] The Court asked National Highway Traffic Safety Administration to do a new rule that addressed this issue. This court decision led the Bush and Obama Administrations to further refine a value for the SCC. Do you reject this decision? If so, please explain why and how that affects how you approach your responsibilities.

EPA routinely considers costs and benefits in its actions, including where it is required to by statute, caselaw, or executive order. EPA's regulatory and de-regulatory actions respecting greenhouse gas emissions have incorporated an analysis of those emissions' potential impacts into its decision making through the use of the "social cost of carbon," in accordance with Executive Order 13783 on Promoting Energy Independence and Economic Growth.

186. In 2009, the Obama administration created an interagency working group (IWG) in an effort to create a governmental value for the social cost of carbon, which based its calculations on peer-reviewed economic models and expert opinions. The models included in their analysis were the Dynamic Integrated Climate-Economy (DICE)[19], Policy Analysis of the Greenhouse Effect (PAGE)[20], Climate Framework for Uncertainty, Negotiation and Distribution (FUND)[21], and World Induced Technical Change Hybrid (WITCH)[22] models. The IWG was comprised of scientists and economists from the Office of Management Budget, the Council for Environmental Quality, the National Economic Council, the EPA, the U.S. Department of Agriculture, Energy, Transportation, and Treasury.

a. Can you discuss whether you think the models used by the IWG are appropriate and credible tools for calculating the social cost of carbon?

The Administration has updated its social cost of carbon estimates to comply with President Trump's Executive Order 13783. These estimates continue to use the same three integrated assessment models used by the Obama Administration. It is worth noting that those models necessarily require assumptions about future economic growth, future population growth, technology changes, future greenhouse gas emissions, climate sensitivity, and damage functions for more than 200 years. Hence the underlying uncertainty of the inputs may be even greater than the uncertainty in the climate assessments incorporated into the model. EPA has included the updated

[18] *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, U.S. Court of Appeals for the 9th Circuit (2007), available at http://caselaw.findlaw.com/us-9th-circuit/1024716.html.
[19] Dynamic Integrated Climate-Economy model (DICE), http://www.econ.yale.edu/~nordhaus/homepage/dicemodels.htm
[20] Policy Analysis of the Greenhouse Effect (PAGE), http://climatecolab.org/resources/-/wiki/Main/PAGE
[21] The Climate Framework for Uncertainty, Negotiations and Distribution (FUND), http://www.fund-model.org/
[22] World Induced Technical Change Hybrid model (WITCH), http://www.witchmodel.org/

social cost of carbon estimates in recent regulatory proposals and has asked for public comment on these analyses.

b. Can you comment on whether the IWG was comprised of the right governmental stakeholders and actors?

Executive Order 13783, issued in March 2017, disbanded the IWG. It is difficult to know if the right governmental stakeholders and actors comprised the IWG as to my knowledge, the Obama Administration never released a list of names of participants.

187. On March 28, 2017, the President issued a Presidential Executive Order on Promoting Energy Independence and Economic Growth, which disbanded the IWG, withdrew the guidance it issued, and reverted to OMB Circular A-4 of September 17, 2003 (Regulatory Analysis). This in effect requires each agency to estimate the value of changes in greenhouse gas emissions resulting from regulations. Do you believe the regulatory process will be more effective and efficient in the absence of unified guidance on how to monetize the value of changes in greenhouse gas emissions? How does this advance the value of regulatory certainty you claim to support?

OMB Circular A-4 embodies the best practices for conducting regulatory cost-benefit analysis. Compliance with OMB Circular A-4 across EPA rulemakings, and across the federal government, including in those instances for which an agency may assess the costs or benefits of carbon, advances regulatory certainty. President Trump's Executive Order 13783 gave explicit instructions on how to move forward on estimating a new Social Cost of Carbon, utilizing the guidance set forth in OMB Circular A-4. In implementing these new instructions, EPA has included this analysis in recent regulatory proposals and has asked for public comment on these analyses. These instructions and the transparent process implemented by EPA has provided a great deal of regulatory certainty to the public: they understand the range of domestic SCC values applied by EPA; they also understand how we arrived at these estimates.

188. Part of the social cost of carbon calculation assumes a value for discount rates. The IWG after reviewing past OMB guidance recommended using a 3% discount rate[23].

a. Do you have an opinion on what the discount rate value should be when calculating the social cost of carbon?
b. Scientific research has found that it would be more accurate to use a declining discount rate instead of a fixed one. Do you agree that a declining discount rate would be more accurate?
c. Do you have an opinion on what the discount rate value should be used for inter-generational impacts?

[23] Interagency Working Group on Social Cost of Greenhouse Gases, *Technical Support Document*, pp. 15–16.

d. Why should one generation discount the impact of harms upon another generation at all?

As directed by Executive Order 13783, when federal agencies monetize the value of changes in greenhouse gas emissions resulting from regulations, including the consideration of appropriate discount rates, they must comply with OMB Circular A-4. OMB Circular A-4 embodies the best practices for conducting regulatory cost-benefit analysis. Circular A-4 provides instructions for federal agencies to apply estimates using both 3 and 7 percent discount rates in regulatory analysis. In accordance with the Executive Order and Circular A-4, EPA's recent estimates of the social cost of carbon apply a 3 and 7 percent discount rate.

189. Is it appropriate for a cost-benefit analysis to consider the harm caused in other countries from pollution emitted in the United States? If not, please explain why.

EPA typically undertakes cost-benefit analyses for regulatory activities using OMB guidance outlined in circular A-4. Circular A-4 requires that analysis be focused on benefits and costs that accrue to citizens and residents of the United States; however, it does allow for the separate reporting of affects beyond U.S. borders. Therefore, the Agency can look at pertinent information on externalities beyond US jurisdictions depending on the particular circumstances, including statutory authority and other direction from Congress.

190. What projects, both domestically and internationally, are EPA staff and contractors engaged in to combat marine debris?

The EPA is engaged in a number of activities to combat marine debris both domestically and internationally. Some of our most extensive involvement is leading the Trash Free Waters (TFW) program, where we support—in partnership with many stakeholders—a broad range of activities from source reduction to clean-up. EPA's Office of Water is also addressing marine debris through regulatory programs such as the Clean Water Act 303(d) Listings for Trash Impairment, National Pollution Discharge Elimination System (NPDES) stormwater permits for trash, and the development of a trash Total Maximum Daily Load (TMDL). Under the Resource Conservation and Recovery Act, WasteWise promotes use and reuse of materials more productively over the entire life-cycle, the WRAP Program is helping to recycle plastic films, and EPA is developing a waste management guidance tool that would also be useful as a resource for developing countries.

EPA advances marine litter solutions through an international program modeled on our domestic TFW program, and is pursuing collaborations with Jamaica, Peru and Panama. EPA also works with the United Nations Caribbean Environment Program, focused on reducing land-based sources of marine pollution, including in the Gulf of Mexico and the wider Caribbean region and provides expertise to the United Nations

Environment Program (UNEP) on developing practical solutions to address the sources of marine litter. In December, EPA participated in the Second Meeting of the Ad Hoc Open Ended Expert Group (AHOEEG) on Marine Litter and Microplastics, which included over 300 attendees, with 40 governments and robust representation from industry and NGOs. The outcome document will be part of this March's United Nations Environment Assembly (UNEA) agenda, where EPA will again have a leadership role.

EPA coordinates our international work with NOAA and the Department of State. Additional details regarding these efforts are available on our website: https://www.epa.gov/trash-free-waters.

191. Is EPA undertaking any studies or analyses investigating the public health risks of microplastics, microfibers, and other plastic waste?

Yes, EPA and our federal partners are engaged in numerous studies and analyses to develop standardized methodologies and data for plastics research and to evaluate the potential impact that exposure to microplastics and nanoplastics, including microfibers, and other plastic waste might have on public and environmental health, domestically and internationally.

192. What opportunities exist through the EPA's Clean Water Act and/or Resource Conservation and Recovery Act authorities to improve waste management, study and mitigate the effects of plastic waste pollution in waterways and the ocean, and support waste reduction, improved recycling, and cleanup efforts?

The EPA is engaged in a number of activities under the Clean Water Act, the Resource Conservation and Recovery Act, and other statutes to combat marine debris both domestically and internationally. Significant regulatory mechanisms exist to prohibit the discharge of pollutants that could harm human health and the environment domestically. One of our more effective programs in this context involves our collaborative Trash Free Waters (TFW) program where we support, in partnership with many stakeholders, a broad range of activities from source reduction to clean-up. EPA has expanded TFW internationally to Peru and Jamaica and is in the process of expanding to Panama. EPA is also exploring opportunities to expand to the Asia-Pacific region; five countries in Asia contribute 60% of the global marine litter volume, impacting ocean health worldwide, and US waters and industries.

193. Does EPA require any additional authorities to export its technical expertise and best practices to foreign partners and priority countries in need of assistance in improving its waste management practices to minimize marine debris?

    a. Can EPA currently undertake its own bilateral discussions, or must it go through the State Department or USAID to develop these relationships?

EPA provides expertise on marine litter in bilateral and multilateral engagements. Although we may undertake activities directly, we coordinate closely with State Department, USAID, and NOAA on such engagements. The extent of engagement is constrained by available resources, rather than legal authority. The Save Our Seas Act funds the Marine Debris Program at NOAA. There is no dedicated funding for EPA's international marine debris work.

194. When approving chemicals and other components or end plastic products, does EPA currently consider the longevity of those materials in the environment and the potential harm they can cause as they degrade?

In its review of new and existing chemical substances, EPA investigates what happens to a chemical over time once it is in the environment. In this review, EPA evaluates reasonably available information not only with regard to the specific chemical substance under review but also any substances into which the chemical breaks down to or transforms into once it enters the environment or biological systems. In some cases, such as existing chemicals that have been relatively well studied, EPA may be able to use experimental or monitoring data to understand what happens to a chemical once it enters the environment and how long it stays there. Generally, for new chemical substances, EPA uses modeling based on the chemical's physical-chemical properties and/or information known about the behavior of structurally similar chemical substances.

195. Does EPA regularly participate in the Interagency Marine Debris Coordinating Committee? If so, who attends from EPA?

Yes, EPA does participate in the Interagency Marine Debris Coordinating Committee. EPA's Office of Water representatives regularly participate with the Coordinating Committee.

196. What role have you personally and as a representative of the U.S. taken in international, multilateral gatherings, like the G7, G20, ASEAN, UNEP, and other summits, to make marine debris a priority topic? Have any new partnerships, agreements, or knowledge exchanges come out of these meetings?

I represented the United States at the 2018 G7 Environment Ministers Meeting in Halifax, Canada on September 19th and 20th where I spoke in support of action to address marine debris and joined the rest of the G7 in launching the G7 Innovation Challenge to Address Marine Plastic Litter. In 2019, I plan to continue to represent U.S. government views on marine litter at high level meetings such as the G7 and G20 Environment Ministers Meetings.

197. In May 2015, EPA released a 423-page technical support document outlining the legal and scientific basis for the agency's Clean Water Rule. Will EPA release a similar document to support its legal reasoning behind the agency's new proposed "Waters of the U.S." definition, especially given the definition depends solely upon Justice Scalia's opinion in *Rapanos,* a position without judicial precedent?

The preamble to the proposed rule, a resource and programmatic assessment, and detailed economic assessment were made available to the public on the EPA's website on December 11, 2018, the date the proposed rule was signed.

198. Will EPA extend the comment period on its new proposed definition of "Waters of the U.S." given the partial government shut down? If so, for how long and when will this be announced?

The proposed rule has yet to be published in the Federal Register, but the public has had access to the proposed rule, the economic assessment and related supporting documentation since December 11, 2018. The EPA and the Department of the Army will evaluate requests for extending the comment period after the proposed rule has been published in the Federal Register.

199. Why was only one listening session scheduled? How was Kansas City, KS selected as the site of this one listening session?

The EPA and the Department of the Army intend to hold a public hearing in Kansas City, Kansas, regional state and tribal engagements in Savanah, Georgia and Santa Fe, New Mexico, and a series of webinars and other stakeholder engagement meetings throughout the comment period. Kansas City was selected for the public hearing based on its central location, access to a major international airport, and available support staff from both the EPA and the Army Corps of Engineers given the location of an EPA Regional Office and Corps District Office in Kansas City.

200. Has EPA revisited its estimate of the benefits of wetland mitigation since its June 2017 economic analysis for the proposed definition of "Waters of the U.S."? If not, does it have plans to do so before the rule is finalized?

The EPA and the Department of the Army performed a comprehensive economic assessment of the proposed rule entitled "Revised Definition of 'Waters of the United States,'" signed on December 11, 2018, including an evaluation of wetland benefits and other relevant factors. The draft economic analysis and a corresponding draft resource and programmatic assessment are both available on EPA's website at https://www.epa.gov/wotus-rule/step-two-revise.

Senator Wicker:

201. Under the Clean Water Act, EPA has jurisdiction over the discharge of substances into a water of the United States. As such, the agency has oversight of offshore aquaculture projects, along with other agencies such as the U.S. Army Corps of Engineers and NOAA. Will you commit to working with the agencies that are responsible for regulating offshore aquaculture to ensure that this industry has greater regulatory certainty in federal waters?

The EPA is currently working with, and will commit to continuing our work with, the U.S. Army Corps of Engineers, NOAA, and other agencies to provide greater regulatory certainty for the aquaculture industry.

202. The Pesticide Registration Improvement Act (PRIA) was first enacted in 2004 to provide dedicated funds to EPA to evaluate the safety and efficacy of antimicrobials, sanitation products, and pesticides. This legislation has been reauthorized twice by unanimous consent or voice votes in the House and Senate, which indicates that there is strong bipartisan support and a lack of controversy for this statute. However, the most recent reauthorization failed to reach the President's desk before the end of the 115th Congress.

a. How important is PRIA to EPA's mission?
b. If Congress does not reauthorize PRIA, what will the impact be on EPA staffing and budgets? What will the impact be on manufacturers of these products whose EPA registration is effectively a license to operate?

PRIA provides approximately 33 percent of the funding for EPA's pesticide program activities. Under the third iteration of the statute, PRIA provided two funding sources to EPA's pesticide program:

- **One-time registration service fees (i.e., PRIA fees) for the evaluation of new applications submitted to the EPA; and**
- **Annual FIFRA maintenance fees assessed to products currently in the marketplace, a significant portion of which are used to support the re-evaluation**

of pesticides in order to meet the statutory deadline of October 1, 2022, for completing the first round of registration review.

PRIA's authorization expired on December 21, 2018. Because PRIA was not reauthorized or further extended, pesticide applications submitted after December 21, 2018, are no longer be subject to decision time periods. The two-year sunset provision in FIFRA section 33(m) specifies fees be reduced in fiscal year 2018 by 40 percent below the levels in effect during fiscal year 2017, and by 70 percent in fiscal year 2019. Effective September 30, 2019, fee requirements under PRIA would be terminated.

Additionally, if PRIA were not reauthorized, $2 million per year for worker protection activities, pesticide safety education programs, and partnership grants, monies that currently come from PRIA funds, would not be available and these programs would not be funded. These activities include:

- Developing and administering a pesticide safety training program that will support a national network of pesticide safety trainers providing worker safety training to migrant and seasonal farmworkers and their families (National Farmworker Training Program);
- Developing pesticide education materials for workers, handlers, and trainers on how to comply with WPS (cooperative agreement with UC-Davis and Oregon State University); and
- Supporting National Pesticide Information Center (NPIC), a bi-lingual, factual source of information for professional and public audiences on pesticide-related issues.

PRIA provides predictability and regulatory certainty to all stakeholders regarding the timing of pesticide registration decisions. In the absence of PRIA, the statutory timelines would no longer exist and applications to register new pest control tools would be reviewed as resources were available. However, EPA would not be in a position to guarantee a registration decision timeline with any certainty. Farmers in need of new pest control tools could be significantly impacted as they may not be able to timely adopt new technologies to address their pest management needs.

Fiscal Year 2018
EPA Enforcement and Compliance
Annual Results

Prepared by the Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

January 2019

FY 2018 Enforcement and Compliance Annual Results

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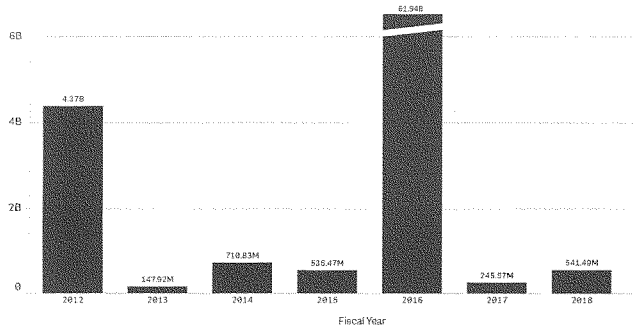
Note: This data reflects all EPA enforcement actions, including Federal Facility Compliance Agreements and inspections, unless otherwise noted. Does not include state and local enforcement actions or inspections.

Estimated Environmental Benefits Hazardous Waste and Non-Hazardous Waste Treated, Minimized, or Properly Disposed
FY 2012 – FY 2018

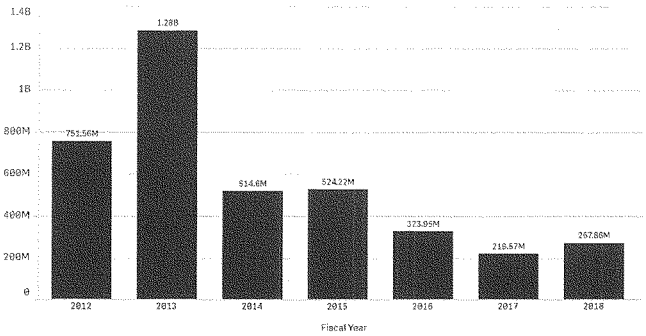


- In FY 2018, EPA enforcement actions required facilities to commit to treat, minimize, or properly dispose of over an estimated 540 million pounds of hazardous and non-hazardous waste.
- Annual totals for environmental benefits are often strongly influenced by one or two large cases. In FY 2018 two RCRA hazardous waste actions accounted for nearly 99% of the national total.
- FY 2016, the IMC Phosphates Co. (Mosaic Fertilizer) RCRA case accounted for over 99% of the hazardous and non-hazardous waste total of 62 billion pounds in that year.

1. Starting in FY 2012, EPA changed the way it stores environmental benefit information in the ICIS data system. Therefore, data are not available for years prior to FY 2012.
2. Starting in FY 2016, EPA combined reductions in hazardous waste and non-hazardous waste into one measure.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

Estimated Environmental Benefits: Commitments to Reduce, Treat, or Eliminate Pollution (Air, Toxics, and Water) FY 2012 – FY 2018

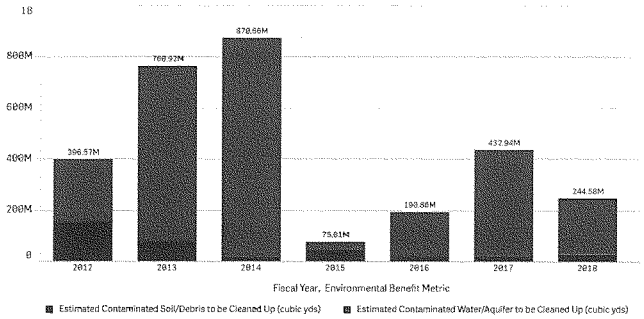


- In FY 2018, EPA enforcement actions required facilities to commit to reduce, treat, or eliminate pollution by an estimated 268 million pounds per year.
- Annual totals for environmental benefits are often influenced by one or two large cases. In FY 2018 the Midwest Generation (a CAA stationary source action) committed to reduce, treat, or eliminate an estimated 105 million pounds per year, which accounts for nearly 40% of the national total.
- EPA has, through actions in prior years, addressed the largest stationary sources of air pollution and the largest municipal dischargers. As a result, we recently have increased our focus on reducing toxic pollutants, which are less in volume but higher in toxicity.

1. Starting in FY 2012, EPA changed the way it stores environmental benefit information in the ICIS data system. Therefore, data are not available for years prior to FY 2012.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

Estimated Environmental Benefits: Volume of Contaminated Soil and Water to be Cleaned Up FY 2012 – FY 2018

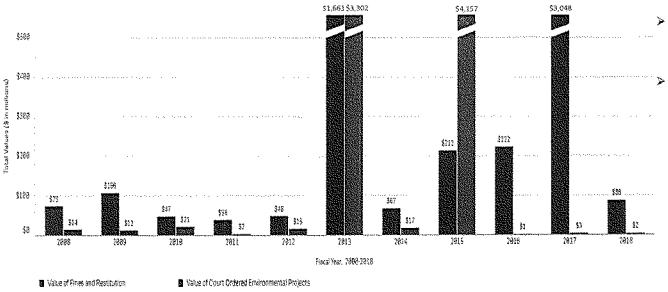


- In FY 2018, EPA enforcement actions obtained commitments to clean up over 244 million cubic yards of contaminated soil and water.
- Annual totals of soil and water to be cleaned up are often strongly influenced by the existence of one or two large cases. For example, in FY 2013 and FY 2014 three big cases accounted for the majority of the soil and water to be cleaned up.

1. Starting in FY 2012, EPA changed the way it stores environmental benefit information in the ICIS data system. Therefore, data are not available for years prior to FY 2012.
2. Starting in FY 2018, the Agency is reporting contaminated soil cleanup from all cases, not just from RCRA Corrective Action and CERCLA cases as in past years. However, RCRA and CERCLA cases account for more than 99% of the FY 2018 total.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

Criminal Enforcement
Value of Fines and Restitution and Court Ordered Environmental Projects
FY 2008 – FY 2018

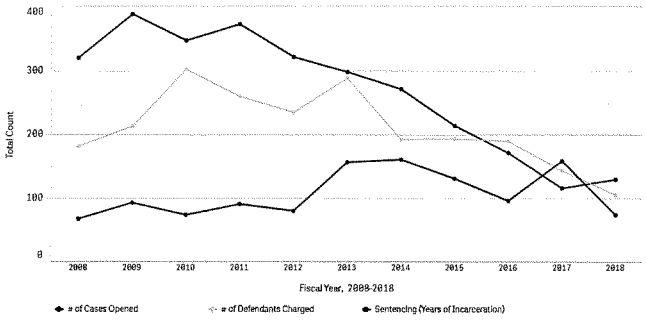


- In FY 2018, the total of criminal fines, restitution, and court ordered projects was $88 million.
- Annual totals vary widely due to large cases such as BP in 2013, Duke Energy in 2015, and Volkswagen in 2017.

1. All prior FY dollar figures in the graph are adjusted to reflect the current value in FY 2018 dollars based on the monthly rate of inflation/deflation as determined by the U.S. Department of Labor Consumer Price Index for All Urban Consumers.
2. Dollar figures referenced in the bullets are nominal values. They are not adjusted to reflect inflation/deflation.

Data Source: Criminal Case Reporting System
Data as of: Nov-13-2018

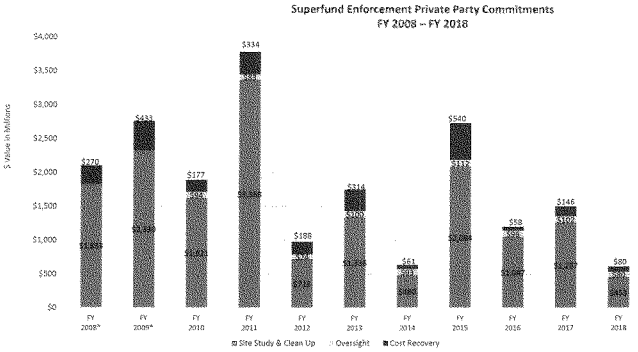
Criminal Enforcement
Environmental Crime Cases Opened, Defendants Charged, and Sentencing Results (Years of Incarceration)
FY 2008 – FY 2018



- In FY 2018, the criminal program continued to focus on complex cases that involve a serious threat to human health and the environment and/or undermine program integrity.
- For the first time since FY 2011, the number of environmental crime cases opened increased.

Data Source: Criminal Case Reporting System
Data as of: Nov-13-2018

Superfund Enforcement Private Party Commitments
FY 2008 – FY 2018

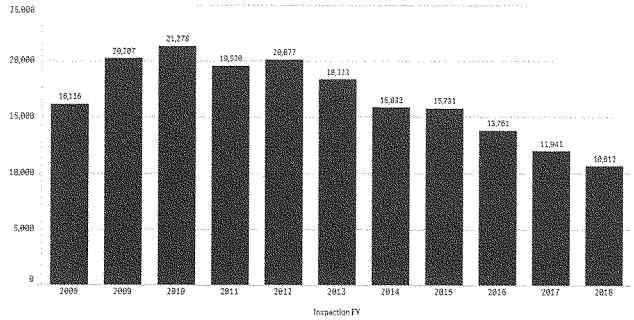


- In FY 2018, private parties committed to spend approximately $453 million on new site cleanup. Responsible parties also agreed to reimburse $80 million of EPA's past costs from clean up work at Superfund sites.
- Annual totals for both cleanup and cost recovery settlements are often influenced by the existence of one or two large cases that involve complex cleanups.

1. Totals include "allowed claims" under bankruptcy settlements.
2. These results do not include commitments made for activities at Federally-owned or operated facilities.
3. All prior FY dollar figures in the graph are adjusted to reflect the current value in FY2018 dollars based on the monthly rate of inflation/deflation as determined by the U.S. Department of Labor Consumer Price Index for All Urban Consumers.
4. Dollar figures referenced in the bullets are nominal values. They are not adjusted to reflect inflation/deflation.
* Amounts billed for Oversight were not reported as part of end-of-year results prior to FY 2010.

Data Source for Cleanup and Cost Recovery: FY08-FY13 Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS);
FY14/15 Manual Reporting; FY16 forward Superfund Enterprise Management System (SEMS).
Data Source for Oversight: Compass Business Objects Reporting (CBOR).
Data as of: Oct-16-2018

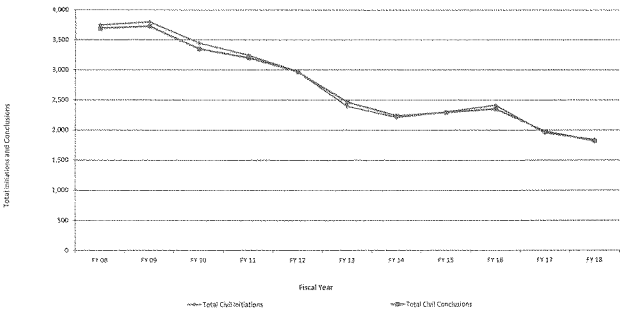
Federal Inspections and Evaluations (Conducted by EPA)
FY 2008 – FY 2018



- In FY 2018, EPA conducted 10,600 inspections/evaluations.
- EPA continues to use data analytics and other tools to improve inspection targeting, which allows it to use its inspection resources more efficiently.

Data Source: ICIS, RCRA Info (for RCRA HW), manual (for SDWA UIC)
Data as of: Dec-9-2018

Total Civil Enforcement Case Initiations and Conclusions
FY 2008 – FY 2018



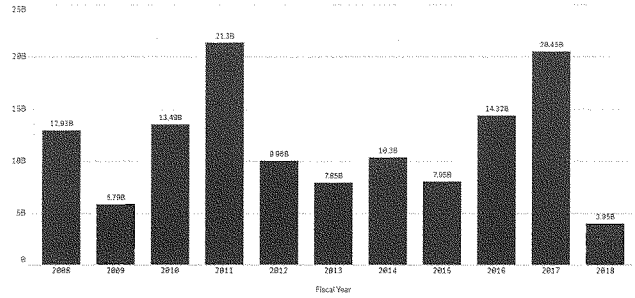
- In FY 2018, EPA initiated and concluded more than 1,800 civil judicial and administrative cases.

1. Totals include CERCLA Initiations and Conclusions.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

Estimated Value of Administrative and Civil Judicial Complying Actions (Injunctive Relief)
FY 2008 – FY 2018

Prior FY Totals Inflation Adjusted to Reflect the Current Totals in FY 2018 Dollars



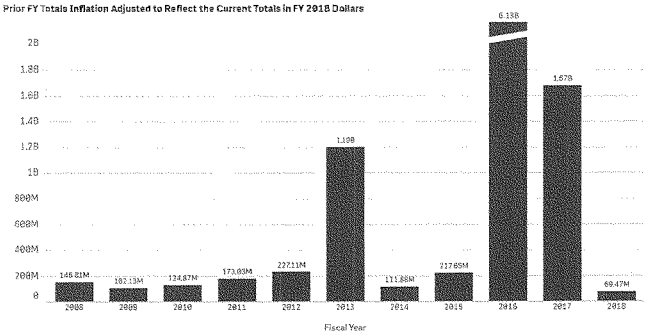
- In FY2018, EPA enforcement actions required companies to invest nearly $4 billion in actions and equipment to control pollution (injunctive relief.)
- Injunctive Relief results vary from year to year depending on the timing of the resolution of the largest cases.

1. Injunctive relief requires a regulated entity to perform, or refrain from performing, some designated action to bring the entity into compliance with environmental laws.
2. All prior FY dollar figures in the graph are adjusted to reflect the current value in FY2018 dollars based on the monthly rate of inflation/deflation as determined by the U.S. Department of Labor Consumer Price Index for All Urban Consumers.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

Administrative and Civil Judicial Penalties Assessed
FY 2008 – FY 2018

Prior FY Totals Inflation Adjusted to Reflect the Current Totals in FY 2018 Dollars

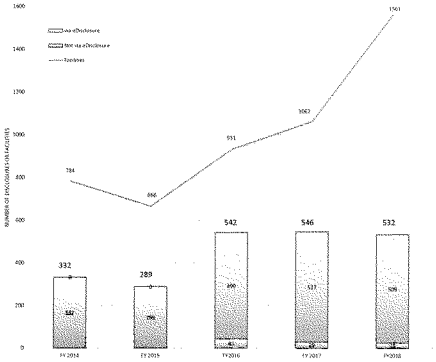


- In FY 2018, EPA obtained over $69 million in federal administrative and civil judicial penalties.
- Annual total penalties assessed are often strongly influenced by the existence of one or two large cases.
- The FY 2017 results were dominated by the record setting $1.45 billion Clean Air Act – Mobile Source penalty in the Volkswagen case and the FY 2016 results were dominated by the $5.7 billion BP action.

1. All prior FY dollar figures in the graph are adjusted to reflect the current value in FY 2018 dollars based on the monthly rate of inflation/deflation as determined by the U.S. Department of Labor Consumer Price Index for All Urban Consumers.
2. Dollar figures referenced in the bullets are nominal values. They are not adjusted to reflect inflation/deflation.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

EPA Voluntary Disclosure Programs
FY 2014 – FY 2018

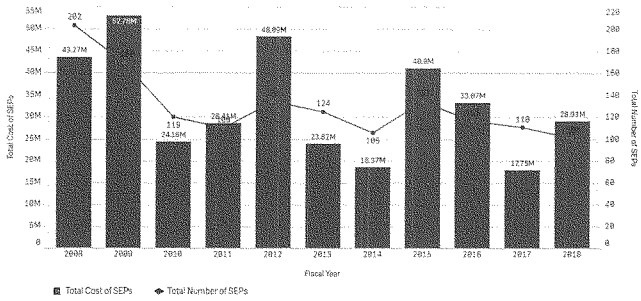


- In FY 2018, 532 entities at over 1,500 facilities voluntarily disclosed violations pursuant to EPA's self-disclosure policies. The 47% increase in facilities self-disclosing violations over 2017 is attributed to several New Owner Audit Agreements involving large numbers of facilities.
- In the nearly three years since launching *eDisclosure*, EPA has seen about a 74% increase in the number of annual self-disclosures as compared to the two years prior to its launch.

Data Source: Integrated Compliance Information System (ICIS) and *eDisclosure* System
Data as of: Nov-5-2018

Supplemental Environmental Projects (SEPs)
FY 2008 – FY 2018

Prior FY Total Cost of SEPs Inflation Adjusted to Reflect the Current Totals in FY 2018 Dollars



■ Total Cost of SEPs ◆ Total Number of SEPs

- In FY 2018, EPA enforcement cases included 100 voluntary agreements to perform Supplemental Environmental Projects (SEPs) with a total estimated cost of over $28 million.
- SEPs are projects that are not otherwise legally required that have a close nexus to the violations and that a defendant/respondent agrees to undertake to benefit the community harmed by the violations and partially offset a penalty.

1. A single settlement can have multiple SEPs.
2. All prior FY dollar figures in the graph are adjusted to reflect the current value in FY 2018 dollars based on the monthly rate of inflation/deflation as determined by the U.S. Department of Labor Consumer Price Index for All Urban Consumers.

Data Source: Integrated Compliance Information System (ICIS)
Data as of: Dec-9-2018

FY 2018 Enforcement and Compliance Annual Results

Acronyms and Descriptions for Statutes/Sections

CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act ("Superfund")
CWA	Clean Water Act
EPCRA	Emergency Planning & Community Right-to-Know Act
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
MPRSA	Marine Protection, Research, and Sanctuaries Act
RCRA	Resource Conservation & Recovery Act
SDWA	Safe Drinking Water Act
TSCA	Toxic Substances Control Act
Title 18	U.S. Criminal Code - Crimes and Criminal Procedure

Attachment Q38

				COUNT	693	
Reported on List	Office	Employee Name	Employee ID	Position Title	Excepted	Function Description
OA	OA/IO	Andrew Wheeler	2335636	Acting Administrator	1	Leadership and guidance to effect orderly shutdown of Agency
OA	OA/IO	Henry Darwin	2335438	Assoc. Dep. Admin. (Acting DA)	1	"
OA	OA/IO	Ryan Jackson	2335364	Chief of Staff	1	"
OA	OA/IO	Helena Wooden-Aguilar	23290	Acting Deputy Chief of Staff	1	Assist Chief of Staff in orderly shutdown of AO; Ongoing General Operations
OA	OA/IO	Kaitlyn Shimmin	2335393	White House Liaison	1	Liaison to the White House
OA	OA/IO	Brett Doyle		Senior Advisory to the Administrator/Strategic Initiatives	1	Provide support to the COS - State of the Union and Congressional Hearing
OA	OA/IO	Aaron Dickerson	7558	Senior Advisor COS	1	Provide support to the COS
OA	OA/IO	Ken Wagner	2335379	Senior Advisor	1	Assist the Administrator - General Operations
OA	OA/IO	Michael Molina	23133	Senior Advisor	1	Assist the Administrator - General Operations
OA	OA/IO	Kevin DeBell	2225	Senior Advisor	1	Assist the Associate Deputy Administrator (Acting DA)
OA	OA/IO	Kelly Kundinger	2335503	Dir, Scheduling/Advance	1	Assist the Administrator - Scheduling/Advance
OA	OA/IO	Hayly Humphries	2336015	Executive Assistant	1	Assist the Administrator
OA	AO/IO	Natasha Eby	2336027	Special Assistant	1	Assist the Administrator
OA	OA/OAES	Lance McCluney	23270	Acting Dir, OAES	1	Assist Chief of Staff and Deputy Chief of Staff - Ops
OA	OA/OHS	Ted Stanich	10403	Acting AA, OHS	1	Effect orderly shutdown of Office & Monitor National Security Info.
OA	OA/OHS	Steven Williams	30098	Sr. Intelligence Officer	1	Monitor Nat'l Security info for Admin & Dep Admin and EPA Programs/Regions, including Water Security and Emergency Response under EXCEPTED ACTIVITIES 5 A
OA	OA/OHS	Justine Chopp		Intelligence Officer	1	Monitor Nat'l Security info for Admin & Dep Admin and EPA Programs/Regions, including Water Security and Emergency Response under EXCEPTED ACTIVITY 5 A
OA	OA/OHS	John Martin	14368	Intelligence Officer	1	Monitor Nat'l Security info for Admin & Dep Admin and EPA Programs/Regions, including Water Security and Emergency Response under EXCEPTED ACTIVITY 5 A
OA	OA/OHS	John Ferris	2912	Environmental Engineer	1	Serving on the White House National Security Council supporting national security efforts.
OA	OA/OCIR	Troy Lyons	2335385	AA, OCIR	1	Orderly shutdown of OCIR & communicate with Congress
OA	OA/OCIR	Robin Richardson	23307	Prin. DAA, OCIR	1	Assist AA in orderly shutdown of the Office; Assist with ongoing General Operations
OA	OA/OCIR	Aaron Ringel	2335391	DAA, OCIR	1	Liaison to State/local/regional officials
OA	OA/OCIR	Christian Palich	2335395	DAA, Cong. Affairs	1	Liaison to Capitol Hill
OA	OA/OCIR	Christian Rodrick	2335436	Special Assistant	1	Preparing the Administrator for Congressional hearings
OA	OA/OCIR	Tony Frye	2335467	Special Advisor	1	Preparing the Administrator for Congressional hearings
OA	OA/OPA	John Konkus	2335347	DAA, OPA	1	Liaison/spokesperson on shutdown communications (Backup)
OA	OA/OPA	Jeff Morin	1121	Web Communication	1	Agency website and website comms
OA	OA/OPA	Christine Dibble	6529	Web Communication	1	Agency website and website comms (backup)
OA	OA/OPA	Nancy Grantham	10152	Acting PDAA, OPA	1	Assist in orderly shutdown of the Office & Provide ongoing comms
OA	OA/OPA	Molly Block	2335502	Press Secretary	1	Provide ongoing communications and hearing prep
OA	OA/OPA	Michael Abboud	2335462	Press Secretary	1	Provide ongoing communications and hearing prep
OA	OA/OPA	James Hewitt	2335455	Special Advisor	1	Provide ongoing communications and hearing prep
OA	OA/OPA	Chris Beach	2335527	Speechwriter	1	Provide ongoing communications and hearing prep
OA	OA/OPEEE	Tate Bennett	2335375	AA, OPEEE	1	Effect orderly shutdown of Office & Assist with ongoing General Operations
OA	OA/OP	Brittany Bolen	2335381	AA, OP	1	Effect orderly shutdown of Office & Assist with ongoing General Operations

OA	OA/OP	William Nickerson	21484	Acting Dir PRAD, ORPM, OP	1	As needed: OMB liaison for court ordered deadlines (tech issues)
OA	OA/OEX	Beth White	2335483	Director, OEX	1	Effect orderly shutdown of Office & FOIA litigation
OAR		Bill Wehrum	15127	PAS - Management	1	Management
OAR		Elizabeth Shaw	4375	Deputy AA	1	Senior Resource Official
OAR		Mandy Gunasekara			1	Preparing the Administrator for Congressional Hearing
OAR		Clint Woods			1	Preparing the Administrator for Congressional Hearing
OAR		David Harlow			1	Preparing the Administrator for Congressional Hearing
OAR		Kevin Culligan	4313	Associate Director, SPPD	1	Court-ordered deadline in December
OAR		Robin Dunkins	19176	Group Leader	1	Court-ordered deadline in December
OAR		Keith Barnett	13781	Group Leader	1	Court-ordered deadline in December
OAR		Janet Eck	6315	Env Protection Specialist	1	Court-ordered deadline in December
OAR		Michael Geeting	24058	Security PO, NVFEL	1	Physical security of NVFEL in Ann Arbor
OAR		Lowell Ralston	3541	RadNet Operations	1	RadNet filter change out (DC)
OAR		Jonathan Aplin	29166	Facility Manager	1	Mechanical systems
OAR		Steve Taylor		RadNet Operations	1	Quality Control verification of RadNet data
OAR		Daniel Askren	26079	RadNet Operations	1	Facility operations
OAR		James Scott Telofski	4304	RadNet Operations	1	Facility operations
OAR		John Kirby	26050	Safety Officer	1	Facility operations
OAR		David Saunders	16085	Gamma Spectrometry	1	Radiation equipment maintenance for emergency reponse
OAR		Michelle Owens	22018	Counting Room	1	Radiation equipment maintenance for emergency reponse
OAR		Zachary Chambers	2334882	RadNet Filters	1	RadNet filters received/stored
OAR		Andrea Stafford	20007	Deputy Director, NCRFO	1	Physical security of facility
OAR		Alejandra Baer	20242	Radiation Safety Officer	1	Rad Characterization COR
OAR		Fernando Gomez	26351	IT Systems	1	IT systems COR
OAR		Mike Messer	29365	RadNet Deployable Mgr	1	RadNet deployables
OAR		Jeremy Johnson	20010	Emergency response	1	Radiological events response
OCFO	OCFO/IO	**Holly Greaves**	2335317	Chief Financial Officer	1	Executive Leadership
OCFO	OCFO/IO	**David Bloom**	3460	Deputy Chief Financial Officer	1	Executive Leadership and provide support to the Acting Administrator's Congressional hearing preparations
OCFO	OCFO/OB	**Carol Terris**	1053	Director	1	Management Oversight and provide support to the Acting Administrator's Congressional hearing preparations
OCFO	OCFO/OB	**Maria Williams**	26211	Deputy Director	1	Management Oversight and provide support to the Acting Administrator's Congressional hearing preparations
OCFO	OCFO/OB	Michelle Guck	2334574	Budget Analyst	1	Process OMB Apportionments
OCFO	OCFO/OB	**Jeanne Shepitka**	11146	Budget Analyst	1	Make funds available for obligations in EPA's financial system
OCFO	OCFO/OC	Gary Luebbering			1	Provide support for mission critical financial processing and payments
OCFO		**Debbie Derosler**			1	IA reviewer & payment processor
OCFO		**Randy Sargent**			1	Back-up IA reviewer & payment processor
OCFO		**Jennifer Brown**			1	Invoice/contract reviewer & contract payment processor
OCFO		**Dwight Glenn**			1	Invoice/contract reviewer & contract payment processor
OCFO		**Benson Karanja**			1	Contract payment certifier
OCFO		**Vonda Jennette**			1	Invoice/contract payment reviewer/ certifier
OCFO		**Anedia Feaster**			1	Transmittal scheduler
OCFO		**Kechi Elliott**			1	Transmittal certifier
OCFO		**Sanjib Chaki**			1	Contract administration and oversight
OCFO		**Penny Miller**			1	CPS/SPITS support
OCFO		**Danny Choi**			1	Technical infrastructure support
OCFO		**Neel Desai**			1	Feedmom ("FeedMomentum") Support

OCFO		**Dani Lavergne**			1	1/9/19 added by LHitchens, per HGreaves -- Provide support for excepted obligation and payment activities during the shutdown. These activities are necessarily implied by law.
OCFO	OCFO/OC/FSD/CFC	**Khary Nelson**	10540	Travel Branch Chief	1	Travel
OCFO	OCFO/OC/FSD/CFC	**Jason Ruehl**	21746	Accountant	1	Travel
OCFO	OCFO/OC/FSD/CFC	**William Wiggins**	27728	eRelocation Branch Chief	1	Relocation
OCFO	OCFO/OTS/IO	**David Devere**	24099	Acting Director	1	Management Oversights/systems operations
OCFO	OCFO/OTS/SRDD	**Kiran Chandu**	2335174	IT Specialist	1	Provide CDW and PPL systems administration and operational support and powering down CPS/Feedmom
OCFO	OCFO/OTS/BSD	**Lindsay Smith (formerly Willard)**	27485	Program Analyst	1	Payroll closeout and support for Political Appointees
OCFO	OCFO/OTS/PED	**Michael Reese**	29767	Financial Specialist	1	Provide PPL systems administration and operational support
OCFO	OCFO/OTS/IO	**Eva Ripollone**	30345	IT Senior Technical Advisor	1	Management Oversights/systems operations
OCFO	OCFO/OTS/IO	**Heidi Gross**	21521	Program Advisor	1	Payroll communications/coordination
OCFO	OCFO/OTS/AMD	**Bob Aaronson**	32788	IT Specialist	1	COMPASS access and Provide PPL systems adminstration and operational support including payroll processing pre and post shutdown
OCFO	OCFO/ORIM	**Ruth Alene Soward**	8204	Director, ORIM	1	Management oversight, HR, Guidance & assistance to those shutting down
OCSPP	OCSPP IO	Charlotte Bertrand	13699	DAA	1	Senior Management - Operations
OCSPP	OCSPP IO	Nancy Beck	2335392	Principal DAA	1	Senior Management - Operations
OCSPP	OCSPP IO	Erik Baptist	2335412	DAA	1	Senior Management - Operations
OCSPP	OCSPP OPP	Lek Kadeli	8206	Acting DAA Mgmt	1	Senior Management - Operations
OCSPP	OCSPP OPP	Susan Lawerence	7422	Branch Chief	1	Runs OPP Microbiology Lab (Ft. Meade)
OCSPP	OCSPP OPP	Thuy Nguyen	7822	Branch Chief	1	Runs OPP Chemistry Lab (Ft. Meade)
OCSPP	OCSPP OPP	Rick Keigwin, Jr	1613	Director, OPP	1	Senior Management - Operations
OCSPP	OCSPP IO	Arnold Layne	3892	Acting Associate Assistant Administrator	1	Senior Management - Operations
OCSPP	OCSPP OPPT	Jeff Morris	17199	Director, OPPT	1	Senior Management - Operations
OCSPP	OCSPP OSCP	Stan Barone	10173	Acting Director,OCSP	1	Senior Management - Operations
OCSPP	OCSPP OPP	Mike Goodis	16002	Director, RD, OPP	1	Senior Management - Operations
OCSPP	OCSPP OPP	Kable (Bo) Davis	23257	Team Lead Sect 18	1	Senior Management - Operations
OCSPP	OCSPP OPPT	Michelle Price		Supervisory Env Prot Specialist	1	Hearing Prep
OCSPP	OCSPP OPPT	Scott Sherlock	84-1024566	Attorney Advisor	1	14(d) emergency access staff
OECA	OECA-IO	BODINE, SUSAN	00025379	Assistant Administratror	1	Management
OECA	OECA-IO	HULL, GEORGE	00019243	OECA Communications Director	1	Support communications to the public incidental to a court-ordered litigation filing.
OECA	OECA-IO	STARFIELD, LAWRENCE	00002672	PDAA	1	Support to AA on administrative and management matters
OECA	OECA-IO	TRAYLOR, PATRICK	02335413	DAA	1	"
OECA	OECA-IO	BADALAMENTE, MARK	00012938	SRO	1	"
OECA	OECA-OCE/IO	KELLEY, ROSEMARIE	00004131	ATTORNEY ADVISOR (OFC DIR - AFTER JAN 1)	1	Office Director/oversee shutdown activities, main OCE POC)
OECA	OECA-OCE/AED	ARGENTIERI, SABRINA	00007195	ATTORNEY ADVISOR	1	Court deadline in Luminant litigation (if DOJ is unable to obtain an extension)
OECA	OECA-OCE/AED	BELSER, EVAN	00028064	ATTORNEY ADVISOR (BRANCH CHIEF)	1	National POC for US Customs on vehicle & engine import issues
OECA	OECA-OCE/AED	CABALLERO, KATHRYN	00025219	ATTORNEY ADVISOR	1	Court ordered deadline (by Jan 10) for lodging consent decree in FCA litigation
OECA	OECA-OCE/AED	BELSER, EVAN	00028064	ATTORNEY ADVISOR	1	Litigation support at the request of DOJ (completion of and lodging of court-ordered consent decree). There is a January 10th deadline that cannot be extended.
OECA		CABALLERO, KATHRYN	00025219	ATTORNEY ADVISOR	1	"

OECA		MEISENBACH, CAITLIN	00029400	ATTORNEY ADVISOR	1	"
OECA		KANE, ELEANOR (Region 5)	31683	ENVIRONMENTAL ENGINEER	1	"
OECA		AGUILAR, VICTOR	02334678	ENVIRONMENTAL ENGINEER	1	"
OECA		BROOKS, PHILLIP	00030627	ATTORNEY ADVISOR	1	"
OECA	OECA-OCE/AED	SULLIVAN, TIMOTHY	00025459	ATTORNEY ADVISOR	1	Court ordered deadline (by Jan 14) for filing motion to dismiss in KP Kauffman litigation
OECA	OECA-OCE/WCED	WALKER, YOLAANDA	00007736	ENVIROMENTAL ENGINEER	1	National POC for US Customs on FIFRA import issues
OECA	OECA-OCE/WED	BRANTNER, KELLY	00004938	ATTORNEY ADVISOR	1	Court deadline in Delek litigation (no extension obtained)
OECA	OECA-FFEO	DIXON, CHELSEA	02333433	ATTORNEY-ADVISOR	1	Support for preparing and issuing an imminent and substantial endangerment enforcement order to a federal facility
OECA	OECA-FFEO	DALZELL, SALLY	00007732	ATTORNEY-ADVISOR	1	"
OECA	(OECA-OCE/AED)	KING, CAROL	30464	ATTORNEY-ADVISOR	1	"
OECA	OECA-OSRE	MACKEY, CYNDY	00017616	SUPERVISORY ATTORNEY-ADVISER	1	Legal advice to senior agency leadership for national on-going cases
OECA	OCEFT-IO	BARNET, HENRY E.	00032867	DIRECTOR, OFFICE OF CRIMINAL FORENSIC	1	LE Personnel- Excepted
OECA	OCEFT-NEIC	BEIHOFFER, JON	00015197	CHEMIST	1	Recharge instruments to prevent damage to property. Deal with laboratory waste and any lab emergency issues
OECA	OCEFT-NEIC	CANZLER, ERICA	0000024264	DIR, NATL ENFORCE INVEST CENTER	1	On-site management
OECA	OCEFT-NEIC	CAHILL, JEFF	00032424	SUPERVISORY CHEMIST	1	Litigation support – DOJ has requested employee for interview related to ongoing litigation matter.
OECA	OCEFT-NEIC	FOWLER, JOHN	0000028137	PHYSICAL SCIENTIST (ENVIRONMENTAL)	1	Trial support
OECA	OCEFT-NEIC	FRITZ, JASON M	0000033084	TOXICOLOGIST	1	Search warrant support
OECA	OCEFT-NEIC	HELMICH, RICHARD J	0000033783	CHEMIST	1	Search warrant support
OECA	OCEFT-NEIC	IATROPULOS, JAMIE C.	0000027355	PHYSICAL SCIENTIST	1	Search warrant support
OECA	OCEFT-NEIC	RESCHL, JOHN	00016651	CHEMIST	1	Litigation support. DOJ has requested employees support (re-analysis of lab samples) to support active litigation in matter scheduled to go to trial on February 4.
OECA	OCEFT-NEIC	SCALES, MICHAEL	0000016496	INFORMATION TECHNOLOGY SPECIALIST	1	Maintain NEIC LAN
OECA	OCEFT-NEIC	SIPE, DIANE	00011872	DEPUTY DIRECTOR	1	Responsible for on-going co-location activities with Region 8.GSA indicated this work would continue during a shutdown.
OECA	OCEFT-NEIC	STEAD, MARK	0000025128	PHYSICAL SCIENTIST (ENVIRONMENTAL)	1	Search warrant support
OECA	OCEFT-NEIC	STOWELL, JAKE	0000028137	PHYSICAL SCIENTIST (ENVIRONMENTAL)	1	Search warrant support
OECA	OCEFT-NEIC	VANLERBERGHE, DAREN R.	0000012913	ENVIRONMENTAL ENGINEER	1	Search warrant support
OECA	OCEFT-LCD	NELSON, ERIC	00016432	ATTORNEY	1	Litigation support – serving as Special Assistant US Attorney with DOJ on 2 cases with active litigation deadlines.
OECA	OCEFT-PSD	[redacted]	0002334843	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002335469	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002335492	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	EOD 2/04	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002333819	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002335466	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted

OECA	OCEFT-PSD	[redacted]	00021920	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002335464	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	00029831	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-PSD	[redacted]	0002335488	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00005537	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00002322	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000018417	SUPV CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0062209	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00027640	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00031653	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00001287	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030749	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020737	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00022865	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00009685	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00010798	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000018418	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030570	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002333775	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030825	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020974	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000021404	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00016261	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020779	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00029701	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002333823	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00009551	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00004204	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002333821	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00022124	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030061	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00001528	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00026082	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00031740	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00008291	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335578	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00014160	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00028643	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335627	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00025964	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00003527	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335628	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00019739	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00029866	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00007910	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00008428	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted

OECA	OCEFT-CID	[redacted]	00007648	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030641	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002334123	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00029848	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0001387	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00013074	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00028675	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00008607	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335495	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00026279	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00030017	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335491	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]		CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020746	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00021913	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002333824	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00029859	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020774	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020780	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0002335650	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020761	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020764	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00027494	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00028529	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00020782	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00004816	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00008110	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00001128	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00031736	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00021607	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000028873	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00016485	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00011161	CRIM INVESTIGATOR (RESDT-AGT IN CHRG)	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000027537	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	00016302	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
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OECA	OCEFT-CID	[redacted]	00027197	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
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	OCEFT-CID	[redacted]	00029207	LAW ENFORCEMENT	1	LE Personnel- Excepted
OECA				FORENSIC SPECIALIST		
OECA	OCEFT-CID	[redacted]	00028610	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
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	OCEFT-CID	[redacted]	'00015966	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
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OECA	OCEFT-CID	[redacted]	0000020657	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OECA	OCEFT-CID	[redacted]	0000008659	CRIMINAL INVESTIGATOR	1	LE Personnel- Excepted
OGC		Matthew Leopold	02335528	General Counsel	1	PAS - Legal Counsel re shutdown
OGC		Elise Packard	00332142	Acting Deputy GC	1	Legal Counsel re shutdown and excepted activities
OGC		David Fotouhi	02335386	Principal Deputy GC	1	Legal Counsel re shutdown and excepted activities
OGC		Justin Schwab	2335318	Deputy GC	1	Hearing Prep
OGC		Justina Fugh	00007915	Sr. Ethics Counsel	1	Legal Counsel re shutdown and excepted activities
OGC		Angelia Talbert-Duarte	02333688	DeputyAssoc. GC	1	Legal Counsel re shutdown and excepted activities
OGC		Ann Sisson	00001316	Attorney-Advisor	1	Legal Counsel re shutdown and excepted activities
OGC		Rebecca Wulffen	02333092	Assistant GC	1	Legal Counsel re shutdown and excepted activities
OGC		Gautam Srinivasan	00013982	Associate GC (A)	1	Legal Support For Excepted Litigation
OGC		Lynn Kelly	31550	Attorney-Advisor	1	Hearing Prep
OGC		Peter Bermes	02333304	Attorney-Advisor	1	Hearing Prep
OGC		Joe Cole	02336086	Associate GC (A)	1	Legal Support For Excepted Litigation
OGC		John Michaud	00001123	Associate GC	1	Legal Support For Excepted Litigation
OGC		Steve Neugeboren	00002152	Associate GC	1	Legal Support For Excepted Litigation
OGC		Carrie Wehling	00011172	Assistant GC	1	Legal Support for Excepted Litigation; work on emergency response
OGC		Karyn Wendelowski	00001056	Attorney-Advisor	1	Legal Support for Excepted Litigation
OGC		Krista Hughes	00033348	Attorney-Advisor	1	Legal Support for Excepted Litigation
OGC		Monique Patrick	00019250	Program Specialist	1	2 day, Preparation for Acting Admin. Nomination, notary
OGC		Pooja Parikh	00023041	Attorney-Advisor	1	1 day legal support of excepted litigation; work on emergency response
OGC		Lauren Maher	00032387	Attorney-Advisor	1	Legal Support For Excepted Litigation
OIG	Office of Investigations	Chris Huntington	2334707	Special Agent	1	Case in judicial action. Agent to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent.
OIG	Office of Investigations	George Golliday	00006840	Special Agent	1	Case in judicial action. Agent to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent.
OIG	Office of Investigations	Alan Huntsinger	25141	Special Agent	1	Case in judicial action. Agent to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent.
OIG	Office of Investigations	Jimmie Culbreth	28394	Special Agent	1	Case in judicial action. Agent to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent.
OITA	OITA/OMIS	Dennis Cunningham	7580	Deputy Director, OMIS	1	Support to PDAA/International Travel
OITA	OITA/IO	Jane Nishida	32057	PDAA	1	Senior Management - Operations
OITA	OITA/IO	Chad McIntosh	2335744	Senior Counsel	1	Senior Management - Operations
OMS	IO	Donna Vizian	00004973	Principal Deputy Assistant Administrator	1	Manage agency contingency plan
OMS	IO	Ken Lapierre	00002001	Acting Deputy Assistant Administrator	1	Oversee agency shutdown and secure operations
OMS	IO	Mariam Cooper	00003529	Chief of Staff	1	Assist AA in managing agency contingency plan
OMS	ORBO	Lynnann Hitchens	00006264	Director, ORBO	1	Assist DAA in managing agency shutdown and OARM's excepted activities
OMS	ARM/OA	Yvette Jackson	00007164	Acting Director, OA	1	Oversee shutdown of OA and ensure facilities are secure
OMS	ARM/OA	Gayle Jefferson	00007016	Director, FMSD	1	Direct facilities management and services functions for Agency and headquarters facilities

OMS	ARM/OA	Jon Ross	00028983	SMD	1	Manage day-to-day security operations functions for the Agency
OMS	OARM/Cincinnati	Rick Carter	00025535	Director, OARM-Cincinnati	1	Oversee the orderly shutdown of OARM-CI facilities including safety and security operations
OMS	OARM/Cincinnati	JR Smith	00011006	Safety and Occup Health Manager	1	Oversee security activities for Cincinnati facilities
OMS	OARM/Cincinnati	John Kappa	00022267	Environmental Scientist	1	Oversee facilities O&M
OMS	OARM/Cincinnati	Jerome Bonner	02333282	Director, HRMD	1	Assist in orderly shutdown and provide HR support as required for excepted/exempted employees
OMS	OARM/RTP	Arron Helm	00002121	Director, OARM-RTP	1	Oversee the orderly shutdown of RTP facilities including safety and security operations
OMS	OARM/RTP	Shawn Lafferty	00013446	Director, FMSD-RTP	1	Assist in orderly shutdown of facilities and oversee facility activities/security for RTP buildings
OMS	OARM/RTP	Jeremy Taylor	00028858	Director, HRMD	1	Assist in orderly shutdown and provide HR support as required for excepted/exempted employees
OMS	ARM/OGD	Denise Polk	00026884	Director, OGD	1	Assist in orderly shutdown and manage grants/IA issues in support of agency contingency plan
OMS	ARM/OGD	Mack Zakikhani	00007099	IT Specialist	1	Oversee Critical IT Systems/Support for excepted and exempted employees (IGMS/NGGS)
OMS	ARM/OGD	Tony Fournier	00023016	Chief, Fellowships, IA and SEEs Branch	1	Provide Grants/IA support for excepted/exempted activities
OMS	ARM/OAS	Kimberly Patrick	00019222	Director, OAS	1	Oversee the orderly shutdown and manage contracting activity in support of agency contingency plan
OMS	ARM/OAS	Pamela Legare	00009279	Deputy Director, OAS	1	Oversee the orderly shutdown and manage contracting activity in support of agency contingency plan
OMS	ARM/OAS	Raoul Scott	00012789	Director, PTOD	1	Assist in orderly shutdown of office and notification to contractors
OMS	ARM/OAS	Keith Stewart	00022215	Director, HQAD	1	Assist in orderly shutdown of office and notification to contractors
OMS	ARM/OAS	Victor Rodriguez	00003364	Supervisory IT	1	Oversee critical IT systems/support for excepted and exempted employees (EAS/ICMS)
OMS	ARM/OAS	Stefan Martiyan	00031407	Contracting Officer	1	Award/Administer excepted and exempted contract actions
OMS	ARM/OAS	Scott Tharp	00012729	Contracting Officer	1	Award/Administer excepted and exempted contract actions
OMS	ARM/OAS	Joel Smith	00001185	Contracting Officer	1	Award/Administer excepted and exempted contract actions
OMS	ARM/OAS	Claudia Armstrong	00021599	Contracting Officer	1	Superfund Support
OMS	ARM/OHR	Wesley Carpenter	00001770	Acting Director, OHR	1	Assist in orderly shutdown activities and manage all HR activities in support of contingency plan
OMS	ARM/OHR	Jackie Shepherd	00010928	Director, HR ITD	1	Oversee critical IT systems/support for excepted activities (FPPS)
OMS	OEI/IO	Vaughn Noga	0002333850	Deputy Assistant Administrator	1	On call as needed to provide executive management and support for shutdown and excepted activities.
OMS	OEI/IO	Karen Maher	00006701	Associate Deputy Assistant Administrator/SRO	1	On call as needed to provide executive management and support for shutdown and excepted activities. Available as needed to handle SRO duties.
OMS	OEI/OISP	Sharon Robinson	0002333565	Computer Security Incident Response Capability Manager	1	On call as needed. Computer Security Incident Response Capability manager responsible for day-to-day CSIRC oversight and coordination activities with both internal and external entities.
OMS	OEI/OEIP/ERFD	Michael Whiting	0000030759	Acting Division Director	1	On call as needed to provide management oversight and COTR support to Regulations.gov and FOIAOnline which may remain in operations during a shutdown.
OMS	OEI/OIM/IESB	Bijan Mashayekhi	02332732	TCOR	1	COTR for CDX support contract. On call as needed to ensure critical functions for critical activities are supported.
OMS	OEI/OIM/WCSD	Michael Hessling	0000020049	IT Specialist	1	On call as needed to provide technical expertise for EPA web operations/platform for applications that support emergency response and disaster assistance.

OMS	OEI/OITO/EHD	Tim Thorpe	0000009095	Division Director	1	On call as needed to coordinate National Computer Center activities, operations and Wide Area Network (WAN).
OMS	OEI/OITO/EHD	Peter Buch		GDIT contractors	1	move from the Google Search Appliance to the Lucidworks Search replacement for EPA's Public Access System
OMS	OEI/OITO/EHD	Alison Shahan		GDIT contractors	1	move from the Google Search Appliance to the Lucidworks Search replacement for EPA's Public Access System
OMS	OEI/OITO/DSSD	Willie Abney	00006484	Desktop Support	1	Moved to excepted on 1/4/19 to address mission critical systems issues. On call as needed for HQ Desktop Services Support, and mission critical excepted systems.
ORD	NRMRL	Skender, John P.	25793	Facilities Manager (Ada)	1	ensure essential building functions for protection and maintenance of federal building
ORD	NHEERL	Cascio, Wayne	28409	Acting Director, NHEERL	1	On Call to respond to emergency activities or conditions at all NHEERL locations that could arise during a shutdown
ORD	NHEERL	Dailey, Lisa	10625	Biologist	1	Maintain the viability of cell cultures necessary for ongoing cell/culture research (feed, dose, maintain, etc.) at the HSF Chapel Hill, 2 hours/day.
ORD	NHEERL	Little, Albert	5772	Program Manager (Facilities)	1	Ensure essential building functions of HSF for protection and maintenance of building. Communicate emergency/urgent for approved contract services from CO
ORD	NRMRL	Boczek, Laura	23002	Acting Branch Chief (AWBERC	1	Maintenance of bacterial cultures which if lost would seriously jeopardize on-going research. Action required to protect federal research property.
ORD	NRMRL	Gilliland, Alice	26425	Deputy Director for Managem	1	assist in orderly shutdown of lab activities/ensure protection of federal equipment and research property
ORD	NRMRL	Mullin, Cynthia Sonich	31238	Director	1	oversee orderly shutdown of lab activities/ensure protection of federal equipment and research property
ORD	NRMRL	Musson, Stephen E.	20009	Chief, Laboratory Support and	1	Must come in at least weekly to meet EPA regulatory requirements for hazardous waste management,and to meet NRC license requirements at certain times depending on the shutdown. Lead ORD H&S person for all of Cincinnati, on call to respond as necessary in event of fire, accidents, other legal requirements to ensure protection of human life and federal property.
ORD	NRMRL	Nietch, Christopher T	31383	Scientist, WSD (Experimental	1	Maintenance of fish cultures at Experimental Stream Facility. PART TIME AS NEEDED
ORD	NRMRL	Revetta, Randy	2333867	Microbiologist, WSD (AWBERC	1	Randy Revetta needs access to the T&E facility to maintain the biological experiments being conducted there. The water in the pipe loops feeding the storage tank experiments must not be allowed to drain off in the event of a pump failure.
ORD	NHSRC	Sayles, Gregory	13405	Director and NICT ORD Rep	1	ORD Rep to National Incident Coordination Team (NICT) and lead for REACHBACK capabilities during emergencies
ORD	OARS	Steenbock, John	33009	Director	1	oversee any urgent needs during the shutdown related to HR/Budget/Extramural/Travel for ORD
ORD	NRMRL	Tolaymat, Thabet	8957	Environmental Engineer, LMV	1	Continue bioreactor lysimeter and mine drainage sulfate reduction columns operation, Center Hill location. Both are biological systems, capable of generating gases which need to be monitored and managed. Action required to protect federal research property
ORD	NRMRL	Weber, Josh	26492	Facilities Manager (Cincinnati,	1	assist in orderly shutdown of lab activities/ensure protection of federal equipment and research property
ORD	NRMRL	Williams, Daniel J.	12138	Technician, WSD (AWBERC)	1	Maintenance of ongoing studies that require monitoring which if lost would jeopardize years worth of data and study findings. Action required to protect federal research property.
ORD	NHEERL	Bollman, Mike	8015	Biologist (Greenhouse)	1	Feeding, watering, and protection of greenhouse plant subjects. Without daily care, plants will die. Level of effort is approximately 2 hours per day.

ORD	NHEERL	Johnson, Mark	30730	Ecologist (Refrigerator and Fre	1	EP-D-16-021 Task 0005 on CSS contract. Long-term experiment requires daily (sometimes multiple times a day) monitoring. Disruption could lead to loss of 3-4 years of research. Check experiments and equipment and freezer failure in controlled access laboratory to prevent contamination (1 hour every other day to ensure no loss of samples due to equipment failure; requires knowledge of system).
ORD	NHEERL	Knight, Primo E.	21654	Facility Operations Specialist	1	ensure essential building functions for protection and maintenance of building. No security during day at WED. (2 hour per day to check three buildings at two locations)
ORD	NHEERL	Rugh, Bill	8868	Biologist (Refrigerator and Fre	1	Enriched stable isotope facility requiring restricted access to prevent contamination. Scientific freezer failure emergency contact. Ensure RadNet radioactivity monitor operates and samples sent for analysis. (1 hour every other day)
ORD	NHEERL	Haselman, Jonathan Thomas	2332585	Biologist	1	Minimum maintenance of frogs being used in various laboratories (feed, dose, maintain, etc.); will require up to 4 hours per day, 7 days per week to protect the life of the organisms.
ORD	NHEERL	Hockett, James R.	8244	Biologist	1	Minimum maintenance of fish and invertebrates being used in various laboratories (feed, dose, maintain, etc.); will require up to 4 hours per day, 7 days per week to protect the life of the organisms. Expectthis is needed through December 18.
ORD	NHEERL	Kahl, Mike	9126	Biologist	1	Minimum maintenance of fish and invertebrates being used in various laboratories (feed, dose, maintain, etc.); will require up to 4 hours per day, 7 days per week to protect the life of the organisms.
ORD	NHEERL	Lahren, Tylor	8964	Chemist	1	Minimum maintenance of fish and invertebrates being used in various laboratories (feed, dose, maintain, etc.); will require up to 4 hours per day, 7 days per week to protect the life of the organisms.
ORD	NHEERL	Miller, Samuel E.	19280	Aquatic Biologist	1	Protection of property. Ensure essential systems on the vessel Lake Explorer II are functioning properly for the safety and protection of the vessel. Will require 2.5 hours every other day to check the condition of mooring lines, make sure shore power is being fed properly to the vessel, check for and guard against freeze up and flooding, transfer fuel to day tank once per week (necessary to run boiler for heat); respond as necessary to any remote alarms coming from sensors and monitors on the vessel.
ORD	NHEERL	Warhol, Stephanie	9033	Program Ananlyst (Alt. with N	1	Ensure essential building functions for protection and maintenance of building; will work half days or every other day (to be determined) to ensure the safety and protection of the buildings, property, and equipment against loss or damage from preventable cause including utility/mechanical system failure, freeze-up, fire, theft, trespass, and vandalism.
ORD	NHEERL	Whiteman, Frank	9008	Biologist	1	Minimum maintenance of fish and invertebrates being used in various laboratories (feed, dose, maintain, etc.); will require up to 4 hours per day, 7 days per week to protect the life of the organisms.
ORD	OSIM	Blancato, Jerry N.	8934	Director/SIO	1	respond to Agency emergency functions that might arise during shutdown; work with Agency CIO to assure all ORD owned and managed systems are secure and functioning as needed; oversee orderly shutdown of office activities/ensure protection of federal equipment and research property
ORD	NCCT	Deisenroth, Chad	23851	Principal Investigator	1	Laboratory experiment running for the past 3 weeks and will wrap up on the 25th. It would be a big loss of time and resources to not complete it.
ORD	NHEERL	Dye, Janice	24795	Biologist	1	Protection of Federal Property

ORD	NHEERL	Freudenrich, Theresa	14228	Biologist	1	Maintain the viability of cells necessary for ongoing cell/culture research (feed, dose, maintain, etc.).
ORD	NHEERL	Gilbert, Mary	30518	Research Biologist	1	To breed and monitor impregnating of animals already on study. Will require animal care to take smears each morning for the duration of the shutdown and me to read and then breed animals based on estrous phase, and return next day to monitor if mating was successful. 3 hours each day...
ORD	NHEERL	Gleta Carswell	5360	Biologist	1	Protect unique samples in the freezer and cell storage containers on the main campus in RTP.These samples can not be replaced. It is anticipated that her time will be 2-4 hours in the event of a freezer failure, and 1 hour every two weeks for maintaining liquid nitrogen levels for cell preservation.
ORD	NHEERL	Graff, Jaimie	2333769	Lead Program Analyst (Anima	1	For protection of federal property
ORD	NCCT	Harrill, Joshua	2051	Principal Investigator	1	Laboratory cultures growing for an experiment that cannot be left unattended or the whole experiment will be voided
ORD	NHEERL	Hedge, Joan	2058	Biologist	1	Maintenance of the zebrafish colony. Estimated time is 2 hours per day, 7 days per week, for animal husbandry work. This requires feeding fish in the B bldg. lab, and checking fish health in the A bldg facility (includes adjusting water flow and pH and anything else that may need attention to maintain health of fish).
ORD	NHEERL	Herbin-Davis, Karen	9052	Biologist	1	For protection of federal property
ORD	NHEERL	Hill, Donna	29900	Biologist	1	Manage lab in DTB that does in vivo toxicology studies with algal toxins. Study requires weekly animal weighing and making dosing solutions
ORD	NHEERL	Johnstone, Andrew	2333268	Biologist	1	Daily maintenance of existing cell lines.
ORD	NHEERL	Krantz, Quentin T.		Biologist	1	Inhalation facilities engineering in RTP to maintain, monitor and protect inhalation laboratory equipment and animals.
ORD	NHEERL	Lambright, Christy		Biologist	1	Manage Cell storage containers and dose animals for various studies. It is anticipated she will be here 4-6 hours a day as needed for dosing animals.
ORD	NHEERL	Lehmann, David		Biologist	1	The bumble bee colonies require maintenance every other day (i.e. feeding and cage cleaning). Since serious allergic reactions can occur following bee stings, David is the only person authorized by Agency management to maintain these colonies.
ORD	NERL	Lewandowski,Michael		Research Physical Scientist, E>	1	Shutdown of senistive lab equipment to protect federal property (AQB)
ORD	NHEERL	McDaniel, Katherine		Biologist	1	scientific freezer failure emergency contact - protection of property; Up to 6 hours per day to care/feed/dose/maintain/terminate major animal study and up to 8 hours/day for up to 6 termination days for sacrifice of animals and harvesting and preserving samples
ORD	NHEERL	McDonald, Tony A.		Research Physical Scientist	1	Protect unique samples in the freezer and cell storage containers on the main campus in RTP and respond to scientific freezer failures. It is estimated that 2-3 hours will be necessary to remove samples to alternate freezers in the event of a failure. Daily monitoring of freezers is needed as multiple alarm failures occur. Receive and process frozen samples from contractor. Anticipated processing time 3-4 hr per shipment Maintain liquid nitrogen levels for cell preservation. Up to 6-8 hr/day for up to 7 days to process and ship samples from experiments using unique, very costly and and irreplaceable water concentrates
ORD	NHEERL	Miller, Collette		Biologist	1	monitoring of pregnant animals

ORD	NHEERL	Moore, Tanya M.	Biologist	1	Protection of property. Protect unique samples in the freezer and cell storage containers on the main campus in RTP.These samples can not be replaced. It is anticipated that her time will be 2-4 hours in the event of a freezer failure, and 1 hour every two weeks for maintaining liquid nitrogen levels for cell preservation.
ORD	NHEERL	Nichols, Harriette		1	Maintain the viability of cells necessary for ongoing cell/culture research (feed, dose, maintain, etc.).
ORD	IOAA	Orme-Zavaleta, Jennifer	Principal Deputy Assistant Ad	1	oversee ORD shutdown operations; provide guidance to those engaged in shutdown
ORD	NHEERL	Padilla, Stephanie J.	Research Toxicologist	1	Maintenance of the zebrafish colony. Estimated time is 2 hours per day, 7 days per week, for animal husbandry work. This requires feeding fish in the B bldg. lab, and checking fish health in the A bldg facility (includes adjusting water flow and pH and anything else that may need attention to maintain health of fish).
ORD	NHEERL	Richardson, Vicki	Biologist	1	Maintain the viability of cells necessary for ongoing cell/culture research (feed, dose, maintain, etc.).
ORD	IOAA	Robbins, Christopher	Deputy Assistant Administrat	1	oversee ORD shutdown operations; provide guidance to those engaged in shutdown
ORD	IOAA	Rodan, Bruce	Associate Director for Science	1	oversee ORD shutdown operations; provide guidance to those engaged in shutdown
ORD	NCCT	Sams, Reeder	Deputy Center Director	1	oversee orderly shutdown of center activities/ensure protection of federal equipment and research property
ORD	NHEERL	Sey, Yusupha M.	Biologist	1	Protect unique samples in the freezer and cell storage containers on the main campus in RTP and respond to scientific freezer failures. It is estimated that 2-3 hours will be necessary to remove samples to alternate freezers in the event of a failure. Daily monitoring of freezers is needed as multiple alarm failures occur. Receive and process frozen samples from contractor. Anticipated processing time 3-4 hr per shipment Maintain liquid nitrogen levels for cell preservation. Up to 6-8 hr/day for up to 7 days to process and ship samples from experiments using unique, very costly and and irreplaceable water concentrates
ORD	NHEERL	Simmons, Jane E.	Supervisory Biologist	1	Assist in shutdown operations; ensures compliance with applicable regs. On call when management decisions/actions are required. Freezer checking, cell preservation and completion of on-going essential experiments (2/3 hrs per days sporadically)
ORD	NCCT	Simmons, Steve	Principal Investigator	1	Laboratory experiment running and it would be a big loss of time and resources to not complete it.
ORD	NHEERL	Suarez, Juan	Biologist	1	On call for clinical care of research rabbits.
ORD	NHEERL	Tal, Tamara	Biologist	1	Requires daily care of the fish and multiple time points of analysis and assessment.
ORD	NHEERL	Thomas, David J.	Research Toxicologist	1	Estimated time is 5 hrs each day to care/feed/dose/maintain the study and to sacrifice animals and harvest tissue for up to 10 days.
ORD	NHEERL	Wallace, Kathleen	Biologist	1	Protect unique samples in the freezer and cell storage containers on the main campus in RTP.These samples can not be replaced. It is anticipated that her time will be 2-4 hours in the event of a freezer failure, and 1 hour every two weeks for maintaining liquid nitrogen levels for cell preservation.
ORD	NERL	Watkins, Tim	Acting Director, National Expo	1	On Call to respond to emergency activities or conditions at all NERL locations that could arise during a shutdown

ORD	NHEERL	Wolf, Cynthia J.		Biologist	1	Maintain cryopreservation and culture of various types of human stem cells and spheroids; ensure equipment are operating properly and continuously. Approximately 2 hours per day needed for basic maintenance."
ORD	OSIM	Hammel, Craig P.		LAN Administrator	1	oversee any emergency directions through extramural vehicle (IAA with NIH) to contractors who maintain all ORD infrastructure; ensure orderly shutdown of IT equipment required to protect federal research property
ORD	NHEERL	Beddick, David		Acting, Health and Safety Spei	1	on call for any safety or environmental compliance issues.
ORD	NHEERL	Dantin, Darrin		Facilities Manager	1	ensure essential building functions for protection and maintenance of building
ORD	NHEERL	Hankins (McGill), Cheryl J		Biologist	1	maintenance of ORD unique facility associated with coral culture and maintenance - estimate of 2 to 3 hours per day. Protection of federal property.
ORD	NHEERL	Harris, Peggy S.		Biologist	1	maintenance of sea water deliver system as well as culture of aquatic organisms and care of aquaria - estimate of 2 to 3 hours per day. Protection of federal property.
ORD	NHEERL	Moso, Elizabeth		Biologist	1	Ensure proper care of the aquatic animals and ongoing experiments. estimate 1-2 hours/day. Also serves as alternate to Peggy Harris to maintain culture of aquatic organisms.
ORD	NHEERL	Ahlgren, Russell R.		Facility Operations Specialist ;	1	on call to ensure essential building functions for protection and maintenance of building property and animal survival; on call as Security Manager to ensure protection of property.
ORD	NHEERL	Champlin, Denise M.		Biologist (Alt. with Johnathan	1	Protection of federal property
ORD	NHEERL	Serbst, Jonathan R.		Biologist (Alt. with Denise Ch.	1	(alt to Denise Champlin) part time (up to 3 hrs/day) to ensure animal survival
ORD	NHEERL	DeWitt, Theodore		Supervisory Research Life Scie	1	assist in shutdown operations; needs to conduct building check 1 hour per day ensures compliance with applicable regs
ORD	NCEA	Bahadori, Tina		Center Director, NCEA (locate	1	assist in orderly shutdown of center activities; any other duties as needed
ORD	IOAA	Dunlap, David		Deputy Assistant Administrate	1	oversee ORD shutdown operations; provide guidance to those engaged in shutdown
ORD	OPARM	Silzer, Stefan		Office Director	1	oversee orderly shutdown of office activities. If necessary provide approvals to Marcia McCain for needed reprogrammings.
ORD	OSA	Sinks, Thomas		Director	1	oversee orderly shutdown of office activities
OLEM	OAA	Breen, Barry	7577	Acting AA	1	Assist with OLEM's excepted activities
OLEM	OA	Wright, Peter	2335745	Special Counsel	1	Assist with OLEM's excepted activities
OLEM	OAA	Steven Cook	2335523	DAA	1	Assist with OLEM's excepted activities
OLEM	OAA/OPM	Simon, Nigel	19580	Acting PDAA	1	Assist with OLEM's excepted activities
OLEM	OAA	Darwin, Veronica	20011	Senior Advisor	1	Assist with OLEM's excepted activities
OLEM	OSRTI/IO	Woolford, Jim	00007694	Director	1	Support for excepted activities
OLEM	OSRTI/IO	Stalcup, Dana	00007824	Deputy Director	1	Support for excepted activities
OLEM	OSRTI/TIFSD/ERT-West	Valdes, Dennisses	00001730	ERT, Chief	1	Manage, Oversee, Coordinate Environmental Response Team -
OLEM	OSRTI/TIFSD/ERT-East	Greenberg, Marc	00026258	ERT, Deputy Chief East	1	Supervise orderly shutdown edison; Phone Duty Jan 5 to Jan 11
OLEM	OSRTI/TIFSD/ERT-East	Burchette, Sella	00005010	Biologist	1	ERT SERAS PO Edison, RTP, LV
OLEM	OSRTI/TIFSD/ERT	Humphrey, Alan	00006331	Env. Scientist	1	Phone Duty Dec. 21 to Dec. 28
OLEM	OSRTI/TIFSD/ERT-East	Kovak, Brian	00004669	Env. Scientist	1	Phone Duty Dec 28 to Jan 4
OLEM	OSRTI/TIFSD/ASB	Shari Myer	00029287	Chief, ASB	1	Technical direction for CLP
OLEM	OSRTI/TIFSD/ASB	Britz, Helen	00024989	Program Analyst	1	CASC Laboratories Contract-Level COR and Business Team Lead, SMO Contract
OLEM	OSRTI/TIFSD/ASB	Moody, Brett	02333197	Chemist	1	CLP Inorganic Chemist
OLEM	OSRTI/TIFSD/ASB	Taylor, Lucinda	00018705	Program Analyst	1	SMO Contract

OLEM	OSRTI/TIFSD/ERT-East	Powell, Gregory	00013570	Env. Scientist	1	Phone Duty Jan 11 to Jan 18
OLEM	OEM	Cheatham, Reggie	8136	Office Director, OEM	1	Support excepted activities
OLEM	OEM	Clark, Becki	13169	Deputy Office Director	1	Support excepted activities
OLEM	OEM	Roache, Brendan	24582	Director, RMD	1	Support excepted activities
OLEM	OEM	Hyman Moore, Julie	00024960	Deputy Div Director	1	Support excepted activities
OLEM	OEM	Irizarry, Gilberto	19988	Director, PROD	1	Support excepted activities (Tito and Josh will be working alternate weeks during any shutdown scenario)
OLEM	OEM	Woodyard, Joshua	20525	Assoc. Director, PROD	1	Alternate to Tito (Gilberto Irizarry)
OLEM	OEM	Perovich, Gina	5274	Director, CMAD	1	Manage capability/capacity to respond to environmental emergencies and deploy field assets
OLEM	OEM	Lee, Eugene	6652	Branch Chief, PROD/ECB	1	Support expected activities
OLEM	OEM	Kudarauskas, Paul	00026994	Branch Chief, CMAD	1	Manage capability and capacity to respond to environmental emergencies and deploy field assets
OLEM	OEM	Oh, Peter	00030170	Program Analyst	1	HQ Emergency Operations Center Manager in case of an emergency
OLEM	OEM	Thomas, Mark	16194	Environmental Scientist /ASPECT	1	Prepared to ensure EPA is ready to respond to an environmental emergency
OLEM	OEM	Kaelin, Lawrence	25253	Chemist	1	Operate Portable High Throughput Integrated Laboratory Identification System PHILIS in the event of an emergency
OLEM	OEM	Nalipinski, Mike	00012919	Assoc. Director, CMAD	1	Manage capability and capacity to respond to environmental emergencies and deploy field assets
OLEM	OEM	Bright, David	2334169	Chemist	1	Manages PHILIS West in the event of an emergency
OLEM	OEM	Curry, Tim	15589	Environmental Engineer	1	CMAD After Hours Watch Officer (1/3 - 1/8)
OLEM	OEM	Serre, Shannon	16942	Environmental Engineer	1	After Hours Watch Officer HQ Emergency Operations Center (12/7 - 12/11)
OLEM	OEM	Fernandez, Roger	13129	Environmental Protection Specialist	1	Daytime Watch Officer HQ Emergency Operations Center (12/7, 12/13, 1/7, 1/11)
OLEM	OEM	Beasley, Craig	9582	Environmental Scientist	1	After Hours Watch Office HQ Emergency Operations Center (12/30 - 1/5)
OLEM	OEM	Tarrab, Alan	2333491	Chemical Engineer	1	After Hours Watch Officer HQ Emergency Operations Center (12/13 - 12/19), (1/6 - 1/10)
OLEM	OEM (Home office: OSCPP)	Shelby, Andrew John	28262	Physical Scientist	1	Daytime Watch Officer HQ Emergency Operations Center (12/10 -12/12) (12/14)
OLEM	OEM	Grier, Tim	2956	Program Analyst	1	After Hours Watch Office HQ Emergency Operations Center (1/6 - 1/12)
OLEM	OEM	Harman, Greta	2332449	Program Analyst	1	Daytime Watch Officer HQ Emergency Operations Center (1/14 - 1/18)
OLEM	OEM	Van Bronkhorst, Kelly	2332343	Porgram Analyst	1	Daytime Watch Officer HQ Emergency Operations Center (12/24 - 12/28)
OLEM	OEM	Bosecker, Elizabeth	28449	Environmental Scientist	1	Daytime Watch Officer HQ Emergency Operations Center (12/31 - 1/4)
OLEM	OEM	Abrams, Nancy	14633	Program Analyst	1	After Hours Watch Office HQ Emergency Operations Center (1/3 - 1/9)
OLEM	OEM	Hafaz, Ahmed	2332671	Chemist	1	Manages Environmental Response Laboratory Network in the event of an emergency
OLEM	OEM	Treimel, Ellen	28042	Environmental Protection Specialist	1	Daytime Watch Officer HQ Emergency Operations Center (12/18, 12/20)
OW	OW/IO	David P. Ross	02335549	Assistant Administrator	1	Provide national oversight to protect the citizens and the nation's waters from any threats to public safety and health.
OW	OW/IO	Benita Best-Wong	00003251	Deputy Assistant Administrator/SRO	1	Provide technical assistance to the AA in protecting the citizens and the nation's waters from any threats to public safety and health.
OW	OW/IO	Lee Forsgren	02335442	Deputy Assistant Administrator	1	Provide technical assistance to the AA in protecting the citizens and the nation's waters from any threats to public safety and health.
OW	OW/IO	Anna Wildeman	02335607	Deputy Assistant Administrator	1	Provide technical assistance to the AA in protecting the citizens and the nation's waters from any threats to public safety and health.
OW	OW/IO	Owen McDonough	2335606	Science Advisor to the AA	1	Provide support for confirmation hearing preparation.
OW	OW/IO/RMS	Sharon Vazquez	00021497	Senior Budget Officer	1	Provide administrative support to the DAA/SRO in protecting the citizens and the nation's waters from any threats to public safety and health.

OW	OW/OST/IO	Deborah Nagle	00013527	Office Director	1	Provide senior management oversight in shutting down Office operations in an efficient and timely manner and provide assistance for confirmation hearing preparation.
OW	OW/OWM/IO	Andrew Sawyers	00033147	Office Director	1	Provide senior management oversight in shutting down Office operations in an efficient and timely manner and provide assistance for confirmation hearing preparation.
OW	OW/OWOW/IO	John Goodin	00011939	Office Director	1	Provide senior management oversight in shutting down Office operations in an efficient and timely manner and provide assistance for confirmation hearing preparation.
OW	OW/OGWDW/IO	Jennifer McLain	00001767	Deputy Office Director	1	Provide senior management oversight in shutting down Office operations in an efficient and timely manner and provide assistance for confirmation hearing preparation.
OW	OW/OGWDW/WSD	David Travers	00013278	Division Director	1	Respond to EOC Water Desk issues as needed.
OW	OW/OWM/WID	Raffael Stein	00007901	Division Director	1	Provide support for congressional hearing preparation.
OW	OW/IO	Greg Spraul	00020395	Program Analyst	1	Provide support for congressional hearing preparation.
OW	OW/OWOW/WRAPD	Tom Wall	00014778	Division Director	1	Provide support for congressional hearing preparation.
Region 1	ORA	Alex Dunn	02335525	Regional Administrator	1	Oversee overall shutdown and secure operations. Ensure emergency and excepted site work is performed and oversee limited regional operations.
Region 1	ORA	Deb Szaro	00001330	Deputy Regional Administrator	1	Oversee overall shutdown and secure operations. Ensure emergency and excepted site work is performed and oversee limited regional operations.
Region 1	ORA	Douglas Gutro	00001259	Supervisory Public Affairs Specialist	1	Working on excepted Superfund sites during shutdown
Region 1	ORC	Carl Dierker	00004371	Regional Counsel	1	Assist with any legal issues that arise on excepted matters, and coordinate with OGC.
Region 1	ORC	Mark Stein	00001209	Attorney-Adviser	1	To work on the LIS litigation.
Region 1	OARM	Art Johnson	00001844	Assistant Regional Administrator	1	To ensure any ARA and SRO responsibilities are met.
Region 1	OARM	Ian Epstein	00028846	Contracting Officer	1	Working on excepted Superfund sites and excepted contract actions only during shutdown.
Region 1	OEME	Troy Sullivan	00033499	Health and Safety Officer	1	Ensure that health and safety is maintained for any laboratory activities to support excepted sites.
Region 1	OEP	Ken Moraff	00002510	Office Director	1	Air and Water Office Director needed to assit with judicial deadlines and other excepted activities.
Region 1	OEP	Jane Downing	00001284	Supervisory Environmental Engineer	1	Cooordinate with headquarters to review/finalize draft order for Ft Devens Federal Facility.
Region 1	OES	Karen McGuire	00005009	Deputy Director, OES	1	Enforcement Office Director needed to assist with judicial deadlines and other enforcement matters.
Region 1	OES	Dianne Chabot	00001191	Attorney-Adviser	1	Working on excepted criminal matters only during shutdown.
Region 1	OES	Kan Tham	00001680	Environmental Engineer	1	Working on excepted FIFRA activiites only during shutdown.
Region 1	OES	Audrey Zucker	00002865	Spvy Attorney-Adviser	1	Working on excepted Superfund sites only during shutdown.
Region 1	OES	Timothy Conway	00011183	Attorney-Advisor	1	Coordinate with headquarters to review/finalize draft order for Ft Devens Federal Facility.
Region 1	OES	Cayleigh Eckhardt	02334470	Attorney-Advisor	1	Cooordinate with headquarters to review/finalize draft order for Ft Devens Federal Facility.
Region 1	OES	Tonia Bandrowicz	00003811	Attorney-Advisor	1	Assist DOJ with court-ordered filing in R.M. Packer/Tisbury Towing enforcement case pending in US District Court in Massachusetts.
Region 1	OES	Thomas Olivier	00001306	Attorney-Advisor	1	Assist DOJ with court-ordered filing in R.M. Packer/Tisbury Towing enforcement case pending in US District Court in Massachusetts.
Region 1	OSRR	Bryan Olson	00001500	Director, OSRR	1	Working on excepted Superfund sites only during shutdown.
Region 1	OSRR	Robert Cianciarulo	00001349	Supervisory, Environmental Engineer	1	Working on excepted Superfund Sites only during shutdown.

Region 1	OSRR	Margaret Leshen	00003809	Supervisory Environmental Engineer	1	Working on excepted Superfund sites only during shutdown.
Region 1	OSRR	Lynn Delgado	00001252	Environmental Protection Specialist	1	Working on excepted Superfund sites only during the shutdown.
Region 1	OSRR	David Lederer	00002439	Enviornmental Engineer (RPM)	1	Provide oversight/direction to ACOE and contractors on excepted New Bedford Harbor Superfund Site.
Region 1	OSRR	Anni Loughlin	00001986	Supervisory Environmental Engineer	1	Cooordinate with headquarters to review/finalize draft order for Ft Devens Federal Facility.
Region 1	OSRR	Gary Lipson	00003155	Environmental Engineer (OSC)	1	* On rotation - Duty Officer **1/8/19 - 1/15/19.** Respond to emergencies. Serve as phone duty officer, responder and/or watch officer and arrange appropriate responses to emergencies. Will also work on excepted Superfund sites during entire shutdown.
Region 1	OSRR	Natalie McCLaine	00333359	Life Scientist (OSC)	1	* On rotation - Duty Officer **1/8/19 - 1/15/19.** Respond to emergencies. Serve as phone duty officer, responder and/or watch officer and arrange appropriate responses to emergencies. Will also work on excepted Superfund sites during entire shutdown.
Region 1	OSRR	Edward Bazenas	00002092	Supervisory Physical Scientist (OSC)	1	Working on excepted Superfund sites only during shutdown (Reed&Barton, Former Ash Street, and former Tombarello TC Removal Actions).
Region 1	OSRR	Thomas Condon	00001247	Environmental Scientist (OSC)	1	Working on excepted Superfund sites only during shutdown (Former Tombarello TC Removal Action).
Region 1	OSRR	Karen Way	00007529	Environmnetal Scientist (OSC)	1	Working on excepted Superfund sites only during shutdown (Reed&Barton TC Removal Action).
Region 1	OSRR	John McKeown	00005442	Environmental Scientist (OSC)	1	Working on excepted Superfund Sites only during shutdown (Former Ash Street TC Removal Action).
Region 2	ROPM	Amin, Mohamed	00030299	Facilities Engineer	1	Manage facilities for security/safety operations
Region 2	CWD	Ash, Christine	00031774	Supv Life Scientist	1	Develop briefing papers for the Deputy Administrator's confirmation hearing
Region 2	CEPD	Aviles, Jesse	00026468	Physical Scientist	1	Hurricane Maria recovery efforts - FEMA MA
Region 2	ERRD	Bechtel, Jeff	00005534	OSC	1	Closser Oil Well Removal Action; AH Response Duty 12/28-31, Daytime REOC 1/14-18 2019
Region 2	DECA	Brannick, Michael	02333551	Life Scientist	1	Pesticides Notice of Arrivals
Region 2	ERRD	Brescio, Michael	00004194	OSC	1	Daytime REOC Duty 1/14-18/2019; AH Response Duty 1/14-19/2019
Region 2	ERRD	Budroe, Tom	00004854	OSC	1	Tonawanda Coke(Continuation of on-going removal action.)
Region 2	ERRD	Bushra, Gez	00004854	OSC	1	Orchard Street (PRP oversight of a lead cleanup of a residential property.)
Region 2	ERRD	Chong, Margaret	00003327	OSC	1	AH Response Duty 1/1-7/2019
Region 2	ORC	DeLuca, Kathryn	02334087	Attorney	1	Provide support to DOJ to finalize tolling agreements with PRPs for the Passaic River Superfund Site, to avoid the expiration of the statute of limitations.
Region 2	OPM	DeMarco, Frank	00003736	Chief Info Resources Mgt Branch	1	Provide IT support
Region 2	ERRD	DiGuardia, Lou	00002870	OSC	1	AH Response Duty 1/1-7/2019, Removal Actions at Emmell's,Cinnaminson and Facet. Drinking water and Vapor mitigation.
Region 2	CEPD	Fericelli, Paul	00032373	Environmental Engineer	1	Hurricane Maria recovery efforts - FEMA MA
Region 2	OPM	Freeman, Hope	02335761	Contracting Officer	1	Provide contracts management support
Region 2	DESA	Gabry, Jon	00033363	Supervisory Life Scientist	1	Laboratory Analysis- excepted site
Region 2	ORC	Garelick, Jason	02333698	Attorney	1	Support open criminal cases with work deliverables due to DOJ, scheduled judicial activities, to include grand jury and court actions.
Region 2	CEPD	Garrison, Geoffry	00019717	Environmental Engineer (OSC)	1	Corozal-provide potable water to community

Region 2	ERRD	Gaughan, Dan	00031808	OSC	1	Daytime REOC 12/31, 1/2-4/2019, Galaxie Chemical Enforcement and Assessment Activity (1/7/2019 -1/17/2019)
Region 2	CEPD	Guerrero, Carmen	02334314	Director, CEPD	1	Hurricane recovery efforts - FEMA MA
Region 2	ORC	Hick, Patricia	00002838	Attorney	1	Support open criminal cases with work deliverables due to DOJ, scheduled judicial activities, to include grand jury and court actions.
Region 2	ERRD	Hriczko, Bonnie	00004394	OSC	1	AH Phone Duty 1/14-19/2019
Region 2	DESA	Javier, Maria	00004231	Chemist	1	Critical time sample analysis for Tonawanda Coke site
Region 2	OPM	Jen, Ann-Heng	00031965	Industrial Hygienist	1	Health and Safety
Region 2	ERRD	Jimenez, Christopher	00004869	OSC	1	Daytime REOC 12/31, 1/2-4/2019; AH Phone Duty 1/7-14/2019, R9 Wildfire Response 1/13-28/2019
Region 2	CEPD	Kaalund, Onise	00019575	Program Analyst	1	Hurricane Maria recovery efforts - FEMA MA
Region 2	ERRD	Kahn, Paul	00004516	Physical Scientist (OSC)	1	Respond to Mill Brook Oil Site E19201 to replace oil booms protecting Mill Creek.
Region 2	OPM	Kercado, Carlos/Perez, Alexida	00019716/00021462	Supery Budget Analyst/Supv Accountant	1	Provide finance, payroll and budget support
Region 2	ERRD	Kish, Terry	00027694	OSC	1	Pioneer Metal (1/7/19 - 1/19/19) (Continuation of on-going removal action.)
Region 2	DESA	Leung-Folch, Christina	00020980	Physical Scientist	1	Laboratory Analysis- excepted site
Region 2	ERRD	Lisichenko, Peter	02334714	OSC	1	Tonawanda Coke(Continuation of on-going removal action.)
Region 2	ORA	Lopez, Peter	02335486	RA	1	Oversee Shutdown , exempt & excepted activities
Region 2	ERRD	Lucarino, Kelli	00024624	OSC	1	AH Phone Duty 12/28-31, Mill Brook Oil 01/02/19, 01/08/19, 01/15/19, R9 Wildfire Response 1/12/2019 - 1/29/2019
Region 2	OPM	Manna, Rich	00002778	Assistant Regional Administrator	1	Oversee Shutdown, exempt & excepted activities
Region 2	OPM	Marcinkiewicz, Marek	02335486	IT Specialist	1	IT support for excepted activities
Region 2	ERRD	McEnery, Courtney	00003611	Chief, Program Support Branch	1	Support for excepted activities, as needed
Region 2	ORA	Mugdan, Walter	00002084	DRA	1	Oversee Shutdown , exempt & excepted activities
Region 2	ERRD	Petty, Joel	02333319	OSC	1	Daytime REOC Duty 1/7-11/2019
Region 2	ERRD	Reddy, Aarti	00011798	OSC	1	Daytime REOC Duty 12/31/2018-1/2-4/2019
Region 2	ERRD	Richards, Sandy	02335138	OSC	1	Covidien Removal Action (1/7/19 - 1/17/19)
Region 2	DESA	Rickert, Bill	00029290	Physical Scientist	1	Critical time sample analysis for Tonawanda Coke site
Region 2	ERRD	Rosoff, David	00002585	OSC	1	AH Response Duty 1/7-14/2019, Dewey Loeffel
Region 2	DESA	Santacroce, Gregory	00023318	Physical Scientist	1	Critical time sample analysis for Tonawanda Coke site
Region 2	DESA	Savino, Kathy	00002837	Physical Scientist	1	Tonawanda Coke removal activities. Week of 1/14/19
Region 2	ERRD	Staiger, Kimberly	00021335	OSC	1	Daytime REOC Duty 1/7-11/2019
Region 2	DESA	Trivedi, Mehul	02334673	Chemist	1	Critical time sample analysis for Tonawanda Coke site
Region 2	ERRD	Truono, Marissa	00004861	OSC	1	Galaxie Chemical Enforcement Activity 1/2/19 -1/17/19 (Assumes a Warrant will be issue so we can obtain access to the site.)
Region 2	CEPD	Velez, Hector	00011250	Lead General Attorney	1	Hurricane Maria recovery efforts - FEMA MA
Region 2	CWD	Vida, Stephen	00002458	Supv Environmental Engineer	1	Develop briefing papers for the Deputy Administrator's confirmation hearing
Region 2	ORC	Wieder, Marla	00003079	Attorney	1	Support open criminal cases with work deliverables due to DOJ, scheduled judicial activities, to include grand jury and court actions.
Region 3	RA	Cosmo Servdio	25472	Regional Administrator	1	Oversee overall shutdown and secure operations; R3 point of contact during shutdown.
Region 3	RA	Jenifer Fields	2335516	Chief of Staff	1	Provide RA Support as point of contact during shutdown.
Region 3	RA	Cecil Rodrigues	2618	Deputy Regional Administrator	1	Back up for overall shutdown and secure operations. R3 point of contact back up during shutdown.

Region 3	OPM	Diana Esher	11175	Assistant Regional Adminitrator	1	Oversee shutdown and secure operations. Oversee security, facility, and other admin. support during shutdown (eg, communicating to HQ/guards/employees the shutdown status and emergency resources as needed).
Region 3	OPM	John Krakowiak	5361	Deputy Assistant Regional Administrator	1	Provide support and backup for security, facilities, and other administrative and emergency needs. (Physically checking Philadelphia office on 1/9/2019) Leaving all employee message on systems re: Administrator's Msg)
Region 3	RA	Satrina Jones	2334557	Assistant to DRA and RA	1	Provide administrative support for RA and DRA and staff as needed (travel for deployment personnel, RA, DRA)
Region 3	OPM	Geraud Volk	4311	Regional Office Facility Manag	1	Facilities support for excepted employees (Phila)
Region 3	OPM	Jeff Dodd	2658	ESC Facility Manager	1	Facilities support (Ft Meade Environmental Science Center)
Region 3	EAID	Jen Fulton		Wheeling Office Manager	1	Facilities support (Wheeling Office)
Region 3	OPM	John Robb	5102	Contracts Officer	1	Superfund Contracts Support - Split Duty Between 2 Contract Officers
Region 3	OPM	Jim Clark	6099	Regional Acquisitions Manage	1	Contracts Support - Split Duty Between 2 Contract Officers (1/7 to 1/31)
Region 3	OPM	Lisa White	6211	Comptroller	1	Manage, support and approve travel and other budget issues
Region 3		Dana Aunkst	2335741	Director Chesapeake Bay Prog	1	Support Acting Administraotr Wheeler's Confirmation Hearing by providing information on Chesapeake Bay Program.
Region 3	CBPO	James Edward	04766	Deputy Chesapeake Bay Program	1	Support Acting Administrator Wheeler's Confirmation Hearing by providing information on Chesapeake Bay Program. Ensure proper shutdown of facility and IT Center (Chesapeake Bay Program Office) Ensure secuirty and safety of facility. Split duty for facility security.
Region 3	CBPO	Rebecca Hindin	25060	CBPO Facility Manager	1	Ensure Safety and Security of facility (Annapolis) Split duty for facility security.
Region 3	ORC	Mary Coe	3265	Regional Counsel	1	Supervisory Attorney - oversight of Excepted attorneys
Region 3	ORC	Andy Goldman	6137	Attorney Advisor	1	Emergency Access Legal Specialist Magnate Court Date is January 18 in Roanoke Va, Preparation and Travel will be required
Region 3	EAID	Cynthia Caporale	6118	Associate Director, OASQA	1	Manage shutdown of Office of Analysitcal Service and Quality Assurance (OASQA) operations and manage analytical operations for Excepted SF sites
Region 3	EAID	Robin Costas	6820	Chemist	1	Manage Reports/LIMS; Standard Chlorine Tier 2 Site
Region 3	EAID	Faroque Khan	2333709	Chemist	1	EPA Lab analyses; Standard Chlorine Tier 2 Site
Region 3	EAID	John Curry	24272	Biologist	1	EPA Lab analyses: Peer Review; Standard Chlorine Tier 2 Site
Region 3	EAID	Adam Molnar	32385	Chemist	1	Organic analysis and peer review - Tier 1 and 2 Sites
Region 3	EAID	Jarmael Burman	32340	CLP P.O.	1	Manage outside contract labs analyzing samples for Excepted Tier 1 and 2 SF sites
Region 3	EAID	Brandon McDonald	29863	ESAT P.O.	1	Manage ESAT in-house contractor performing work on Excepted SF Tier 1 and 2 sites
Region 3	HSCD	Paul Leonard	5186	Acting Division Director	1	Executive oversight of Excepted staff (1/5/19-1/31/19)
Region 3	HSCD	Kevin Boyd	5168	Acting Associate Director Rem	1	Management support for emergencies (12/31/18, 1/3/19-1/31/19)
Region 3	HSCD	John Epps	28093	Acting AD, Remedial	1	Management support for remedial sites (1/8/19 -1/11/19)
Region 3	HSCD	Debbie Lindsey	6284	OSC	1	Night/Day Phone Duty (1/4/19-1/10/19) Back Up Phone Coverage (12/31/18 - 1/31/18)
Region 3	HSCD	Myles Bartos	21341	OSC	1	Response OSC (12/28/18 - 1/17/19); OSC for Excepted Tier 1 Sites (Big John Salvage, Baghurst, Magnate, Quad Avenue, Eagle Mill, Old Wilmington Road); Back up Phone Duty Magnate Court Date is January 18 in Roanoke VA - Travel will be required
Region 3	HSCD	Rich Rupert	11649	OSC	1	Night/Day Phone duty (12/28/18-1/3/19) Back Up Phone coverage (12/31/18 - 1/31-18)

Region 3	HSCD	Dominic Ventura	22562	OSC	1	Night/Day Phone Duty: (1/11/19-1/17/19) Response OSC (12/28/18 -1/3/19) OSC for Excepted Tier 1 Sites (Big John Salvage and Baghurst) Backup Phone Duty
Region 3	HSCD	Christine Wagner	5998	OSC	1	Response OSC (1/4/19 - 1/31/19); OSC for Excepted Tier 1 Sites (Big John Salvage and Baghurst); Backup Phone Duty
Region 3	HSCD	Neeraj Sharma	3350	OSC	1	Night/Day phone duty (1/8/19 - 1/24/19) Back Up Phone Coverage 12/31/18 - 1/31/19
Region 3	HSCD	Dennis Matlock	4763	OSC	1	Night/Day phone duty (1/25/19 - 1/31/19) Back Up Phone Coverage 12/31/18 - 1/31/19
Region 3	HSCD	Jackie Williams	5640	EPS	1	Provides support on contracts for removal actions. Support R9 Deployement as needed. Participates in Wildfire Resource calls if R9 holds them. Calls for and prepares volunteers for deployment.
Region 3	ORC	Warren (Martin) Harrell	9018	Attorney Advisor	1	Prepare for court appearance on criminal indictment with Assistant DOJ Attorney on Tuesday, January 8
Region 3	LCD	Kyla Townsend-McIntyre	1402	ES	1	Support FIFRA Import Clearance Process as approved by OGC
Region 4	OFFICE OF REGIONAL ADMINISTRATOR (ORA)	Mary Walker	02334855	Acting Regional Administrator	1	Provide Executive Management for all Region 4 Excepted activities
Region 4	OFFICE OF REGIONAL ADMINISTRATOR (ORA)	Blake Ashbee	2335498	Chief of Staff	1	Provide Executive Management support for all Region 4 Shutdown activities.
Region 4	GULF OF MEXICO PROGRAM (GOMP)	Jerry Binninger	00009633	Environmental Specialist	1	HR/Financial/ COOP/Emergency Issues. (Duties shared with other staff)
Region 4	OFFICE OF POLICY & MANAGEMENT (OPM)	Keith Mills	00009388	Acting ARA/SRO	1	Provide Executive Management for all Region 4 OPM activities during Orderly Shutdown. (Duties shared with other staff)
Region 4	OFFICE OF POLICY & MANAGEMENT (OPM)	Rick Durbrow	00009969	Program Analyst	1	Recovery efforts on Florida Hurricanes
Region 4	AIR, PESTICIDES, & TOXICS MANAGEMENT DIVISION (APTMD)	Lloyd Genrette	00009273	Environmental Scientist	1	Collect RadNet Samples near site of upcoming SuperBowl.
Region 4	AIR, PESTICIDES, & TOXICS MANAGEMENT DIVISION (APTMD)	Kimberly Bingham	00009708	Section Chief	1	Import/Export - Pesticides - FIFRA (Duties shared with other staff)
Region 4	OFFICE OF REGIONAL COUNSEL (ORC)	Suzanne Rubini	00002863	Deputy Regional Counsel	1	Oversee shutdown and secure activities. Provide management direction for all legal support to excepted and exempted activities.
Region 4	OFFICE OF REGIONAL COUNSEL (ORC)	Leif Palmer	00017417	Regional Counsel	1	Oversee shutdown and secure activates. Provide management direction for all legal support to excepted and exempted activities.
Region 4	OFFICE OF REGIONAL COUNSEL (ORC)	Jennifer Lewis	00014102	Attorney Advisor	1	Perform legal reviews for the Criminal Investigation Division (Duties shared with other staff)
Region 4	SCIENCE & ECOSYSTEM SUPPORT DIVISION (SESD)	Scott Sivertson	00023066	Chemist	1	Weekly visits to ensure instruments are not malfunctioning or running out of gas.
Region 4	SCIENCE & ECOSYSTEM SUPPORT DIVISION (SESD)	Sue Dye	00028626	Life Scientist	1	Ensure continued viability of live organisms which requires occasional visits to the lab.

Region 4	SCIENCE & ECOSYSTEM SUPPORT DIVISION (SESD)	Hunter Johnson	00028122	Chief, Program Support Section	1	Manage Facilities by providing security/safety in those locations and secure vehicles. Respond to any building issue that may arise during a shutdown.
Region 4	WATER PROTECTION DIVISION (WPD)	Bryan Hummel	02334827	Life Scientist	1	Recovery efforts on Florida Hurricanes
Region 4	SUPERFUND (SF)	Franklin Hill	00013941	Division Director	1	Provide Executive Management for all Region 4 Superfund Excepted activities. (Duties shared with other staff)
Region 4	SUPERFUND (SF)	James Webster	20738	Emergency Response, Removal and Prevention Branch Chief	1	Emergency Response and Removal Manager - Oversee shutdown, secure operations and provide management of the Superfund Program as necessary
Region 4	SUPERFUND (SF)	Dora Ann Johnson	00013786	Environmental Engineer	1	Provide contracting support for the orderly shutdown of Superfund contract activities
Region 4	SUPERFUND (SF)	Brian Englert	00026007	Physical Scientist (OSC)	1	Emergency Response Duty, TELEDUTY = DEC 14- 16; R2 = DEC 17 -23; R1 = DEC 24 -30
Region 4	SUPERFUND (SF)	Terry Tanner	00013610	Environmental Scientist (OSC)	1	Emergency Response Duty, R1 = DEC 7-9
Region 4	SUPERFUND (SF)	Jordan Garrard	00025447	Physical Scientist (OSC)	1	Emergency Response Duty, TELEDUTY = DEC 7-9 ; R2 = DEC 10-16; R1 = DEC 17-23
Region 4	SUPERFUND (SF)	Richard Jardine	00005015	Physical Scientist (OSC)	1	Emergency Response Duty, TELEDUTY = DEC 17-23; R2 = DEC 24-30
Region 4	SUPERFUND (SF)	Greg Harper	00032238	Environmental Scientist (OSC)	1	Emergency Response Duty, TELEDUTY = DEC 10-13
Region 4	SUPERFUND (SF)	Kevin Eichinger	00032287	Industrial Hygienist (OSC)	1	TELEDUTY = DEC 24 -30
Region 4	SUPERFUND (SF)	Carter Williamson	00003850	Environmental Scientist (OSC)	1	Emergency Response Duty, R2 = DEC 7-9; R1 = DEC 10-16
Region 4	SUPERFUND (SF)	Ben Franco	00019641	Environmental Scientist (OSC)	1	Emergency Response Duty
Region 4	SUPERFUND (SF)	Craig Zeller	00016098	Environmental Scientist (OSC)	1	Mississippi Phosphate Time - Critical Response Action OSC
Region 4	OFFICE OF REGIONAL ADMINISTRATOR (ORA)	Brandi Jenkins	00021994	Acting PAD	1	Activities for Acting Administrator Wheeler's confirmation hearing. (Duties shared with other staff)
Region 4	OFFICE OF POLICY AND MANAGEMENT (OPM)	Andrea Anderson	00016633	IT Specialist (Telecom)	1	Updating voicemail system to capture and dissmenate Administrator's messages. (Duties shared with other staff)
Region 5	Office of Regional Administrator	Cathy Stepp	23335478	Regional Administrator	1	Oversee overall shutdown and secure operations. Oversee excepted activities.
Region 5	Office of Regional Administrator	James Payne	2333743	Acting Deputy Regional Administrator	1	Oversee shut down and secure operations. Assist in excepted activities.
Region 5	Office of Regional Administrator	Kurt Thiede	2335586	Chief of Staff	1	Oversee shut down and secure operations. Assist in excepted activities.
Region 5	RMD	Cheryl Newton	16283	Assistant Regional Administrator	1	Ensure regional employees receive furlough notices. Assist in excepted activities. Serves as liason for excepted staff and HQ/RA/DRA.
Region 5	RMD	Bruce Sypniewski	11461	Deputy Assistant Regional Administrator	1	Assist with duties associated with the Assistant Regional Administrator.
Region 5	Office of Regional Administrator	Felicia Williams	12055	Regional Administrator Assistant	1	Assist RA/DRA/Cos/ARA

Region 5	SFD	Tom Short	11577	Acting Supefund Division Director	1	Participates in HQ-led calls regarding evaluating/adjusting SF sites among the tiers.
Region 5	SFD	Jeffery Lipppert	30134	OSC	1	Phone duty officer after hours and weekends 1/7/19-1/24/19. Will alternate responsibilities during the shut-down among these three individuals during this time period. Only one individual at a time will be on excepted duty. (Duties shared with other staff)
Region 5	SFD	Brian Kelly	21456	OSC	1	Emergency Response Assessment - Eastern R5 1/7/19-1/24/19. Will alternate responsibilities during the shut-down among these three individuals during this time period. Only one individual at a time will be on excepted duty. (Duties shared with other staff)
Region 5	SFD	Robert Kondreck	2334766	OSC	1	Emergency Response Assessment - Western R5 1/7/19-1/24/19. Will alternate responsibilities during the shut-down among these three individuals during this time period. Only one individual at a time will be on excepted duty. (Duties shared with other staff)
Region 5	SFD	Kevin Turner	11339	OSC	1	Manage R5 EOC: 1/7/19-1/24/19. Will alternate responsibilities during the shut-down among these three individuals during this time period. Only one individual at a time will be on excepted duty. (Duties shared with other staff)
Region 5	SFD	Ralph Dollhopf	12855	OSC	1	Overseeing emergency response action of oil spill into Traverse Bay MI.
Region 5	RMD - AAB	Thomas Harrison	12077	Lead Contract Specialist	1	To assist the Superfund remedial program when needed with contract support.
Region 5	RMD - IMB	Edward McClendon	11712	IT Specialist	1	Keep IT systems and servers running: 01/07/2019 - 01/11/19
Region 5	RMD - ESB	John Glover	11876	Safety & Occupational Health Officer	1	Support to excepted staff working on sites.
Region 5	RMD-CB	Kesha Watson	12387	Lead Budget Analyst	1	Funds control for excepted staff. Kesha and Steve will alternate responsibilities during the shut-down. (Duties shared with other staff)
Region 5	ARD-AMAS	Michael Compher	14952	Section Chief	1	Collect ethylene oxide monitoring data in Willowbrook for 3.5 hrs. on two of every three days during shutdown
Region 5	ARD-AMAS	Carrie Cummings	2335898	Air Monitoring Engineer/Scientist	1	Collect ethylene oxide monitoring data in Willowbrook for 3.5 hrs. on two of every three days during shutdown
Region 5	LCD	David Star	14433	Section Chief	1	R5 Point of Contact for FIFRA-related inquiries from CBP during the shut-down. This will allow the FOC to work during any furlough for the limited (and singular) purpose of receiving and responding to import-related communications from CBP.
Region 5	ORC	Brain Kelly	21456	Attorney	1	This is for the narrow purpose of working with DOJ on the Dearborn site excepted matter (as indicated by DOJ) due to statute of limitations concerns. That the group will discuss aspects of the government's position with regard to settlement conditions, in order to allow DOJ to further engage with the PRP in the matter about extending the existing tolling agreement. We expect EPA's staff to be removed from the excepted list after these internal discussions.
Region 5	ORC	Richard Clarizio	11825	Attorney	1	This is for the narrow purpose of working with DOJ on the Dearborn site excepted matter (as indicated by DOJ) due to statute of limitations concerns. That the group will discuss aspects of the government's position with regard to settlement conditions, in order to allow DOJ to further engage with the PRP in the matter about extending the existing tolling agreement. We expect EPA's staff to be removed from the excepted list after these internal discussions.

Region 5	SFD	Mike Rafati	12193	Enforcement Specialist	1	This is for the narrow purpose of working with DOJ on the Dearborn site excepted matter (as indicated by DOJ) due to statute of limitations concerns. That the group will discuss aspects of the government's position with regard to settlement conditions, in order to allow DOJ to further engage with the PRP in the matter about extending the existing tolling agreement. We expect EPA's staff to be removed from the excepted list after these internal discussions.
Region 6	RA	Anne Idsal	2335519	Regional Administrator	1	Oversee regional excepted operations
Region 6	DRA	David Gray	14080	Dep. Regional Administrator	1	Provide support to the RA in operations
Region 6	MD	James McDonald	20559	ARA	1	Support logistics/safety/security
Region 6	MD-CP	Cora Stanley	14029	Contracting Officer	1	Excepted list and unplanned contracts/oversee shutdown of contracts
Region 6	MD-OE	Sam Alaw	14837	IT Specialist	1	IT Support and Operations
Region 6	ORC	Ben Harrison	14072	Acting Regional Counsel	1	Oversee legal issues
Region 6	ORC	Amy Salinas	14730	Attorney	1	Litigation: Delek Logistics court-ordered deadline
Region 6	MM	George Brozowski	3711	Rad. Expert	1	Radiology Expert
Region 6	SF	Carl Edlund	7225	SF Div Director	1	Management of Superfund & Emergency Response excepted operations
Region 6	SF	Anthony Talton	14531	Manager	1	Oversee Superfund budget/contracts
Region 6	SF	John Martin	14368	OSC	1	Oversee Emergency Response at the FJ Doyle Site in Leonard, TX
Region 6	SF	Courtney (Paige) Delgado	29069	OSC	1	Oversee Emergency Response at the FJ Doyle Site in Leonard, TX
Region 6	SF	Gary Moore	15010	OSC	1	Response Duty (Phone); Emergency Removal
Region 6	SF	Mike McAteer	12408	OSC	1	Response Duty; Emergency Removal
Region 6	SF	Gary Moore	15010	OSC	1	Oversee Time Critical Removal at the Brown Tree Services/Trafalgar in Bella Vista, AR
Region 6	SF	Jon Rauscher	16081	Toxicologist	1	Oversee Time Critical Removal at the Brown Tree Services/Trafalgar in Bella Vista, AR
Region 6	SF	Phil Turner	25366	Toxicologist	1	Oversee Time Critical Removal at the Brown Tree Services/Trafalgar in Bella Vista, AR
Region 6	WQ	Charles Maguire	2335748	WQ DD	1	
Region 6	WQ	Maria Martinez	14720	Water Quality	1	
Region 6	RC	David B. Jones	14064	Attorney	1	
Region 6	SF	Warren Zehner	14898	OSC	1	Oversee Emergency Response at HP Gas Cylinders site in Baytown, TX
Region 6	MM	Kristin Dunbar	27133	FIFRA	1	Monitor and respond to FIFRA-related inquiries from CBP
Region 6	Border	Carlos Rincon	25320	Manager	1	El Paso, TX RadNet Monitor (weekly filter change)
Region 6	SF	William F. LaBombard	30073	SF Project Officer	1	Denka Air Monitoring Contract Project Officer (This contract is on the list of excepted contracts for Region 6)
Region 7	Office of the Regional Administrator	Jim Gulliford	00020327	Regional Administrator	1	Oversee overall shutdown and secure operations
Region 7	Office of the Regional Administrator	Ed Chu	00018478	Deputy Regional Administrator	1	Oversee overall shutdown and secure operations
Region 7	Office of Policy & Managememt	Ben Krehbiel	00032911	Deputy Assistant Regional Administrator	1	Oversee overall shutdown and secure operations
Region 7	Office of Policy & Managememt	Donald Denno	02332387	Acquisition Management Branch Chief	1	Oversee shutdown of contracts and provide contracting support for Region 7 and 10 excepted/exempt activities
Region 7	Office of Regional Counsel	Leslie Humphrey	00015716	Acting Regional Counsel	1	Legal Support

Region 7	Superfund	Ken Buchholz	00016088	Assmt. Emergency Response & Removal Branch Chief	1	Manager overseeing Emergency Response / Rotation for Call Line and Response as well as exempted site work. (Tier 1)
Region 7	Superfund	Joe Davis	00015823	OSC	1	Night Phone DO, Day phone DO, Responder, US Tech removal
Region 7	Superfund	J. Heath Smith	00014271	OSC	1	Night Phone DO, Sporlan removal, SW Jefferson County
Region 7	Superfund	Eric Nold	00016131	OSC	1	responder, day phone DO
Region 7	Superfund	Susan Fisher	00025292	OSC	1	day/night DO
Region 7	Superfund	Megan Schuette	00028223	OSC	1	Carter Carburetor / ~St Louis; (Tier 1)
Region 7	Superfund	Todd Campbell	00026280	OSC	1	Newton County Mines. Todd will reach out to START to authorize them to perform the 9 post treatment samples and send to the CLP lab. This is to ensure water is not still contaminated.
Region 7	Superfund	Preston Law	00030044	Remedial Branch Chief	1	Manager -Oversite of Tier 1 sites Remedial and contact for Cleburn site and Garvey Elevator (Tier 1)
Region 7	Superfund	Kevin Cashion	02332511	Field Tech	1	On-going Lead Cleanup (Tier 1) Big River Remedial, SW Jefferson Co Remedial, Washington Co Remedial
Region 7	Superfund	Steve Kemp	00029993	RPM	1	On-going Lead Cleanup (Tier 1) Oronogo Remedial, Cherokee County Remedial
Region 7	Water,Wetlands and Pesticides Division	Mary Tietjen-Mindrup	00015625	Drinking Water Management Branch Chief	1	Drinking Water Infrastructure Response
Region 7	Water,Wetlands and Pesticides Division	Tracey Ramsey	00031146	FIFRA Imports Coordinator	1	FIFRA imports coordinator (ADDED 12/28/18)
Region 8	RA	Douglas Benevento	02335487	Regional Administrator	1	Oversee overall shutdown and secure operations; R8 point of contact during shutdown.
Region 8	DRA	Debrah Thomas	00017813	Deputy Regional Administrator	1	Oversee shutdown and secure operations. Oversee excepted activities during shutdown.
Region 8	TMS	Richard Buhl	02332235 00020463	Asstistant Regi Administrator/ SRO	1	Oversee shutdown and secure operations. Oversee security, facility, other admin. support during shutdown (eg, communicating to HQ/guards/employees the shutdown status and emergency resources as needed). (Duties shared with other staff)
Region 8	TMS	Grace Doris	00016549	Security Manager	1	Perform shutdown coordination of security systems, property, all facilities (ie., 1595, Lab, Mt Office, Libby, Butte, Pierre, Missoula), suspension of all deliveries, cancellation of public use of conference center, & provide excepted/emergency employee lists to contract guard service. Respond to security emergencies if needed. Support on-site personnel with facility operations, health and safety support.
Region 8	TMS	Bethany Tozer	00033623	Regional Contracts Officer	1	Halt obligations; perform shutdown notification to all contractors. In emergency, issue new obligations as needed.
Region 8	TMS	John Michnick	00012958	Information Systems Program	1	Support personnel with IT systems (email, database servers, user accounts, printing)
Region 8	TMS	Ricky Archuleta	00016532	Information Systems Program	1	Support personnel with IT systems (email, database servers, user accounts, printing)
Region 8	ORC	Kenneth Schefski	00016917	Regional Counsel	1	Cancel/continue court dates, ongoing litigation, if needed.
Region 8	OWP	Lisa Kahn	00002710	Direct Implementation Manager for WY & Tribal drinking water	1	Answer phone calls from WY & tribal DW systems with fecal or other exceedences, providing guidance & technical assistance if emergency. Coordinate activation of others as needed.
Region 8	EPR	Betsy Smidinger	00005151	ARA	1	Oversee shutdown and secure operations of EPR, including notification of stakeholders, cancellation of public meetings. Oversee excepted activities during shutdown.
Region 8	EPR	Craig Giggleman	02335096	Standby/On Call OSC	1	Response OSC- Available to respond to emergency waste events
Region 8	EPR	Duane Newell	00021692		1	"

Region 8	EPR	Rebecca Geyer	00027371	EPS	1	Project Officer for Removal Support
Region 8	EPR	Judith Powell	00016564	EPS	1	Project Officer for Remdial Action Contracts
Region 8	EPR	Richard Braun	00031917	Contracts Specialist	1	Project Officer for Interagency Agreements
Region 8	EPR	~~Kendra W Iborn~~	00016764	Program Analyst	1	FCO
Region 8	EPR	Joyce Ackerman	00016021	Environmental Engineer	1	Project Officer START
Region 8	EPR	Sabrina Forrest	00016742	Physical Scientist	1	CO Smelter Soils Cleanup Tier I Superfund site
Region 8	EPR	Craig Myers	00021177	Environmental Engineer	1	Captain Jack and Nelson Tunnel Tier I Superfund sites
Region 8	EPR	Steven Wharton	00015830	Supervisory Environmental Scientist	1	Captain Jack Tier 1 Superfund Site
Region 8	EPR	Kerry Guy	00016626	Environmental Engineer	1	Bonita Peaks Mining District - Gladstone Water Treatment Plant and Captain Jack Tier 1 Superfund Sites
Region 8	EPR	Joy Jenkins	00031586	Environmental Engineer	1	Captain Jack Tier 1 Superfund Site
Region 8	EPR	Antonia Artemis	00016550	RSC Coordinator for deployment	1	YUTU and CA Fires
Region 8	ECEJ	Lauren Hammond 1/8-14	0002332876	Attorney	1	From January 8th-14th, Lauren plans to work with DOJ and the State of Colorado on the response that is due on January 14. Lauren drafted the original complaint filed by the US in this matter and based on her expertise and knowledge, her input on the response is essential.
Region 8	ECEJ	Christine Tokarz	02334618	FIFFRA	1	FIFRA point of contact for imports as needed per OECA
Region 9	ORA	Michael Stoker	02335652	Regional Administrator	1	Oversee R9 shutdown and secure operations; acting in a Presidential appointee-excepted position
Region 9	ORA	Deborah Jordan	00015554	Deputy Regional Administrator	1	Oversee R9 shutdown and excepted operations
Region 9	LND	John McCarroll	00017720	Supervisory EPS	1	Support excepted activities for Typhoon Yutu.
Region 9	EMD-1	Kerry Drake	00021254	Assistant Regional Administrator	1	Oversee R9 shutdown and excepted operations
Region 9	EMD-3-1	Peter Husby	00015755	Regional Laboratory Director	1	Orderly Shutdown of critical analysis /securing Lab
Region 9	EMD-4-1	Henedina (Dina) Jacinto	00017852	Financial Specialist	1	Provide travel support to excepted activities
Region 9	EMD-4-2	Vivian Li	00020022	Budget Analyst	1	Provide budget support for excepted activities
Region 9	EMD-4-2	Nida Navarra	00018083	Budget Analyst	1	Fund excepted activities
Region 9	EMD-5-2	Jeff Tackett	00018425	LAN Administrator	1	Provide network support and secure IT property during shutdown/excepted activities
Region 9	EMD-5-1	Richard Martin	00017804	IT Specialist	1	Provide telecomm. support to excepted activities.
Region 9	EMD-5-1	Angela Hlan-Lee	00018351	IT Specialist	1	IT Help line support during shutdown activities.
Region 9	EMD-5-3	Diana Uribe	00018201	Physical Security Specialist	1	Manage facilities by providing security/safety and managing and securing vehicles
Region 9	EMD 6-2	Ronald Smith	23335252	Contracting Officer	1	Provide contracting support for excepted activities
Region 9	SFD-1	Enrique Manzanilla	00017457	Dir, Superfund Div	1	Shutdown Management / FEMA Fire response
Region 9	SFD-9	Daniel Meer	00016060	Emergency Response Preparedness & Prevention Branch Manager	1	Shutdown Management / FEMA Fire response
Region 9	SFD	Russell Mechem	00020250	Environmental Engineer	1	Court-ordered status conference in CNMI
Region 9	SFD	John Tinger	00017293	Environmental Engineer	1	Court-ordered status conference in CNMI
Region 9	SFD 9-2 SFD 9-3	Thomas J. Dunkelman, Chris Reiner	00003734, 0001577	Environmental Scientist (OSC)	1	ER Response Duty
Region 9	SFD-9-4 SFD 9-2	Harry L. Allen, Bret C. Moxley	0021412, 0018005	Supervisory Environmental Scientist	1	ER Phone Duty

Region 9	WTR-3-1	Corine Li	00018337	Manager, Drinking Water Management Section	1	Provide technical assistance to emergency response staff to assure drinking water security for tribes & coordination with State Drinking Water Programs
Region 9	AIR	Laura Lawrence	02332683	Physical Scientist	1	Court-ordered deadline.
Region 9	ENF	Janice Wittul	00021874	Environmental Protection Specialist	1	Administrative trial filing deadline.
Region 9	ENF	Allison Watanabe	00020713	Life Scientist	1	FIFRA import contact for CBP.
Region 9	ORC	Sylvia Quast	00033904	Regional Counsel	1	Oversee all legal issues arising from shutdown.
Region 9	ORC	Gretchen Busterud	00029333	Deputy Regional Counsel	1	Manage all legal issues arising from shutdown, including regulatory compliance issues.
Region 9	ORC	Rebecca Sugerman	00022400	Attorney Advisor	1	Administrative trial filing deadline.
Region 9	ORC	Jefferson Wehling	00011171	Attorney Advisor	1	Court-ordered deadline.
Region 9	ORC	Carol Bussey	00018106	Attorney Advisor	1	Administrative trial filing deadline.
Region 9	ORC	Stephen Berninger	00026314	Attorney Advisor	1	Criminal Enforcement trial deadline.
Region 9	ORC	Janet Magnuson	00016038	Attorney Advisor	1	Court-ordered status conference in CNMI.
Region 9	ORC	Michael Massey	00022981	Attorney Advisor	1	Court-ordered response brief.
Region 9	ORC	Rebekah Wiley (Corrected to Legal Name)	00027279	Attorney Advisor	1	Administrative trial filing deadline.
Region 9 (FIRE & YU	Region 9 SFD 9-2	Amanda Pease	0033770		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Anabel Yo-Eco	17449		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD-8-2	Andrew Bain	00017614		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 ORC	Andrew Helmlinger	17304		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 WD	Andrew Sallach	00006125		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Barbara Lee	18431		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-4	Barbara Lee	00018431		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Becky Mitschele	31005		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD-9-2	Ben Castellana	2335964		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 WD	Bessie Lee	21172		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-3	Bill Jones	00019241		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-3	Bret Moxley	00018005		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Chris Reiner	00001577		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Christopher Myers	0001577		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Craig Whitenack	00029326		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Cyntia Steiner	17507		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Daewon Rojas-Mickelson	32728		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Dana Barton	18035		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Daniel Meer	0003482		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 OPA-3	Dean Higuchi	00018475		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 7-5	Elaine Chan	0018316		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Eric Canteenwalla	2332397		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 ED	Everett Pringle	7524		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Grace Ma	31645		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-3	Gregory Bazley	0030000		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Harry Allen	0021412		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 WTR-3-4	Howard Kahan	00020154		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Jason Musante	00025247		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Jeremy Johnstone	15849		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	John Lyons	00017866		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Jennifer MacArthur	00017768		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Jeff Woodlee	00017490		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Karly Ho	02334455		1	FIRE and YUTU EXCEPTED and ON-CALL LIST

Region 9 (FIRE & YU	Region 9	Kevin Ryan	00016900	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 WTR 3-2	Karl Banks	00013292	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-3	Kathryn (Kay) Lawrence	00007811	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-3	Lance Richman	00017091	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9	Lynn Keller	2332624	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Margot Perez-Sullivan	22075	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Maria Soledad Calvino	'02332597	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-4	Mark Samoils	0001308	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 EMD-2	Mary Matthews	00016755	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Michelle Rogow	00003122	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Mindy Clements	0025576	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 OPA-3	Nahal Mogharabi	00030013	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Ned Black	17960	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Olivia Trombadore	2334890	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 7-1	Patricia Bowlin	0011449	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 6-1	Peter Guria	00012637	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD-1	Philip Kum	0030573	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-4	Ramon Albizu	00027255	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Rich Hiett	25391	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9	Richard Francis	00033773	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-4	Robert Wise	0021755	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD-1	Rusty Harris-Bishop	00026106	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Steve Calanog	00010674	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Tara Fitzgerald	2335963	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD 9-2	Thomas Dunkelman	0003734	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 9 SFD	Yolanda Sanchez	30211	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	ERT	Fred Stroud	'00010164	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	ERT	Henry Gerard		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	ERT	Alain Frédérique		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	ERT	Joseph Bundens		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	CMAD	Leroy Mickelsen		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 1	Tony Honnellio	22825	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 1	Alex Sherrin	**23168**	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 1	Darriel Swatts	2332613	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Greg DeAngelis	'00005409	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Carl Pelegrino	'00004593	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Cecilia Echols		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Chris D'Onofrio		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Keith Glenn		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Shawna Hoppe		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Kelli Lucarino		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 2	Keith Glenn		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 3	Charlie Fitzsimmons	'00004774	1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 3	James R Wright		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 3	Felicia Fred		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 3	Jessica Duffy		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 4	Chris Tripp		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 4	Jason Booth		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 4	Ofia Hodoh		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 4	Perry Gaughan		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 4	Terry Stilman	'00005565	1	FIRE and YUTU EXCEPTED and ON-CALL LIST

Region 9 (FIRE & YU	Region 5	Heriberto Leon	'00031609		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 5	Jason Sewell			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 5	Keith Fusinski	'00027815		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 5	Kirstin Safakas			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 5	Paul Ruesch			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 5	Ramon Mendoza			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Eric Delgado	25162		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Adam Weece	2333104		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Angela Restivo	'00025365		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Bryant Smalley			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Eric Paisley	'00020369		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Justin McDowell	02333145		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Kayla Buchanan	00030873		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Mark Hayes	'00025382		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Meaghan Bresnahan	2333427		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Mikeal Adams	'00025754		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 6	Monica Smith	14460		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	Greg Crable	'00015236		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	Michele Miller	'00027522		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	Jeff Pritchard	'02333584		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	Todd Campbell	'00026280		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	Doug Ferguson	00021527		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 7	David Williams			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Christine Vigil	'00022893		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	David Christenson	00010307		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Duane Newell			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Joni Sandoval			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Karly Scholten			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Leslie Sims	'00020942		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Luke Chavez	'00016830		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Martin McComb	00016558		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Matt Langenfield	'00020823		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Peter Stevenson	'00004994		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Steven Merritt	'00028156		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Timothy Rehder	'00016541		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 8	Todd DeGarmo	'02335267		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Dale Becker			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Edward Johnson			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Eric Nuchims	02334884		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	James Lopez-Baird	00029913		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Wally Moon			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Kay Morrison	'00027541		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Madison Baxter	'02333473		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Tom Townsend	'00021574		1	FIRE and YUTU EXCEPTED and ON-CALL LIST
Region 9 (FIRE & YU	Region 10	Wenona Wilson			1	FIRE and YUTU EXCEPTED and ON-CALL LIST
			02335494			
Region 10	RA	Hladick Chris		Regional Administrator	1	Oversee overall shutdown and secure operations, Presidential appointee - excepted
Region 10	DRA	Pirzadeh Michelle	00017029	Deputy Regional Administrator	1	Provide policy support for all Regional Operations during shutdown and for excepted activities.
Region 10	OMP	Tyree, James	00027764	Acting Assistant Regional Administrator	1	Provide resource and operational support for all Regional Operations during shutdown and for excepted activities.

Region 10	ORC	Stern Allyn	00011534	Regional Counsel	1	Provide legal support for excepted activities
Region 10	OMP	Michael Laurel	00017802	IT Specialist	1	Oversee IT security operations to support excepted work
Region 10	OMP	Breaz Steven	00031534	IT Specialist	1	Handle IT network system administration issues in support of excepted work
Region 10	OERA	Minisci David	02333942	Lab Facilities Manager	1	Keep facility operational, oversee contract teams (O&M, security, janitorial)
Region 10	ECL	Terada, Calvin	00017214	Emergency Program Manager	1	Maintain emergency response operations
Region 10	ECL	Baxter, Madison	02333473	On-Scene Coordinator	1	R9 Typhoon Yutu Deployment (31 December 2018 - 23 January 2019)
Region 10	ORA	Morrison, Kay	00027541	Community Involvement Coo	1	R9 Wildfire Deployment (28 December - 11 January 2019)
Region 10	OOO	Townsend, Tom	00021574	Management Analyst	1	R9 Wildfire Deployment (28 December - 11 January 2019)
Region 10	OWW	Ricardi Duvil	02333274	Environmental Engineer	1	Review Warm Springs Tribes' response due on 12/7/18 with actions/timelines to address DW system deficiencies contributing to significant risks to public health.

Attachment Q122a

From: Message from the Administrator
To: Message from the Administrator
Subject: Whistleblower Protection / Prohibited Personnel Practices
Date: Thursday, October 25, 2018 3:02:29 PM

Dear Colleagues,

Federal employees have the right to be free from prohibited personnel practices, including retaliation for whistleblowing. The U.S. Environmental Protection Agency is committed to making sure that all employees are aware of their rights as well as the safeguards that are in place to protect them.

The purpose of this memorandum is to ensure that all EPA employees are aware of and understand the prohibited personnel practices and whistle blower protections available to federal employees.

The U.S. Office of Special Counsel (OSC) is an independent agency that protects federal employees from prohibited personnel practices, including whistleblower retaliation and unlawful hiring practices. OSC also provides an independent, secure channel for disclosing and resolving wrongdoing in federal agencies.

The Whistleblower Protection Act of 1989 and the Whistleblower Protection Enhancement Act of 2012 provide the right for all covered federal employees to make whist le blower disclosures and to ensure that employees are protected from whistle blower retaliation. The Dr. Chris Kirkpatrick Whistleblower Protection Act of 2017 and OSC' s Reauthorization Act under the National Defense Authorization Act of Fiscal Year 2018 further enhanced and reinforced these rights and protections.

Whistleblowing is defined as the disclosure of information that an employee reasonably believes evidences: a violation of any law, rule or regulation; gross mismanagement; gross waste of funds; an abuse of authority; a substantial and specific danger to public health or safety; or censorship related to scientific research or analysis. Employees may make lawful disclosures to anyone, including, for example, management officials, the Inspector General of an agency and /o r OSC.

More information can be found on the OSC website at: https://osc.gov/Pages/WhatWeDo.aspx

Andrew Wheeler
Acting EPA Administrator

Senator BARRASSO. Thank you very much for your testimony.

As mentioned, the hearing will include questions. There will be two 5 minute rounds of questions. I will start the second round after we close the first round. To be fair to all the members of the Committee and to the witness, I ask Senators to please limit your questions in each round to 5 minutes.

Throughout the hearing and with the questions for the record, our Committee members will have an opportunity to learn more about your commitment to public service and to our great Nation.

I would like to ask throughout the hearing that you would please respond to the questions today as well as those submitted for the record.

There are a couple of questions I have to ask as I do of all nominees and I did with you previously. These are on behalf of the Committee.

Do you agree, if confirmed, to appear before this Committee or designated members of this Committee and other appropriate committees of the Congress and provide information subject to appropriate and necessary security protections with respect to your responsibilities?

Mr. WHEELER. I do.

Senator BARRASSO. Do you agree to ensure that testimony, briefings, documents in electronic and other forms of communication of information are provided to this Committee and its staff and other appropriate committees in a timely manner?

Mr. WHEELER. I do.

Senator BARRASSO. Do you know of any matters which you may or may not have disclosed that might place you in a conflict of interest if you are confirmed?

Mr. WHEELER. I do not.

Senator BARRASSO. I will now begin my first round of questions. For the information of Senators, we will be having two rounds as I previously stated.

Let me start with this. The EPA is one of the Federal agencies directly impacted by the partial Government shutdown. Could you explain what actions you have taken to ensure that the EPA continues to fulfill the mission of protecting human health and the environment during this period?

Mr. WHEELER. Absolutely, Senator, thank you.

First, again I want to say I really am looking forward to our furloughed employees coming back to work.

We are still on the job in any emergency actions as well as any court ordered actions. For example, we still have personnel on the ground in California dealing with the wildfires, people in Puerto Rico dealing with the hurricane, as well as other emergency responses that have been ongoing.

Since the shutdown we have responded to seven new emergency responses around the country. We continue to monitor our hotline and tips lines. We are also fulfilling all of our court ordered deadlines.

A perfect example is, as the shutdown has continued we are taking a look at what deadlines are coming up. We have five or six regulations that have court ordered deadlines. One of them is on lead dust, some regulation which is due in June. I sat down with

my senior staff last week and we charted out what the court ordered deadlines are, working backward on when we need to have people back on the job to take care of those. We recalled people this week to work on the lead dust regulation.

Out of 14,000 employees, we started with around 700 that were exempt from the furlough. We are at around 800 now. That varies on a day to day basis.

Senator BARRASSO. The Clean Air Act requires the EPA grant relief to small refineries which suffered disproportionate economic hardship under the Renewable Fuel Standard, the RFS. The law explicitly states a small refinery may petition the EPA for hardship relief, and it says, "at any time."

Do you agree that the EPA does not have the authority to limit when small refineries can apply for that hardship relief?

Mr. WHEELER. That is correct. They can apply at any point.

Senator BARRASSO. The law further states, "The EPA needs to act within 90 days upon receiving a petition from a small refinery." Do you agree the EPA does not have the authority to delay decisions on small refinery petitions beyond the 90 days?

Mr. WHEELER. I agree that the petition first goes to the Department of Energy for technical review before it comes to the EPA.

Senator BARRASSO. According to the EPA's online dashboard, there are at least 11 petitions that have been pending for more than 90 days. Is that correct?

Mr. WHEELER. I am not sure of the number.

Senator BARRASSO. I never cease to be amazed by the power of innovation from energy production to manufacturing. Innovation has grown and improved the environment significantly. One key question is how we can harness that innovation to reduce greenhouse gas emissions and turn these emissions into useful products.

We have discussed that we can use carbon dioxide to get oil out of the ground, to construct building materials, and to make fuels. What role does the EPA play in supporting innovations that would reduce greenhouse gas emissions?

Mr. WHEELER. We have a lot of opportunities. We do that through our air program as well as all of our programs. We are looking to do innovation and encourage new innovation. I think it is important on the regulatory side that we do not try to tip the scale one way or the other on, for example, energy sources. We want to encourage innovation in the marketplace and encourage new ideas to come forward.

Senator BARRASSO. Thank you. I am going to reserve the balance of my time.

Senator Carper.

Senator CARPER. Thank you, Mr. Chairman.

Mr. Chairman, I ask unanimous consent to submit for the record several articles and a letter that describes the current state of affairs at EPA during this Government shutdown. While 95 percent of EPA employees are not receiving paychecks, EPA also is not fully carrying out its fundamental core mission. That is to protect human health and the environment.

This means that scientists may lose data collection opportunities related to the deadly California wildfires, there is no EPA super-

vision at too many of our Superfund sites, and many more critical functions will not proceed until the EPA is funded.

That is my request.

Senator BARRASSO. Without objection.

[The referenced information follows:]

NEWS > COLORADO NEWS

"We should be at work": Furloughed federal employees in Colorado bemoan uncertainty of government shutdown

Partial shutdown entered fifth day on Wednesday with no resolution in sight

By **JOHN AGUILAR** | jaguilar@denverpost.com | The Denver Post
PUBLISHED: December 27, 2018 at 6:00 am | UPDATED: December 27, 2018 at 9:15 am

The partial shutdown of the government may have gone into effect over the weekend, but with the first two days of the work week federally declared holidays, Wednesday marked the first day most federal workers — of which there are more than 50,000 in Colorado — found themselves forced off the job.

For Chris Fowler, a project manager with the U.S. Department of Housing and Urban Development in Denver, the work stoppage resulting from an impasse in budget negotiations between the Trump administration and Congress means another period of unwelcome uncertainty for him and his colleagues.

"I have a mortgage to pay, a daughter in college and a son about to graduate high school," said Fowler, who went through the 16-day partial federal government shutdown five years ago. "The bottom line is we shouldn't have to do this — we should be at work."

But Fowler and 800,000 fellow federal employees across the United States are now furloughed — or required to work without pay — as President Donald Trump continues to insist that Congress allocate $5 billion to fund construction of a wall along the Mexican border. The president last week rejected a short-term spending bill that would have averted a shutdown because it didn't contain enough money for a border wall.

Fowler, who serves as vice president of the local chapter of the American Federation of Government Employees, said Washington's stark political divide is at the heart of the dysfunction enveloping the federal government, which already endured two shutdowns — albeit short ones — in 2018. And federal employees have become "pawns" in the repeated political standoffs, he said.

"We have two parties that just stare at each other hoping the other side blinks," Fowler said Wednesday. "The federal employee has just become another rider in an amendment someone is trying to pass. We're bargaining chips."

"Frustrating to be in this situation"

Even though federal workers typically are compensated with back pay for the time they are forced to sit idle (the U.S. Senate last week approved a measure to do just that for the current shutdown), it doesn't alleviate the pain that many federal employees who struggle financially must endure while the shutdown is in effect.

"There are a lot of people in my office who live paycheck to paycheck," said Britta Copt, who works in the U.S. Environmental Protection Agency's safe drinking water enforcement unit in Denver. "It's frustrating to be in this situation constantly. It gets really old."

Copt said the uncertainty posed by a shutdown is one of its biggest challenges. A colleague who is planning to head to California to help with disaster recovery in the wake of deadly wildfires there isn't clear on whether that assignment will still be happening, she said.

"It's stressful, constantly wondering if we're coming to work," she said.

The shutdown, which began at midnight Saturday, is affecting about 25 percent of the federal government's operations. Many essential services — including mail delivery, food stamps, Social Security, Medicare/Medicaid programs and Transportation Security Administration screening at airports — will continue.

Colorado's federal workforce is robust in the Denver-Boulder area, with thousands of employees working at the Federal Center in Lakewood and the National Renewal Energy Laboratory in Golden, and thousands more at other labs, like the National Oceanic and Atmospheric Administration and the National Institute of Standards and Technology, in Boulder.

Federally funded research facilities here contributed about $2.6 billion to Colorado's economy in fiscal year 2015, and supported more than 17,600 jobs, according to a report from the business research division of the Leeds School of Business at the University of Colorado.

Taking a toll on morale

The eventual extent of the shutdown is unknown at this point, with lawmakers out of town for the holidays making it difficult to achieve progress before the new Congress convenes next week. On Christmas Day, the president made it clear that the government will remain closed until he gets the wall funding he seeks.

"I can't tell you when the government is going to reopen," Trump told reporters in the Oval Office on Tuesday. "I can tell you it's not going to be open until we have a wall, a fence, whatever they'd like to call it."

Trump also told reporters that many federal employees support the shutdown. That claim was immediately countered by Tony Reardon, president of the National Treasury Employees Union, which represents 150,000 members at 33 federal agencies and departments.

Reardon called the shutdown a "travesty" and said, "Congress and the White House have not done their fundamental jobs of keeping the government open."

Jeff Kelly, who has spent 4 1/2 years working for the Department of Interior in Lakewood, said he will get particularly worried if the shutdown stretches into a third or fourth week.

"I've got enough money to go through one billing cycle," he said Wednesday, citing child support, a mortgage and a car payment as obligations he needs to be able to satisfy.

Kelly said the unwillingness or inability of government leaders to agree on anything more than temporary spending measures of late — and to impact the livelihoods of federal workers in the process — has taken a toll on morale.

"There's less appreciation and understanding of the work federal workers do," he said.

inside climate news

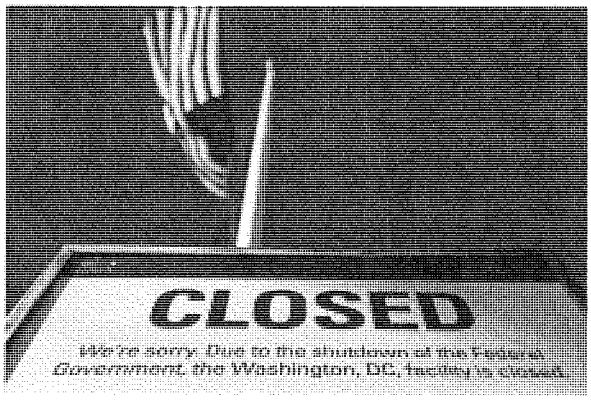
A Pulitzer Prize-winning, non-profit, non-partisan news organization dedicated to covering climate change, energy and the environment.

Government Shutdown Raises Fears of Scientific Data Loss, Climate Research Delays

National Hurricane Center staff would normally be working on forecast improvements: 'We can't do any research and development for the next hurricane season.'

BY MARIANNE LAVELLE Follow @mlavelles

JAN 10, 2019



The 2018 government shutdown has affected scientific agencies and their research and data collection across the government. Credit: Andrew Caballero-Reynolds/AFP/Getty Images

Updated Jan. 12 with the government shutdown surpassing the 1995-96 shutdown to become the longest in U.S. history.

Even though the ideology of President Donald Trump's administration has been to deny climate science, communities across the country and institutions around the world have continued to rely on the U.S. government to grapple with the climate crisis.

Whether it's dealing with the devastating impacts of global warming, or supporting research efforts to better understand it, the government shutdown has abruptly stymied that work.

"The one thing that feels very different this time is it feels like there's no hope in sight," said Nicole Cantello, chief steward of the American Federation of Government Employees Local 704 in Chicago. "How this is going to end is not readily apparent."

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The budget impasse over Trump's demand for funds to build a wall on the U.S.-Mexico border became the longest U.S. government shutdown in history on Jan. 12, surpassing the 21-day record set in 1995-96 over former House Speaker Newt Gingrich's demands for deep budget cuts. Although the Democrat-led House was making a bid to pass bills to get parts of the government up and running, Senate Majority Leader Mitch McConnell has signaled he will not bring any measure to a vote that the president won't sign.

Here are some of the climate-related government tasks that have been affected:

California Wildfire Aftermath

In the wake of the **deadliest and most destructive wildfires** in California history, the EPA planned to take a dedicated look at the impact of wildfires on air and water quality, human health and the environment.

That project now will be delayed, and scientists fear they may lose some opportunities for data collection that would be carried out in conjunction with the U.S. Forest Service. (Although firefighting itself is considered an **essential service**, and emergency personnel are expected to work throughout the shutdown, employees are prohibited from doing "regular work.")

California has a robust state government research effort, so the loss may not be as severe as it would have been in a state without that capacity. "But the inability for any of the relevant federal agencies to participate and contribute will certainly reduce the scope and magnitude of the data researchers can collect," one government scientist said.

On one aspect of the wildfire aftermath, EPA employees were still on the job, although with uncertainty on when they would be paid: Toxicologists and other specialists were continuing to help in the hazardous waste assessment and cleanup in the aftermath of the devastating Camp Fire, which killed at least 86 people. Two months after the fire, the teams have conducted assessments on about **half** of the 13,000 destroyed properties for household chemicals that need special handling before debris can be cleared.

As essential personnel, the EPA personnel deployed to the Camp Fire aftermath are expected to work without pay. But EPA Acting Administrator **Andrew Wheeler**, a former coal lobbyist who was nominated by Trump on Wednesday to become administrator, sent an **email** to staff on Tuesday telling them they would receive one-half of their salary for the first week of the shutdown on their upcoming regular pay date this week.

Hurricane Research and Recovery Funding

At the National Hurricane Center in Miami, which is part of NOAA, many of the center's 50 employees are still required to work—without pay—but they are limited in what they can do, said Eric Blake, a union representative at the center and hurricane specialist.

This is the time of year that the center's scientists work on improving their forecasting models, but the center's employees are now "limited to only essential lifesaving activities, which means current weather," Blake said.

"We can't do any research and development for the next hurricane season," he said.

Hurricane recovery efforts are also a problem. North Carolina Gov. Roy Cooper, a Democrat, **sent a letter** on Wednesday to Trump urging an end to the shutdown to help speed assistance for the state's **recovery from Hurricane Florence**. As with wildfire conditions, **research shows** global warming can exacerbate conditions that fuel destructive storms.

"While we continue the short-term recovery with [the Federal Emergency Management Agency's] help, our critical long-term work to rebuild stronger and smarter is delayed with every day that federal funds are held in Washington," Cooper wrote. He said grants from the U.S. Department of Housing and Urban Development, including one to make flood-prone areas safer, are tied up in the government shutdown.

Climate Monitoring and Science

Climate scientists are concerned that the pause in federal funding could mean a gap in the data that has been so important in assessing the changing state of the planet. For example, if an oceanographic beacon goes down—which happens often—there will be no one available to fix it, noted Kevin Trenberth, a climate analyst at the University Corporation for Atmospheric Research in Boulder, Colorado.

"The biggest shortcoming is if data gaps occur, if people are not maintaining instruments and an instrument goes down," Trenberth said. At this point, it's not even certain if that is happening. "Nobody's keeping track," he said. "It's quite unfortunate."

Trenberth expects that the National Oceanic and Atmospheric Administration (NOAA) will still put out its global mean surface temperature report for 2018 as scheduled next week, but that it will be short on the analysis it usually includes about regional variations and impacts, because people aren't working.

His own organization, UCAR, a nonprofit consortium that manages the National Center for Atmospheric Research under a grant from the National Science Foundation, has funding to operate through Jan. 18. UCAR is assessing its options if the shutdown continues beyond that date.

NOAA specialists in Alaska fisheries and in ocean dynamics are on the team of scientists from around the world who are supposed to be working on a special report on oceans and the cryosphere that the Intergovernmental Panel on Climate Change is scheduled to release this year. But if the shutdown continues, their participation could be severely limited.

Federal scientists were also directed to cancel travel plans for the annual meeting of the American Meteorological Society in Phoenix this week. Hundreds of federal employees typically speak at the conference, which is the world's largest gathering of weather and climate researchers. The EPA posted a **warning** to its employees that even if they fund their own travel to such conferences, they cannot represent themselves as federal employees, nor can they moderate or participate in panels or present data.

A Pollution Plan for Lake Erie

Extreme rainfall and warming waters are increasing phosphorus pollution in Lake Erie, and the resulting risk of toxic algae blooms **like the one** that left a half million residents of Toledo, Ohio, without drinking water for two days in 2014.

Community and environmental groups have been litigating against EPA for faster action in reducing the pollution, but a federal judge last fall refused the environmentalists' bid to find EPA in violation of the Clean Water Act—a move that would have set deadlines for action.

"As climate change and heavy rainfall are pushing out more of this phosphorus pollution, we need a larger system of accountability and oversight," said the lead lawyer in the case, Madeline Fleisher, a senior attorney with the Environmental Law and Policy Center, a Midwestern public-interest and legal advocacy group.

The government shutdown has put the problem in sharp relief, because the EPA is now not on hand to coordinate the many stakeholders involved in the **Great Lakes Water Quality Agreement**, the deal between the U.S. and Canada under which authorities have agreed to address the phosphorus pollution. It's not clear how the shutdown will affect a Lakewide Action and Management Plan that was

scheduled to be completed by March, for Lake Erie, which the Ohio EPA last year designated as "**impaired**."

Oil, Gas and Long-Term Impact on Staff

One government function does appear to be continuing: oil and gas drilling permits. The Interior Department's Bureau of Land Management is treating permits as an exempted activity, according to reports by **Bloomberg** and **E&E News**. Rep. Raul Grijalva (D-Ariz.), the new chairman of the House Natural Resources Committee, has sent a **letter** to the acting head of the agency, questioning how such activities are being funded.

One federal scientist, who asked not to be named, worries that the impact of the shutdown could be long-lasting, especially for agencies like the EPA. The EPA had already lost more than 1,500 workers, or 8 percent of the staff, in the first 18 months of the Trump administration due to retirements, buyouts and attrition, according to a **tally** by The Washington Post.

"My biggest concern is that this is the catalyst that makes people decide they've had enough," the scientist said. "The younger staff are hit hardest, both in terms of money and career advancement. It could result in losses that will hurt us for decades."

InsideClimate News reporters Nicholas Kusnetz and James Bruggers contributed to this story.

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Marianne Lavelle is a reporter for InsideClimate News. She has covered environment, science, law, and business in Washington, D.C. for more than two decades. She has won the Polk Award, the Investigative Editors and Reporters Award, and numerous other honors. Lavelle spent four years as online energy news editor and writer at National Geographic. She also has worked

at U.S. News and World Report magazine and The National Law Journal. While there, she led the award-winning 1992 investigation, "Unequal Protection," on the disparity in environmental law enforcement against polluters in minority and white communities.

She can be reached at marianne.lavelle@insideclimatenews.org.
PGP key: bit.ly/PGPML15

Government shutdown impacts EPA oversight at West Lake landfill

The impacts of the government shutdown are now reaching the radioactive waste at the West Lake landfill, an EPA superfund site.

Author: Jenna Barnes
Published: 10:11 PM CST December 28, 2018
Updated: 10:17 PM CST December 28, 2018

The impacts of the government shutdown are now reaching the radioactive waste at the West Lake landfill, an EPA Superfund site.

The EPA ran out of funding Friday, furloughing employees. 5 On Your Side learned the work at the West Lake landfill will continue but without its normal EPA oversight.

"There's nobody watching over us. That's scary," activist Dawn Chapman said.

MORE NEWS

NEXT STORY

Man found dead in De Soto, deputies investigating it as a suspicious death

JUST FOR YOU

Shirley Boone, wife of Pat Boone and philanthropist, dies at 84

She spent the day Friday trying to get answers from EPA officials and provided their responses to 5 On Your Side.

Steven Cook, the chair of the superfund task force, replied that an emergency spill line will remain open but cautioned, "please be mindful that we may be limited in our ability to provide a substantive response depending on the issue involved."

Chapman called that distressing.

Back in November, a fire erupted at the Bridgeton landfill, which neighbors the radioactive waste. Dawn worries how an emergency like that would be handled if it happens again during the furlough.

RELATED: All-clear given after fire erupts at Bridgeton Landfill

"So the kids are left in the classroom, there's no teacher, no principal," she said. "We're on our own."

The furlough does not impact local first responders. If something does happen at the site, the Pattonville Fire District will respond. The assistant chief tells 5 On Your Side it just means they won't have backup or scientific expertise from EPA.

The EPA sent 5 On Your Side this statement:

"Ongoing work at Superfund sites will continue without EPA involvement up to the point that additional EPA direction or funding is needed. The West Lake Landfill Potentially Responsible Parties conduct the work regarding the site and may continue working during the duration of the lapse in funding. The 24-hour EPA Region 7 Emergency Response Line will remain open in the event of a spill or release at the West Lake Landfill. That number is 913-281-0991."

VIA ELECTRONIC MAIL

January 11, 2019

The Honorable Mitch McConnell
Majority Leader
U.S. Senate
Washington DC, 20510

The Honorable John Barrasso
Chair, Committee on Environment and Public Works
U.S. Senate
Washington DC, 20510

Dear Majority Leader McConnell and Chairman Barrasso,

On January 9, 2018, on the eighteenth day of President Donald Trump's unnecessary and wasteful government shutdown, former coal industry lobbyist Andrew Wheeler was officially nominated to serve as Administrator of the Environmental Protection Agency. On the same day, Senator John Barrasso, R-Wy., Chairman of the Senate Committee on Environment and Public Works, announced to reporters that he would schedule Mr. Wheeler's confirmation hearing for next week.

We write to you to demand a postponement of Mr. Wheeler's confirmation hearing until the president's wasteful government shutdown, which has put more than 800,000 Americans out of work and millions more in financial jeopardy is ended, and the scientists, public health experts, law enforcement officers and career civil servants that serve at the Environmental Protection Agency can return to work.

It is profoundly unfair for Mr. Wheeler to audition for a promotion to lead an agency while the entire agency workforce is locked out and denied their paychecks, making it difficult to pay their bills and mortgages and provide for their families. The Senate has important business to address, including passing measures to fund the government and end this costly and wasteful shutdown, but ramming through controversial nominations to lead federal agencies that are shuttered is not among those priorities.

Andrew Wheeler, just before closing the EPA's doors to its workers, used the agency's last available resources to begin to undermine long-standing protections against mercury pollution, at the request of the coal industry at the expense of the American children and unborn babies. We deserve an EPA administrator who will prioritize the agency's mission of protecting public health and enforcing laws like the Clean Air Act and Clean Water Act rather than rushing to a job interview so he can keep doing favors for the industry for which he served as a high-paid lobbyist.

The Senate should delay consideration of the Wheeler nomination while Americans go unpaid during the government shutdown.

Sincerely,

Gene Karpinski, President, League of Conservation Voters

Collin O'Mara, CEO, National Wildlife Federation

Rhea Suh, President, Natural Resources Defense Council

Ken Kimmel, President, Union of Concerned Scientists

Michael Brune, Executive Director, Sierra Club

Abigail Dillen, President, Earthjustice

John Podesta, Founder and Director, Center for American Progress

Fred Krupp, President, Environmental Defense Fund

Erich Pica, President, Friends of the Earth

BREAKING Trial to determine Portage mayor's fate kicks off

https://www.nwitimes.com/news/local/lake/epa-cancels-superfund-site-public-hearing-amid-federal-government-shutdown/article_7ce2b6b0-f5d7-5448-9ec8-b16b1a3af03c.html

URGENT

EPA cancels Superfund site public hearing amid federal government shutdown

Lauren Cross lauren.cross@nwi.com, 219-933-3206 Jan 1, 2019 Updated Jan 11, 2019

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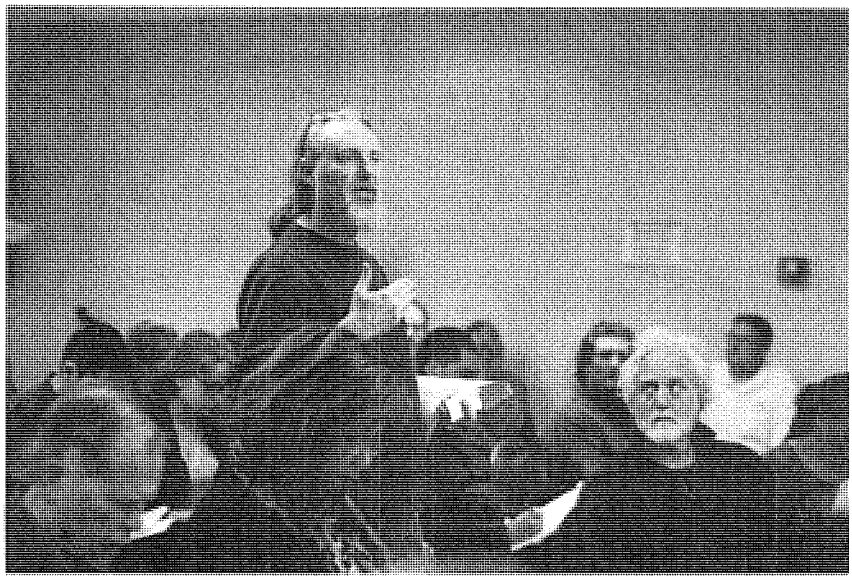


BUY NOW

Thomas Frank, a member of Calumet Lives Matter, urges EPA to select a more stringent cleanup plan for West Calumet at a public meeting Thursday night. The $48.8 million cleanup plan removes soil and debris left over from the lead smelter demolished and buried there years ago to depths reaching clean native sand, disposes of it at an off-site location and treats the most contaminated soil using chemical stabilization.

EAST CHICAGO — The federal government shutdown has forced the U.S. Environmental Protection Agency to cancel an upcoming public hearing on cleanup proposals for the former West Calumet Housing Complex.

EPA spokeswoman Rachel Bassler sent out a news release this week, saying EPA has cancelled the public hearing set for Thursday, Jan. 10, due to the government shutdown, which was heading into its 11th day on Monday.

A lively public meeting at the local library in late November was cut short because of the hearing's two-hour time limit, robust participation and the complicated nature of the proposal, leaving many residents' questions unanswered.

Since that time, a community group successfully appealed to EPA to hold another hearing. They argued EPA would otherwise not be fulfilling its commitment to fully engage the lead- and arsenic-contaminated USS Lead Superfund community.

EPA is proposing a seven-month, $26.5 million plan for West Calumet that digs to a maximum depth of two feet, treats severely contaminated soil and disposes of it at an off-site location.

The agency has said it could finalize a cleanup plan that includes a contingency, allowing for a less stringent cleanup if the city moves forward with industrial redevelopment instead of residential.

In a letter to the EPA, CAG members said the proposed plan includes the unusual contingency that allows the agency to change course on cleanup levels if city leaders change their minds on the property's future use.

EPA's proposed plan is not preferred by residents. Residents argue it isn't protective enough because contamination beneath two feet will remain in place and it does not factor in pending results of EPA's ongoing study on groundwater contamination.

Institutional controls under that plan will impede future redevelopment, residents have said.

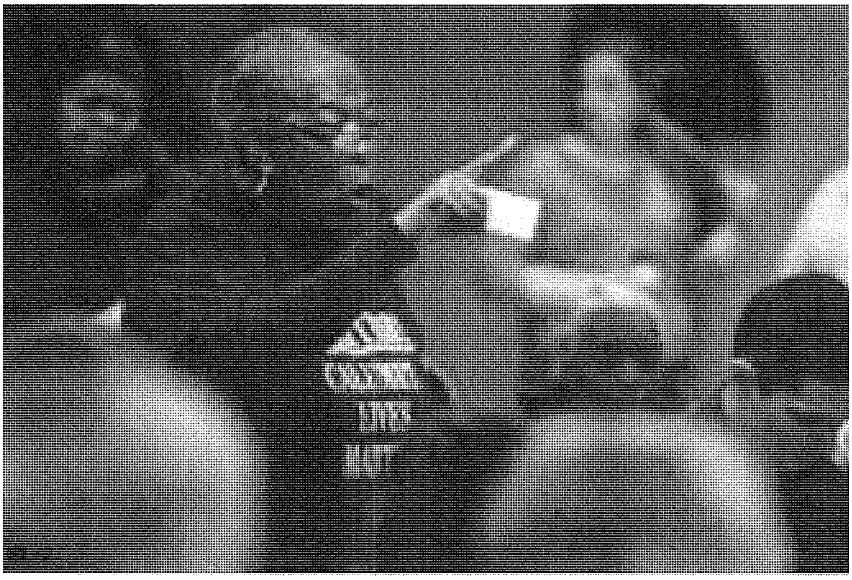
Though he's long maintained he wanted the site cleaned to residential standards, Mayor Anthony Copeland sent a letter to EPA earlier this year to let them know of two interested industrial/commercial developers.

The EPA has said it has no authority over Mayor Anthony Copeland's plans for the former public housing site and always aligns Superfund site cleanup with the local property owner's future use. In this case, the owner is the city and the housing authority.

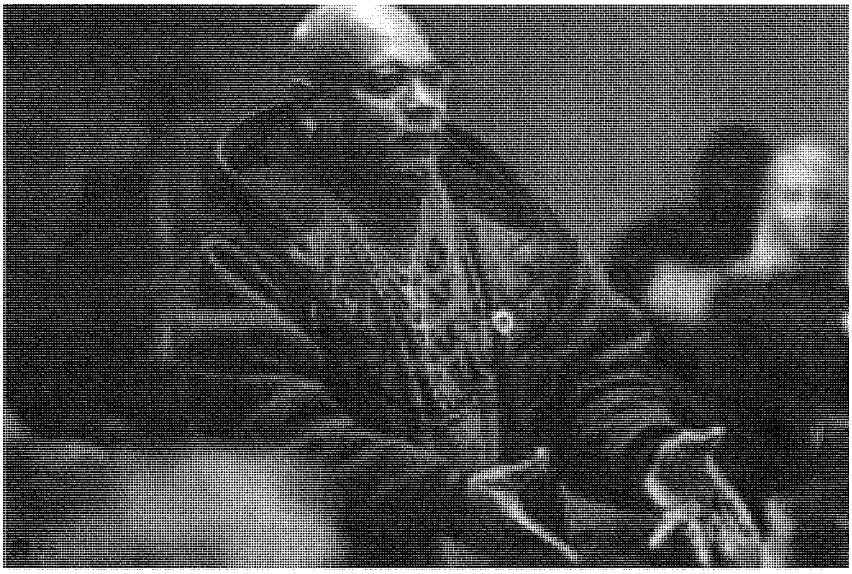
His desire to have the property cleaned to residential standards has not changed, though he is open to all ideas about the highest, best possible use for the property, city officials have said.

Residents can submit public comments until Jan. 14, and have several options to weigh in:

- Submit comments orally or in writing at the public meeting
- Send a fax to Janet Pope, 312-385-5311
- Use the form at epa.gov/uss-lead-superfund-site/forms/comment-proposed-amendment-cleanup-plan-residential-area-zone-1-0
- Mail comments to:
  Janet Pope (pope.janet@epa.gov)
  Community Involvement Coordinator
  77 W Jackson Blvd, SI-6J
  Chicago, IL 60604



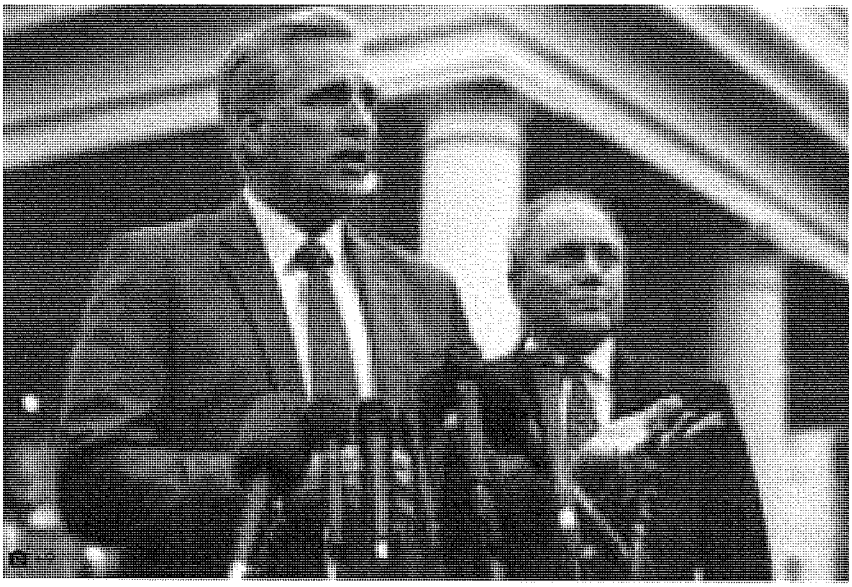
East Chicago residents urge EPA to hold second meeting, citing complicated nature of West Calumet plan



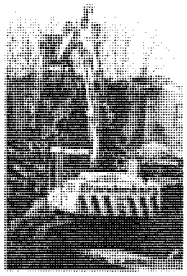
Residents unnerved with EPA cleanup, future use uncertain for demolished West Calumet housing site

UPDATE: Shutdown Day 12: Lawmakers to hear wall plea at White House

Tops on House Democrats' to-do list: Try to end shutdown

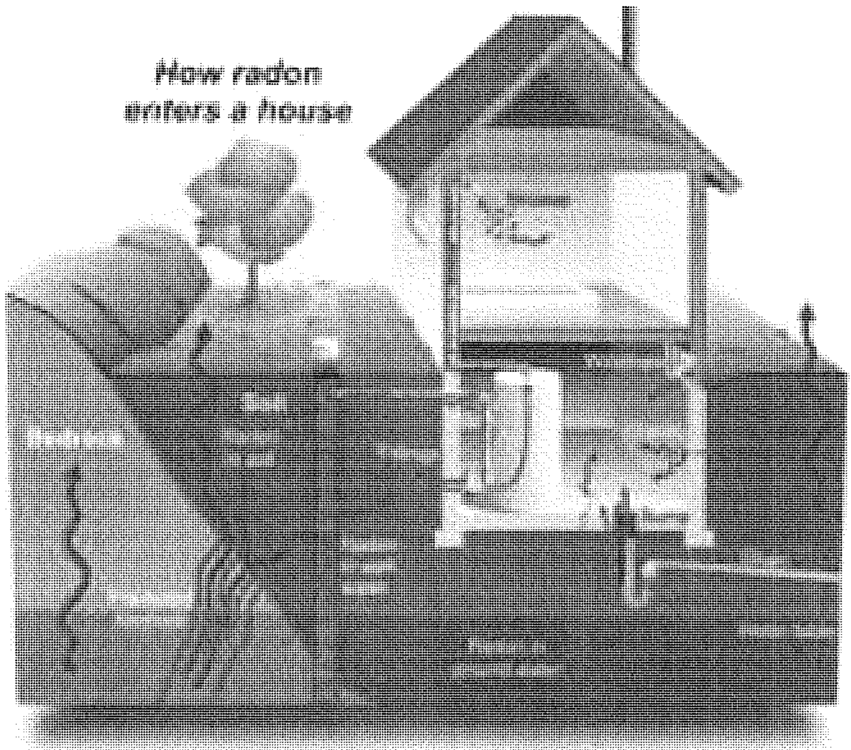


Day 13: New Congress, same old impasse over Trump's wall



Group: Federal government shutdown no excuse for canceled EPA hearing in East Chicago

UPDATE: Signs of GOP unease over shutdown as White House talks start



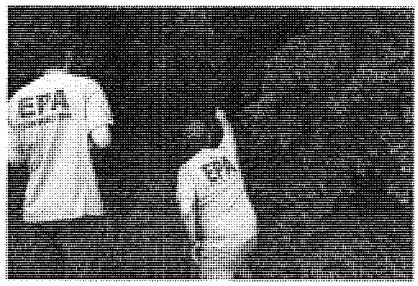
Indiana health department encourages residents to test homes during National Radon Action Month

Federal work at Superfund sites suspended during shutdown

Lauren Leone-Cross
Northlake County Reporter

Lauren covers North Lake County government, breaking news, crime and environmental issues for The Times. She previously worked at The Herald-News in Joliet. She holds a master's degree in Public Affairs Reporting.

Shutdown Means E.P.A. Pollution Inspectors Aren't on the Job



E.P.A. workers investigating PCB levels in runoff in Minden, W.Va., in May.
Bonnie Jo Mount/The Washington Post, via Getty Images

By Coral Davenport

Jan. 9, 2019

*Want climate news in your inbox? Sign up here for **Climate Fwd:**, our email newsletter.*

WASHINGTON — The two-week-old shutdown has halted one of the federal government's most important public health activities, the inspections of chemical factories, power plants, oil refineries, water treatment plants, and thousands of other industrial sites for pollution violations.

The Environmental Protection Agency has furloughed most of its roughly 600 pollution inspectors and other workers who monitor compliance with environmental laws. Those scientists, engineers and analysts are responsible for detecting violations that endanger human health, as they did, for example during an August 2018 airborne inspection that found that oil and gas fields in Karnes County, Tex., were leaking illegal levels of chemicals into the atmosphere, in violation of the Clean Air Act.

While the inspection personnel represent a relatively small proportion of the E.P.A.'s total of about 15,000 workers, their absence increases the chances that, either by design or by accident, companies might emit illegal levels of contaminants into the air or water without detection, for weeks on end, according to people familiar with the E.P.A. inspections.

"There are plants that discharge wastewater into streams and rivers, places that store hazardous chemicals in containers that could leak — we show up and test these places to see if they're meeting pollution laws," said Garth Connor, a furloughed E.P.A. inspector based in Philadelphia who has been off the job since Monday. "Now there's nobody out there to check if they're complying."

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Mr. Connor inspects for air and water pollution and hazardous waste disposal at sites throughout the Mid-Atlantic.

The inspectors "are the cops on the beat," Cynthia Giles, who headed the E.P.A. enforcement division during the Obama administration, wrote in an email.

She noted that, in 2017, E.P.A. workers performed about 11,700 such inspections, averaging to about 225 inspections per week, according to the agency's records. The numbers suggest that hundreds of such inspections may have already been canceled this year, with the potential for hundreds more to not take place should the shutdown continue for days or weeks more.

"Those weeks can never be made up," Ms. Giles wrote. "In addition to the violations not found and the inspections not done, there is also the impact of no inspectors in the field doing unannounced inspections," she added, asking: "Will that result in more violations because companies know E.P.A. isn't watching?"

Andrew Wheeler, the acting administrator of the E.P.A., did not respond to an email requesting comment. On Wednesday, President Trump formally nominated Mr. Wheeler, who was confirmed last year as the deputy chief of the agency, to formally take over as the agency head.

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When on the job, E.P.A. inspectors regularly cite companies for violations that endanger human health. For example, during an April 2016 inspection at a Firestone rubber plant in Sulphur, La., E.P.A. inspectors discovered that the plant was emitting illegal levels of butadiene, a carcinogen, into the community.

A telephone message left at the plant was not returned.

Some E.P.A. inspections are unannounced. Others take the form of two- and three-week on-site visits.

Still other examinations don't happen on-site: E.P.A. experts sitting in labs or at computers will review documents detailing a plant's own reported emissions of pollution or wastewater, checking whether legal limits were met or violated. These activities, too, are on pause during the shutdown.

Inspectors need to read those reports "and say, 'no, you can't do that,'" said Eric Schaeffer, who worked at the E.P.A. on enforcement from 1990 to 2002 and now runs the Environmental Integrity Project, an advocacy group. "Then they follow up and go on-site. But none of that is happening."

Unlike other federal agencies affected by the government shutdown, the E.P.A. continued to operate through the week of Dec. 24, but pollution inspections, along with most of the rest of the work of the agency, had ceased by New Year's Eve.

Mr. Schaeffer recalled the effect on pollution enforcement of the longest government shutdown in history, which ran from Dec. 16, 1995, to Jan. 6, 1996.

"That was one of the worst years ever at the E.P.A. in terms of numbers of inspections and enforcement," he said. He added that the damage to the work of pollution inspections didn't end completely once the government reopened. "Everything was ground to a halt, bogged down. You can't just restart at 100 miles per hour. You have to reschedule everything."

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Another former E.P.A. official who now lobbies on behalf of industry offered a different view, saying that a shutdown of even a few weeks was unlikely to make much difference in the amount of illegal pollution emitted or detected.

"What you have is a delay," said the former official, Jeffrey Holmstead, who served in the E.P.A. during both Bush administrations and now works for some of the largest coal companies and electric utilities in the country. "I don't think it's true that all of a sudden, because E.P.A.'s inspectors are not there, that most people will take advantage of that," he said. "There may be a few folks who believe they can get away with more, but I don't think that's the biggest issue."

Among Mr. Holmstead's clients are several companies that have been cited for violations by the E.P.A., including the electric utility Southern Company, which has had 52 sites with violations over the past five years, including 23 sites with current violations, according to E.P.A.'s enforcement database. An email sent to a Southern Company spokesman requesting comment on the violations was not answered.

Another of Mr. Holmstead's clients, the electric utility, Ameren, owns 23 sites that have been cited for pollution violations over the past five years. A telephone message left with an Ameren spokeswoman was not returned.

In many years, about 10 to 20 percent of the E.P.A.'s pollution inspections turn up significant violations, according to the agency's data.

Most operators "really are doing a good job," said Adam Kushner, a former top legal official at the E.P.A. "But there's a 1 percent that are bad actors, who will continue to do what they're going to do, unless inspectors find them. And then there are sites where the operator just may not have identified the problem, and they're putting bad stuff out into the air without knowing it."

Angela McFadden, a furloughed E.P.A. environmental engineer who oversees state permits for pollution discharge and has worked as an on-site inspector dealing with clean water violations, said she "always" found violations during her time as an inspector.

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For example, she said, in inspecting municipal water systems in rural areas she frequently found that cities and towns over-chlorinated or under-chlorinated their water — not a legal violation, but a potentially harmful situation that is easily corrected when identified by an inspector.

Ms. McFadden recalled a more frightening inspection she once performed in Pennsylvania that found excessive nitrate levels in a municipal water supply. Nitrates can sap oxygen from the blood and, when found in high levels in drinking water, are linked to "blue baby syndrome," in which infants struggle to deliver enough oxygen to their bodies.

"Right now, E.P.A. is not monitoring any of that," Ms. McFadden said. "Things are falling through the cracks."

For more news on climate and the environment, follow @NYTClimate on Twitter.

Correction: *January 10, 2019*
A picture caption with an earlier version of this article twice misidentified the owner of the E.D. Edwards power station in Bartonville, Ill. The station is owned by Vistra Energy, not Ameren Corp and not Dynegy Inc. (Ameren sold the plant to Dynegy in 2013. Dynegy folded into Vistra in 2018.) The picture has been removed.

Correction: *January 11, 2019*
An earlier version of this article described incorrectly Angela McFadden's role at the Environmental Protection Agency. She is an environmental engineer who works for an agency program that oversees state-issued permits for the discharge of pollution in rivers and streams. Though she has worked as an on-site inspector dealing with clean water violations, she is not an inspector of water sites.

The article also misquoted Ms. McFadden in her comments about her work at the E.P.A. While Ms. McFadden said, "I always find violations," she did not go on to say, "even if it's not things that are illegal."

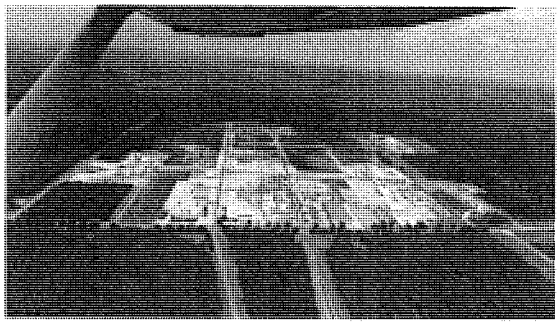
The article also suggested that problems with chlorine levels in water are especially common in rural West Virginia. That is not the case.

POLITICS & GOVERNMENT

During shutdown, water samples to check for GenX are sitting in the fridge untested

BY CRAIG JARVIS

JANUARY 04, 2019 07:39 PM, UPDATED JANUARY 04, 2019 07:44 PM

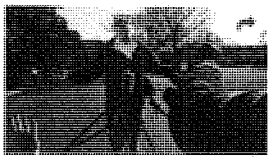


This 2017 photo shows the Fayetteville Works plant near Fayetteville. Delaware-based Chemours Co. has been sued over an unregulated chemical with unknown health risks that flowed from the company's plant near Fayetteville into the Cape Fear River. KEN BLEVINS *AP*

RALEIGH — Some of the surface-water tests to make sure potentially toxic chemicals are no longer discharging into the Lower Cape Fear River are on hold because of the federal government shutdown.

But for now, a spokeswoman for state regulators said Friday, the agency is confident the water still meets safety standards.

The N.C. Department of Environmental Quality has been testing the water and sending samples to the U.S. Environmental Protection Agency's lab in Athens, Ga. But the budget impasse has closed the EPA — among other federal departments — including that lab, which can no longer process the samples.



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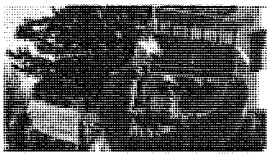

Federal employees march in protest of the government shutdown in Raleigh

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State regulators are continuing to take samples, but instead of sending them to Georgia it is storing them in a state facility in Fayetteville, where they are kept in refrigerators. How long the samples can be saved without degrading will be up to the EPA.

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The state environmental agency samples the surface water twice a week at a point where in 2017 the unregulated chemical GenX was discovered discharging into the Lower Cape Fear River by the Chemours chemical company factory south of Fayetteville. That discharge point has been disconnected, and state regulators issued notices of violations. Water there is within state standards, the agency said.

The state also conducts samples at five drinking water treatment facilities in the Lower Cape Fear region once a week. That water meets federal standards for safe drinking water.

In addition to those samples taken by hand and sent to the EPA, DEQ uses computerized equipment that samples water at the Chemours site at different hours of the day. That provides regulators a more frequent check on the water quality around the clock. To date, the tested water is within standards, DEQ spokeswoman Bridget Munger said.

GenX is a chemical used to make nonstick cookware and other products.

Independent of state regulators, a team comprised of North Carolina's leading university science researchers have begun an ambitious project to test water throughout the state. Their work will lay the groundwork for long-term monitoring of changes in the state's water quality.

Each municipality in the state will have water tested at the point where the water enters the public system. Each municipality will also pick one well that supplies public drinking water to test.

Researchers are looking for chemicals that are classified as per- and polyfluoroalkyl substances (PFAS), and include GenX.

UNC-Chapel Hill professor Jason Surratt, the lead investigator on the project, said in an email Friday that the team's work won't be affected by the government shutdown. His investigators have their own instruments to measure water quality and don't have to rely on EPA equipment.

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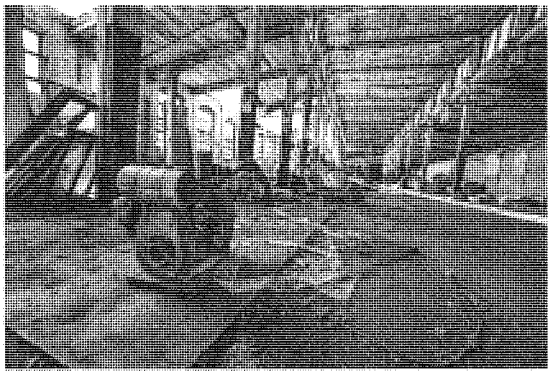
Brattleboro Reformer

Shutdown wreaks havoc on local lives



A look into the Robertson Paper Company Complex, in Bellows Falls, on Aug. 10, 2018.
KRISTOPHER RADDER - BRATTLEBORO REFORMER

Posted Wednesday, January 9, 2019 8:09 pm

By Susan Smallheer, Brattleboro Reformer

SAXTONS RIVER — Will Scarlett is set to graduate from the Maine Maritime Academy this spring, and start a career as a ship's engineer or deck officer, whether it is working on an oil tanker or oil rigs on the other side of the world or working for a U.S. Navy civilian subcontractor.

Scarlett, 21, of Saxtons River, was all ready to take his Coast Guard engineer or deck officer exam from Jan. 3 to 7, when the federal government shutdown cancelled those plans.

Without that all-important licensing exam, Scarlett's four-year-degree really can't get him a job.

"It's really all-important," said Scarlett on Tuesday, as he worked during his school break at Sheila Patinkin's Wagyu beef operation on Pleasant Valley Road.

"It's a really big disappointment," said Scarlett, a 2015 graduate of Bellows Falls Union High School.

Scarlett said the word is that the Coast Guard exam, which he's been studying for for weeks, including over Christmas break, is now slated for the spring break, and he hopes he doesn't have to pay a second fee for the exam. Without the Coast Guard engineering license, potential employers at the maritime academy's job fairs wouldn't even talk to him.

Scarlett's plight is just one example of how the government shutdown, which is entering its third week, is playing havoc with people's lives, and town business across southern Vermont.

National Forest

For Vermonters and visitors alike, the Green Mountain National Forest, managed by the U.S. Forest Service, is the most prominent federal presence in the region.

According to the office of U.S. Sen. Patrick Leahy, D-Vt., the majority of GMNF's roughly 40 employees are furloughed and are not being paid, while those who are required to work are working without pay.

While trails and recreational opportunities are open to the public, there's no one on duty to plow out parking lots, take out the trash, guide visitors, monitor sign-in books, or staff the trails, Leahy's office said.

"All of the services provided by the Forest Service, the park rangers, are there for a very important reason. Public safety is a primary purpose of all of that, so it's a great concern not only to Senator Leahy but everybody who understands the impact of this Trump shutdown," said David Carle, a spokesman for Leahy.

The partial shutdown, which entered its 19th day on Wednesday, has forced federal agencies to stop issuing paychecks for hundreds of thousands of government employees. With President Donald Trump refusing to sign a government spending bill unless Congress funds his proposed $5.7 billion Mexican border wall, government services largely have been limited to the most pressing, such as Transportation Security Administration workers providing security at airports without pay.

Federal offices

In Bennington, while town operations have not been directly affected by the shutdown, some of the town's information-gathering has been affected, said Town Manager Stuart Hurd.

The town has attempted to contact the USDA to learn about borrowing eligibility and rates related to the proposed purchase of a ladder truck for the Bennington Fire Department, "and unfortunately, their offices are closed," Hurd said. That's stalled the board's decision on whether to ask town meeting voters to authorize a bond for replacing the nearly 22-year-old ladder truck, at an estimated cost of as much as $1.2 million.

At Harlow's Farm in Westminster, one of the state's largest organic vegetable farms, the shutdown has created headaches for its end-of-year tax work. Evan Harlow, who runs the farm along with his father Paul Harlow and Cory Walker, said Social Security offices haven't been open to answer questions about the end-of-the-year payroll questions. Harlow and other farmers said the shutdown so far hasn't created any problems applying for government programs, since the deadlines for crop insurance applications isn't until March.

The government shutdown, which has affected local Environmental Protection Agency offices, as well as the Department of Agriculture, is complicating the long-anticipated clean up of the Robertson Paper Co. mill in downtown Bellows Falls.

Gary Fox, Rockingham's development director, said the recent archaeological work done on the site, which is located on the banks of the Connecticut River and near a known Native American site, had to be reviewed by EPA experts, along with others in state government. With EPA regional offices in Boston closed, the review can't take place.

"We were sample trenching to identify areas on The Island of the likelihood of finding indigenous people's artifacts, both inside and outside the building," said Fox, who is shepherding the demolition and clean up of the old paper mill.

The archaeological work started on Dec. 12, a scant two weeks before funding for the federal agencies dried up.

In addition, Fox said, the closure of the USDA's Rural Development business grant program has put the town's effort to get funding to help subsidize his position also on hold, just as the town is formulating its 2019-2020 budget.

Fox also said the town was also applying for a recent Department of the Interior historic preservation grant applications, as soon as the federal agency reopens.

"But those areas are now dead in the water, right now," said Fox.

Some wastewater projects in other small Vermont towns have stopped receiving federal payments during the shutdown, but Bennington receives its wastewater project funding from state agencies, Hurd said.

Sue Andrews, the executive director of Greater Bennington Interfaith Community Services, says that while she has not seen much "up front and personal impact," she has heard multiple people discuss their concerns about receiving their tax refunds.

Leahy, in a speech delivered before the Senate last week, said with the passage of the 2018 Farm Bill, farmers and ranchers need information immediately on how the law will affect their operations, "but no one is in the office or staffing the phones to answer those questions or sign up producers for new programs."

Contact Susan Smallheer at ssmallheer@reformer.com or 802 254-2311, ext. 154. Christie Wisniewski and Tiffany Tan of the Bennington Banner contributed to this report, which includes information from The Associated Press.

From business loans to the weather, fed shutdown being felt

By Eric Anderson and and Brian Nearing

Updated 8:13 pm EST, Monday, January 7, 2019

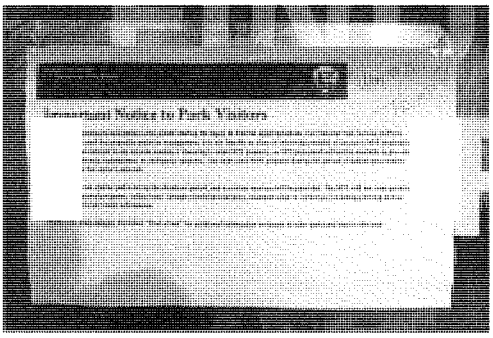


Photo: Paul Buckowski, Albany Times Union

IMAGE 1 OF 25 **Buy Photo**

A sign is seen posted on an information board alerting visitors of reduced staff at the Saratoga National Historical Park on Monday, Jan. 7, 2019, in Stillwater, N.Y. A person hand wrote a comment about... more

Colonie

Small businesses aren't expanding or hiring. Hundreds of meteorologists have skipped a major conference this week where advances in weather forecasting are shared. And airline pilots are expressing concerns about the safety and security of the national airspace system.

The federal government shutdown, now in its third week, is rippling throughout the economy with no apparent

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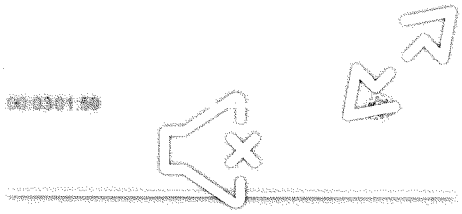

movement toward a settlement.

Agents at the Federal Bureau of Investigation in Albany continue to report for work, even though they're not being paid. Customs and immigration officials are working at the Port of Albany, also without pay, while Transportation Security Administration employees continue to screen passengers and luggage at Albany International Airport.

So far, the Hudson River is free of ice, but U.S. Coast Guard crews are prepared to clear any ice that forms, also without pay.

Federal employees who were furloughed and not required to work are eligible to receive unemployment insurance benefits, according to the state Labor Department. But those who are required to work — from TSA and FBI agents to meteorologists and food safety inspectors — aren't eligible.

They are "considered employed and not available for other employment," according to the Labor Department.

If the government pays the claimants retroactively, they will have to repay the benefits they received.

The federal government employs 6,600 people in the Capital Region, according to the state Labor Department, about 1.4 percent of the workforce. Their absence is being felt.

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"The small businesses we deal with require a (Small Business

Administration) guarantee," said Bill Brigham, director of the Small Business Development Center at the University at Albany. The loans provide working capital, startup capital, turnaround capital and funds to expand and hire additional workers, he added.

But with the Small Business Administration shut down and its employees furloughed, loans aren't being processed.

"We work with about 1,000 small businesses a year," offering counseling at no cost, Brigham added. "We see businesses that needed money yesterday."

Some of the funding goes to technology startups and researchers. Those efforts also are put on hold.

"There really is a ripple effect, whether it's processing of loans, whether it's our transportation projects, whether its veterans services ... the shutdown does have a direct impact whether it's on businesses or residents," said Mark Eagan, president and CEO of the Capital Region Chamber.

At the Port of Albany, General Manager Rich Hendrick said customs and immigration officials continued to report to work, even though they're not being paid. Customs and Border Protection Port Director Drew Wescott referred calls to Department of Homeland Security spokesman Aaron Bowker. Bowker said that, because of the shutdown, he wasn't able to accept media calls, and that the DHS was focusing on border security.

At Albany International Airport, TSA employees continued to report to work, and lines were normal, airport spokesman Doug Myers said. Elsewhere, some TSA agents reportedly

have called in sick as they seek jobs that will provide a paycheck.

FBI agents also were expected to report.

"FBI operations are directed towards national security and violations of federal law, and must be able to continue during a lapse in appropriations," said spokeswoman Sarah Ruane at the Albany FBI office. "As such, all FBI agents and support personnel in field offices are considered excepted from furlough."

The U.S. Environmental Protection has been hit particularly hard by the shutdown, with only about 6 percent of its pre-shutdown workforce of nearly 14,000 still in place, according to EPA figures.

One of the largest EPA projects in the state is the PCB cleanup of the Hudson River from Troy to Fort Edward, where EPA is currently producing a so-called report card on whether the cleanup concluded in 2017 met it objectives, something disputed by state officials and conservation groups. A local advisory committee that has been monitoring the cleanup is run by an outside, EPA-funded contractor, the Massachusetts-based Consensus Building Institute.

Since the institute is not now being paid, no new meetings of the Citizens Advisory Group can be scheduled, if needed, said Althea Mullarkey, an analyst with the environmental group Scenic Hudson and a group member. When the cleanup report card might be issued could not be immediately determined, as EPA public relations officials in the Capital Region and the New York City regional headquarters are not at work because of the shutdown.

Also in limbo is an agreement that EPA is working on regarding potential cleanup options at the Dewey Loeffel toxic waste landfill in Nassau, Rensselaer County. A local advocacy group that support a cleanup held a meeting last weekend on potential options, but due to the shutdown, no EPA officials were able to attend.

The American Meteorological Society's 99th annual meeting began Monday in Phoenix. While no one from the Albany office of the National Weather Service had planned to attend, several hundred NWS employees from across the country typically participate, where research papers are released and improvements in forecast models are revealed.

Because of the shutdown, those meteorologists have been told not to go.

"Our focus is basically on protection of life and property," said Ray O'Keefe, meteorologist in charge at the Albany NWS office. "As far as longer-term projects go, basically we're focused on our day-to-day job of forecasts and advisories."

"The AMS annual meeting is clearly impacted by the absence of NOAA, NASA, DOE, etc. It's very sad," said Chris Thorncroft, chair and professor in UAlbany's Department of Atmospheric and Environmental Sciences, who was en route to Phoenix. "This meeting is an opportunity for academia, private sector and government agencies to interact for the betterment of the country. We are missing a key partner this year."

Meanwhile, the president of the Air Line Pilots Association, International, Joseph DePete, called on President Trump "to take the necessary steps to immediately end the shutdown of government agencies that is affecting the safety, security and efficiency of our national airspace system."

He said all involved "are being asked to work unpaid. They are dutifully providing safety of life services while facing increasingly difficult financial pressures to provide for those dependent on their paycheck."

"The pressure these civil servants are facing at home," he said, "should not be ignored."

The Energy 202: Senate Democrats warn EPA may be 'afoul' of law by prepping Wheeler for confirmation during shutdown

By Dino Grandoni
January 11

THE LIGHTBULB

Andrew Wheeler, acting head of the Environmental Protection Agency, signs an order withdrawing federal protections for countless waterways and wetlands at EPA headquarters in December. (AP Photo/Cliff Owen)

A group of Senate Democrats says the Environmental Protection Agency may be violating spending laws by preparing the agency's acting chief, Andrew Wheeler, for his confirmation hearing during a partial government shutdown.

Four members of the Senate Environment and Public Works Committee — Thomas R. Carper of Delaware; Sheldon Whitehouse of Rhode Island; and Benjamin L. Cardin and Chris Van Hollen, both of Maryland — sent a letter to the agency questioning whether it is improperly using resources to help Wheeler get ready for his confirmation hearing before them next Wednesday.

The move underscores the extent to which Senate Democrats are ready to fight President Trump's second pick to run the EPA after the former chief, Scott Pruitt, and now Wheeler have sought the reversal of many environmental regulations implemented under President Obama.

In response to the letter, the EPA told The Post it is well within its rights under Justice Department guidelines to work toward getting the agency a Senate-confirmed leader.

The EPA is one of the agencies that isn't receiving funding as the partial government shutdown drags into its 21st day over the standoff surrounding President Trump's border wall. Only about 800 of the EPA's 14,000 employees have been deemed essential to work through the shutdown. The vast majority of those remaining at work are "necessary to protect life and property."

Only a handful of other employees — six top-level political appointees and a dozen others "necessary to the discharge of the President's constitutional duties and powers" — are still allowed to work during a shutdown, according to the agency's Dec. 31 contingency plan.

But according to the Democratic senators, five EPA employees have been involved in coordinating meetings with senators, who will have to approve Wheeler to serve as the agency's permanent chief after President Trump this week formally tapped him for the position.

An EPA notary also worked to certify an ethics form for Wheeler, who worked for years as a lobbyist.

"It is difficult to understand how preparing you for next week's confirmation hearing credibly falls within any of the categories listed in EPA's Contingency Plan, particularly the category of employee that is 'necessary to protect life and property,' " the senators wrote in their letter to Wheeler, sent Thursday.

"Using EPA resources in this manner may also run afoul of the Antideficiency Act," they added, referring to the law requiring a federal agency's expenditures not exceed the amount appropriated by Congress.

Matt Leopold, the EPA's top lawyer, told The Post by e-mail that the Justice Department's Office of Legal Counsel has "clearly" already deemed participating in a confirmation hearing as essential work.

Leopold added: "Additionally, the Constitutional appointment power allows for EPA to take the steps necessary to ensure the

Acting Administrator is prepared for his hearing."

Jeffrey Lubbers, an administrative law professor at American University, wondered whether helping Wheeler get ready for his Senate confirmation falls under that category.

"It's unclear what those are, but one of them might be the nomination of an agency head," he said.

The EPA has been without a Senate-confirmed administrator since the White House forced Pruitt to resign in July amid investigations into his ethical and managerial decisions.

While happy to see Pruitt gone, many environmentalists are fiercely oppose to Wheeler's nomination after he spent years representing coal mining and nuclear energy firms in Washington.

They have long been critical of the EPA under both Pruitt and Wheeler for pursuing the rollback of Obama-era rules. During the shutdown, however, much of that work rewriting regulations has been put on pause.

But activists still take issue with Trump and Senate Republicans working to advance Wheeler's nomination while other EPA employees are furloughed, such as those working to inspect factories for pollution or prepare cleanup plans for toxic waste sites.

"It's a shocking waste of precious resources to spend any staff time preparing Andrew Wheeler's nomination," Collin O'Mara, president and chief executive of the National Wildlife Federation, said while calling for a delay in the hearing.

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Air of Uncertainty: Government shutdown impacts EPA air monitoring around Denka plant

Air of Uncertainty: Government shutdown impacts EPA air monitoring around Denka plant

By **Amanda Roberts** | January 2, 2019 at 8:05 PM CST - Updated January 2 at 10:30 PM

NEW ORLEANS (WVUE) - Sitting around the Denka plant in Laplace are six canisters that monitor chloroprene levels in the air, but levels are not taken daily. The EPA samples chloroprene in the air once every three days while Denka samples once every six days. However with the government shutdown, the EPA is not measuring any levels.

In 2015, scientists found that the Denka rubber plant had heen emitting chloroprene into the air -- the same chemical the EPA has labeled a "likely carcinogen." With the government shutdown, and EPA not taking chloroprene air samples, that's five days' worth of missing information.

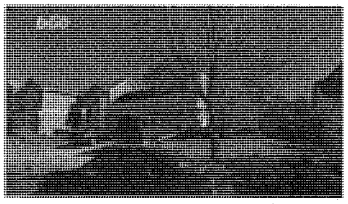
Wilma Subra, a technician with the Louisiana Environmental Action Network said without this information, ithe citizens living in the area are at a disadvantage, and potentially even more risk from the Denka plant.

"We really need data on an ongoing basis so we can see what's happening in the community, and how sick it's making the community," Surba said. "If they decide they need to clean out some kind of vessel or do a 'dirty job' they wouldn't do it on a day they were monitoring."

The EPA recommends chloroprene emission levels not rise above 0.2 micrograms per cuhic meter. Suhra said while chloroprene levels have trended downwards in the past year, there have heen days where the levels are very high. Without constant monitoring, she fears there will be more "high-level" events.

"A week is too long [to go without data], especially when we're seeing the high level in October and the high levels in November. Then what are we missing? We never know what we're missing if we don't have the data," Suhra said.

Laplace resident Bobby Taylor continues to fight against the plant and the chloroprene emissions. He said multiple friends and family members have suffered from various illnesses and cancer because of the plant, including himself.



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"They're all suffering someone dying of cancer is not a nice sight," Taylor said.

And despite watching those around him in pain, he said what angers him most is the inaction of people in power.

"It is inhumane. There's nothing humane ahout what's taken place while these fat cats walk around, driving new cars, living in expensive subdivision, and poisoning the common folk over here, and its gotten to the point I'm fed up with it," Taylor said, "Something has to be done," Taylor said.

With the EPA is not, Denka is continuing with its monitoring schedule and the last report was published mid-December. Just before the shutdown, the last set of data the EPA posted online was through Nov. 12th. But Subra fears every week that passes without all the information, the people of St. John are put at risk.

"They deserve to have a constant stream of data available to them so they know how to conduct their lives living right up to the fence line at this facility," Suhra said.

FOX 8 contacted Denka regarding whether or not they will take more air monitoring samples until the shutdown has lifted, but did not hear back Tuesday (Jan. 2).

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United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

January 10, 2019

The Honorable Andrew Wheeler
Acting Administrator
Environmental Protection Agency (EPA)
1301 Constitution Ave. NW
Washington, DC 20460

Dear Acting Administrator Wheeler:

We write with questions regarding the implementation of EPA's December 31, 2018 Contingency Plan in the Event of a Government Shutdown[1], particularly in light of next week's confirmation hearing on your nomination to lead the EPA as its Administrator.

The majority of EPA employees have been furloughed without pay since December 29, 2018. The consequences of the shutdown on public health and the environment include the slow-down or cessation of clean-up work at hundreds of toxic Superfund sites across the country, a halt in most EPA inspection and enforcement activities, and a stop to new chemical and pesticide safety evaluations and approvals.

EPA's December 31, 2018 contingency plan notes three categories of employees who would be expected to continue to report to work even though these employees would also not be paid. Specifically, the plan contemplates:

- 6 Presidentially Appointed/Senate Confirmed employees "*necessary to perform activities expressly authorized by law*";
- 12 employees "*necessary to the discharge of the President's constitutional duties and powers*"; or
- 794 employees "*necessary to protect life and property*".

We are concerned that preparations for your confirmation hearing may be occurring using resources that are not described in or authorized under EPA's Contingency Plan. For example, meeting requests with Senators have copied five EPA employees on the emails to our offices. The agency's Senior Counsel for Ethics and an EPA notary worked to certify your ethics form on January 9, 2019. We have also been informed that most EPA political officials as well as some EPA career staff have been supporting your hearing preparations and briefings.

[1] https://www.epa.gov/aboutepa/us-epa-contingency-plan-event-government-shutdown

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It is difficult to understand how preparing you for next week's confirmation hearing credibly falls within any of the categories listed in EPA's Contingency Plan, particularly the category of employee that is "necessary to protect life and property." Using EPA resources in this manner may also run afoul of the Antideficiency Act. More disturbingly, if EPA is diverting resources that are intended to be used to "protect life and property" to prepare you for your confirmation hearing, the already-dire consequences of the shutdown on public health and the environment could be even greater.

So that we can better understand EPA's implementation of its Contingency Plan, please provide, in advance of your January 16, 2019 confirmation hearing, the following materials:

1. The names and titles of the 6 Presidentially Appointed/Senate Confirmed employees "*necessary to perform activities expressly authorized by law.*"
2. The names and titles of the 12 employees "*necessary to the discharge of the President's constitutional duties and powers*".
3. The names of the 794 employees "*necessary to protect life and property.*"
4. A list of all briefings, meetings, and conference calls related to your nomination and upcoming confirmation hearing that have occurred since December 29, 2018, along with all participants in those briefings, meetings or conference calls.
5. For any participant in a briefing, meeting or conference call described in item 4 who is not listed in response to item 1 or 2, please provide a legal justification for the participant's activities in light of both EPA's Contingency Plan and the Antideficiency Act.
6. Copies of all emails, memos, presentations, correspondence, meeting requests and briefing materials related to your nomination and upcoming confirmation hearing, including reviews of your financial and ethics documentation submitted with your nomination on January 9, 2019, that have been prepared or circulated since December 29, 2018.
7. An official accounting, including the names, titles and a schedule of total hours worked by all EPA staff involved in preparing you for or otherwise related to your nomination and upcoming confirmation hearing since December 29, 2018.
8. Any legal opinion or memoranda produced or reviewed in anticipation of your nomination or upcoming confirmation hearing that relates to the Antideficiency Act or government shutdown.

Thank you very much for your attention to this important matter. If you have any questions or concerns, please have your staff contact Michal Freedhoff of the Environment and Public Works Committee staff, at 202-224-8832.

Sincerely,

Tom Carper
Ranking Member

Benjamin L. Cardin
United States Senator

Sheldon Whitehouse
United States Senator

Chris Van Hollen
United States Senator

U.S. Environmental Protection Agency

Contingency Plan for Shutdown

January 14, 2019

EPA CONTINGENCY PLAN
FOR SHUTDOWN OF THE AGENCY DUE TO A FUNDING HIATUS

1. **PURPOSE.** The U.S. Environmental Protection Agency has 134 facilities that occupy approximately 8.2 million square feet of space. EPA facilities consist of office, laboratory, and warehouse space. The largest facilities are the headquarters facilities located in the Washington, DC metropolitan area, the ten regional offices that support and manage EPA's environmental policies and programs in the states, and the two major research centers situated in Research Triangle Park, North Carolina, and Cincinnati, Ohio.

   This contingency plan provides general guidelines for the orderly handling of EPA operations in the event of a funding hiatus caused by the lack of appropriations. In the event of an actual shutdown where EPA is required to implement this general guidance, supplemental government-wide guidance issued by the Office of Management and Budget, the Office of Personnel Management, and the General Services Administration also apply.

2. **AUTHORITY.** In the event of a funding hiatus due to the lack of an appropriations act or a continuing resolution, an agency may only continue those activities that are exempted or excepted.

   An agency may exempt activities from the shutdown if the activities are funded with unexpired appropriations where carryover funds remain unobligated or if the activities are funded with non-appropriated funds, such as fees and payments that are available for obligation. Approved exempted activities may only continue as long as there are funds available to support the exempted activities.

   An agency may incur obligations in advance of appropriations if:

   A. A statute or other legal requirement expressly authorizes an agency to obligate funds in advance of appropriations;
   B. Pursuant to 31 U.S.C. 1342, the function addresses emergency circumstances, such that the suspension of the function would imminently threaten the safety of human life or the protection of property; or
   C. The function is necessary to the discharge of the President's constitutional duties and powers.

   There are also a limited number of government activities that an agency must continue, in the absence of appropriations, because their continuation is "necessarily" implied from the authorized continuation of other (exempt or excepted) activities.

   OMB Circular A-11, Section 124 requires agencies to develop and maintain plans for an orderly shutdown in the event of the absence of appropriations. Plans must be submitted to OMB and include the following information:

   1. Estimated time (to the nearest half-day) to complete any shutdown:

      While most shutdown activities can be accomplished within four hours, some agency shutdown personnel may need to work longer to secure and shutdown EPA property and facilities, including the varied laboratory research facilities and experiments that EPA is conducting. EPA expects the vast majority of shutdown activities will be completed in less than five days.

2. Number of employees expected to be on-board before implementation of the plan.

Permanent Employees		**13,728**
Full Time	13,489	
Intermittent	1	
Part Time	238	
Temporary Employees		**244**
Full Time	181	
Intermittent	57	
Part Time	6	
Total (as of December 17, 2018)		**13,972**

3. Total number of employees to be retained under the plan for each of the following categories:

   a. Their compensation is financed by a resource other than annual appropriations: **0**

   b. They are necessary to perform activities expressly authorized by law: **6** Presidentially Appointed/Senate Confirmed individuals.

   c. They are necessary to perform activities necessarily implied by law: **12**

   d. They are necessary to the discharge of the President's constitutional duties and powers: **28**

   e. They are necessary to protect life and property: EPA estimates **845** employees **(444 Headquarters and their field and laboratory components; and 401 regional)**.

The policies and procedures detailed in this contingency plan are issued in accordance with OMB Circular A-11, Section 124; OMB Bulletin 80-14, dated August 28, 1980 (as amended by the OMB Director's memorandum of November 17, 1981 and Supplement 1 to Bulletin 80-14, dated August 20, 1982). They are also consistent with the following U.S. Department of Justice, Office of Legal Counsel opinions: "Applicability of the Anti-Deficiency Act Upon a Lapse in an Agency's Appropriations" (1980), "Authority for the Continuance of Government Functions During a Temporary Lapse in Appropriations" (1981), and an opinion dated Aug. 16, 1995, that reaffirms and updates the 1981 opinion.

3. <u>COVERAGE</u>. In the event of a funding hiatus caused by the lack of either an appropriations act or a continuing resolution, all EPA programs must follow this guidance. Four actions will be taken. These actions involve conducting (A) furlough activities; (B) shutdown activities; (C) excepted activities, and (D) exempted activities.

A. <u>FURLOUGH ACTIVITIES</u>: All furloughed employees will be advised to conduct an orderly shutdown of their activities. Shutdown activities can be completed in the office or by telework unless otherwise notified.

B. <u>SHUTDOWN ACTIVITIES</u>: Some personnel will be designated as necessary to complete tasks for the orderly shutdown of the agency and will continue to report until such time as their shutdown tasks have been completed.

C. **EXCEPTED ACTIVITIES:** Some activities and functions will continue because they are authorized by law or fall within the ADA's emergency exception. The personnel carrying out these activities may work even in the absence of an appropriation. These functions are described in more detail in Section 5 of this contingency plan.

D. **EXEMPTED ACTIVITIES:** Certain programs funded with unexpired appropriations where carryover funds remain unobligated or programs funded from sources other than appropriations, such as fees and payments that are available for obligation, may be exempted. See Section 6.

4. EMPLOYEE REPORTING PROCEDURES

A. **ALL PERSONNEL:** Under the applicable regulations and OPM policy, employees do not need to be provided advance written notice of a furlough if the furlough is due to a lack of an appropriations act or a continuing resolution. However, the agency will make every effort to notify all employees adversely affected by the furlough in advance and adhere to related collective bargaining agreements. In the event of an appropriations hiatus, all personnel will report for duty on their first working day following the expiration of an appropriations act or a continuing resolution unless notified otherwise or unless they are on previously approved annual or sick leave. On that day, all personnel not designated to carry out shutdown, excepted, or exempted activities will be furloughed. Furlough decision notices will be distributed to each employee. All personnel receiving furlough notices will be dismissed and directed not to report to work until an Appropriations Act or a Continuing Resolution is enacted. Appropriate action placing affected agency employees in a non-pay status will be taken. Additionally, any approved leave during a furlough will be cancelled and any new requests for leave during the furlough will be denied.

Only personnel required for the orderly shutdown of the agency or assigned to excepted or exempted functions should continue to report for duty. All other personnel must depart following their dismissal after they have secured their work space and documents; identified any approved travel plans over the next 30 days; and entered their time into the agency's time & attendance system, if required. EPA estimates that these activities should take less than one-half workday (four hours) and these activities can be performed remotely.

In accordance with the ADA, no employees on furlough will be authorized to work or volunteer their services during the shutdown period.

B. **SHUTDOWN PERSONNEL:** Personnel designated for the orderly shutdown of the agency will continue to report for duty until such time as their shutdown tasks have been completed. Shutdown activities will need to be completed as expeditiously as possible. Once the services of these employees are no longer required, shutdown personnel will also be furloughed. Any obligations for shutdown activities will be paid after a new appropriation is provided. Shutdown activities are described in more detail in Section 7.B.

C. **EXCEPTED PERSONNEL:** Personnel who are required to perform excepted activities by ensuring the safety of human life and the protection of property (including the protection of government property) where the threat to life or property is imminent will continue to report following a shutdown. Excepted activities are described in more detail in Section 5. By law, excepted activities may continue to be performed. Any new obligations incurred for excepted activities will be paid for after a new appropriation is provided.

D. **COMMISSIONED OFFICERS:** Commissioned officers are employees of the Public Health Service. If EPA has a lapse in appropriations, PHS officers will continue to work at the EPA because they are authorized by law to continue working.

E. **EXEMPTED PERSONNEL:** Personnel who perform exempted activities and who are exempted from the shutdown order will continue to report for duty and conduct their assigned responsibilities until available carryover funds are close to being fully obligated or funds from fees and payments are near liquidation.

EPA retains the authority to modify lists of personnel working on excepted or exempted activities, as necessary, during any period of shutdown.

5. **EXCEPTED ACTIVITIES:** All Senior Resource Officials must develop and submit a list of personnel who would be necessary to perform excepted activities including those following shutdown. Additional information concerning this list is found under Section 7.A

When determining which personnel are needed to carry out excepted operations, SROs should consider those personnel necessary to carry out activities such as those identified in the government-wide examples listed below. Among these are personnel required to ensure compliance with OMB bulletin 80-14, supplement No.1, and attachments thereto.

Primary examples of activities related to EPA that the agency may continue to perform following shutdown include:

A. Providing for homeland and national security, including the conduct of foreign relations essential to the national security; or

B. Personal services necessary to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent, including:

1. Activities essential to ensure continued public health and safety, including safe use of food and drugs and safe use of hazardous materials;

2. Protection of federal lands, buildings, equipment, research property, and other property owned by the United States;

3. Law enforcement and criminal investigations; and

4. Emergency and disaster assistance.

5. Support Staff: Only the minimum staff and support services necessary to continue the above listed functions should be maintained.

The specific excepted activities, personnel, and level of support required based on the examples above will be determined by the Office of Mission Support in consultation with the Office of the Chief Financial Officer, the Office of General Counsel and appropriate program offices.

Excepted personnel are excluded from furlough during shutdown **but only for the hours/days it takes them to perform their excepted activities.** If a function requires one hour per day, then the excepted employee may work for only one hour per day to perform only that excepted task.

Specific examples of excepted activities include:

Excepted Activities to Support Superfund Response Site Work

Imminent threat to Public Health – Sites/projects, predominantly associated with the superfund program, where a failure to maintain operations would pose an imminent threat to human life. The sites/projects require the EPA personnel to direct or oversee the response activities and/or provide critical support functions. There is an expectation that the EPA presence or activities, typically by an onscene coordinator or remedial project manager will be required. The EPA will evaluate more than 800 superfund sites to determine how many meet this criterion. *(For example, if ceasing the operation of an acid mine drainage treatment plan would cause a release to a stream that provided drinking water to a community; the agency would consider that situation to pose an imminent threat. A second example is an emergency removal response to a situation posing an imminent threat to human health.)*

EPA Laboratories

The EPA maintains 29 program and regional laboratories across the continental United States. These laboratories have unique functions that support the agency in fulfilling its mission to safeguard human health and protect the natural environment. The EPA will take necessary measures to ensure the physical integrity of the EPA's research property is protected where, without these measures, the property would be damaged or destroyed. In order to protect research property and stand-alone facilities, personnel will be **excepted** as needed to ensure critical operating requirements are not impaired. These needs are as far-ranging as ensuring the physical protection of federal property, that controlled environments (such as freezers) will function and not be damaged, that scientific instrumentation will function and not be impaired, and that lab animals, plants, and other unique test organisms will not be damaged or destroyed.

Laboratory operations involved in the toxicity testing of environmental samples requires the use of unique test organisms such as fathead minnow and small crustaceans. The test organisms must be grown under controlled laboratory conditions such as temperature, light, water quality and food supply in order to provide reproducible results during testing. Depending on the test organism, a period of weeks or months under controlled growing conditions is required for the organism to reproduce. Personnel will be excepted as needed in order to protect the physical integrity of the test organisms so that a shutdown will not result in the loss of viable test organisms.

The responsibilities for many of these laboratory- related excepted activities will be shared between several individuals, splitting work on an as needed basis whenever possible.

Emergency Response Readiness Operations

EPA's emergency response program serves as a safety net to states, local and private first responders for situations involving actual and/or threatened of environmental emergencies. The program supports the White House national essential functions through our primary mission essential function. Specifically, EPA's PMEF is to prevent, limit, mitigate or contain chemical, oil, radiological, biological, and hazardous materials during and in the aftermath of an accident, natural or man-made disaster in the United States, and provide environmental monitoring, assessment and reporting in support of domestic incident management.
In the event of a shutdown, regional offices should utilize existing procedures to maintain their phone and response on-duty on-scene coordinator(s) to maintain and ensure prompt support of environmental emergency responses that requires EPA attention and/or action. HQ offices with emergency response

responsibilities should also maintain their duty personnel to ensure prompt support and/or oversight of environmental emergency responses that require EPA attention and/or action.

In the event of a water related incident where the threat to human life or property is imminent, individuals from the Water Security Division emergency response team would need to return to work in order to assist with EPA's response efforts. Also, certain technical specialists from the Office of Water incident support team would need to return to work depending on the type of emergency. The WSD individuals would need to report to their normal workstation or to the EPA Emergency Operations Center. Duties would include: national incident command center reporting on SSA issues; setting up the water desk; running the water desk (i.e. managing e-mails and calls, reaching out to technical specialists to answer inquiries; developing a schedule for water desk staffing from among the incident support team members who are also on call; attending NICC meetings; drafting OW management reports; reviewing and approving contractor invoices and emergency travel authorizations. In addition, the EPA may draw upon technical specialists as relevant expertise contingent on the nature of the emergency.

Legal Counseling, Litigation, and Law Enforcement Activities

Law enforcement personnel involved in activities designed to protect human life and property from imminent threat will be excepted for the time minimally necessary to carry out such activities. Attorneys providing legal support to excepted activities will be excepted only for the time necessary to provide such support. Attorneys who charge their time to appropriations impacted by the funding lapse will be excepted to support excepted or exempted activities if there is a necessarily implied authorization for the attorneys to continue to work. A necessarily implied authorization exists when a statute directs EPA or a governmental entity to perform an activity during a lapse in appropriations and non-performance of an attorney's support for that activity during the funding lapse would undermine implementation of the terms of the statute. For the contingency planning for shutdown in April of 2011, the Department of Justice advised that the courts would remain open during a shutdown, but DOJ would request stays of some litigation and court ordered deadlines for the duration of the shutdown. If a court did not grant the stay, DOJ expected the EPA to continue to provide the legal or technical support necessary to meet any court deadlines or orders, including but not limited to court appearances and response to discovery requests. Therefore, in EPA's April 2011 and September 2013 Contingency Plans for Shutdown, the EPA planned to continue to support DOJ as needed. In implementing this Contingency Plan for Shutdown, EPA will consult with DOJ and follow its guidance.

6. **EXEMPTED ACTIVITIES:**

In the event of a funding hiatus due to the lack of an appropriations act or a continuing resolution, the Agency will assess the availability of unexpired multiple and no-year appropriations as well as funds available from other sources.

If it determines there is sufficient carryover for it to be practicable for the Agency to operate for a period of time until these appropriations and funds are close to being exhausted, it will do so. The Agency would proceed with shutdown activities when there is no longer sufficient carryover for it to be practicable for the Agency to operate.

If it determines from the beginning that there are not sufficient carryover funds for it to be practicable for the Agency to operate, it will proceed with shutdown activities immediately.

7. **SHUTDOWN ACTIVITIES:**

A. **SHUTDOWN PLANNING:**

Shutdown activities should be conducted in a manner whereby expedient reactivation of normal operations and activities may occur when funds are made available.

Senior resource officials must develop and submit a list of personnel essential to carry out an orderly shutdown to OMS. In preparing this list, SROs should consider the specific actions that would be necessary to affect an orderly shutdown of the agency, giving primary consideration to protecting life and safeguarding government property and records. The list should not replicate the list to maintain the agency's continuity of operations since this list will be to shutdown agency operations. Each SRO is responsible for informing their employees if they are on the shutdown list.

The list should indicate which personnel would be necessary to perform excepted activities following a shutdown. The SRO is responsible for informing their employees if they are on the excepted activities list.

The shutdown and excepted personnel list is subject to review and approval by OMS. OMS may consult with OCFO and OGC as necessary. The list should identify each person's name, employee identification number, position, office/division, and function. The list should continually be revised as necessary and will be kept on file by OMS. Each SRO must also provide the list of names of the excepted and any exempted personnel to the facility manager at each EPA location. Only those employees designated as excepted or exempted personnel will be allowed into EPA facilities after a shutdown is completed.

Individual Offices in OMS and OCFO may provide additional guidance relating to their specific operations in the event a shutdown.

The assistant administrator for OMS will keep the EPA Administrator apprised of the agency's shutdown activities. The AA for OMS, and other appropriate offices designated within that office, will coordinate efforts as necessary with regional, headquarters, and field offices.

A limited number of employees performing excepted and/or approved exempted activities may be designated as standby and must be included in any excepted or exempted personnel list.

Assistant/regional administrators may need to identify additional employees for excepted activities in an emergency situation. These individuals will not be in a pay status prior to being recalled to work and will be added to the list of excepted personnel after being recalled. If funds are available to support additional employees in an emergency situation, assistant/regional administrators may add the individuals to the approved exempted list and the employee will be recalled to work and will assume a pay status. Assistant/regional administrators must notify the OMS and OCFO of any changes to their approved lists for payroll, travel and other purposes and also notify the local facility/security manager for building access.

B. **SHUTDOWN IMPLEMENTATION:**

In the event of a funding hiatus, the following restrictions apply to all Agency appropriations:

1. **Halt Obligations:** In the event of a shutdown in the absence of an appropriations act or a continuing resolution, the EPA will stop incurring new obligations other than those supporting excepted or approved exempted activities, and shutdown operations.

   Under the authority of the ADA (31 USC 1342), federal officials may incur obligations as necessary for excepted activities such as emergencies involving the safety of human life or the protection of property where the threat to life or property is imminent and for orderly termination activities. Additionally, the U.S. government has the legal authority to incur obligations to pay for:

   a. Its workforce for the approximate one-half day (4 hours) furlough activities and necessary agency shutdown activities estimated not to exceed five days;

   b. Costs incurred in conjunction with equitable adjustments for work stoppages on contract and grant activities; and

   c. Infrastructure costs associated with shutdown and excepted activities such as rent, telephone service, etc. which will be incurred until appropriations have been provided.

   d. Approved travel costs incurred in by excepted personnel in the performance of excepted activities.

      Additionally, the EPA may incur obligations to pay approved travel costs incurred by exempted personnel in the performance of exempted activities to the extent that there is carryover or other funds available for obligations to pay the travel costs.

   The authority to incur the obligation to pay does not extend to the actual disbursement. Payment for these obligations will generally not be disbursed until the resumption of normal agency activities following the shutdown when an Appropriations Act or Continuing Resolution is enacted. Payment for services rendered may be made for excepted activities where there is an imminent threat to the safety of human life and property and funds are available in the contract.

2. **New Contract Obligations:** Unless necessary for excepted activities or for approved exempted activities, no new obligations for contracts including the exercise of options, may be entered into beginning with the first day of a fiscal year when an appropriations act or a continuing resolution has not been enacted or on the first day immediately following the expiration of a continuing resolution and no new appropriations act or continuing resolution has been enacted. Options exercised prior to the start of the new fiscal year already contain a "subject to availability of funds" clause to provide for any lack of funding in the new fiscal year. If a new obligation is necessary for an excepted or exempted activity, the national program manager is to be consulted who will then consult with other organizations such as OMS and OCFO.

3. **Existing Contract Obligations:** EPA has thousands of ordering documents including contracts, delivery orders, work assignments and task orders. Contracting officers may not issue any new work assignments, task or delivery orders, unless for excepted activities or approved exempted activities. Existing funded contracts that do not require interaction with federal employees can continue work until such time government interaction is necessary and/or funding is exhausted.

Generally, EPA employees will not be available to make payments until the shutdown ends. Payment for services rendered may be made for excepted activities where there is an imminent threat to the safety of human life and property and funds are available in the contract.

4. **Existing Grants, Cooperative Agreements, and Interagency Agreements:** EPA has 5,593 active assistance agreements and 1,419 active interagency agreements as of the date of this plan. As a general rule, recipients of funded grants and cooperative agreements can continue work on their projects during any EPA shutdown. Grant recipients currently approved to utilize the Automated Standard Application Payment (ASAP) system may make drawdowns of authorized obligated levels during a shutdown. With the exception of grant recipients using ASAP, in the case of government shutdown no payment processing will be available for cost reimbursable or recipients with special award terms and conditions requiring EPA approval prior to payment disbursement (either by paper check, drawdown, or by ACH payment outside of the ASAP system). Generally, EPA staff will not be available to make payments until the shutdown ends. Recipients must stop work if they reach a point at which they require EPA involvement or approval. Recipients should maintain documentation of any allowable costs associated with the work stoppage. Recipient staff assigned to EPA facilities will not be allowed access to those facilities. If they can satisfactorily continue work off-site, the project can continue SEE enrollees will be notified of furlough in accordance with their grant procedures. Additional guidance will be provided through the agency's SEE program manager.

   EPA program offices in conjunction with the OGD and in consultation with the other agency will determine if work under any funds-in IAs is necessary for shutdown, excepted, or approved exempted activities. If not, work on such agreements will stop. Other agencies can continue to work on fully funded funds-out IAs if the other agency is not shut down. However, other agencies must stop work if they reach a point at which they require EPA involvement or approval. If the other agency is closed, that agency in consultation with EPA will determine whether activities under funds-out IAs are necessary for shutdown or are for excepted or exempt activities.

   EPA may issue additional guidance to determine if work funded under existing IAs, not involving excepted or exempted activities, may continue.

5. **Suspend Travel:** There should be no travel in the absence of an appropriations act or continuing resolution except for travel necessary for excepted activities or travel necessary to carryout approved exempted activities where there is carryover or other funds available to pay the travel costs of the exempted personnel. All personnel in travel status will return to their duty station as soon as possible, unless continued travel is essential for accomplishing the orderly shutdown of the organization or for excepted or approved exempted activities. EPA employees will not be available to make payments until the shutdown ends.

   In the event of a shutdown, the Office of International and Tribal Affairs will provide each Deputy Assistant Administrator and Deputy Regional Administrator a list of staff currently on international travel. The information will include a traveler's hotel and emergency contact information so programs and regions can reach those employees.

Employees assigned overseas are not in travel status. The overseas location is their permanent station. These employees in temporary quarters during the furlough will remain in temporary quarters. If these employees are not designated as essential or exempted, they would not report to work.

Employees on extended TDY travel where a detail personnel action (SF52) was issued and funded should follow instructions given by the receiving office. The employee would not return to their home location during a shutdown unless instructed.

6. **Process Payroll:** OCFO's Office of Technology Solutions must assure delivery of paychecks by electronic transmission.

   a. OTS will maintain staff to continue payroll processing for the last full pay period or any partial pay period prior to the shutdown. The payroll office will also begin reconciliation and closeout activities.

   b. OTS will not process any subsequent payroll(s) during the shutdown for excepted or shutdown personnel until the end of the shutdown in accordance with current IBC shutdown policy.

   c. If applicable, OTS will process time and attendance records for exempted employees for subsequent payroll(s) during the shutdown only if IBC maintains its civilian payroll operations.

   d. OTS will notify all employees prior to the initiation of any furlough action, with instructions regarding the completion of electronic time cards.

7. **Suspend All (other than payroll) Non-Essential Financial Transactions:** OCFO's Office of the Controller will notify all finance centers to secure cash funds, receivables, collections, and all financial records. The processing of requests for payments from contractors, grantees, IA recipients for obligations incurred prior to shutdown generally are not considered emergency operations.

   a. OC finance centers and staff will suspend all but emergency actions and Agency shutdown activities until enactment of an Appropriations Act or Continuing Resolution.

   b. Instructions will be provided concerning operations of the agency's core financial management system for excepted or exempted activities prior to suspension of agency operations. The agency's core financial management system will be used to monitor obligations for excepted or exempted activities during a shutdown.

8. **Personnel Activities:** The EPA must not hire any new personnel in the absence of an Appropriations Act or a Continuing Resolution. The agency's human resources shared service centers will process the required personnel actions to affect the furlough and will notify employees of their rights and benefits while they are in furlough status in accordance with OPM and OMB policy.

9. **Telework Activities and Alternate Work Schedules:** Employees should coordinate with their supervisors. All work, whether conducted on an AWS schedule or at an Alternate Work

Location (telework), must be stopped unless the activity is for an excepted or approved exempted activity.

10. **Information Technology (IT) Systems:** Unless otherwise identified as being a mission-critical system that would support activities outlined in (Section 5 excepted activities or section 6 exempted activities) of this contingency plan; most agency IT systems, including network operations, should be scaled back to basic operational status. This means eliminating all activities associated with upgrades, development, deployment and scaling back contract support to minimal levels in order to provide support for excepted and exempted activities and on-call activities (both fed and contractor). This will ensure the protection of government records, that information and cyber security controls are in place, and assist in reactivating once the period of the shutdown is over.

    The agency Chief Information Officer will identify which systems will be required for continued operation during the period of a shutdown. OMS will work with the senior information officials in each program and region to identify a list of these mission critical systems and provide guidance regarding how continued operation of those systems will be accomplished as well as the orderly shutdown and securing of other IT systems and devices.

    OCFO will manage the PeoplePlus system and Concur Travel system. In addition, OCFO will manage the user support help desks to assist employees and coordinate with OMS on the availability of the help desk for these systems during any shutdown/furlough period.

11. **Protection of Non-Personnel Records:** Only inventories of vital records will be made available during an agency emergency or shutdown situation. Vital records are those records that are needed to perform the most critical functions of the agency and those needed to protect legal and financial rights of the government and of the persons affected by its actions. Vital records also include emergency plans and related records that specify how an agency will respond to an emergency.

    It is essential to secure records in accordance with the agency's records management policies that affect the rights of the government, private entities and individuals, any other records that contain confidential business information, Privacy Act information, information responsive to active or pending litigation, or otherwise sensitive information (including electronic records).

    EPA detailed records management guidance is contained in:

    - CFR Chapter XII, Subchapter B, Records Management, 36 CFR Part 1223 (Managing Vital Records)
    - EPA Records Management Policy, CIO 2155.3 (February 10, 2015)
    - EPA Essential (Vital) Records Procedures, CIO 2155. P01.1 (March 24, 2015)

8. NOTIFICATION of RESUMPTION of ACTIVITIES:

A. OCFO will notify OMS and agency senior managers of enactment of the necessary funding mechanism (i.e., either a Continuing Resolution or an Appropriations Act).

B. OMS will advise all employees to monitor public news broadcasts and OPM's internet site (www.opm.gov) to obtain updated information on the status of a pending Appropriations Act or a Continuing Resolution.

C. OMS will coordinate as necessary with the Office of Public Affairs, to communicate updated status reports and actions necessary to return to normal Agency operations and to place status updates on the www.epa.gov website. OMS will also ensure the 1-888-EPA-TALK (1-888-372-8255) provides updated information.

D. Contracting officers will notify contractors of funds availability and OGD will notify recipients of funds availability.

E. OCFO will coordinate with OMS to communicate any necessary information to employees regarding PeoplePlus and Concur systems.

9. START UP ACTIVITIES/RESUMPTION OF ORDERLY OPERATIONS:

A. Once EPA receives notification that an appropriation has been approved or is imminent, OMS will begin contacting program/regional offices to begin calling back their *start-up* personnel necessary to resume orderly operations.

B. EPA has identified the following activities/personnel required to resume orderly operations once appropriations are restored:

Facilities Activities/Personnel responsible for:

1. Building Systems: Coordinate with GSA/lessor to ensure all EPA building systems, including HVAC, are in full, regular operations prior to reopening buildings
2. Guard Force: Coordinating with Federal Protective Services (FPS) or security contractor to ensure security is fully staffed for re-opening
3. Janitorial/Cleaning Services: Coordinating with GSA/lessor to ensure all janitorial services resume regular operations
4. Building Access: Change access control schedules to daytime
5. Restore Key Contracts: Coordinate with acquisition personnel to lift stop work orders on key contracts

Information Technology Activities/Personnel responsible for:

1. Infrastructure Start-Up: Prepare to bring-up idled systems and patch all servers.
2. User Support Help Desks: Ensure that all help desks are fully staffed and prepared for Day 1
3. Communications: Support activities to update web pages and messaging

Procurement Operations Activities/Personnel responsible for:

1. Begin cancelling "Stop Work Orders" for agency contracts related to security, facilities operations and maintenance, warehouse and mail services.
2. Issue post-guidance for agency contracting officers

Grants/Interagency Agreements Operations Activities/Personnel responsible for:

1. Issue post-guidance for agency grants/IA community.

10. **SUPERSESSION:** This contingency plan supersedes any other EPA guidance or order prior to this date.

Ryan Jackson, Chief of Staff
US Environmental Protection Agency

1/14/19
Date

EPA PERSONNEL RESPONSIBLE FOR IMPLEMENTING/ADJUSTING PLAN

Donna J. Vizian, Principal Deputy Assistant Administrator, OMS
Ken Lapierre, Acting Deputy Assistant Administrator for
Administration and Resources Management, OMS
Lynnann Hitchens, Director, Office of Resources and Business Operations, OMS

EPA Excepted/Exempted Personnel
January 9, 2019

	On-Board Total	Excepted	Exempted
Office of the Administrator	364	37	1
Office of Air and Radiation	1083	24	4
Office of the Chief Financial Officer	293	31	0
Office of Chemical Safety and Pollution Prevention	981	14	8
Office of Enforcement and Compliance Assurance	610	181	0
Office of General Counsel	223	20	0
Office of Inspector General	267	4	1
Office of International & Tribal Affairs	73	3	0
Office of Mission Support	945	37	3
Office of Research & Development	1484	78	11
Office of Land and Emergency Response	468	44	3
Office of Water	531	13	3
HQ Program Total	***7322***	***486***	***34***

	On-Board Total	Excepted	Exempted
Region 1 (Boston)	516	30	1
Region 2 (New York)	735	49	0
Region 3 (Philadelphia)	734	37	2
Region 4 (Atlanta)	860	28	3
Region 5 (Chicago)	980	22	0
Region 6 (Dallas)	690	24	0
Region 7 (Kansas City)	470	17	0
Region 8 (Denver)	492	25	7
Region 9 (San Francisco)	667	161	4
Region 10 (Seattle)	506	12	2
Regional Total	***6650***	***405***	***19***

EPA's Total:	***13972***	***891***	***53***
		6.37%	0.38%

Onboard totals as of December 17, 2018.

In accordance with EPA's Contingency Plan under #6 "Exempted Activities," the Agency remained operational with carryover funds from December 24-31, 2018. EPA has 53 Public Health Service Officers exempted from furlough.

U.S. Environmental Protection Agency

Contingency Plan for Shutdown

December 31, 2018

EPA CONTINGENCY PLAN
FOR SHUTDOWN OF THE AGENCY DUE TO A FUNDING HIATUS

1. **PURPOSE.** The U.S. Environmental Protection Agency has 134 facilities that occupy approximately 8.2 million square feet of space. EPA facilities consist of office, laboratory, and warehouse space. The largest facilities are the headquarters facilities located in the Washington, DC metropolitan area, the ten regional offices that support and manage EPA's environmental policies and programs in the states, and the two major research centers situated in Research Triangle Park, North Carolina, and Cincinnati, Ohio.

   This contingency plan provides general guidelines for the orderly handling of EPA operations in the event of a funding hiatus caused by the lack of appropriations. In the event of an actual shutdown where EPA is required to implement this general guidance, supplemental government-wide guidance issued by the Office of Management and Budget, the Office of Personnel Management, and the General Services Administration also apply.

2. **AUTHORITY.** In the event of a funding hiatus due to the lack of an appropriations act or a continuing resolution, an agency may only continue those activities that are exempted or excepted.

   An agency may exempt activities from the shutdown if the activities are funded with unexpired appropriations where carryover funds remain unobligated or if the activities are funded with non-appropriated funds, such as fees and payments that are available for obligation. Approved exempted activities may only continue as long as there are funds available to support the exempted activities.

   An agency may incur obligations in advance of appropriations if:

   A. A statute or other legal requirement expressly authorizes an agency to obligate funds in advance of appropriations;
   B. Pursuant to 31 U.S.C. 1342, the function addresses emergency circumstances, such that the suspension of the function would imminently threaten the safety of human life or the protection of property; or
   C. The function is necessary to the discharge of the President's constitutional duties and powers.

   There are also a limited number of government activities that an agency must continue, in the absence of appropriations, because their continuation is "necessarily" implied from the authorized continuation of other (exempt or excepted) activities.

   OMB Circular A-11, Section 124 requires agencies to develop and maintain plans for an orderly shutdown in the event of the absence of appropriations. Plans must be submitted to OMB and include the following information:

   1. Estimated time (to the nearest half-day) to complete any shutdown:

      While most shutdown activities can be accomplished within four hours, some agency shutdown personnel may need to work longer to secure and shutdown EPA property and facilities, including the varied laboratory research facilities and experiments that EPA is conducting. EPA expects the vast majority of shutdown activities will be completed in less than five days.

2. Number of employees expected to be on-board before implementation of the plan.

Permanent Employees		**13,728**
Full Time	13,489	
Intermittent	1	
Part Time	238	
Temporary Employees		**244**
Full Time	181	
Intermittent	57	
Part Time	6	
Total (as of December 17, 2018)		**13,972**

3. Total number of employees to be retained under the plan for each of the following categories:

   a. Their compensation is financed by a resource other than annual appropriations: **0**

   b. They are necessary to perform activities expressly authorized by law: **6** Presidentially Appointed/Senate Confirmed individuals.

   c. They are necessary to perform activities necessarily implied by law: **0**

   d. They are necessary to the discharge of the President's constitutional duties and powers: **12**

   e. They are necessary to protect life and property: EPA estimates 794 employees **(433 Headquarters and their field and laboratory components; and 361 regional)**.

The policies and procedures detailed in this contingency plan are issued in accordance with OMB Circular A-11, Section 124; OMB Bulletin 80-14, dated August 28, 1980 (as amended by the OMB Director's memorandum of November 17, 1981 and Supplement 1 to Bulletin 80-14, dated August 20, 1982). They are also consistent with the following U.S. Department of Justice, Office of Legal Counsel opinions: "Applicability of the Anti-Deficiency Act Upon a Lapse in an Agency's Appropriations" (1980), "Authority for the Continuance of Government Functions During a Temporary Lapse in Appropriations" (1981), and an opinion dated Aug. 16, 1995, that reaffirms and updates the 1981 opinion.

3. **COVERAGE.** In the event of a funding hiatus caused by the lack of either an appropriations act or a continuing resolution, all EPA programs must follow this guidance. Four actions will be taken. These actions involve conducting (A) furlough activities; (B) shutdown activities; (C) excepted activities, and (D) exempted activities.

   A. **FURLOUGH ACTIVITIES:** All furloughed employees will be advised to conduct an orderly shutdown of their activities. Shutdown activities can be completed in the office or by telework unless otherwise notified.

   B. **SHUTDOWN ACTIVITIES:** Some personnel will be designated as necessary to complete tasks for the orderly shutdown of the agency and will continue to report until such time as their shutdown tasks have been completed.

C. **EXCEPTED ACTIVITIES:** Some activities and functions will continue because they are authorized by law or fall within the ADA's emergency exception. The personnel carrying out these activities may work even in the absence of an appropriation. These functions are described in more detail in Section 5 of this contingency plan.

D. **EXEMPTED ACTIVITIES:** Certain programs funded with unexpired appropriations where carryover funds remain unobligated or programs funded from sources other than appropriations, such as fees and payments that are available for obligation, may be exempted. See Section 6.

4. EMPLOYEE REPORTING PROCEDURES

A. **ALL PERSONNEL:** Under the applicable regulations and OPM policy, employees do not need to be provided advance written notice of a furlough if the furlough is due to a lack of an appropriations act or a continuing resolution. However, the agency will make every effort to notify all employees adversely affected by the furlough in advance and adhere to related collective bargaining agreements. In the event of an appropriations hiatus, all personnel will report for duty on their first working day following the expiration of an appropriations act or a continuing resolution unless notified otherwise or unless they are on previously approved annual or sick leave. On that day, all personnel not designated to carry out shutdown, excepted, or exempted activities will be furloughed. Furlough decision notices will be distributed to each employee. All personnel receiving furlough notices will be dismissed and directed not to report to work until an Appropriations Act or a Continuing Resolution is enacted. Appropriate action placing affected agency employees in a non-pay status will be taken. Additionally, any approved leave during a furlough will be cancelled and any new requests for leave during the furlough will be denied.

Only personnel required for the orderly shutdown of the agency or assigned to excepted or exempted functions should continue to report for duty. All other personnel must depart following their dismissal after they have secured their work space and documents; identified any approved travel plans over the next 30 days; and entered their time into the agency's time & attendance system, if required. EPA estimates that these activities should take less than one-half workday (four hours) and these activities can be performed remotely.

In accordance with the ADA, no employees on furlough will be authorized to work or volunteer their services during the shutdown period.

B. **SHUTDOWN PERSONNEL:** Personnel designated for the orderly shutdown of the agency will continue to report for duty until such time as their shutdown tasks have been completed. Shutdown activities will need to be completed as expeditiously as possible. Once the services of these employees are no longer required, shutdown personnel will also be furloughed. Any obligations for shutdown activities will be paid after a new appropriation is provided. Shutdown activities are described in more detail in Section 7.B.

C. **EXCEPTED PERSONNEL:** Personnel who are required to perform excepted activities by ensuring the safety of human life and the protection of property (including the protection of government property) where the threat to life or property is imminent will continue to report following a shutdown. Excepted activities are described in more detail in Section 5. By law, excepted activities may continue to be performed. Any obligations incurred for excepted activities will be paid for after a new appropriation is provided.

D. **COMMISSIONED OFFICERS:** Commissioned officers are employees of the Public Health Service. If EPA has a lapse in appropriations, PHS officers will continue to work at the EPA because they are authorized by law to continue working.

E. **EXEMPTED PERSONNEL:** Personnel who perform exempted activities and who are exempted from the shutdown order will continue to report for duty and conduct their assigned responsibilities until available carryover funds are close to being fully obligated or funds from fees and payments are near liquidation.

EPA retains the authority to modify lists of personnel working on excepted or exempted activities, as necessary, during any period of shutdown.

5. **EXCEPTED ACTIVITIES:** All Senior Resource Officials must develop and submit a list of personnel who would be necessary to perform excepted activities including those following shutdown. Additional information concerning this list is found under Section 7.A

When determining which personnel are needed to carry out excepted operations, SROs should consider those personnel necessary to carry out activities such as those identified in the government-wide examples listed below. Among these are personnel required to ensure compliance with OMB bulletin 80-14, supplement No.1, and attachments thereto.

Primary examples of activities related to EPA that the agency may continue to perform following shutdown include:

A. Providing for homeland and national security, including the conduct of foreign relations essential to the national security; or

B. Personal services necessary to respond to emergencies involving the safety of human life or the protection of property, where the threat to human life or property is imminent, including:

1. Activities essential to ensure continued public health and safety, including safe use of food and drugs and safe use of hazardous materials;

2. Protection of federal lands, buildings, equipment, research property, and other property owned by the United States;

3. Law enforcement and criminal investigations; and

4. Emergency and disaster assistance.

5. Support Staff: Only the minimum staff and support services necessary to continue the above listed functions should be maintained.

The specific excepted activities, personnel, and level of support required based on the examples above will be determined by the Office of Mission Support in consultation with the Office of the Chief Financial Officer, the Office of General Counsel and appropriate program offices.

Excepted personnel are excluded from furlough during shutdown **but only for the hours/days it takes them to perform their excepted activities.** If a function requires one hour per day, then the excepted employee may work for only one hour per day to perform only that excepted task.

Specific examples of excepted activities include:

Excepted Activities to Support Superfund Response Site Work

Imminent threat to Public Health – Sites/projects, predominantly associated with the superfund program, where a failure to maintain operations would pose an imminent threat to human life. The sites/projects require the EPA personnel to direct or oversee the response activities and/or provide critical support functions. There is an expectation that the EPA presence or activities, typically by an on scene coordinator or remedial project manager will be required. The EPA will evaluate more than 800 superfund sites to determine how many meet this criterion. *(For example, if ceasing the operation of an acid mine drainage treatment plan would cause a release to a stream that provided drinking water to a community; the agency would consider that situation to pose an imminent threat. A second example is an emergency removal response to a situation posing an imminent threat to human health.)*

EPA Laboratories

The EPA maintains 29 program and regional laboratories across the continental United States. These laboratories have unique functions that support the agency in fulfilling its mission to safeguard human health and protect the natural environment. The EPA will take necessary measures to ensure the physical integrity of the EPA's research property is protected where, without these measures, the property would be damaged or destroyed. In order to protect research property and stand-alone facilities, personnel will be **excepted** as needed to ensure critical operating requirements are not impaired. These needs are as far-ranging as ensuring the physical protection of federal property, that controlled environments (such as freezers) will function and not be damaged, that scientific instrumentation will function and not be impaired, and that lab animals, plants, and other unique test organisms will not be damaged or destroyed.

Laboratory operations involved in the toxicity testing of environmental samples requires the use of unique test organisms such as fathead minnow and small crustaceans. The test organisms must be grown under controlled laboratory conditions such as temperature, light, water quality and food supply in order to provide reproducible results during testing. Depending on the test organism, a period of weeks or months under controlled growing conditions is required for the organism to reproduce. Personnel will be excepted as needed in order to protect the physical integrity of the test organisms so that a shutdown will not result in the loss of viable test organisms.

The responsibilities for many of these laboratory- related excepted activities will be shared between several individuals, splitting work on an as needed basis whenever possible.

Emergency Response Readiness Operations

EPA's emergency response program serves as a safety net to states, local and private first responders for situations involving actual and/or threatened of environmental emergencies. The program supports the White House national essential functions through our primary mission essential function. Specifically, EPA's PMEF is to prevent, limit, mitigate or contain chemical, oil, radiological, biological, and hazardous materials during and in the aftermath of an accident, natural or man-made disaster in the United States, and provide environmental monitoring, assessment and reporting in support of domestic incident management.
In the event of a shutdown, regional offices should utilize existing procedures to maintain their phone and response on-duty on-scene coordinator(s) to maintain and ensure prompt support of environmental emergency responses that requires EPA attention and/or action. HQ offices with emergency response

responsibilities should also maintain their duty personnel to ensure prompt support and/or oversight of environmental emergency responses that require EPA attention and/or action.

In the event of a water related incident where the threat to human life or property is imminent, individuals from the Water Security Division emergency response team would need to return to work in order to assist with EPA's response efforts. Also, certain technical specialists from the Office of Water incident support team would need to return to work depending on the type of emergency. The WSD individuals would need to report to their normal workstation or to the EPA Emergency Operations Center. Duties would include: national incident command center reporting on SSA issues; setting up the water desk; running the water desk (i.e. managing e-mails and calls, reaching out to technical specialists to answer inquiries; developing a schedule for water desk staffing from among the incident support team members who are also on call; attending NICC meetings; drafting OW management reports; reviewing and approving contractor invoices and emergency travel authorizations. In addition, the EPA may draw upon technical specialists as relevant expertise contingent on the nature of the emergency.

Legal Counseling, Litigation, and Law Enforcement Activities

Law enforcement personnel involved in activities designed to protect human life and property from imminent threat will be excepted for the time minimally necessary to carry out such activities. Attorneys providing legal support to excepted activities will be excepted only for the time necessary to provide such support. Attorneys who charge their time to appropriations impacted by the funding lapse will be excepted to support excepted or exempted activities if there is a necessarily implied authorization for the attorneys to continue to work. A necessarily implied authorization exists when a statute directs EPA or a governmental entity to perform an activity during a lapse in appropriations and non-performance of an attorney's support for that activity during the funding lapse would undermine implementation of the terms of the statute. For the contingency planning for shutdown in April of 2011, the Department of Justice advised that the courts would remain open during a shutdown, but DOJ would request stays of some litigation and court ordered deadlines for the duration of the shutdown. If a court did not grant the stay, DOJ expected the EPA to continue to provide the legal or technical support necessary to meet any court deadlines or orders, including but not limited to court appearances and response to discovery requests. Therefore, in EPA's April 2011 and September 2013 Contingency Plans for Shutdown, the EPA planned to continue to support DOJ as needed. In implementing this Contingency Plan for Shutdown, EPA will consult with DOJ and follow its guidance.

6. **EXEMPTED ACTIVITIES:**

In the event of a funding hiatus due to the lack of an appropriations act or a continuing resolution, the Agency will assess the availability of unexpired multiple and no-year appropriations as well as funds available from other sources.

If it determines there is sufficient carryover for it to be practicable for the Agency to operate for a period of time until these appropriations and funds are close to being exhausted, it will do so. The Agency would proceed with shutdown activities when there is no longer sufficient carryover for it to be practicable for the Agency to operate.

If it determines from the beginning that there are not sufficient carryover funds for it to be practicable for the Agency to operate, it will proceed with shutdown activities immediately.

7. **SHUTDOWN ACTIVITIES:**

A. **SHUTDOWN PLANNING:**

Shutdown activities should be conducted in a manner whereby expedient reactivation of normal operations and activities may occur when funds are made available.

Senior resource officials must develop and submit a list of personnel essential to carry out an orderly shutdown to OMS. In preparing this list, SROs should consider the specific actions that would be necessary to affect an orderly shutdown of the agency, giving primary consideration to protecting life and safeguarding government property and records. The list should not replicate the list to maintain the agency's continuity of operations since this list will be to shutdown agency operations. Each SRO is responsible for informing their employees if they are on the shutdown list.

The list should indicate which personnel would be necessary to perform excepted activities following a shutdown. The SRO is responsible for informing their employees if they are on the excepted activities list.

The shutdown and excepted personnel list is subject to review and approval by OMS. OMS may consult with OCFO and OGC as necessary. The list should identify each person's name, employee identification number, position, office/division, and function. The list should continually be revised as necessary and will be kept on file by OMS. Each SRO must also provide the list of names of the excepted and any exempted personnel to the facility manager at each EPA location. Only those employees designated as excepted or exempted personnel will be allowed into EPA facilities after a shutdown is completed.

Individual Offices in OMS and OCFO may provide additional guidance relating to their specific operations in the event a shutdown.

The assistant administrator for OMS will keep the EPA Administrator apprised of the agency's shutdown activities. The AA for OMS, and other appropriate offices designated within that office, will coordinate efforts as necessary with regional, headquarters, and field offices.

A limited number of employees performing excepted and/or approved exempted activities may be designated as standby and must be included in any excepted or exempted personnel list.

Assistant/regional administrators may need to identify additional employees for excepted activities in an emergency situation. These individuals will not be in a pay status prior to being recalled to work and will be added to the list of excepted personnel after being recalled. If funds are available to support additional employees in an emergency situation, assistant/regional administrators may add the individuals to the approved exempted list and the employee will be recalled to work and will assume a pay status. Assistant/regional administrators must notify the OMS and OCFO of any changes to their approved lists for payroll, travel and other purposes and also notify the local facility/security manager for building access.

B. **SHUTDOWN IMPLEMENTATION:**

In the event of a funding hiatus, the following restrictions apply to all Agency appropriations:

1. **Halt Obligations:** In the event of a shutdown in the absence of an appropriations act or a continuing resolution, the EPA will stop incurring new obligations other than those supporting excepted or approved exempted activities, and shutdown operations.

   Under the authority of the ADA (31 USC 1342), federal officials may incur obligations as necessary for excepted activities such as emergencies involving the safety of human life or the protection of property where the threat to life or property is imminent and for orderly termination activities. Additionally, the U.S. government has the legal authority to incur obligations to pay for:

   a. Its workforce for the approximate one-half day (4 hours) furlough activities and necessary agency shutdown activities estimated not to exceed five days;

   b. Costs incurred in conjunction with equitable adjustments for work stoppages on contract and grant activities; and

   c. Infrastructure costs associated with shutdown and excepted activities such as rent, telephone service, etc. which will be incurred until appropriations have been provided.

   d. Approved travel costs incurred in by excepted personnel in the performance of excepted activities.

      Additionally, the EPA may incur obligations to pay approved travel costs incurred by exempted personnel in the performance of exempted activities to the extent that there is carryover or other funds available for obligations to pay the travel costs.

   The authority to incur the obligation to pay does not extend to the actual disbursement. Payment for these obligations will not be disbursed until the resumption of normal agency activities following the shutdown when an Appropriations Act or Continuing Resolution is enacted.

2. **New Contract Obligations:** Unless necessary for excepted activities or for approved exempted activities, no new obligations for contracts including the exercise of options, may be entered into beginning with the first day of a fiscal year when an appropriations act or a continuing resolution has not been enacted or on the first day immediately following the expiration of a continuing resolution and no new appropriations act or continuing resolution has been enacted. Options exercised prior to the start of the new fiscal year already contain a "subject to availability of funds" clause to provide for any lack of funding in the new fiscal year. If a new obligation is necessary for an excepted or exempted activity, the national program manager is to be consulted who will then consult with other organizations such as OMS and OCFO.

3. **Existing Contract Obligations:** EPA has thousands of ordering documents including contracts, delivery orders, work assignments and task orders. Contracting officers may not issue any new work assignments, task or delivery orders, unless for excepted activities or approved exempted activities. Existing funded contracts that do not require interaction with federal employees can continue work until such time government interaction is necessary and/or funding is exhausted.

   EPA employees will not be available to make payments until the shutdown ends.

4. **Existing Grants, Cooperative Agreements, and Interagency Agreements:** EPA has 5,593 active assistance agreements and 1,419 active interagency agreements as of the date of this plan. As a general rule, recipients of funded grants and cooperative agreements can continue work on their projects during any EPA shutdown. Grant recipients currently approved to utilize the Automated Standard Application Payment (ASAP) system may make drawdowns of authorized obligated levels during a shutdown. With the exception of grant recipients using ASAP, in the case of government shutdown no payment processing will be available for cost reimbursable or recipients with special award terms and conditions requiring EPA approval prior to payment disbursement (either by paper check, drawdown, or by ACH payment outside of the ASAP system). EPA staff will not be available to make payments until the shutdown ends. Recipients must stop work if they reach a point at which they require EPA involvement or approval. Recipients should maintain documentation of any allowable costs associated with the work stoppage. Recipient staff assigned to EPA facilities will not be allowed access to those facilities. If they can satisfactorily continue work off-site, the project can continue. SEE enrollees will be notified of furlough in accordance with their grant procedures. Additional guidance will be provided through the agency's SEE program manager.

   EPA program offices in conjunction with the OGD and in consultation with the other agency will determine if work under any funds-in IAs is necessary for shutdown, excepted, or approved exempted activities. If not, work on such agreements will stop. Other agencies can continue to work on fully funded funds-out IAs if the other agency is not shut down. However, other agencies must stop work if they reach a point at which they require EPA involvement or approval. If the other agency is closed, that agency in consultation with EPA will determine whether activities under funds-out IAs are necessary for shutdown or are for excepted or exempt activities.

   EPA may issue additional guidance to determine if work funded under existing IAs, not involving excepted or exempted activities, may continue.

5. **Suspend Travel:** There should be no travel in the absence of an appropriations act or continuing resolution except for travel necessary for excepted activities or travel necessary to carryout approved exempted activities where there is carryover or other funds available to pay the travel costs of the exempted personnel. All personnel in travel status will return to their duty station as soon as possible, unless continued travel is essential for accomplishing the orderly shutdown of the organization or for excepted or approved exempted activities. EPA employees will not be available to make payments until the shutdown ends.

   In the event of a shutdown, the Office of International and Tribal Affairs will provide each Deputy Assistant Administrator and Deputy Regional Administrator a list of staff currently on international travel. The information will include a traveler's hotel and emergency contact information so programs and regions can reach those employees.

   Employees assigned overseas are not in travel status. The overseas location is their permanent station. These employees in temporary quarters during the furlough will remain in temporary quarters. If these employees are not designated as essential or exempted, they would not report to work.

Employees on extended TDY travel where a detail personnel action (SF52) was issued and funded should follow instructions given by the receiving office. The employee would not return to their home location during a shutdown unless instructed.

6. **Process Payroll:** OCFO's Office of Technology Solutions must assure delivery of paychecks by electronic transmission.

   a. OTS will maintain staff to continue payroll processing for the last full pay period or any partial pay period prior to the shutdown. The payroll office will also begin reconciliation and closeout activities.

   b. OTS will not process any subsequent payroll(s) during the shutdown for excepted or shutdown personnel until the end of the shutdown in accordance with current IBC shutdown policy.

   c. If applicable, OTS will process time and attendance records for exempted employees for subsequent payroll(s) during the shutdown only if IBC maintains its civilian payroll operations.

   d. OTS will notify all employees prior to the initiation of any furlough action, with instructions regarding the completion of electronic time cards.

7. **Suspend All (other than payroll) Non-Essential Financial Transactions:** OCFO's Office of the Controller will notify all finance centers to secure cash funds, receivables, collections, and all financial records. The processing of requests for payments from contractors, grantees, IA recipients for obligations incurred prior to shutdown generally are not considered emergency operations.

   a. OC finance centers and staff will suspend all but emergency actions and Agency shutdown activities until enactment of an Appropriations Act or Continuing Resolution.

   b. Instructions will be provided concerning operations of the agency's core financial management system for excepted or exempted activities prior to suspension of agency operations. The agency's core financial management system will be used to monitor obligations for excepted or exempted activities during a shutdown.

8. **Personnel Activities:** The EPA must not hire any new personnel in the absence of an Appropriations Act or a Continuing Resolution. The agency's human resources shared service centers will process the required personnel actions to affect the furlough and will notify employees of their rights and benefits while they are in furlough status in accordance with OPM and OMB policy.

9. **Telework Activities and Alternate Work Schedules:** Employees should coordinate with their supervisors. All work, whether conducted on an AWS schedule or at an Alternate Work Location (telework), must be stopped unless the activity is for an excepted or approved exempted activity.

10. **Information Technology (IT) Systems:** Unless otherwise identified as being a

mission-critical system that would support activities outlined in (Section 5 excepted activities or section 6 exempted activities) of this contingency plan; most agency IT systems, including network operations, should be scaled back to basic operational status. This means eliminating all activities associated with upgrades, development, deployment and scaling back contract support to minimal levels in order to provide support for excepted and exempted activities and on-call activities (both fed and contractor). This will ensure the protection of government records, that information and cyber security controls are in place, and assist in reactivating once the period of the shutdown is over.

The agency Chief Information Officer will identify which systems will be required for continued operation during the period of a shutdown. OMS will work with the senior information officials in each program and region to identify a list of these mission critical systems and provide guidance regarding how continued operation of those systems will be accomplished as well as the orderly shutdown and securing of other IT systems and devices.

OCFO will manage the PeoplePlus system and Concur Travel system. In addition, OCFO will manage the user support help desks to assist employees and coordinate with OMS on the availability of the help desk for these systems during any shutdown/furlough period.

11. **Protection of Non-Personnel Records:** Only inventories of vital records will be made available during an agency emergency or shutdown situation. Vital records are those records that are needed to perform the most critical functions of the agency and those needed to protect legal and financial rights of the government and of the persons affected by its actions. Vital records also include emergency plans and related records that specify how an agency will respond to an emergency.

It is essential to secure records in accordance with the agency's records management policies that affect the rights of the government, private entities and individuals, any other records that contain confidential business information, Privacy Act information, information responsive to active or pending litigation, or otherwise sensitive information (including electronic records).

EPA detailed records management guidance is contained in:

- CFR Chapter XII, Subchapter B, Records Management, 36 CFR Part 1223 (Managing Vital Records)
- EPA Records Management Policy, CIO 2155.3 (February 10, 2015)
- EPA Essential (Vital) Records Procedures, CIO 2155, P01.1 (March 24, 2015)

8. NOTIFICATION of RESUMPTION of ACTIVITIES:

A. OCFO will notify OMS and agency senior managers of enactment of the necessary funding mechanism (i.e., either a Continuing Resolution or an Appropriations Act).

B. OMS will advise all employees to monitor public news broadcasts and OPM's internet site (www.opm.gov) to obtain updated information on the status of a pending Appropriations Act or a Continuing Resolution.

C. OMS will coordinate as necessary with the Office of Public Affairs, to communicate updated status reports and actions necessary to return to normal Agency operations and to place status updates on the www.epa.gov website. OMS will also ensure the 1-888-EPA-TALK (1-888-372-8255) provides updated information.

D. Contracting officers will notify contractors of funds availability and OGD will notify recipients of funds availability.

E. OCFO will coordinate with OMS to communicate any necessary information to employees regarding PeoplePlus and Concur systems.

9. START UP ACTIVITIES/RESUMPTION OF ORDERLY OPERATIONS:

A. Once EPA receives notification that an appropriation has been approved or is imminent, OMS will begin contacting program/regional offices to begin calling back their *start-up* personnel necessary to resume orderly operations.

B. EPA has identified the following activities/personnel required to resume orderly operations once appropriations are restored:

Facilities Activities/Personnel responsible for:

1. Building Systems: Coordinate with GSA/lessor to ensure all EPA building systems, including HVAC, are in full, regular operations prior to reopening buildings
2. Guard Force: Coordinating with Federal Protective Services (FPS) or security contractor to ensure security is fully staffed for re-opening
3. Janitorial/Cleaning Services: Coordinating with GSA/lessor to ensure all janitorial services resume regular operations
4. Building Access: Change access control schedules to daytime
5. Restore Key Contracts: Coordinate with acquisition personnel to lift stop work orders on key contracts

Information Technology Activities/Personnel responsible for:

1. Infrastructure Start-Up: Prepare to bring-up idled systems and patch all servers.
2. User Support Help Desks: Ensure that all help desks are fully staffed and prepared for Day 1
3. Communications: Support activities to update web pages and messaging

Procurement Operations Activities/Personnel responsible for:

1. Begin cancelling "Stop Work Orders" for agency contracts related to security, facilities operations and maintenance, warehouse and mail services.
2. Issue post-guidance for agency contracting officers

Grants/Interagency Agreements Operations Activities/Personnel responsible for:

1. Issue post-guidance for agency grants/IA community.

10. **SUPERSESSION:** This contingency plan supersedes any other EPA guidance or order prior to this date.

Henry Darwin, Chief of Operations
US Environmental Protection Agency

12/31/18
Date

EPA PERSONNEL RESPONSIBLE FOR IMPLEMENTING/ADJUSTING PLAN

Donna J. Vizian, Principal Deputy Assistant Administrator, OMS
Ken Lapierre, Acting Deputy Assistant Administrator for Administration and Resources Management, OMS
Lynnann Hitchens, Director, Office of Resources and Business Operations, OMS

EPA Excepted/Exempted Personnel
December 31, 2018

	On-Board Total	Excepted	Exempted
Office of the Administrator	364	34	1
Office of Air and Radiation	1083	20	4
Office of the Chief Financial Officer	293	17	0
Office of Chemical Safety and Pollution Prevention	981	16	8
Office of Enforcement and Compliance Assurance	610	171	0
Office of General Counsel	223	16	0
Office of Inspector General	267	9	1
Office of International & Tribal Affairs	73	3	0
Office of Mission Support	945	36	3
Office of Research & Development	1484	76	11
Office of Land and Emergency Response	468	45	3
Office of Water	531	8	3
HQ Program Total	***7322***	***451***	***34***

	On-Board Total	Excepted	Exempted
Region 1 (Boston)	516	22	1
Region 2 (New York)	735	43	0
Region 3 (Philadelphia)	734	28	2
Region 4 (Atlanta)	860	31	3
Region 5 (Chicago)	980	26	0
Region 6 (Dallas)	690	24	0
Region 7 (Kansas City)	470	22	0
Region 8 (Denver)	492	22	7
Region 9 (San Francisco)	667	129	4
Region 10 (Seattle)	506	14	2
Regional Total	***6650***	***361***	***19***
EPA's Total:	***13972***	***812***	***53***
		5.81%	0.38%

Onboard totals as of December 17, 2018.

In accordance with EPA's Contingency Plan under #6 "Exempted Activities," the Agency remained operational with carryover funds from December 24-31, 2018. EPA has 53 Public Health Service Officers exempted from furlough.

Senator CARPER. I want to talk a little bit about PFOA, PFOS, and the PFAS chemicals. The fact that we do not have a Federal drinking water standard for those chemicals, flying in the face of the TSCA legislation, the toxic substances legislation, that we passed a couple of years ago, a number of the States have basically taken matters into their own hands. States that have set their own standards include California, Connecticut, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, North Carolina, and Vermont.

Mr. Wheeler, my question is your PFAS management plan was supposed to come out, I think, last fall but has been delayed. I am asking you to commit to the members of this Committee that EPA will set a drinking water standard for these chemicals within 2 years. Can you make that commitment today?

Mr. WHEELER. First of all, our PFAS management plan, we were hoping to unveil next week. With the shutdown, it is going to be delayed slightly. It is in the middle of interagency review.

We are looking at all of our statutes. I am not going to pre-judge anyone in particular because of the interagency review. All the other agencies have to sign off on the plan itself, but we are looking at all of our statutes, and our enforcement abilities.

We have been enforcing on drinking water around the country at a number of sites and helping States.

Senator CARPER. I am asking you if you can commit to 2 years. We are not talking 2 months or 2 weeks. I am asking you to make a commitment to us that EPA will set a drinking water standard for these chemicals within 2 years. Can you make that commitment today? If you cannot, just say I cannot make it.

Mr. WHEELER. I cannot make that commitment pending interagency review at this point.

Senator CARPER. I just want to impart a sense of urgency on PFAS, and frankly, on the others. We only have 5 minutes, and I have 3 minutes left.

Mr. WHEELER. You said 95 percent of EPA is not being paid. No one at EPA is getting paid today. I want to thank Congress for passing the legislation for back pay for everyone.

Senator CARPER. Clean cars—I mentioned I was at the Detroit auto show. I have been going for a long, long time. There are representatives from 10 auto companies. They all have one message for me, actually two or three.

One message is they want certain predictability. They are building more energy efficient cars. Their future is electric powered vehicles; their future is hydrogen powered vehicles. They need charging stations to be deployed, built across the country. They need fueling stations to be built. They need a tax credit extended for electric vehicles.

They do not want to end up in a lawsuit with California and 12 or 13 other States for the next 4 or 5 years. They need certainty and predictability. They want some near term flexibility on the fuel efficiency standards and tailpipe emissions that were set in the last Administration. They want some flexibility in the near term and more rigor on the standards over the long term.

Why are you, why is EPA, why is California and these other 13 States, why are we unable to come to agreement on a deal that every auto company wants?

Mr. WHEELER. Senator, we talked about this yesterday, and I have talked about this with you at least four or five times. I am not going to go through the entire back and forth we have had and the State of California.

Nobody wants a 50 State deal more than I do. That would be a successful program if we had a 50 State deal. I have not given up hope on that yet. We are also looking at the calendar. We know that we need to finalize our proposal by March 30. We are running short of time.

I have met with Mary Nichols from California three times in my office. We have had numerous conversations. My staff has worked with her staff for months now. We would love to have a 50 State solution.

Senator CARPER. The greatest source of carbon emissions on our planet right now is mobile sources, our cars, trucks, and vans. There is deal that is ready to be made—ready to be made. I am trying to impart some sense of urgency.

If I were you, I would have her in my office, I would be in California. I would be trying to make this deal. The idea that you are waiting for them, or they are waiting for us, your job is to basically be the leader for fighting this battle.

I am told oceans are heating up by 40 percent faster on average than predicted by the global science community just 5 years ago. The year we just finished was the hottest year ever. I would urge you to feel a sense of urgency on this stuff, OK?

Let us talk about mercury. I will reserve the balance of my time to look at mercury.

Thank you.

Senator BARRASSO. Thank you, Senator.

Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

There is a lot of media spin, and you heard it again just now over the recent report showing that CO_2 emissions in the United States increased last year. A lot of the adversaries are wanting to blame the Administration's so called rollback of the Clean Power Plan and the withdrawal from the Paris agreement, among other actions.

I would like to enter in the record a Forbes article that says this is not surprising given the unprecedented economic growth that the United States has seen in the last year and states, "CO_2 emissions in the United States are still down 11 percent since 2005."

Can you address this mischaracterization?

Senator BARRASSO. Without objection.

[The referenced information follows:]

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The Not Too Surprising Emissions Surprise

Brian Murray Contributor

Energy

I write about the nexus of energy, the environment and the economy.

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The Rhodium Group, an independent economic and policy research firm, released a report Tuesday estimating that US energy-related CO_2 emissions increased by 3.4 percent in 2018. That marks the largest year-over-year emissions increase in more than twenty years, surpassed only by 2010's emissions as the economy bounced back from the Great Recession.

To some observers, the uptick in emissions may come as a surprise given a decadal trend of national emissions decline, the notion that we had somehow decoupled emissions from economic growth (spoiler alert – we haven't), and notable breakthroughs in clean energy technologies such as renewable power, battery storage and vehicle electrification. But emissions are driven by a complex mix of market, policy and natural factors that can change over time.

This is a story of "Even Withs." Even with a near-record number of coal-fired power plant closures in 2018, natural gas beat out renewables to replace the lost coal generation while also meeting most of the growth in electricity demand. Electricity demand growth itself is a phenomenon that runs counter to the recent trend of flat growth. Even with a decrease in gasoline consumption, demand for diesel and jet fuel drove transportation emissions up one percent. Rhodium points out that the biggest change came from sectors that often go ignored in policy discussions: industry and buildings.

A Reversal of Emission Trends?

US energy-related CO_2 emissions peaked in 2007 at about 6 hillion tons. Even with last year's increase, CO_2 emissions in the US are still down 11 percent since 2005. The Great Recession played a role in bringing down emissions, but so too did transitioning electric power generation from coal to natural gas and renewables. The 2018 uptick, though, can be seen as part of a phenomenon years in the making: even though overall emissions are down since the mid-2000s, the pace of that decrease has been slipping. In 2015, emissions fell by 2.7 percent. In 2016, emissions fell only 1.7 percent, and in 2017 that number was just 0.8 percent.

Coal generation dropped in 2018, but less so than it did in 2012, 2015, and 2016. The key difference, though, is that in those other years, electricity demand was flat or falling. In 2018, electricity demand picked up, and natural gas beat out renewables in replacing coal's lost generation. Natural gas generation emits roughly half the CO_2 of coal, but the scale of natural gas's growth canceled out emission reduction benefits. The Rhodium report points out that natural gas-fired generation increased by 166 million kWh from January to October 2018.

That is three times the decline in coal generation and four times the combined growth in wind and solar.

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Rumors Of Decoupled Emissions And Economic Growth Have Been Greatly Exaggerated

"The big takeaway for me is that we haven't yet successfully decoupled U.S. emissions growth from economic growth," Trevor Houser, head of Rhodium's Energy and Climate group, told the *New York Times*' Brad Plumer. And 2018 was by any measure a year of relatively high economic growth in the US. The *New York Times* piece highlights manufacturing emissions specifically, noting that as the economy revved, "emissions from the nation's industrial sectors – including steel, cement, chemicals and refineries – increased by 5.7 percent."

Plumer notes that policymakers at the federal and state levels have focused on decarbonizing the electricity sector but have largely avoided regulating heavy industry, which now contributes about one-sixth of the country's carbon emissions, a share that is growing. The industrial sector is, of course, very directly tied to macroeconomic conditions and thus the relative lack of decarbonization of industrial processes means that those emissions remain tightly coupled to economic growth.

The notion that emissions have been decoupled from growth has always been a bit oversold. The well-known "Kaya Identity" tells us that GHG emissions are the product of four factors: population, per capita economic output (GDP), energy intensity of GDP and carbon intensity of energy. So by definition, emissions can never be completely decoupled from economic growth, at least until energy is completely carbon-free (or economic growth is energy-free). Over the last decade in the US, decarbonization of electric power driven by coal to gas substitution has

played a major role in the fact that emissions declined while the economy grew. But the relationship between emissions and the economy remains fairly strong, as the post-Recession plummet in emissions and the 2018 emissions and economic bump suggest.

Transportation Retains A Pivotal Role

Transportation has now surpassed electric power as the largest single source of US GHG emissions. Rhodium reports that from January through September of 2018, gasoline demand declined by 0.1 percent even though there was a slight increase in vehicle miles traveled. That can likely be attributed to modest vehicle fuel efficiency gains. Preliminary data from the fourth quarter of 2018 reflects an even greater decline in gasoline demand. The catch, though, is that demand for diesel and jet fuel – propelled by trucking and air travel – saw robust growth (3.1 percent and 3.0 percent, respectively). Those trends also continue into the fourth quarter.

While President Trump's decision this summer to freeze future fuel economy standards at 2021 levels is important for the future trajectory of transportation emissions, that decision did not cause a three percent increase in diesel and jet fuel use in 2018. Though fuel efficiency mandates played a role in the slight drop in emissions from personal vehicles, diesel and jet fuel emissions are the slices of the pie that have been more impervious to policy efforts. These two sources are tied largely to bulk transportation and aviation and thus are more tightly tied to economic activity, are more technologically challenging and thus have been less influenced by policy.

Changing transportation fuel sources to electricity or hydrogen, of course, could shift matters considerably. A substantial uptake in electric or hydrogen fuel cell vehicles would bring down transportation tailpipe emissions with it, but shifting the fuel source from petroleum to electricity would shift the emissions accordingly. The net effect on emissions will then be determined by the carbon intensity of electric power generation or hydrogen fuel production.

Baby It Was Cold Outside

Buildings also saw a tremendous increase in emissions in 2018. The Rhodium report points out that despite modest improvements in the efficiency of oil and natural gas furnaces, it was not enough to offset the emissions impact of population growth and increased demand for heating and other building energy services. Early 2018 saw particularly cold temperatures, especially in New England, compared to 2017. The number of heating degree days across the U.S. increased by 15 percent during the first quarter of 2018 relative to 2017. The first three months of 2018 were still warmer than average for the US, though, so absent a deeper understanding of the cyclicality of polar vortexes, the 2017-18 change may be best viewed as a blip rather than a recurring trend.

The Outlook

As I have argued elsewhere, markets have provided the engine by which emissions reductions have occurred in the US over the last decade, but policies have not only influenced those market responses to date, they are necessary to sustain reductions over time. Because energy costs money, there are natural market incentives to conserve it and the resulting improvements in energy efficiency will continue to drive some emission reductions so long as energy is not dirt cheap. But carbon emissions are largely treated as free, so there is no natural incentive to conserve there without policy intervention.

That leaves three options for deep carbon reductions concurrent with economic growth: (1) put a price on carbon to motivate reductions, (2) mandate or otherwise incentivize the development and use of low-carbon technologies, (3) hope that low-carbon technologies that are cheaper or higher performing than the carbon-intensive alternatives will emerge on their own. The first two approaches require deliberate policy. The third is a matter of faith.

[Will Niver of the Duke University Energy Initiative provided research and writing assistance for this post.]

I am Director of the Duke University Energy Initiative, a university-wide interdisciplinary hub for energy research, education and engagement, and

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Mr. WHEELER. Yes, Senator. You are correct. Our CO_2 emissions peaked in 2005 and have been on the decline since then. I was just briefed by my career staff yesterday morning on this. We believe we are going to continue to see it decline. The CO_2 emissions for last year, we had an exceptionally hot summer and cold winter, but we had, more importantly, an uptick in manufacturing and industrial output that brought up our CO_2 emissions slightly but overall, we do not expect that to continue. We think the downward trend is going to continue in the long run.

Senator INHOFE. That economic growth has been phenomenal. I assume the ACE rule would continue the general downward trend in CO_2?

Mr. WHEELER. It will. After ACE is fully implemented, we expect CO_2 levels to decrease an additional 34 percent by 2005 levels from the electric power sector.

Senator INHOFE. Of all the regulations from the previous Administration, in my State of Oklahoma, the one the farmers of America—not just in my State of Oklahoma but throughout the country—found the WOTUS rule to be the one that was the scariest of all. It is one you have reworked, and I have heard nothing but praise about this.

I would like you to share with us the successes you have had in that particular rule. That is the one rule that means the most to my Oklahoma farmers.

Mr. WHEELER. Thank you, Senator.

We put out our proposal in December. The overarching guiding principle that I gave the staff in crafting the WOTUS rule was that I believe any property owner should be able to stand on his or her property and be able to tell for themselves whether or not they have waters of the U.S. on their property without having to hire an outside consultant or an attorney.

I say that knowing that I used to be an outside consultant putting some people out of business, but I think people should be able to tell for themselves whether or not they have a wetland on their property.

I want to make the big distinction that usually is not discussed, particularly in the media, that we are working in partnership with the States. Even if a water is not a water of the United States, it does not mean it is not protected at the State level.

A lot of the waters that surround the wetlands that would no longer be considered a Federal waterway under the new WOTUS proposal will still be protected under State laws, and it does not impact our recovery efforts with our national priority areas such as the Chesapeake Bay, the Great Lakes, the Everglades, the Gulf Coast, or Puget Sound. All those recovery efforts will continue, and this does not impact any of those.

Senator INHOFE. I appreciate that. I will share with you that the other day I was in western Oklahoma, our panhandle, a very arid area, and their concern was if we had not done this, we would probably be considered a wetland.

I do not have to tell you my position on RFS, but in light of the rumors about the possible actions the Administration is considering, I would like to take a moment to remind everyone that corn is not the only stakeholder in this program. You have the real

world cost borne by not just refiners but also by consumers, by motorcyclists, both, operators of lawn equipment for the use of gas blended with ethanol.

There is growing concern that the Administration is only listening to one side of the argument and that those arguments are not based on actual real world conditions. Will any reset rulemaking be based on market realities including the increased demand for zero that the market is seeing today?

Mr. WHEELER. We will take all those issues into consideration as part of the reset. We intend to move forward with the reset as well as the E15. The President is committed to the E15. For the last 2 years, we have RVOs, which is setting the levels for the renewable fuels for the next year. We have gotten both of those out on time, the first time that has ever happened in the history of the program.

We are committed to doing that again this year. They provide certainty to the marketplace. It is very important, not just for the farmers, but also for the oil industry as well.

Senator INHOFE. It is very, very important and you are doing a great job.

Thank you.

Senator BARRASSO. Thank you, Senator.

Senator Cardin is next, but I think Senator Carper, you have a request.

Senator CARPER. I have a unanimous consent request to submit for the record the recently released national climate assessment by 13 Federal agencies under this Administration, including the EPA, that lay out the costs our country will pay if we do nothing on climate change and you keep rolling back rules.

Senator BARRASSO. Without objection.

[Editor's Note: Due to size constraints the above referenced material may be found at *https://nca2018.globalchange.gov/downloads/*]

Senator CARDIN. Thank you, Mr. Chairman.

Mr. Wheeler, thank you for being here, and thank you for your willingness to serve the public.

I really want to first underscore the point Senator Carper made regarding the shutdown. The shutdown is dangerous and is devastating to the individuals involved, their families, to paying their bills, but also to the missions these agencies have to carry out. You have a very large percentage of your work force that is furloughed today without pay.

To me it is not possible under these circumstances for EPA to carry out their mission to protect our environment, clean air, and clean water. You and I had a chance to talk about this in my office, but as you reach certain required deadlines, you need to have the personnel in place. It is going to be challenging to have workers work without pay, but I want to underscore how tragic this shutdown is and support Senator Carper in that regard.

You talked about partnership with the States. I think there has been no better example of that than the Chesapeake Bay Program. We also had a chance to talk about this.

The Chesapeake Bay Program was developed by the States in partnership with the stakeholders, developers, local government, farmers, and private groups. It was based upon what every State

can do based upon the science in collaboration in order to improve the quality of the Bay.

The Washington Post over the weekend published that, "The importance of the Chesapeake Bay health cannot be overstated." I agree with them completely.

The Federal role is critically important because that is the umpire, the one that holds it together, using TMDLs to establish how we are making progress in every State doing what it says it can do and should do.

My first question to you is will you support the Chesapeake Bay Program and work collaboratively with the other Federal agencies, State and local jurisdictions, and stakeholders in protecting the Chesapeake Bay Watershed, including the partners of the program in the office today in Annapolis?

I want to point out that this Committee has reauthorized the Chesapeake Bay Program, recommended that, and the Congress has fully funded the Chesapeake Bay Office.

Mr. WHEELER. Yes, Senator, I fully commit to that. As you may remember, I live in a Chesapeake Resource Protection Area in Virginia. I am personally very concerned about the Chesapeake Bay.

In my second week as a Deputy Administrator, I attended a Chesapeake meeting in DC, and in the first month as Acting Administrator, I attended the large meeting in Baltimore with the Governors of all the Chesapeake States. I think we had one lieutenant Governor there. I am very much committed to the Chesapeake Bay and to the Chesapeake Bay Program.

Senator CARDIN. And for the Federal office to be located in Annapolis?

Mr. WHEELER. Yes.

Senator CARDIN. Thank you. I appreciate that.

I want to talk about some of the related issues with clean air that Senator Carper mentioned, the mercury standard. Let me start with that. By the way, I support Senator Carper in regard to the CAFE or auto emission standards. That is a huge issue with regard to clean air and concerning the Bay.

You mentioned the reduction of carbon emissions, but remember that the auto industry is still one of the largest sources, so the CAFE standards are important.

In regard to mercury, quite frankly, I do not understand EPA's position. It seems to me that the mercury standards have worked. In your recent announcements, will there be any reduction in enforcement of the current mercury toxic standards?

Mr. WHEELER. We do not believe there will be. We believe that every piece of mercury controlled equipment that is installed on a power plant today will remain under our proposal. The important thing to remember on the mercury regulation is that it has already been fully implemented, but what we had was a Supreme Court case, the Michigan v. EPA case, which directed us to go back and take a look at the cost-benefit analysis that the Obama administration conducted for the original MATS regulation. We did that.

At the same time, we also conducted the Risk Technology Review. By conducting both of those at the same time, also under a D.C. Circuit Court decision, we believe that although we do not find it appropriate and necessary, that under the Risk and Tech-

nology Review, the technologies that have already been implemented on the coal fired power plants will remain in place.

That is our preferred option under the proposal. We are taking comment. We issued this right before the shutdown began. I do not believe it has been published in the Federal Register yet because the Federal Register is closed. As soon as it does, we are accepting comment on that. We would like to have comment, but at the end of the day, I do not believe a single piece of mercury controlled technology will be removed from any power plant, under our preferred option.

Senator CARDIN. Last, under Section 4101 of the bipartisan WRDA bill, the EPA is to establish a Stormwater Infrastructure Funding Task Force composed of representatives of Federal, State, and local governments and non-profit entities to study ways to improve the availability of public and private sources for funding of the construction, rehab, operation, and maintaining our stormwater infrastructure which is critical to the Bay.

Are you committed to setting up that task force?

Mr. WHEELER. Yes. We have already started looking at how we can set that up. We believe it would have to be done under the FACA process, but we are committed to getting that done.

Senator CARDIN. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Before turning to Senator Capito, Senator Inhofe, you have something you want to submit for the record?

Senator INHOFE. Yes, I do. Mr. Chairman, I would submit three things into the record. These are items into the record that highlight the flaw in the science and the assumptions that make up the Fourth National Climate Assessment released: one by the Cato Institute, one by the Competitive Enterprise Institute, and the last one an article by Nicolas Loris entitled, The Latest Climate Report Feeds into Alarmist Fearmongering.

Senator BARRASSO. Without objection.

[The referenced information follows:]

COMMENTS ON THE FOURTH NATIONAL CLIMATE ASSESSMENT

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1. Introduction and Plain Language Summary

The draft fourth "National Assessment" ("NA4") of climate change impacts is systematically flawed and requires a complete revision.

NA4 uses a flawed ensemble of models that dramatically overforecast warming of the lower troposphere, with even larger errors in the upper tropical troposphere. The model ensemble also could not accommodate the "pause" or "slowdown" in warming between the two large El Niños of 1997-8 and 2015-6. The distribution of warming rates within the CMIP5 ensemble is not a true indication of a statistical range of prospective warming, as it is a collection of systematic errors. Despite a glib statement about this Assessment fulfilling the terms of the federal Data Quality Act, that is fatuous. The use of systematically failing models does not fulfill the "maximizing the quality, objectivity, utility, and integrity of information" provision of the Act.

Institutional memory relating to the production of previous assessments is strong, and the process itself is long, as the first drafts of this version were written in the middle of the second Obama Administration. They were written largely by the same team that wrote the 2014 Assessment, which NOAA advertised, at its release, was "a key deliverable of President Obama's Climate Action Plan." The first (2000) Assessment used the two most extreme models of the 14 considered for temperature and precipitation. In my review I applied them to 10-year running means of lower-48 temperatures and the residual error was larger than the error of the raw data itself! The historical lineage of the fourth Assessment has all but guaranteed an alarming report, regardless of reality.

USGCRP should produce a reset Assessment, relying on a model or models that work in four dimensions for future guidance and ignoring the ones that don't.

Why wasn't this done to begin with? The model INM-CM4 is spot on, both at the surface and in the vertical, but using it would have largely meant the end of warming as a significant issue. Under a realistic emission scenario (which USGCRP also did not use), INM-CM4 strongly supports the "lukewarm"[1] synthesis of global warming. Given the culture of alarmism that has infected the global change community since before the first (2000) Assessment, using this model would have been a complete turnaround with serious implications.

The new Assessment should employ best scientific practice, and one that weather forecasters use every day. In the climate sphere, billions of dollars are at stake, and reliable forecasts are also critical.

[1] Those who agree on a human influence on global climate, but at, below, or at the bottom of the range specified by the U. N.'s Intergovernmental Panel on Climate Change.

When making a forecast, it's a good idea to look out the window. Meteorologists decide what mix or what individual model is providing the most reliable guidance. Rarely do forecasters average up every available one, because some are better than others, depending upon the situation.

All of the fourth Assessment models other than INM-CM4 forecast the entire tropical troposphere too warm, especially in the upper reaches, and also have the surface too warm.[2] The "pause," which is obvious in both the satellite and HadCRU4 data,[3] wasn't accommodated, as noted by Fyfe et al. (2016).[4] Because INM-CM4 doesn't run hot, it is able to further accommodate the lack of strong warming in the early part of the 21st century.

If one assumes, as the International Energy Agency does,[5] that natural gas is going to continue to replace large amounts of coal energy, 21st century warming predicted by INM-CM4 is approximately 1.5°C, a value so low that the social costs of carbon become the social benefits of lukewarming.

In summary, the USGCRP must hit the reset button now. It should use a methodology that works—i.e. a model that works—rather than a family of failures that tout a future of unwarranted gloom and doom. It would also be wise to rely more heavily on a concentration pathway that recognizes the massive worldwide switch from coal to natural gas for both electrical generation and manufacturing. That's the right way, and the only way to produce a credible Assessment.

I would normally also supply an extensive commentary on the Key Findings, but because an entire new Assessment is warranted, the current ones are likely to change dramatically when the new drafts are released.

Administratively, resetting the Assessment will prove difficult. The leadership is long-standing and descended from the community that produced the previous Assessments. A more diverse team is needed to produce what is likely to be a dramatically different document.

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[2] See the review of this Assessment submitted by Richard McNider and John Christy.

[3] See Footnote 22 near the end of this document.

[4] Fyfe, J.C., et al., 2016. Making sense of the early 2000s warming slowdown. *Nature Climate Change* **6**, 224-228.

[5] IEA, 2017. IEA Sees Global Gas Demand Rising to 2022 as U S Drives Market Transformation. https://www.iea.org/newsroom/news/2017/july/iea-sees-global-gas-demand-rising-to-2022-as-us-drives-market-transformation.html

2. Detailed Review

A Brief Historical Perspective

This is the fourth National Assessment. It continues the tradition established by the first three.

The First National Assessment (2000) used models that were worse than a table of random numbers when applied to ten year running means for lower 48 temperature. The science team knew this and went ahead anyway.[6] Given that these documents are very influential on national and international policy, that was tantamount, in my opinion, to scientific malpractice.[7] It also chose the two most extreme models, for temperature and precipitation, of the suite that it examined.[8] The second (2009) Assessment was so incomplete that it prompted an entire palimpsest. The third (2014) billed itself as "a key deliverable of President Obama's Climate Action Plan," which again received a detailed critical review about its content, illogic, and omissions.

Systematic problems with the Fourth Assessment models

The Fourth National Assessment (hereafter, NA4) is model-based. Quoting from Chapter 2:

> The future projections used in this assessment come from global climate models (GCMs) that reproduce key processes in the earth's climate system using fundamental scientific principles.

It follows that if, as an ensemble, these models are systematically flawed in a significant fashion, it is improper to use them to project the impacts of the climate changes that they predict. That didn't stop the first (2000) Assessment from using models worse than a table of random numbers, or the second and the third Assessments from using models with flaws similar to the ones in the this version (many are simply "improved" versions of second and third Assessment models). But perhaps this review will get a bit more attention than previous ones, as the political climate of Washington recently underwent an unforecast and abrupt change.

The growing disparity between predicted bulk tropospheric temperatures and observed values, especially at altitude in the tropics (see Figure 1), casts overall doubt on the utility of the large ensemble of general circulation models (GCMs) with regard to 21st century temperatures. The current model suite has an average equilibrium climate sensitivity (ECS) of 3.4°C (Andrews, 2012).[9] The disparities may arise as a consequence of the recently acknowledged significant tuning of the GCMs in order for them to simply simulate the evolution of 20th century surface temperatures; see below. Regardless of the cause, these disparities cast doubt on the overall utility of the large ensemble of models with regard to 21st century temperatures.

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[6] I wrote to the chief scientist, Tom Karl, and he emailed me back, that "we ran the test you did but changed the averaging period" from 10-year running means to 1, 5, 10, 20 and 25 years. He kindly included a graph that showed *at all time intervals tested* that the residual variance after applying the models was larger than the raw variance. A modified version (for clarity) can be found as Figure 25, page 109 of my 2016 book *Lukewarming*. I first documented it in 2003 in a chapter, "Science or Political Science? An Assessment of the U.S. National Assessment of the Potential Consequences of Climate Variability and Change." In Gough, M., Ed., *Politicizing Science: The Alchemy of Policymaking*. Hoover, Palo Alto.

[7] This action was exactly analogous to a physician prescribing a medication heor she knows will make the patient worse.

[8] Documented on page 209 of my 2004 book *Meltdown*.

[9] The associated Fifth Assessment Report of the IPCC gives this figure as 3.2°C, but the calculated average is 3.37.

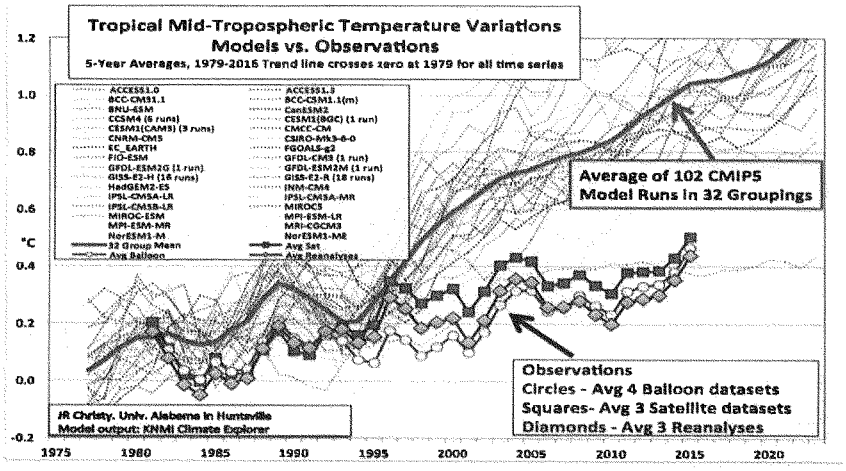

Figure 1. Modelled and observed tropical mid tropospheric (surface-100mb) temperature changes, 1979-2016. From testimony of John Christy to the House Committee on Science, Space and Technology, March 29, 2017. The one model that tracks the observations is INM-CM4. The data are also available in tabular form in the American Meteorological Society's "State of the Climate" report for 2016.

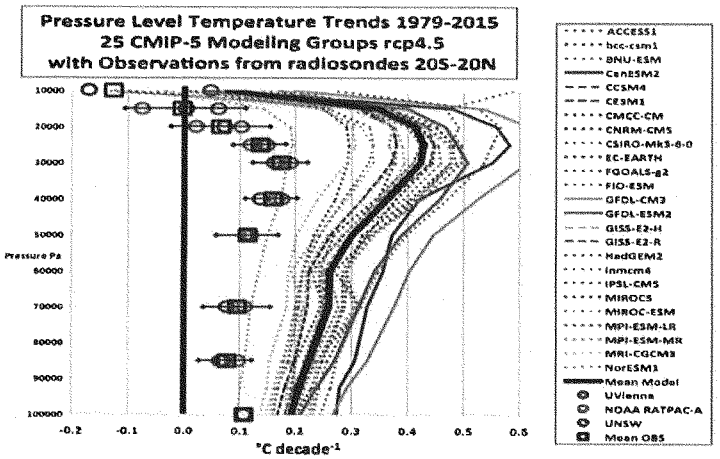

Figure 2. The vertical discrepancy between radiosonde-measured and model predicted tropical temperature trends, 20N-20S, is persistent and very large in the mid and upper troposphere. From Christy and McNider (2017); the exception is again the model INM-CM4.

Similarly, Figure 2 shows the vertical distribution of forecast and observed trends. Commenting on it, Christy and McNider (2017) note:

> In every case, with the exception of the Russian model "inmcm4" below 250hPa, individual tropospheric model trends are larger than the observational average below 100 hPa with the discrepancies largest in the upper troposphere...[10]

The point should be clear: unless INM-CM4 is also making systematic errors with major consequences (which are not apparent), the Assessment should be using it rather than the suite of models that is systematically and dramatically wrong.

This type of exercise is undertaken frequently in operational meteorology. Oftentimes the many global and regional forecast models give conflicting results for a given synoptic situation. Forecasters then examine which ones have been performing well, or which perform better given the situation, and then settle upon one or a blend of models to arrive at the final forecast. *They rarely average all of them up*. Emphasizing the ECMWF model in favor of the GFS for 2013 storm Sandy was a prudent choice in the longer timeframes. Averaging them would have been very costly.

Using the range of models that suffer from considerable bias in order to estimate the statistical distribution of a forecast is a folly of additive error, while using unbiased model(s) (in the global sense) minimizes the probability of such an error.

In the 2017 *Climate Science Special Report* (CSSR) for both surface temperatures and specific impacts, and the draft fourth National Assessment, the range of warming is generated almost exclusively by the models that don't work, and not the model that *works*. This is the central reason why the entire fourth Assessment process must be reset.

To reiterate: A collection of errors biased in one direction is hardly a true estimate of the range of a forecast. It is the opposite, a false estimate from models that are clearly warming the topical troposphere at over twice the observed rate. The warming rate forecast in the zone around 200mb is a stunning six *times* what has been observed in the last 36 years. About 38% of the earth's surface is underneath the zone studied.

The Implications of Shale Gas were not Properly Considered

To compound prospective future errors, the over-reliance on RCP 8.5 in the current Assessment is also questionable. To its credit, the NA4 does repeatedly mention the major displacement of coal with natural gas for electrical generation in the U.S., but fails to note the implication of large-scale international adoption of this switch, and the substitution of gas for coal in worldwide industry. The implication is that RCP 8.5 (mentioned in seven separate textual references (not counting the bibliographies)) is increasingly unlikely.[11]

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[10] Christy, J. R., and R. T. McNider, 2017. Satellite bulk tropospheric temperatures as a metric for climate sensitivity. Asia-Pac. J. Atmos. Sci. **53**, 511-518.

[11] This will be a result of the increasing real per-capita incomes and GDP. When certain levels of affluence are reached, environmental protection becomes affordable and is publicly demanded. This happened in the mid-20th century in the US, beginning with the miasmatic air of Pittsburgh. The horrific air quality in urban China will likely be the first target of any nascent green movement there. The amount of retrofitting of their newer coal plants

Quoting from the International Energy Agency (IEA)

> The global natural gas market is undergoing a major transformation driven by new supplies coming from the United States to meet growing demand in developing countries and industry surpasses the power sector as the largest source of gas demand growth...
>
> The evolution of the role of natural gas in the global energy mix has far-reaching consequences on energy trade, air quality and carbon emissions...
>
> Global gas demand is expected to grow by 1.6% a year...China will account for 40% of this growth.[12]

NA4 should therefore rely more on RCP 6.0 rather than 8.5.

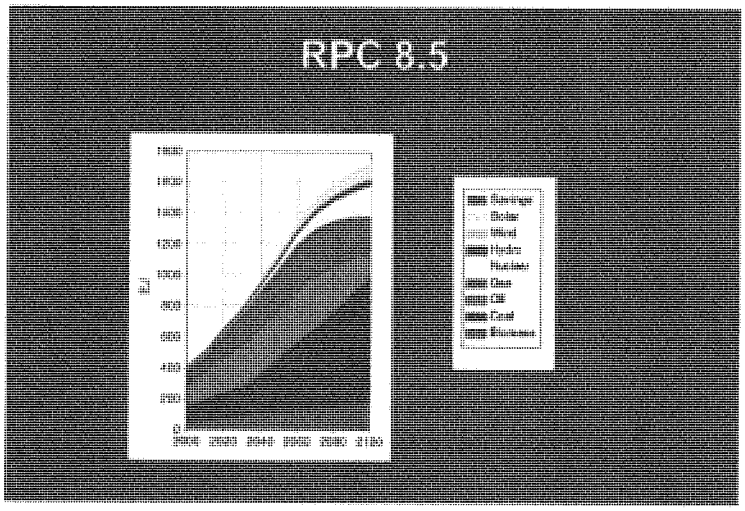

Figure 3. There is no evidence for rapidly increasing displacement of coal with natural gas for electrical generation in in RCP 8.5, even though this is now forecast by the IEA worldwide.

The argument this is simply a U.S. phenomenon is premature. Unless the Chinese, who are the world's largest emitters, are different than people elsewhere, there will ultimately be restive demands to clean their unhealthy, coal-polluted air as their per capita income rises. The abundance of available gas at that time will almost certainly result in major fuel switching.

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remains unknown, but as IEA indicates (above), China will be responsible for the largest percent of gas usage growth in the next five years.

[12] IEA, 2017. IEA Sees Global Gas Demand Rising to 2022 as U S Drives Market Transformation. https://www.iea.org/newsroom/news/2017/july/iea-sees-global-gas-demand-rising-to-2022-as-us-drives-market-transformation.html

The reset NA4 needs to account for this, with an increased emphasis on RCP 6.0.

The Social Cost (or Benefit) of Lukewarming

INM-CM4 is decidedly lukewarm. I used *KNMI Explorer* to estimate 21st century warming—however, unlike for many of the other models, KNMI only has RPC 4.5 and 8.5 for INM-CM4. Using a warming slightly below the midpoint for those two gives a 21st century surface warming of approximately 1.5°. This is quite consistent with the empirical transient sensitivity recently calculated by Christy and McNider (2017).[13]

We therefore used their probability density function in a subsequent calculation by Kevin Dayaratna of the Heritage Foundation using the FUND model to determine an approximate social cost of carbon. We elected to follow the OMB (2004) guidelines that recommended using the robust historical average 7.0% discount rate, as well as the 3.0 it also recommends and the 5.0 used by the Obama Administration.

We show results of with equilibrium climate sensitivity/transient climate sensitivity ratios of 1.3 and 1.7.

Social Costs (Benefits) of a Ton of Carbon Dioxide and Probability of Benefit

1.3 Ratio ECS/TCS

YEAR	3% D.R	5%	7%
2020	(0.55) (.55)	(1.36) (.64)	(1.31) (.72)
2050	1.19 (.46)	(0.39) (.52)	(0.77) (.57)

1.7 Ratio ECS/TCS

2020	4.04 (.23)	0.21 (.36)	(0.86) (.72)
2050	5.99 (.19)	1.25 (.31)	(0.23) (.57)

These results are very similar to what Dayaratna et al. (2017)[14] published last year using the probability density functions for warming of Lewis and Curry (2015).[15] This is expected because it is quite similar to what is derived from Christy and McNider (2017). I fully expect if we used a distribution from INM-CM4 run with RCP 6.0 that there would be similar results.

[13] Christy, J. R., and R. T. McNider, 2017. Satellite bulk tropospheric temperatures as a metric for climate sensitivity. Asia-Pac. J. Atmos. Sci. **53**, 511-518.

[14] Dayaratna, K., McKitrick, R., and D. Kreutzer, 2017. Empirically constrained climate sensitivity and the social cost of carbon. *Climate Change Economics*, April 2017. DOI: http://dx.doi.org/10.1142/S2010007817500063

[15] Lewis, N., and J.A. Curry, 2015. The implications for climate sensitivity of AR5 forcing and heat uptake estimates. Cli. Dyn., **46** 1387-1396.

These are, of course, radically different from the cost estimates emanating from the previous Administration, but it is noteworthy that it specifically omitted the OMB-recommended robust historical discount rate of 7%.

We note that seven of the 12 estimates shown above are net benefits rather than costs. A reset Assessment using ICM-CM4 or a satellite/radiosonde derived probability function for 21st century warming is going to be radically different than estimates using the larger, warm-biased suite of climate models.

We May Never Know the Cause of the Overestimated Bulk Warming

It may be nearly impossible to determine the cause(s) of overforecast bulk warming, but its effects are manifold. By forecasting a much warmer upper troposphere than is being observed, the models must be systematically underestimating tropical precipitation.[16] It would also seem that descending air into the subtropical high pressure systems would be warmer than what is being observed. These two simple examples would have consequences for vegetation; a drier tropical regime would affect the vast tropical rainforests, and warmer descending air is likely to increase desertification in the persistent Hadley cells. Both of these processes will then create their own secondary feedbacks to surface temperature and sensible weather.

If these problems can't be corrected, the reset NA4 may as well exit the business of predicting climate impacts, especially on vegetation, agriculture, and sea level rise. Those impacts are all primarily driven by a rise in temperature, and if too much bulk warming is being demonstrably predicted, NA4 becomes not unlike NA1 (2000), when the science team went ahead anyway after being told (and finding out themselves) that the models were actually supplying negative knowledge, inducing larger residual errors *after* applying them to the raw data. "Damn the data, full speed ahead" can no longer be tolerated.

The problem is that we may never know what has gone wrong with the models as an ensemble. In a paper detailing the process of model tuning, Mauritsen (2012) noted it is apparently impossible to completely know what was done to these models over their historical development. In Mauritsen's words, "model development happens over generations, and it is difficult to describe comprehensively."[17,18]

Significant portions of climate models are therefore black boxes with varying degrees of subjectivity. Recently, Hourdin et al., (2017) issued a rather strident call for more transparency about model tuning.

Left to their own devices, it has long been known[19] that climate models run with increasing atmospheric carbon dioxide only produce too much warming. As a result, internal parameters that ultimately predict

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[16] Unless, of course, this output is systematically "tuned". But, as Mauritsen implied, and Hourdin lamented, we may never know what was done.

[17] Mauritsen, T., et al, 2012. Tuning the Climate of a Global Model. *J. Adv. Modelling Earth Systems* 4, DOI: 10.1029/2012MS000151

[18] Grad students and postdocs marching through the models didn't always keep good notes on what they did.

[19] Tom Wigley wrote of this in an in-house journal *Climate Monitor* in 1987, and it was explicitly acknowledged in the second (1996) Assessment Report of the IPCC.

future climate are tuned to reproduce the global temperature history of the 20th century.[20] Model parameters are tuned to what Hourdin et al. called an "anticipated acceptable range."[21]

NA4 and the accompanying Climate Science Special Report repeatedly state that models show anthropogenic emissions are responsible for almost all 20th century warming.

This is claimed despite the fact that of the two twentieth-century warmings; the first one, approximately from 1910 to 1945, could hardly have been a result of carbon dioxide emissions. The 1910-1945 warming is statistically similar in slope to the 1976-1997 warming.[22]

Ice core data from Law Dome show the surface concentration was only around 298ppm when the first warming began, which gives a CO_2 forcing of +0.35 w/m^2 based upon the standard formula (dRF= 5.35ln(298/279)). Stevens (2015),[23] citing Carslaw et al. (2013) gives a sulfate forcing of -0.3 watts/m^2, resulting in a near-zero net combined forcing. Tuning the models to somehow account for this warming implies an enormous sensitivity. If that were actually true, current temperatures would be so high that there would be little policy debate.

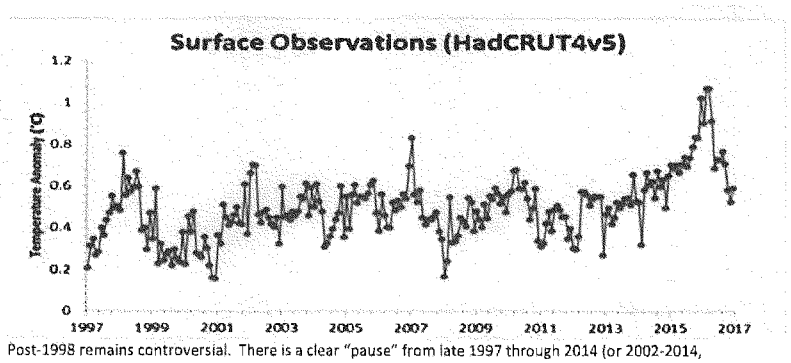
Tuning the models to mimic the historical record and then claiming that anthropogenic emissions explain the early warming is circular reasoning at its finest; *reset NA4 needs to be explicit about this.*

---

[20] From Voosen, 2016: "Indeed, whether climate scientists like to admit it or not, nearly every model has been calibrated precisely to 20th century climate records—it would have ended up in the trash. "It is fair to say that all models have tuned it", says Isaac Held, a scientist at the Geophysical Fluid Dynamics Laboratory, another prominent modelling center in Princeton, New Jersey." (Voosen, P., 2016. Climate scientists open up their black boxes to scrutiny. *Science* **354**, 401-402.)

[21] Hourdin, F., et al., 2017. The art and science of climate model tuning. *Bulletin of the American Meteorological Society*.Https://doi.org/10.1175/BAMS-D-15-0013335.1

[22]



Post-1998 remains controversial. There is a clear "pause" from late 1997 through 2014 (or 2002-2014, after the first ENSO cycle in this plot is complete) evident both the latest version of HadCRUT4 and the UAH lower tropospheric satellite-sensed data.

[23] Stevens, B., 2015. Rethinking the lower bound of aerosol radiative forcing. *J. Clim.* **28**, 4794-4819.

Consequently, we are left with the following unhappy circumstance: it is the modeler, and not the model that decides what the "anticipated acceptable range" of parameters is in order to fit the double peak of warming in the 20th century. Claiming that this is evidence for the reliability of the models' future prediction is fatuous.

In fact, the opposite is true. Each time a model is tuned in search of a particular result, an increment of potential future instability is added. It's not surprising that, in forecast mode, the models make such egregious errors over the entire tropical troposphere.

Data Quality Act

Any Assessment must comply with the Data Quality Act, including a reset NA4. It is doubtful that relying on systematically failing models with parameters tuned to an "anticipated acceptable range" fulfills the Act's requirement to "maximize the quality, objectivity, utility, and integrity of information."

3. Conclusion

This review has demonstrated that NA4 suffers from a fundamental methodological flaw in assuming that models making large bulk errors are representative of a range of future warming. Ubiquitous tuning of the models to the 20th century history hardly increases their reliability. NA4 also pays inadequate attention to the implications of an ongoing seismic shift in world energy towards natural gas. Warming predicted by the one model that does not suffer the bulk errors, coupled with a slightly lower concentration pathway because of forecast switching from coal to natural gas, becomes a net benefit rather than a social cost.

Going back to 2000, there have been persistent problems throughout the entire assessment process,underscoring the need for major administrative change.

For these and other reasons, draft NA4 should be shelved and reset, so that time and resources can be devoted to a new Assessment that corrects and addresses the first three Assessments and the draft NA4.

National Climate Assessment Still Needs a Reset

Marlo Lewis, Jr. • November 30, 2018

The U.S. Global Change Research Program (USGCRP) released Volume II of its Fourth National Climate Assessment (NCA4) report last week on November 23rd. Volume I, published in 2017, claims to present the "foundational science" of climate change. Volume II claims to present "the human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics." The big takeaways are the same as in previous iterations of the NCA:

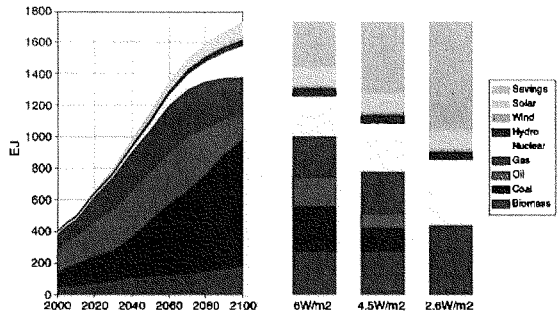
- Climate change impacts are "already being felt in communities across the country."
- As the world warms, floods, droughts, heat waves, wildfires, and storms will increase in frequency and intensity; sea-level rise will accelerate.
- Unless policymakers implement "substantial and sustained global mitigation and regional adaptation efforts," climate change will impose "growing loses" on American infrastructure, forestry, agriculture, military installations, recreation, tourism, labor productivity, economic growth, human health, public safety, and biodiversity.

Predictably, progressive media bashed President Trump for dismissing the dire warnings of the 13 federal agencies that contributed to the report. Defending Trump, Interior Secretary Ryan Zinke opined during a television interview in Sacramento, California that NCA4 relies on worst-case scenarios. Lead author Katherine Hayhoe tweeted in response that "the report considered a very broad range of scenarios, from one where carbon emissions go negative to one where they continue to grow."

Zinke is right about the big picture. The USGCRP modeled climate impacts using four different emission scenarios called representative concentration pathways (RPCs). However, as the report acknowledges, "NCA4 focuses on RCP8.5 as a 'higher' scenario, associated with more warming, and RCP4.5 as a 'lower' scenario with less warming" (p. 6). So, in nearly every case, the general reader sees a range of impacts that go from bad to worse.

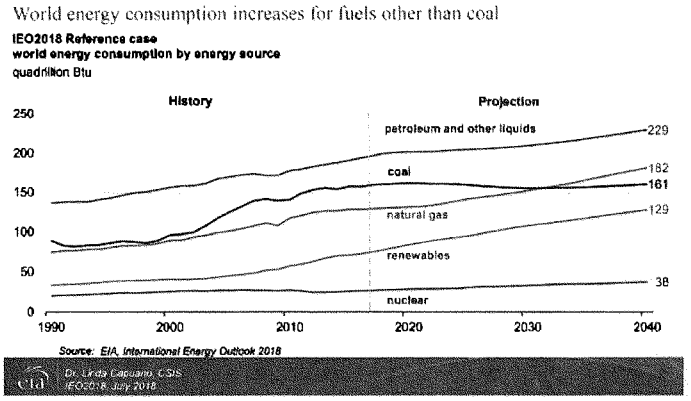
Although the report does not describe RCP8.5 as a "baseline" or "no action" scenario, readers are left with the overwhelming impression that the worst impacts are highly probable absent "significant global mitigation action." But RCP8.5 is not a realistic baseline scenario. It projects higher emission levels in 2100 than about 90 percent of baseline scenarios in the literature. That makes RCP8.5 darn close to being a worst-case scenario.

The core defect of RCP8.5 can be stated in two words: natural gas. RCP8.5 derives from an earlier emission scenario called A2 used by the Intergovernmental Panel on Climate Change (IPPC) in its 2007 Fourth Assessment Report (AR4). The analysts who developed A2 did not foresee the coming U.S. shale boom. RCP8.5 tacitly assumes that coal becomes the world's dominant energy source in the 2040s and continues to expand market share relative to gas through the rest of the century. Coal, of course, is the most carbon-intensive fossil fuel, emitting about twice as much carbon dioxide as natural gas per unit of energy consumed.

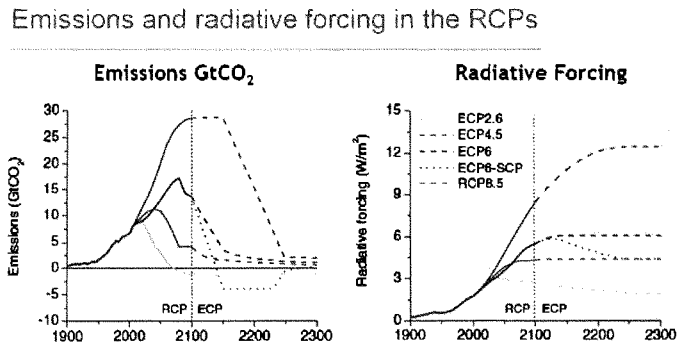


Development of global primary energy supply in RCP8.5 (*left-hand panel*) and global primary energy supply in 2100 in the associated mitigation cases stabilizing radiative forcing at levels of 6, 4.5, and 2.6 W/m^2 (*right-hand bars*). Note that primary energy is accounted using the direct equivalent method

Few experts today expect coal to dominate global energy in the 21st Century. For example, the U.S. Energy Information Administration's 2018 International Energy Outlook projects global consumption of all fuels to increase through 2040 *except coal.*



The NAC4 authors are undoubtedly aware that RCP8.5 is an overheated scenario. Their justification for using it? "Current trends in annual greenhouse gas emissions, globally, are consistent with RCP8.5" (p. 32). Well, of course, current trends are consistent with RCP8.5, because current trends are consistent with all four RCPs. It is only in the 2030s and 2040s that the RCPs noticeably diverge.



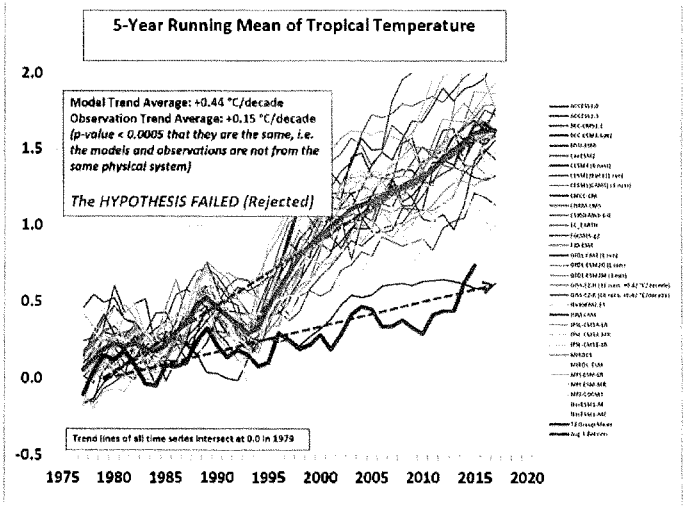
In technical comments submitted in February on the draft NCA4 report, Cato Institute scientist Patrick Michaels called for a "reset" of the Global Change Research Program. It would be "wise," he wrote, "to rely more heavily on a concentration pathway that recognizes the massive worldwide switch from coal to natural gas for both electrical

generation and manufacturing. That's the right way, and the only way to produce a credible Assessment."

More importantly, Michaels also urged the USGCRP to fundamentally change how it models the climate impacts of emission scenarios. Like the IPCC, the USGCRP runs ensembles of numerous models, develops ranges and averages of model-based temperature projections, and infers additional climate change impacts from those projections.

Since most models project more warming than actually observed, the assessments typically end up somewhere between dire and catastrophic, especially when the models are run with an inflated emissions baseline like RCP8.5. The grim assessments generate headlines, fuel activism, and put pressure on policymakers to hammer fossil fuels. However, the results are not scientific verities but artifacts of a bizarre methodology.

The proper approach is to find models that accurately forecast changes in global temperature, and use only those to inform speculation about other potential climate change impacts. As it happens, only one climate model, the Russian INM-CM4, accurately projects warming in the bulk tropical atmosphere where greenhouse theory predicts the most rapid warming will occur. Since INM-CM4 is the only model that works, it should be the basic model for official climate change assessments. In the chart below, courtesy of University of Alabama Huntsville atmospheric scientist John Christy, the purple line is the INM-CM4 projection.



Michaels's comment letter concluded: "If one assumes, as the International Energy Agency does, that natural gas is going to continue to replace large amounts of coal energy, 21st century warming predicted by INM-CM4 is approximately 1.5°C, a value so low that the social costs of carbon become the social benefits of lukewarming."

Earlier this week, Michaels reiterated the case for resetting the U.S. Global Change Research Program:

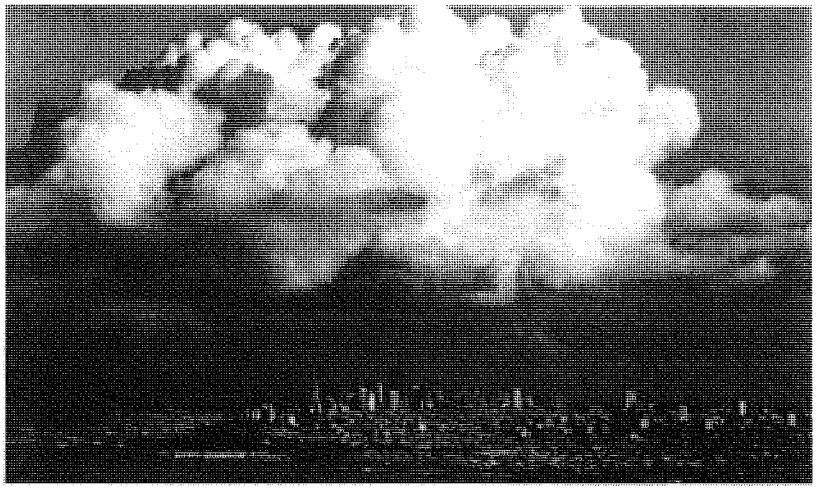
> We contributed extensive public comments on the penultimate draft of the latest Assessment, which has changed very little between the review draft and the final copy. The final version contains the same fatal flaws we noted earlier this year. It's based upon a family of climate models that are predicting far more warming than has been occurring in the all-important tropical atmosphere. It should have used the one model (out of the 102 available runs) that actually gets things right, the Russian INM-CM4, but it relied upon the average warming produced by all 102. INM-CM4 has the least warming of all of them, but doing the right thing—using the one that works—would have pretty much gutted climate change as a serious issue.
>
> These reports take several years to produce, and the current one was largely a product of the Obama Administration. If there's a Trump Administration when the

next one is scheduled (2022), it is likely to be very different. Why the current regime just didn't do as Bush did and simply elide the 1990 law is probably so it will get another crack at it in 2022.

POLITICS & POLICY

Latest Climate Report Feeds into Alarmist Fearmongering

By NICOLAS LORIS | November 29, 2018 6:30 AM



Clouds over the skyline of San Francisco, Calif., in 2014 (Robert Galbraith/Reuters)

The doomsday scenarios in the National Climate Assessment are close to impossible.

The latest National Climate Assessment, released just last week, aims to plant yet another seed of climate catastrophism into the mind of the public. Predictably, its worst-case scenarios got huge play in the media. After all, disaster sells.

But the doomsday scenarios that animated talking heads throughout the weekend aren't just highly unlikely; they're close to impossible. For example, the report speculated that climate "inaction" could result in as much as a 10 percent drop in U.S. gross domestic product by 2100. Admittedly, a lot can happen in 82 years. But a 10 percent drop in GDP is more than twice the loss suffered during the Great Recession.

How could things get so bad? Well, put garbage in, and you'll get garbage out. The study, funded in part by climate warrior Tom Steyer, calculates these costs by assuming that the world will be 15 degrees Fahrenheit warmer by 2100. That mind-boggling assumption is even higher than the worst-case scenario predicted by the United Nations Intergovernmental Panel on Climate Change. In other words, it is completely unrealistic.

Other scary projections in the National Climate Assessment rely on a theoretical climate trajectory known as Representative Concentration Pathway 8.5 (RCP 8.5) — one of four trajectories that climatologists use to estimate the effects of different greenhouse-gas concentrations.

To put it plainly, RCP 8.5 assumes a combination of extreme factors — all bad — that are not likely to all coincide. It assumes "the fastest population growth (a doubling of Earth's population to 12 billion), the lowest rate of technology development, slow GDP growth, a massive increase in world poverty, plus high energy use and emissions."

This extraordinary scenario assumes a massive increase in coal consumption — completely ignoring the dramatic increase in natural-gas production from the shale revolution. It also ignores technological innovations that continue to occur in nuclear and renewable technologies.

NOW WATCH: 'Los Angeles Public School Teachers Go on Strike'

When taking a more realistic view of the future of conventional fuel use and increased greenhouse-gas emissions, the doomsday scenarios vanish. Climatologist Judith Curry recently wrote, "Many 'catastrophic' impacts of climate change don't really kick at the lower CO_2 concentrations, and RCP 8.5 then becomes useful as a 'scare' tactic."

The National Climate Assessment insists that climate change is already taking a heavy toll, and things will only get worse. Global warming has worsened heat waves and wildfires, it claims. And we'll be seeing more hurricanes and floods, too.

But last year's National Climate Assessment on extreme weather tells a different story. As University of Colorado Boulder professor Roger Pielke Jr. pointed out in a Twitter thread in August 2017, there were no increases in drought, no increases in frequency or magnitude of floods, no trends in frequency or intensity of hurricanes, and "low confidence for a detectable human climate change contribution in the Western United States based on existing studies."

It's hard to imagine all of that could be flipped on its head in a matter of a year.

This year's report stresses that it "was created to inform policy-makers and makes no specific recommendations on how to remedy the problem." Yet the takeaway was clear: The cost of inaction is bound to dwarf the cost of any carbon-reduction proposal out there.

The reality, however, is that all of the currently favored proposals for combatting climate change carry significant costs and (here's the even more important part) *would do nothing to mitigate warming*, even if there were a looming catastrophe like the National Climate Assessment imagines.

Just last month, the Intergovernmental Panel on Climate Change proposed a carbon tax of between $135 and $5,500 by the year 2030. An energy tax of that magnitude would bankrupt families and businesses and undoubtedly catapult the world into economic despair.

These policies would simply divert resources away from more valuable use, such as investing in more robust infrastructure to protect against natural disasters or investing in new technologies that make Representative Concentration Pathway 8.5 even more of an afterthought than it already should be.

It's human nature to ponder what-ifs and worse-case scenarios. Every time I board a flight, I think about the plane going down. But I know the statistical likelihood of that happening is near nil. And I certainly don't go around spreading misinformation about how unsafe planes are.

Climate alarmists, however, see things differently. They want the world to share their concerns and seem willing to say "whatever it takes" to get people on board. But propagating improbabilities isn't science. It's irresponsible and does a disservice to the climate discussion broadly.

NICOLAS LORIS — Nicolas Loris is the Heritage Foundation's Morgan Fellow in Energy and Environmental Policy.

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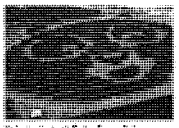

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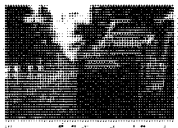

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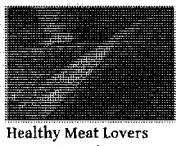

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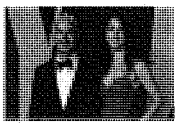

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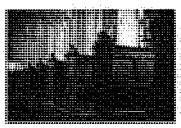

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Senator CAPITO. Thank you, Mr. Chairman.

Thank you, Mr. Wheeler, for your willingness to serve. I know you have been a great Acting Administrator at the EPA and would certainly fill that role in a permanent capacity.

I would like to say to Senator Cardin that I echo his concerns being a State that is impacted by the Chesapeake Watershed. West Virginia obviously has impacts there. I am fully supportive of any work that is being done that benefits not just Maryland but the whole region as well and Virginia, as we discussed.

I would also like to make a comment about the shutdown. I am speaking for myself. I think a Government that is shutdown, I have said, is a useless process. It is painful for your agency and others that are impacted and for the American people, but it is fully within the realm of both Republican and Democratic colleagues to come to a reasonable conclusion. I implore the other side to come to the table.

I would like to ask you about some of the criticisms that have been launched against you and give you a chance to respond. Some of our colleagues have talked about the responsiveness of the EPA to congressional letters of inquiry. Could you flesh that out a little?

Yesterday, there was a letter published that talked about your negligence in recusing yourself certain matters. I would like to give you a chance to address those issues.

Mr. WHEELER. Thank you very much.

Senator CAPITO. If you can do it briefly, that would be great.

Mr. WHEELER. I believe we have been very responsive to the letters from Congress as well as FOIA. In particular, the Administrator's office received a 400 percent increase in FOIA request during this Administration. We have added a lot of additional employees to process things like that.

On the recusal side, I have worked with the career ethics officials at the agency since day 1. I have recused myself from any work involving my prior law firm and all of my prior clients under both the ethics regulations as well as the Trump Ethics Pledge. I have not violated that, and I continue to consult with our career ethics officials on a regular basis.

Senator CAPITO. Thank you.

You and I have talked about PFAS and the concerns I have, not just for West Virginia but nationally. You mentioned the management plan will be coming out and that it has more than one agency weighing in on that.

I could not tell from your answer whether you are going to be setting a standard in that management plan or not.

Mr. WHEELER. We are going to be recommending and moving forward on a number of different areas under a number of different statutes. We are looking on the water side as well as the CERCLA Superfund side and the TSCA Program as well.

When it comes out, this is going to be our management plan, a multimedia approach to dealing with PFAS and PFOA. I do not know the specifics of what is in the management plan because it is currently in interagency review.

Senator CAPITO. OK.

Mr. WHEELER. We were hoping to release it next week, but with the shutdown it is going to be slightly delayed.

Senator CAPITO. Another question I have is on the water management issues. There have been a series of reports in Appalachia saying that leakage out of our municipal and our rural systems of water in West Virginia is that 55 percent is lost at a significant cost to taxpayers, ratepayers, and also to the environment.

For areas short on water, which does not happen to be ours, but for areas short on water, this has to be a daunting challenge for water systems all around the country. I was wondering if this is something you could address at EPA. Are there specific programs there under the Drinking Water State Revolving Fund that we might have some possibility to help these systems get more efficient and be better stewards of the environment through the water systems?

Mr. WHEELER. I think there is. I think you are correct and under the State Revolving Loan Fund, I think we can be helpful. I would certainly be more than happy to work with you and your staff in trying to address those issues in West Virginia.

Senator CAPITO. It is obviously a country-wide issue. I think a lot of it has to do with the age of the systems, when the systems were built, and how they have not been reconstituted.

Also, on the Clean Power Plan replacement, we heard there was an emissions rise in 2018 that was attributed, you said, to a cold winter and hot summer, and also to more economic activity.

Mr. WHEELER. Yes.

Senator CAPITO. You said you expect that to go down over time. What gives you the confidence, if this economy rolls the way we think it is going to, that will actually result?

Mr. WHEELER. We are beginning to see new investments and more energy efficiency not only in the electric power sector but also in automobiles where we still have the CAFE standards in place to reduced emissions going forward.

Once ACE is fully implemented, we will see 34 percent reductions in CO_2 by the 2005 levels. We see across the board for all the industries we are working with also reductions in methane emissions as well, and we believe the CO_2, greenhouse gas emissions will continue to go down.

Senator CAPITO. Thank you.

Senator BARRASSO. Thank you, Senator Capito.

Senator Sanders.

Senator SANDERS. Thank you for being with us, Mr. Wheeler.

President Trump has indicated his belief that climate change is a hoax perhaps perpetrated by the Chinese. Do you agree?

Mr. WHEELER. I believe that climate change is real. I believe man has an impact on it.

Senator SANDERS. The President has said that climate change is a hoax. Do you agree with him?

Mr. WHEELER. I have not used the hoax word myself.

Senator SANDERS. Leading scientists around the world, looking at many, many hundreds of reports, have indicated that we have 12 years in order to stop the worst impacts of climate change. What they are talking about are rising sea levels, more drought, more extreme weather disturbances, more wildfires, more migrations of people.

Do you agree with the scientific community that climate change is a global crisis that must be addressed in an aggressive way?

Mr. WHEELER. I believe that climate change is a global issue that must be addressed globally. No one country can——

Senator SANDERS. That was not my question. I do not have a lot of time, and I would appreciate your answering the questions.

The scientific community has said climate change is one of the great crises facing our planet, and if there is not unprecedented action to transform our energy system away from fossil fuel to sustainable energy and energy efficiency, there will be irreparable damage in the United States and virtually every country on Earth. Do you agree with the scientific community?

Mr. WHEELER. I would not call it the greatest crisis, no, sir. I consider it a huge issue that has to be addressed globally.

Senator SANDERS. I found it interesting, Mr. Wheeler, that you, as the nominee to be the head of the Environmental Protection Agency, in your opening statement, you did not mention the words "climate change." How does it happen that the nominee to be the head of the Environmental Protection Agency does not mention the words "climate change" at a time when the scientific community thinks climate change is the great environmental crisis facing this planet?

Should the American people have confidence that you are going to help us deal with this global crisis?

Mr. WHEELER. Yes, they should have confidence because we are moving forward to reduce CO_2. Our ACE proposal will reduce CO_2 approximately the same levels that the Clean Power Plan would have, if it had been implemented.

We are reducing CO_2 from our CAFE standards and also addressing greenhouse gases through our methane program as well.

Senator SANDERS. You are addressing?

Mr. WHEELER. Yes.

Senator SANDERS. The scientific community tells us that we have a crisis and that we need unprecedented action to dramatically reduce carbon emissions, not only in this country but around the world.

We are the strongest economy in the world. If the leadership of the Environmental Protection Agency in the United States says to China, Russia, India, and countries all over the world, we have to move aggressively to protect this planet for our children and our grandchildren, we can have some impact on the entire international community. Are you prepared to do that?

Mr. WHEELER. We are implementing the laws that Congress has passed.

Senator SANDERS. But you are the leader.

Mr. WHEELER. We will implement those.

Senator SANDERS. That is not what I am talking about. We have people over here who do not believe that climate change is even real, but you are the nominee for the leadership of the Environmental Protection Agency.

Will you provide the leadership in this country and the world to say we are concerned about the future of this planet for our kids and our grandchildren?

Mr. WHEELER. We are concerned about the future of this planet for our children and grandchildren and we are implementing the laws passed by Congress including the Clean Air Act. That is why we are moving forward with the ACE proposal to reduce CO_2 from the electric power generating sector. We are moving forward with the safe CAFE proposal to reduce CO_2 levels.

Senator SANDERS. Is rising sea levels a concern or is that a hoax?

Mr. WHEELER. Rising sea levels is a concern, and we believe in adaptation. We are looking at a number of things.

Senator SANDERS. I am sorry, adaptation?

Mr. WHEELER. Adaptation to help our rising sea levels, absent additional congressional authority.

Senator SANDERS. Here is the point. We have people here who do not believe in climate change, but you are going to be the leader perhaps of the Environmental Protection Agency. We need your assistance now. Are rising sea levels real? What are we going to do to minimize that? Are the wildfires we have seen in California and elsewhere related to climate change, in your judgment?

Mr. WHEELER. There is probably some relation to climate change. I think the biggest issue with the wildfires has been forest management.

Senator SANDERS. That is the biggest issue, not the droughts that we are seeing?

Mr. WHEELER. That is the biggest issue.

Senator SANDERS. Not the droughts?

Mr. WHEELER. In my opinion, yes.

Senator SANDERS. Thank you.

Senator BARRASSO. Thank you, Senator Sanders.

We have already heard from Administrator Wheeler that he supports innovation as a means to reduce emissions. I recently wrote a New York Times op-ed entitled Cut Carbon Through Innovation, Not Regulation. I look forward to working with Acting Administrator Wheeler to support innovation in ways that respect the law and do not unfairly punish businesses.

I ask unanimous consent to enter into the record the New York Times editorial of December 18, 2018, Cut Carbon Through Innovation, Not Regulation.

Senator WHITEHOUSE. Without objection, as long as my response to it can also be put in the record.

Senator BARRASSO. It was a very nice letter to the editor.

Senator WHITEHOUSE. Thank you.

[The referenced information follows:]

The New York Times

Cut Carbon Through Innovation, Not Regulation

People across the world are rejecting the idea that carbon taxes are the answer to lowering emissions.

By John Barrasso
Senator Barrasso, a Republican of Wyoming, is chairman of the Environment and Public Works Committee.

Dec. 18, 2018

Leaders from nearly 200 countries met in Katowice, Poland, last week and agreed to rules to carry out the Paris climate accord. Now that the 22,000 delegates have returned home, there are three truths they need to recognize to make actual progress in the hard work of lowering carbon dioxide emissions across the globe.

The first is, the climate is changing and we, collectively, have a responsibility to do something about it. Second, the United States and the world will continue to rely on affordable and abundant fossil fuels, including coal, to power our economies for decades to come. And third, innovation, not new taxes or punishing global agreements, is the ultimate solution.

People across the world are rejecting the idea that carbon taxes and raising the cost of energy is the answer to lowering emissions. In France, the government just suspended a planned fuel tax increase after some of its citizens took to the streets in protest. And in the United States, the results of November elections showed that these plans and other government interventions are just as unpopular.

Voters in Washington State rejected the creation of an expensive tax on carbon emissions. In Colorado, a ballot measure to severely restrict drilling was defeated. And in Arizona, voters rejected a mandate to make the state's utilities much more dependent on renewable energy by 2030 — regardless of the cost to consumers. All three of these states elected liberal Democrats to Congress on election night.

The United States is currently on track to reduce emissions to 17 percent below 2005 levels by 2025, according to one recent analysis. That's roughly two-thirds of the way to the original United States target under the Paris climate agreement.

The nation is leading the way not because of punishing regulations, restrictive laws or carbon taxes but because of innovation and advanced technology, especially in the energy sector.

Over the past decade, American energy-related carbon dioxide emissions have been falling. Technology breakthroughs have led to an American energy renaissance and a growing economy. As our economy has strengthened, we have lowered emissions.

While the United States cut its emissions in 2017, global emissions moved in the opposite direction. Emission levels increased in China and India, and even rose in the European Union in 2017.

Making energy as clean as we can, as fast as we can, without raising costs to consumers will be accomplished through investment, invention and innovation.

As chairman of the Senate Environment and Public Works Committee, I am working across party lines to support the development of new technologies that will further decrease America's carbon emissions.

Nuclear energy is produced with zero carbon emissions. It has been a source of clean, affordable and reliable power for decades. Nuclear energy provides more than twice the global electricity of wind power and more than five times the amount of solar energy.

Washington needs to make it simpler for innovators who are building state-of-the-art nuclear reactors. These advancements in nuclear energy will create jobs, lower costs and contribute to America's energy security without additional carbon emissions.

Groundbreaking new research in the area of carbon utilization to turn emissions into productive commodities, and even direct air capture of carbon dioxide from the atmosphere, also hold keys to major emission reductions. We have made meaningful progress on bipartisan legislation to help researchers engaged in cutting-edge carbon capture and utilization technologies.

The legislation supports efforts to find profitable uses for the captured carbon dioxide. The legislation will also simplify the process for building carbon dioxide pipelines, so that we can safely move the gas to where it is needed.

A leading commercial use of captured carbon dioxide is a process called enhanced oil recovery. By injecting carbon dioxide into an otherwise unproductive well, oil can be economically extracted. This is good for the environment and the economy — producing more American energy and sequestering carbon dioxide underground.

In addition to being used for enhanced oil recovery, carbon has the potential to be repurposed in building materials, medical supplies and manufactured goods.

Citizens around the world will continue to reject climate policies that cost them personally, either by direct taxation or by undermining the competitiveness of their own economies. The sooner the world's leaders accept this reality, the sooner we will be able to put new and lasting solutions in place.

Senator John Barrasso was an orthopedic surgeon before joining the Senate in 2007. In addition to heading the Environment and Public Works Committee, he is a member of the Energy and Natural Resources Committee.

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The New York Times

LETTER

Taxing Carbon Emissions

Senator Sheldon Whitehouse writes that "the savings from avoiding climate catastrophe are immense."

Dec. 30, 2018

To the Editor:

I must respectfully disagree with my friend John Barrasso's Op-Ed article ("Cut Carbon Through Innovation, Not Regulation," nytimes.com, Dec. 18).

First, the referendum result in Washington State looked like more relentless campaigning by the fossil fuel industry against climate action; without that industry onslaught, the carbon tax referendum there would probably have passed.

Second, a carbon tax is not "expensive," except maybe for fossil fuel interests, as in our proposals all the money goes back to the public. In addition, taxing carbon moves energy markets toward cheaper renewables. On balance, people save money.

On top of that, the savings from avoiding climate catastrophes are immense. If you really want to innovate, there has to be a cost to carbon pollution. Without that, where is the incentive to innovate?

Today, fossil fuel enjoys a $700 billion-a-year subsidy in the United States, according to the International Monetary Fund. That subsidy warps the economy; it discourages innovation.

We need to come together to solve this problem, not let the fossil fuel industry's talking points lead us away from a meaningful solution because leading us astray suits its interests.

Sheldon Whitehouse
Newport, R.I.
The writer, a Democrat, is a United States senator from Rhode Island.

A version of this article appears in print on Dec. 31, 2018, on Page A22 of the New York edition with the headline: Taxing Carbon Emissions

Senator SANDERS. By the way, Mr. Chairman, may I place an article in the record in response as well?

Senator BARRASSO. Yes, without objection.

[The referenced information was not received at time of print.]

Senator BARRASSO. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Mr. Wheeler, I am going to give you an opportunity to share a bit in terms of the approaches we need on an international basis, but before we get into that, I would like some specific thoughts with regard to an item you do have control over, and that is the nationwide plan to develop E15 markets.

Mr. Wheeler, last week, an EPA spokesman commented on the EPA's proposal to permit the sale of year-round E15, which are 15 percent ethanol and 85 percent regular petroleum products.

The quote that was given to us is this: "This is a priority for both President Trump and Acting Administrator Wheeler. The ongoing partial shutdown will not impede the EPA's ability to keep our deadline."

I think one of the concerns a lot of producers in the upper Midwest have with regard to ethanol is in order to get into the summer driving season, we really need to have the guidelines and rules laid out as quickly as possible.

Do you believe you will be able to commit to finalizing EPA's rule permitting year-round sale of E15 before the summer driving season starts?

Mr. WHEELER. As of today, yes, but I do caveat that with we are unable to work on it right now during the Government shutdown.

Senator ROUNDS. Where are you in the process, and when do you expect the proposed rule to be released? What is your best guess? I understand you have a Government shutdown, and you have to work around it as well.

Mr. WHEELER. I believe we were originally planning on issuing the proposal in February. I kept the EPA open an additional week longer than the rest of the Federal Government, so we have not been shut down as long as some of the other Federal agencies and departments.

It is not a day for day exchange as far as how much longer it will take us on the proposal, but we may be slightly delayed at this point, but we will get it done before the summer driving season provided we are back.

Senator ROUNDS. In a reasonable length of time?

Mr. WHEELER. Reasonable time.

Senator ROUNDS. Within the law, small petroleum refineries are offered the opportunity to request a rollback on their requirement to actually incorporate ethanol into their products. Right now that amounts to about a 2.25 billion gallon per year reduction in the total amount of ethanol that has been incorporated into the fuel supplies.

I do not think the original intent of Congress was that reduces the total amount of ethanol that is actually being marketed. Can you share with us your thoughts about the options we have when we recognize the law allows those refineries to take a reduction or apply for a reduction?

What guidelines, alternatives, or authority do you have to try to still meet the original goals for ethanol production while at the same time honoring the guidelines in the law that allows those smaller refineries a hardship exemption? Can that exemption be reduced if you feel you cannot meet the guidelines Congress established with regard to the RVOs?

Mr. WHEELER. As you know, Senator, we have had three court cases on the small refinery program instigated during the Obama administration when they were not granting any small refinery exemptions. EPA has lost all three in the courts.

We are moving forward to implement the small refinery exemptions as included in the RFS program as part of the Energy Policy Act of 2005, Clean Air Act, but it has also been encouraged through the appropriations process. We have appropriations language telling us to implement the small refinery exemption program as well.

You are correct. There are two competing issues there. If you grant a small refinery, it takes barrels away from the overall RFS goal of 15 billion gallons. There is not a lot of leeway there for us. It depends somewhat on the timing of the applications.

If we were to reduce the 15 billion gallons by the amount we grant, you would end up having a rolling impact on having more refineries being subjected to higher levels of the ethanol mandate and end up having even more refineries being eligible for the exemption.

We have tried to provide more transparency. We started the dashboard this past fall so that everyone understands what we are doing with the small refinery exemption. We are also taking a hard look at the overall numbers through our reset program. We intend to move forward with both the reset, the E15 and our RVOs. We are hoping to propose all three of those in February.

Senator ROUNDS. Very good. Thank you.

My time has expired. Thank you, Mr. Chairman.

Senator BARRASSO. Senator Whitehouse.

Senator WHITEHOUSE. Thank you very much.

Welcome, Mr. Wheeler. I wanted to let you know that I appreciate the polite and professional demeanor that you have brought to your task. Substantively, I continue to believe that you have your thumb, wrist, forearm, and elbow on the scales in virtually every determination that you can in favor of the fossil fuel industry. I think that is very unfortunate.

I do think there is a baseline that we should work off of straight answers that are truthful and complete. I would note with respect to your recent answers to Senator Sanders about the CAFE standards, the Federal Register analysis, your analysis, of the CAFE standard proposal you have increases CO_2 emissions year after year after year after year up to 9 percent increased CO_2 emissions by 2035 relative to the existing baseline.

I do not think it is fair to say you are taking action to help the carbon emissions problem when your proposal is worse than the baseline you began with of the Obama CAFE standards. I would put the page into the record, page 43327.

Similarly, you referred to your ACE Program replacing the Clean Power Plan as being something that would reduce carbon emissions. Again, your own analysis in the Federal Register, the Gov-

ernment's own analysis in the Federal Register shows that compared to the Clean Power Plan, your proposal will raise carbon emissions—CO_2 emissions—by tens of millions of tons every single year, including, for example, in 2030 raising it by 60 million tons in that year.

I would like to put those two pages into the record.

Senator BARRASSO. Without objection.

[The referenced information was not received at time of print.]

Senator WHITEHOUSE. When you were last here on November 8, 2017, for your confirmation hearing as Deputy, I asked what you knew about your client, Bob Murray's so called action plan, that he was running around bragging was being implemented by Scott Pruitt and the Trump administration.

Here is what you told me: "I did not work on the plan, and I do not have a copy of it. I saw it briefly at the beginning of the year, but I do not have a copy of it. I looked at it and handed it back to Bob Murray." I think the reasonable conclusion from that testimony is that you really only had a hand on it briefly and only saw it very briefly.

Scroll forward to December 6, 2017, when we learned by published reports on March 29, 2017, you attended a meeting between your client, Bob Murray, and Energy Secretary Rick Perry, where this action plan was discussed.

There you are, and there is Murray. If we go on to the next photograph, you can see this action plan was right there in the room. It was a nice cozy meeting. Let's show the bear hug photo. That is really a sweet regulatory relationship.

Mr. WHEELER. For the record, that is not me, though.

Senator WHITEHOUSE. No, no, that is your client, Mr. Murray.

We later obtained a copy of the Murray action plan which was in that room with Secretary Perry. It turns out it was also provided to Vice President Pence and provided to former EPA Administrator Pruitt.

You arranged for Murray to meet with Perry. You tried to schedule a meeting with Pruitt, but he fell ill, and the meeting did not take place. Murray was scheduled to meet with Pruitt that same day.

Can you tell me now how many meetings with Trump administration officials for Bob Murray did you arrange, attempt to arrange, or attend, and with whom?

Mr. WHEELER. Yes, sir. First of all, I did not try to arrange the meeting with Scott Pruitt. Somebody else in my firm did that. The meeting with Secretary Perry, the purpose of that meeting was to talk about the relief, and I forget what it was called at the time.

Senator WHITEHOUSE. My question was quite specific, which was how many meetings with Trump administration officials did you arrange or attend for Mr. Murray?

Mr. WHEELER. The meeting with Secretary Perry, and then I believe we had an additional meeting at the White House for the energy advisor there. I did not attempt to arrange or attend any meetings where Mr. Murray attended.

Senator WHITEHOUSE. I am sorry, Mr. Wheeler. My time has expired. I do not want to play gotcha with you. What I do want is truthful, complete factual answers about this. I am going to expand

on these questions in questions for the record. I expect you to provide complete and truthful answers as if under oath here at the hearing. Is that understood between us?

Mr. WHEELER. Absolutely.

Senator WHITEHOUSE. Thank you.

Senator BARRASSO. Thank you, Senator Whitehouse.

Before heading to Senator Boozman, Senator Inhofe.

Senator INHOFE. Thank you.

There is an editorial in the Investor's Business Daily that looks at the Government charts that map out trends in hurricanes, tornadoes, droughts, wildfires, and all that. There is no upward trend in extreme weather, but instead it shows there is no trend in any of them.

I would ask this be made a part of the record at this point.

Senator BARRASSO. Without objection.

[The referenced information follows:]

INVESTOR'S BUSINESS DAILY®

Despite What You've Heard, Global Warming Isn't Making Weather More Extreme

1-04-2018

Climate Myths: We keep reading about how the extreme weather of 2017 is the "new normal" thanks to **global warming** — even if the weather in question is frigid air. But the data don't show any trend in extreme weather events in the U.S. for decades. Science, anyone?

The latest to make this "new normal" claim is Munich RE, which issued its annual report on the damage costs from hurricanes, floods, wildfires and the like on Thursday.

According to the report, insurers paid out a record $135 billion because of these disasters, and total losses amounted to $330 billion, the second worst since 2011. It was also, the report says, the costliest hurricane season on record. And if you look at the chart in the report, it does appear that the cost of natural disasters has been on the uptrend since 1980.

Naturally, climate change advocates point to this as further proof that the increase in CO2 levels is already causing calamities around the world. "As human-induced climate change continues to progress, extreme weather is becoming more frequent and dangerous," is how the Environmental Defense Fund put it.

Munich RE's own Corporate Climate Center head claims that "2017 was not an outlier" and that "we must have on our radar the trend of new magnitudes."

No Hidden Agenda: Get News From A Pro-Free Market, Pro-Growth Perspective

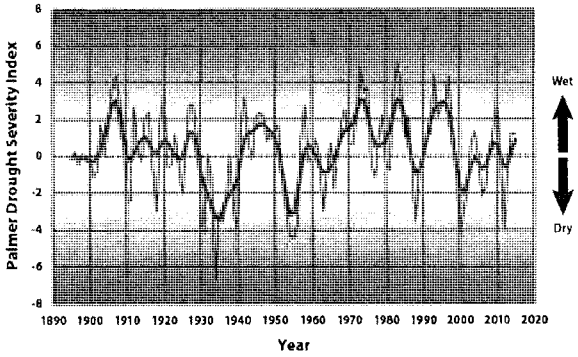
INVESTOR'S BUSINESS DAILY®

But what evidence is there that extreme weather "is becoming more frequent and dangerous." In the U.S., there isn't any.

If you don't believe that, then look at the series of charts below, which are taken from government sites, that depict trends in hurricanes, tornadoes, droughts and wildfires — all of which should be, according to environmentalists, on the uptrend.

What do you see in these charts. *There is no trend in any of them.*

Average Drought Conditions In the Contiguous 48 States, 1895–2015



Data source: NOAA (National Oceanic and Atmospheric Administration) 2016. National Centers for Environmental Information. Accessed January 2016, www7.ncdc.noaa.gov/CDO/CDODivisionalSelect.js.

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

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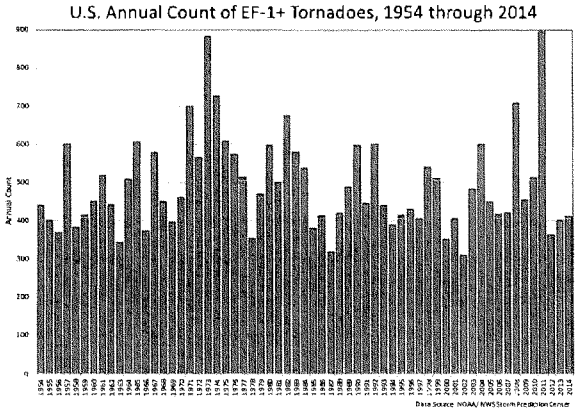

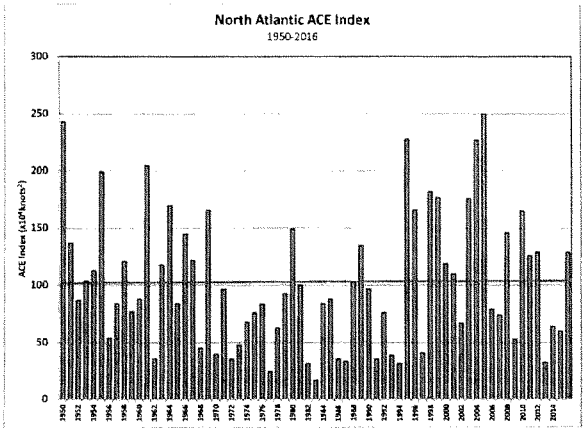

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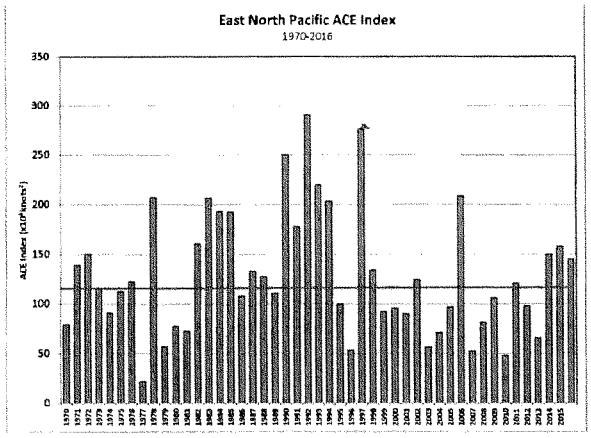

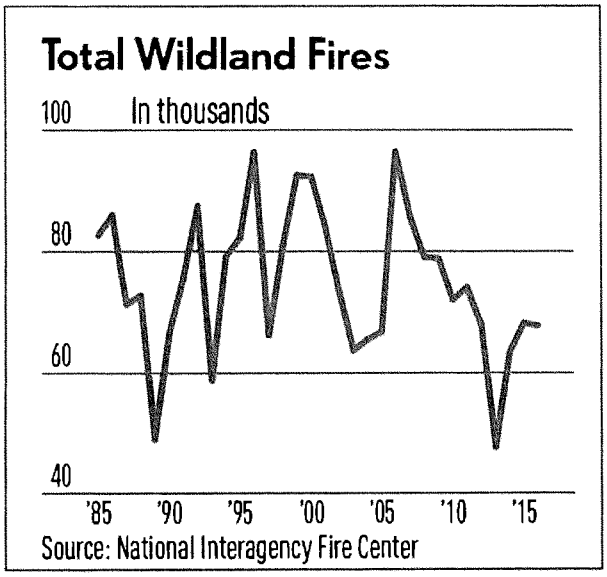

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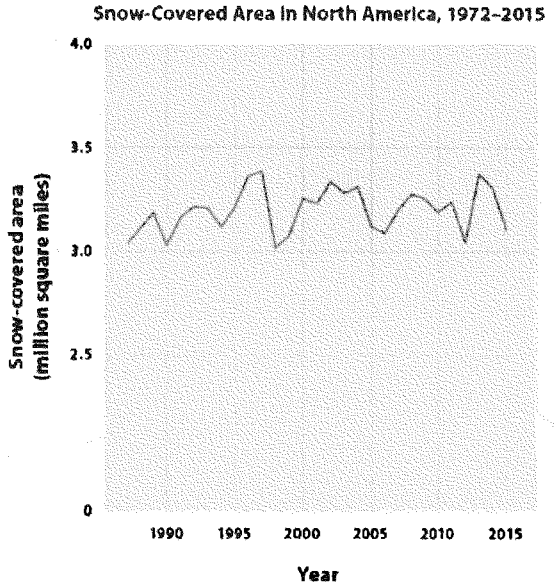

Look at the data on drought conditions, from the EPA. There is no meaningful increase from 1900 to 2016. In fact, the past decade has been relatively mild on the drought front, with several years below average.

The same is true when it comes to tornadoes. The number of tornadoes in 2014 was below the number in 1954, National Oceanic and Atmospheric Association data show. Indeed, the trend line seems to indicate that tornado activity has been lower since the mid-1980s than it was in three decades before that.

What about hurricanes? Yes, this year was a bad one in terms of the number and damage caused by hurricanes. But these storms came after years of lower than normal hurricane activity, both in the Atlantic and in the Pacific. NOAA data show the annual Accumulated Cyclone Energy (ACE) in each region going back to 1970.

INVESTOR'S BUSINESS DAILY®

As NOAA explains "The ACE index is used to calculate the intensity of the hurricane season and is a function of the wind speed and duration of each tropical cyclone." Can anyone see a discernible upward trend in this index in the past 46 years? As with tornadoes, the index seems to have *declined* since the 1980s.

Wildfires? Sorry, but as with the other natural disasters, there's nothing here to validate the environmentalists scare stories, either. According to the National Interagency Fire Center, there were 67,743 wildfires in 2016. That's down from more than 85,000 in 1986. By December 22 of last year, there had been about 66,000 fires, NIFC data show.

The snowfall trend hasn't changed in decades, either, according to EPA data, although you'd think there'd be less snow as the planet warms. Of course, whenever there's a blizzard or a blast of arctic air — as with the "bomb cyclone" in the northeast — environmentalists start mewling about how that, too, is a sign of global warming. So if there's no trend one way or another, what does that mean?

Even global temperatures aren't rising as fast as the global warming computer models say they should be, as we **pointed out in this space recently**.

Yet despite these data, story after story continues to peddle the claim that the weather is getting more extreme, using whatever recent string of bad weather as the hook.

OK, but what about the Munich RE numbers showing the continued increase in costs? That can easily be explained by the fact that the past several decades have seen increases in development and population in areas that are prone to severe weather.

If a **hurricane** battered Florida 100 years ago, the monetary damages would be far, far less than today — even if you adjust for inflation — for the simple reason that Florida's population and its economy have exploded over the intervening years.

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It's also not inconceivable that Munich RE could have a vested interest in playing up the potential for climate-caused natural disasters, as a way to justify rate increases. That would present a conflict of interest that journalists — normally on guard for things — are noticeably disinterested in exploring.

In any case, the question remains: If climate change is supposed to unleash waves of horrifying natural disasters as climate experts claim, why aren't we seeing any evidence of it here?

https://www.investors.com/politics/editorials/despite-what-youve-heard-global-warming-isnt-making-weather-more-extreme/

Senator BARRASSO. Senator Boozman.

Senator BOOZMAN. Thank you, Mr. Chairman.

Thank you for being here and your willingness to serve.

First of all, I want to thank you and your staff for your timely response. We have an issue going on in Bella Vista, Arkansas, with a fire that has to do with a stump disposal. Your staff has been very, very good. This is the State's problem, but you do have the expertise on staff to help them.

Senator INHOFE. Senator Boozman, could I interrupt for just a moment? I dropped the ball here. You had agreed to help out Senator Ernst by allowing her to go first. Would you still like to do that?

Senator BOOZMAN. Go ahead.

Senator ERNST. I still have some time.

Senator BOOZMAN. OK. Are you sure?

Senator ERNST. Yes.

Senator BOOZMAN. Like I said, thank you for doing that. I think it is a great example of the agency working with States in situations like that. We need more of that. Thank you very much.

Mr. WHEELER. Thank you, Senator.

Senator BOOZMAN. Over the years, you were an integral part of helping this Committee pass many important pieces of legislation. You understand the work that goes into getting comprehensive bipartisan legislation passed, which this Committee can be very proud of. We have passed a bunch of that.

How do you feel your role as a staff member on the EPW Committee has prepared you to bring people from all walks of life to the table to develop and implement important EPA regulations?

Mr. WHEELER. Thank you, Senator.

I think it has helped me a lot. I worked on several highway bills. I was the staff director for the 2005 highway bill that we did as well as several WRDA bills. I brought together people on both sides.

Oftentimes on the highway side, it was people from not necessarily different parties, but different sized States in different parts of the country and learning about the issues that impact different States, small States, large States, populated States, and sparsely populated States. I am thinking of Alaska and Wyoming in particular.

It really does educate someone on how to address large scale problems that face the entire country. That has helped me in my time so far at EPA.

Senator BOOZMAN. Very good.

During the previous Administration, there was concern that rules were developed not based on sound science but on political ideology. Under your leadership, can we expect the EPA to be more transparent regarding how rules are developed?

Further, as Administrator of the EPA, can we count on you to base all of your decisions on the rule of law and not on the Administration's or even your own political ideology?

Mr. WHEELER. Absolutely. We are following not just the statutes but also the Supreme Court cases as well. I know there are cases where people on the left are not happy that we are moving forward with the solutions, and people on the right are not happy we are

moving forward with the solutions. It is my job as Administrator to follow the law and follow Supreme Court cases.

Senator BOOZMAN. Very good.

In your time at EPA and at the EPW Committee, you worked hard to improve environmental outcomes while providing regulatory certainty for the country. Can you please explain the environmental and economic benefits regulatory certainty provides? That is what we hear so much that you can play with good or bad rules, but if you do not know what the rules are, it is very, very difficult.

Mr. WHEELER. Absolutely. I think our proposal for WOTUS regulation is a perfect example of that. As I mentioned earlier, I think it is really important for a property owner to be able to stand on his or her own property and be able to tell whether or not they have Federal water on their property.

By clearly defining what is and is not, in defining what is not a water of the U.S. is just as important as defining what is and would give that certainty to the American public and allow people to use their property and land, prosper, and help the entire country. I think that is key and important.

Senator BOOZMAN. Criticism of EPA during the previous Administration was the agency's disconnect with rural America. Many hardworking Americans in rural States felt they did not have a voice and their opinions did not matter.

What have you done and what do you plan to do in the future to facilitate a stronger level of trust between EPA and rural America? You just mentioned Waters of the U.S.

Mr. WHEELER. I try to get out of DC out of the office as much as I can, and travel around the country. I have met with farmers leading up to our WOTUS proposal. I met with farmers all over the country.

I was out in California meeting with farmers, in Kentucky, Montana, and Tennessee. It is real important for me to hear from people as to what their issues are and what their concerns are about. The farmers and the agriculture community are good stewards of the land. We need to make sure we are working in conjunction with them to protect the land.

Senator BOOZMAN. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Boozman.

Senator CARPER. Mr. Chairman.

Senator BARRASSO. Senator Carper.

Senator CARPER. Mr. Chairman, I ask unanimous consent to submit for the record an article and letter regarding EPA's dismissal of the Particulate Matter Review Panel and the agency's insistence on moving forward with its secret science proposal limiting scientist input for advisory panels while also attempting to ignore scientific studies where the underlying data has not been made public will greatly hinder EPA's ability to use the best available science to protect human health and the environment.

Thank you.

Senator BARRASSO. Without objection.

[The referenced information follows:]

To: Acting Administrator Andrew Wheeler, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Mail Code 1101A, Washington, DC 20460

We write to express our deep concern with the recent dismissal of the Particulate Matter Review Panel, a long-standing and indispensable group of technical experts reporting to the Clean Air Scientific Advisory Committee (CASAC).

For the past 40 years, the United States has been well-served by independent, data-driven science, and this has enabled the Environmental Protection Agency (EPA) to meet part of its fundamental mission by protecting the public from air pollution. Non-political, fact-guided examination by scientific experts, such as those formerly comprising the Particulate Matter Review Panel, is essential for the EPA to receive the best scientific advice needed to protect public health. This process has always taken place in a transparent environment in order for all voices to be considered and decisions to be grounded in evidence.

The science of particulate matter's impact on public health is a complex one that requires a qualified panel of experts. Particulate matter is an especially complicated pollutant because, unlike other EPA criteria pollutants, it is comprised of a mixture of many different chemical compounds that vary in concentration, composition, and physical size. Some of these compounds—even at low concentrations—are likely to pose disproportionate health risks to vulnerable populations throughout the country. In fact, exposure to particulate matter causes more than 88,000 early deaths[1] per year in the United States—more than firearms and motor vehicle traffic deaths combined[2]—and this number appears to be growing over time. New science continues to be reported each week that requires interpretation by qualified experts who can apply understanding, scrutiny, and constructive criticism to each published report.

Without sufficient expertise by qualified, independent scientists, the EPA's air pollution decisions are likely to lack the information necessary to provide an honest assessment of particulate matter impacts on health. The end result may be particulate matter standards that insufficiently protect the United States public, especially our most susceptible populations such as children and the elderly.

As professional scientists and engineers, we strongly object to sidelining science in this decisionmaking process. We strongly urge you to reinstate the Particulate Matter Review Panel to provide the Clean Air Scientific Advisory Committee, as well as your agency, with the best-possible scientific understanding.

Sincerely,

We, the undersigned 206 scientists and engineers with expertise in air quality, environmental sciences, and public health.

---

[1] Cohen AJ, Brauer M, Burnett R, Anderson HR, Frostad J, Estep K, et al. 2017. Estimates and 25-year trends of the global burden of disease attributable to ambient air pollution: An analysis of data from the global burden of diseases study 2015. Lancet 389:1907-1918.

[2] Murphy SL, Xu J, Kochanek KD, Curtin SC, Arias E. 2017. National Vital Statistics Reports: Deaths: Final Data for 2015. Centers for Disease Control and Prevention. Vol 66 No 6. Online at https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_06.pdf.

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EPA to pursue final 'science transparency' rule in 2019

BY TIMOTHY CAMA - 12/14/18 05:15 PM EST

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The Environmental Protection Agency (EPA) plans to pursue next year a final version of its much-criticized rule that would restrict the scientific studies it can use to justify regulations.

In a Friday interview with The Hill, acting EPA chief Andrew Wheeler dismissed the idea that the science transparency regulation was on the "back burner" since the administration recently listed it as a "long-term" regulatory action.

"It is not a back-burner issue. I feel strongly about that," Wheeler said. "And we will move forward to finalize that next year."

The transparency rule was a key priority of Wheeler's predecessor, Scott Pruitt, before he resigned from the agency in July under a slew of ethics and spending scandals.

But Wheeler made it clear that he isn't letting it fall by the wayside.

"I've worked on those issues for over 20 years. So I feel very strongly about science transparency," said Wheeler, who has previously served as a career EPA employee, a GOP Senate aide and an energy industry lobbyist.

Under the proposal, the EPA would only be able to use scientific data and studies if they are reproducible and the underlying data can be made public, among other factors, with some exceptions, including for personal health data.

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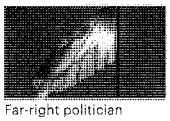
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Republicans and regulated industries have been pushing similar proposals for years, arguing that the EPA previously relied too much on "secret" science that could not be fully scrutinized.

"I fundamentally believe that the more information that we put out as an agency, the better our decisions will be and the more confidence the public will have in what we're doing," Wheeler said.

"And I think if we're going forward with a regulation, particularly a major regulation, we need to tell the American public, what are we using for basis? How did we decide what we're deciding? We need to put that information out there."

Wheeler rejected the main criticism from opponents of the rule, that it is meant to restrict the agency's ability to regulate by putting out of reach large bodies of valuable science, such as many epidemiological studies that by their nature cannot be reproduced.

"I don't think it's designed to restrict what we use. It's designed to get the information out to the public. The critics look at it as 'oh, you're trying to get rid of a lot of the studies, you're trying to restrict what the agency can use.' No," he said.

"And part of it is to send a signal to the research community that you need to make your data available to the public. Particularly if the United States government is paying for it. But we need to make the data available to the public."

Wheeler's opponents had read as a positive sign an October report by the White House Office of Management and Budget that the proposal was either dead or not a priority for the EPA, since it was listed in "long-term" actions that wouldn't be finalized before 2020 at the earliest.

For those critics, Wheeler's dedication to the rule is concerning.

California Attorney General Xavier Becerra, who has sued the Trump administration's EPA numerous times — frequently with success — said if the science rule moves forward, he'll fight it.

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"If that's the case, California wouldn't stand for this and we'd urge EPA to get back to its main mission: protecting our environment and the health of our families from California to Maine," he said in a statement.

"Not only would this rule limit the kinds of facts and science EPA can consider in rulemaking, it would cripple EPA's ability to fully assess the public health impact of its decisions."

Gretchen Goldman, an environmental engineer and research director for the Union of Concerned Scientists's Center for Science and Democracy,

said the April proposal is a long way from being anything that could reasonably be implemented.

"He has a lot of to do, given all of the problems with the current rule and the degree to which it wouldn't work," Goldman said.

"It's completely unworkable. It's a solution without a problem," she said of the proposal. "It would create huge burdens both on the EPA and on the scientific community that would have to implement this."

TAGS XAVIER BECERRA SCOTT PRUITT ENVIRONMENT ENVIRONMENTAL PROTECTION AGENCY EPA SCIENCE TRANSPARENCY

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EPA fight against 'secret science' slowed amid pushback from researchers

Scientists said the push was aimed at limiting research to regulate industry.

By Stephanie Ebbs and Anne Flaherty
Oct 17, 2018 4:38 PM ET

00:38

SPECIAL REPORT: EPA chief Scott Pruitt has resigned

A furious public response has slowed down the Trump administration's plan to stop using so-called "secret science," a move that scientists complained could have restricted the types of research used to regulate toxins, pesticides and pollution.

Six months ago, then-EPA chief Scott Pruitt said his agency would demand that raw data behind every study is made public before being used to regulate the environment.

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(MORE: Pruitt wants EPA to stop basing rules on what he calls 'secret science')

"Americans deserve to assess the legitimacy of the science underpinning EPA decisions that may impact their lives," he said at the time.

The scientific community was outraged. They noted that such a rule could knock out from consideration studies that use patient medical records that can be critical to drawing links between the environment and public health, such as air pollution. Such records must be kept confidential under the law.

Pruitt later resigned under a cloud of ethical inquiries, including allegations that he struck a sweetheart real estate deal with a lobbyist. He was replaced by his deputy, Andrew Wheeler, a former coal lobbyist.

(MORE: Trump says EPA administrator Pruitt chose to resign, 'Scott felt that he was a distraction')

On Wednesday, the EPA listed the rule as long-term, meaning it doesn't expect to "publish an action within the next 12 months," according to EPA spokesman Michael Abboud.

He later said the agency is working as expeditiously as possible on the rule and could move on it sooner, but said it has to respond to more than half a million comments and complete the rest of the official process before the rule is final.

The EPA was inundated with 597,000 written comments in just three months and a July 17 hearing involved nearly 100 speakers on the subject, including members of Congress. Officials said they didn't want to rush the review process and don't have a set deadline for the rule.

(MORE: Environmental, health advocates speak out against EPA 'secret science' rule)

"This is not a delay," said Abboud. "The agency is continuing its internal rulemaking development process for this action. The spring agenda gave no deadline on a final rule."

Gina McCarthy, who led the EPA under President Barack Obama, said the proposed rule could undermine rules intended to protect public health because the studies used to support those rules rely on private health data.

"Don't be fooled by this talk of transparency. [Pruitt] and some conservative members of Congress are setting up a nonexistent problem in order to prevent the E.P.A. from using the best available science," McCarthy wrote in a New York Times op-ed with the former head of the EPA's air office.

October 17, 2018

EPA 'Secret Science' Rule May Not See Daylight Until 2020 (1)

From Environment & Energy Report REQUEST A DEMO

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By Abby Smith

The EPA's plans to restrict the type of science it will use to craft regulations is on the back burner for now.

The Environmental Protection Agency is pushing back its goal to issue the rule until January 2020, according to the administration's fall regulatory agenda released Oct. 17.

That timeline means the April 30 proposal (RIN:2018-AA14) could languish at the agency for nearly two years. Former EPA Administrator Scott Pruitt had rushed out the plans to change what he dubbed the agency's "secret science" rules, but even supporters of the approach have suggested it was poorly crafted.

The EPA proposal would reverse its decades-old approach to regulatory science. The plans would bar the EPA from using scientific research that includes data that isn't or can't be made public. That would include epidemiological studies, which often use private medical information that must be kept confidential.

Pushing back the timeline doesn't mean EPA Acting Administrator Andrew Wheeler will abandon the policy, observers say. And the EPA also says it isn't delaying the policy but continuing with its internal rulemaking process.

"Given the scope and volume of public comments, the Agency's review process cannot be rushed, and EPA has a significant amount of work ahead to fully consider and develop any final action," Michael Abboud, an EPA spokesman, said in a statement.

Abboud added prior regulatory agendas hadn't yet listed a timeline for the EPA to finish the science rule. The EPA could also advance long-term actions more quickly than anticipated, he said.

Not Backing Off

"It may be pushed farther down the regulatory agenda, but I don't see this administration backing off from that policy," Norman Dupont, a partner at Ring Bender LLP in Costa Mesa, Calif., said at the Association for Environmental Health and Sciences Foundation conference in Amherst, Mass.

Dupont also suggested the EPA is digesting the hundreds of thousands of comments submitted on the proposal.

The approach has drawn sharp opposition from environmental groups, scientists, and public health researchers who say the plans will undercut the EPA's ability to properly regulate air pollutants, toxic chemicals, and other environmental harms.

The EPA could use the longer timeline to tweak its proposal or to release a second version of its plans, as some supporters of the approach such as the Texas Commission on Environmental Quality have urged.

"The lack of specific policy design has led to confusion among experts and particularly the media about the real consequences of this proposed rule," the state agency said in comments to the EPA.

—With assistance from Sylvia Carignan.

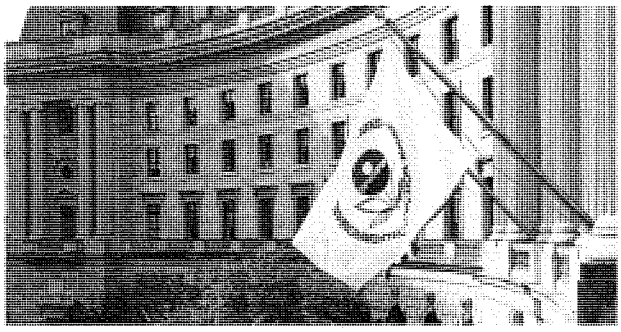
THE LEADER IN ENERGY AND ENVIRONMENT NEWS

AIR POLLUTION

EPA scraps science panel: 'Your service ... has concluded'

Sean Reilly, E&E News reporter

Published: Friday, October 12, 2018



EPA headquarters in Washington. U.S. EPA/Flickr

Acting EPA chief Andrew Wheeler yesterday fired a panel of scientific experts charged with assisting the agency's latest review of air quality standards for particulate matter. He also scrapped plans to form a similar advisory panel to aid in a recently launched assessment of the ground-level ozone limits.

Those steps, coupled with Wheeler's previously announced decision to concentrate authority in a seven-member committee made up mostly of his appointees, quickly sparked objections that the agency is intent on skewing the outcome of those reviews in favor of industry.

"I think they are trying to rush through a process that will provide a result that is driven by political science, not health science," said Paul Billings, senior vice president for public policy at the American Lung Association.

Under the Clean Air Act, EPA is supposed to review the adequacy of the standards for particulate matter, ozone and four other common pollutants every five years with help from outside experts. While the seven-member committee, officially known as the Clean Air Scientific Advisory Committee (CASAC), has the lead in the process, the review panels are supposed to provide additional know-how in assessing the relevant scientific literature, which can span a variety of academic disciplines.

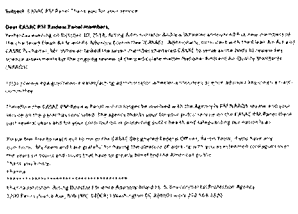
For the panel's some two dozen members, most of whom are university researchers, news of their dismissal came late yesterday in an email from an EPA staffer who said Wheeler had tasked the CASAC with serving "as the body to review key science assessments for the ongoing review of the particulate matter" standards.

"Therefore the CASAC PM Review Panel will no longer be involved with the agency's ... review and your service on the panel has concluded," wrote the staffer, Khanna Johnston. In a separate message, Johnston similarly told applicants for membership on the ozone review panel that the agency would not be proceeding with its creation.

"I guess I'm disappointed," said Barbara Turpin, head of the environmental sciences and engineering department at the University of North Carolina, Chapel Hill. Turpin had been on the particulate matter review panel. Her colleagues there were among the best in their fields, Turpin said in an interview this morning. "In a sense, we serve as a check that the EPA is following the requirements of the Clean Air Act."

Jeremy Sarnat, another former member of the panel, who is an associate professor of environmental health at Emory University, called the move "depressing."

"What the new and previous EPA administrators have done is dismantle a process which has, over many years, proven itself to be highly-successful and effective," Sarnat said in an email. The new process, he added, now



[+] This email went out yesterday notifying members that a particulate matter review panel is disbanded. Special to E&E

consolidates input "to a small, and in some cases unqualified, group of individuals, and ultimately opens EPA up to the charge that it is politics, not science, that is driving this new policy."

Review panel members were considered "special government employees."

Asked why EPA scrapped the panel, agency spokesman John Konkus pointed to Wheeler's decision to concentrate more authority in the seven-member CASAC. He did not reply to an email this morning seeking comment on the criticism from Billings and others.

Earlier this week, Wheeler announced five new appointees to CASAC, the bulk of whom come from state and local regulatory agencies, not academia. Tony Cox, the committee's chairman, is a Colorado consultant who had done work for the oil industry.

Earlier this year, Cox told E&E News that he has also served as an expert in risk analysis for EPA and the World Health Organization, and had not made a decision on whether the particulate matter thresholds need revision.

But under a timetable imposed by former EPA Administrator Scott Pruitt, the agency now plans to complete the review of the particulate matter standards by late 2020, or about two years ahead of the original schedule (***Greenwire***, May 10). The new review of the ozone standards, which has barely begun, is also set to wrap up around the same time.

As a reason for the fast-track approach, Pruitt and EPA air chief Bill Wehrum have pointed to the Clean Air Act's requirement that the reviews be done every five years, a goal that in the past the agency has rarely met.

But the disbanding of the particulate matter review panel comes as EPA's Office of Research and Development is set to soon release a draft summary of the scientific research to be used in deciding whether the existing standards need to be changed.

Andrew Rosenberg, who heads the Center for Science and Democracy at the Union of Concerned Scientists, said he sees the two events as directly connected. He said that in light of evidence that the current limits on fine particulate exposure are not strong enough to adequately protect public health, "I'm really worried about [what EPA is] going to say."

Both ozone and particulate matter are closely connected to production or consumption of fossil fuels. Wheeler, before joining EPA, was a lobbyist whose clients included Murray Energy Corp. The Ohio-based coal giant was a strident critic of Obama-era environmental regulations; CEO Bob Murray is a prominent supporter of President Trump.

Murray has had no contact with Wheeler since the latter was sworn in as EPA deputy administrator in April, company spokesman Cody Nett said this morning. Asked whether the firm has a position on Wheeler's decision to disband the particulate matter review panel, Nett declined to comment.

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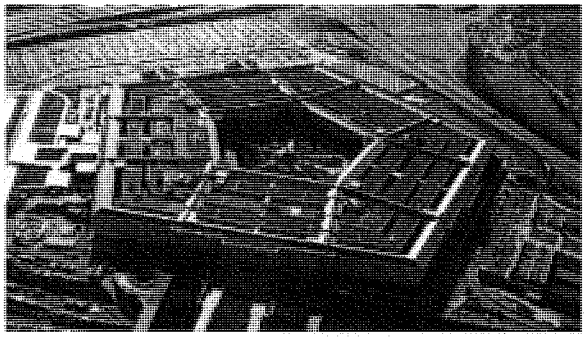

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Pentagon fires a warning shot against EPA's 'secret science' rule

By **Sean Reilly, E&E News** | Aug. 28, 2018 , 2:00 PM

Originally published by E&E News

Add the U.S. Department of Defense (DOD) to the ranks of those expressing concern about the U.S. Environmental Protection Agency's (EPA's) plans to restrict the use of scientific research in writing new regulations.

"While we agree that public access to information is very important, we do not believe that failure of the agency to obtain a publication's underlying data from an author external to the agency should negate its use," Patricia Underwood, a senior Pentagon official in the Office of the Assistant Secretary of Defense for Energy, Installations and Environment, wrote in recent **comments** on the EPA proposal.

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Because it's "improbable" EPA would always be able to obtain such underlying data, Underwood added, "this should not impede the use of otherwise high-quality studies."

The proposed rule—"Strengthening Transparency in Regulatory Science"—would generally limit EPA to using studies for which the underlying research data "are publicly available in a manner sufficient for independent validation," according to the text.

In unveiling the plan this spring, then-EPA Administrator Scott Pruitt touted it as a confidence booster in agency decisionmaking.

Critics view that premise as a smokescreen for thwarting consideration of research that would help justify stricter regulations.

After Pruitt resigned last month under White House pressure, an array of advocacy groups opposed to the proposed rule have urged acting EPA Administrator Andrew Wheeler to scrap it (***Greenwire***, 15 August).

In an interview last month, Wheeler told E&E News he would take "a hard look" at the proposal but added that he believed "the more information we put out to the public as far as what we're basing our regulations on, the better our regulations will be" (***Greenwire***, 13 July).

The Defense Department, the largest federal agency when measured by its budget and the size of its civilian workforce, is also a prime sponsor of scientific research.

Underwood's comments were among more than a half-million that EPA received on the proposed rule by a 16 August deadline; they were added late last week to the online docket on the Regulations.gov website.

Under the draft rule, the EPA administrator could grant exceptions to the data access requirements under specified conditions.

Alongside a host of more technical concerns with the draft rule, Underwood urged EPA to allow for such exemptions when "underlying study data may be difficult to obtain from authors outside the agency."

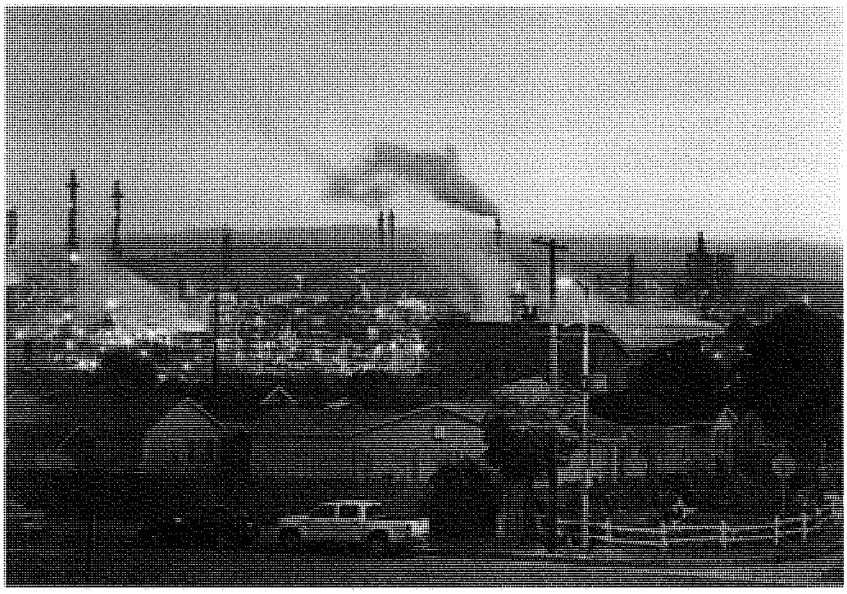
She also suggested that EPA "grandfather" existing analyses unless those studies "are being updated or challenged."

US EPA science advisers question 'secret science' rule on data transparency

Independent board will review agency decisions to repeal or change climate regulations and rules on the use of non-public data.

Jeff Tollefson

PDF version



The US Environmental Protection Agency has proposed changing the rules that limit greenhouse-gas emissions from facilities including power plants. Credit: Citizen of the Planet/Education Images/UIG via Getty Images

Science advisers to the US Environmental Protection Agency (EPA) voted on 31 May to review a series of controversial rules that the agency has proposed over the past eight months. They include a plan that would limit the types of scientific researchthat the EPA could use to justify environmental regulations, and proposals to strike down limits on greenhouse-gas emissions.

EPA administrator Scott Pruitt framed the data rule as part of a push for transparency — and against 'secret science' — when he released it on 24 April. The policy would prevent the EPA from relying on studies that include any non-public data.

The decision by the EPA Science Advisory Board (SAB) to review the rule comes after earlier criticism by some of its members. In a 12 May memorandum, an SAB working group chastised the EPA for not submitting the proposal to the board for review.

"The working group is very much in favor of transparency," said Alison Cullen, an environmental health researcher at the University of Washington in Seattle and chair of the working group, during the SAB meeting. But on this particular proposal, there is a "very real lack of clarity" in how the rule would be applied, she said.

Unseen science

The proposed transparency rule is modelled on a similar bill that Republican lawmakers in the House of Representatives have pushed for years. The House passed the latest version of the legislation in 2017, but it died in the Senate.

Scientists and environmentalists have decried the EPA's proposal, noting that many important epidemiological studies are based on public-health data that cannot legally be released owing to privacy concerns. As a result, critics say, such a rule would prevent the agency from considering some of the best health research, ultimately making it harder to create new environmental regulations.

Under previous presidents, the EPA has typically given the SAB advanced notice of regulatory actions, such as the release of a proposed rule, although that is not required by law. This week's meeting was the first time that the full panel had considered the transparency rule. The EPA is not required to follow the advice of its advisory board, but failing to do so could bolster legal challenges against the agency.

The agency has yet to finalize the transparency rule: the deadline for public comments, originally scheduled to close on 30 May, has been extended to 16 August.

Setting the bar

The science-advisory board also voted to assess the research underlying a series of proposed regulations to limit greenhouse-gas emissions from power plants, vehicles and oil and gas operations.

That includes a review of the research behind Pruitt's decision to repeal the Clean Power Plan. The plan sought to reduce carbon emissions from existing power plants and was former president Barack Obama's signature climate-change policy. The advisers also intend to look over a decision made by the EPA in April to revoke emissions standards for vehicles manufactured between 2022 and 2025.

Separate emissions standards set by the state of California, and followed by a dozen other states, would remain in place; California officials have warned that they will fight any attempt by Pruitt to revoke a waiver that allows the state to set its own regulations in this regard.

The EPA has yet to propose new standards to replace the Clean Power Plan or the Obama administration's vehicle-emissions regulations.

The advisers did what they were supposed to do, said board member Steven Hamburg, chief scientist for the Environmental Defense Fund, an advocacy group based in New York City. "The SAB is a congressionally chartered organization," he said. "Any administration can reject our advice, but we are part of the record."

Nature **558**, 15 (2018)

doi: 10.1038/d41586-018-05319-2

Pacific Standard

THE EPA IS TABLING ITS CONTROVERSIAL 'SECRET SCIENCE' PROPOSAL

REBECCA WORBY · OCT 17, 2018

The Environmental Protection Agency has decided not to rush through a controversial policy that would have required total transparency for all data used in federally commissioned studies, according to a regulatory agenda released Wednesday.

Long-term actions "are those under development, but for which the agency does not expect to publish an action within the next 12 months," EPA spokesman Michael Abboud explained, according to the *Washington Examiner*.

The "Strengthening Transparency in Regulatory Science" policy, which Pacific Standard has reported on extensively, was proposed in April under then-administrator Scott Pruitt. Dubbed the "secret science" rule by critics, it would require that the data for all scientific studies used to justify major regulatory actions" be publicly available. Though the EPA has touted the proposal as a push for public trust and transparency, many scientists have spoken against it. As Pacific Standard staff writer Francie Diep explains:

> Opponents argue that, as written, the rule would force regulators to ignore studies that show the dangers of pollutants such as **smog** and **lead**, but whose underlying data can't be made public because it's confidential personal health information.

The public outcry against the rule led the EPA to extend its comment period and plan public hearings. As a result, the agency has close to 600,000 comments on its hands, which helps explain the slower timeline: "Given the scope and volume of public comments, the agency's review process cannot be rushed, and EPA has a significant amount of work ahead to fully consider and develop any final action," a spokesman told the *Hill*.

The EPA is also back-burnering its plan to stop enforcing a regulation limiting the manufacture of high-polluting diesel trucks. After the decision was announced in July—on Pruitt's final day as EPA chief—attorneys general of 14 states sent a letter of opposition to the EPA, and the Sierra Club and other groups sued to challenge the decision. In their letter, the attorneys general called the EPA decision "an unlawful rule suspension masquerading as an exercise of enforcement discretion."

Q&A: This air pollution expert advised EPA for a decade. Now, he's a leading critic

By **Tom Oates** | Dec. 11, 2018 , 3:30 PM

This week, a key science advisory panel to the U.S. Environmental Protection Agency (EPA) will **meet to review recent research** on a particularly dangerous form of air pollution: **tiny soot particles**, which have been shown to damage lung and heart function and contribute to premature death.

Such meetings, designed to help EPA meet a mandate to review air pollution regulations every 5 years and revise them if necessary, typically attract little notice. But the 12–13 December meeting of EPA's Clean Air Science Advisory Committee (CASAC) in Washington, D.C., has drawn unusual attention—and sparked a surge of criticism. In large part, that's because President Donald Trump's administration has dramatically **remade the committee's membership**, appointing all seven of its members. It has also dismantled a 26-member Particulate Matter Advisory Panel that traditionally was tasked with advising CASAC on soot pollution. (**That move was criticized yesterday by two of the current CASAC members**.)

The administration says the changes, which are just one part of a larger (**and also controversial**) effort to remake EPA's science advice process, are aimed at streamlining and accelerating CASAC's work. But critics say they are mostly designed to reduce the voice of independent experts in agency decisions and to ease the administration's efforts to weaken existing air pollution standards or block the imposition of tighter limits. EPA's standards for particulate matter have been a particular flashpoint. Although the nearly 2000-page science summary that CASAC will be reviewing suggests current U.S. standards are too lax, many industry groups and conservative lawmakers fiercely opposing any tightening of the standards, arguing they would be too costly, **even as other nations move to crack down on soot**.

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One scientist who has emerged as an especially vocal critic of the changes to EPA's science review process is air pollution specialist **Chris Frey** of North Carolina State University in Raleigh. He

served as CASAC's chair from 2012 to 2015, and also served on the recently disbanded particulate review panel. Between 2007 and 2018, Frey led or served on CASAC panels that reviewed the state of the science on ozone, sulfur dioxides, nitrogen oxides, lead, and carbon monoxide.

Over the past several months, Frey has been widely **quoted in articles**examining the Trump administration's air pollution policies. He has also **written analyses** and helped organize several **lengthy letters** from former members of EPA advisory panels commenting on CASAC issues. Yesterday, for example, Frey and 14 other members of the now disbanded particulate review panel sent the CASAC a **134-page comment on its upcoming review** of soot science.

It includes some scathing criticism. EPA's changes "are collectively harmful to the quality, credibility, and integrity of the scientific review process," they write. And, "The current 7-member CASAC does not have the depth or breadth of expertise needed for the particulate matter review, nor could any group of this size cover the needed scientific disciplines." Panel members are no longer chosen for their "scientific expertise first and foremost," they write.

*Science*Insider recently spoke with Frey about his experience and concerns regarding CASAC, the origins of his advocacy, and advice for early-career scientists. The interview has been edited for clarity and brevity.

Q: What is CASAC?

A: Section 109 of the [federal] **Clean Air Act [CAA]** says that the [EPA] administrator will "appoint an independent scientific review committee composed of seven members including at least one member of the National Academy of Sciences, one physician, and one person representing state air pollution control agencies." Whether to retain or revise or set new standards has been the main focus of what people think of as CASAC's role.

CASAC is also asked to advise the [EPA] administrator whether there are areas of uncertainty that might be priorities for new science for a new review cycle … [and to] advise the administrator on the so-called adverse effects of implementation of the standard. That's been controversial because it's very clear that EPA may not consider cost or technical feasibility when setting standards. That is [described in] a Supreme Court decision written by the late Justice Antonin Scalia. His interpretation was crystal clear that, under the CAA, Congress intended for EPA to set the standard based on health effects and that cost was not an allowable consideration.

A challenge of asking CASAC to get into the effects of implementing a standard is that those [involve] issues of costs and technical feasibility. Historically, CASAC has not provided that kind of advice—in large part because EPA hasn't asked for it. However, some observers note that the CAA says that CASAC "shall" provide that advice, implying that it's mandatory. I think that's a legal debate. The reality is that since EPA hasn't asked for that advice, it hasn't developed assessment

documents that would provide a scientific basis for providing that advice.

Q: You have been critical of the Trump administration's appointments to CASAC. Why?

A: The words I keep coming back to are that the CAA requires a thorough review based on the latest scientific knowledge, and further requires EPA to appoint an independent scientific review committee. All of that language confirms to me that the scientific review committee needs to be comprised of scientists who know the latest scientific knowledge.

I mention that because former EPA Administrator **Scott Pruitt wrote a [2017] memo** that changed the membership criteria for appointments to EPA federal advisory committees generally, including CASAC. Pruitt stated that key membership criteria of all EPA advisory committees is that they should be based on geographic diversity and should include members from state, local, and tribal agencies, with no distinction regarding science committees.

Those are not inherently bad things in themselves, but they are not consistent with finding the best scientific experts. For a science committee, it is not really necessary to have geographic diversity or more than the minimally required representation. It doesn't make CASAC four times better to have four representatives from a state agency instead of one.

The concern I have is that, as a group, this is not the right composition to have for CASAC. Many of the [current members] are not on the cutting edge of the latest research. Some of them, it's been a while since they've done things related to air. There is, kind of shockingly, no epidemiologist on CASAC. That's a central scientific discipline in the review of most of these air quality standards, including ozone and particulate matter.

It's a very curious combination. It just doesn't have enough horsepower do to what it needs to do.

Q: What is the remedy?

A: My colleagues and I have strongly called for rescinding [the changes instituted] by former administrator Pruitt. Part of our argument is that imposing those criteria on CASAC is inconsistent with its mandate under the CAA and inconsistent with 4 decades of practice. They were created with the flick of a pen and could be rescinded with a flick of a pen, too.

Q: How did you come by your bent for advocacy?

A: I grew up in Manhattan [in New York City]. As a child, I remember large flakes of soot would come from the sky, almost an inch in width or length. I never liked those. I wrote an essay when I was 9, "Air pollution is bad for people and animals too." Maybe that was my first advocacy piece.

I've always been interested in the public significance of science. I did a Ph.D. in engineering and public policy that gave me some quantitative tools that helped bridge the gap between science and policy. I had some opportunities early in my career to get involved in science advising which is something I tremendously enjoy.

Policy questions are coming at us faster than science can provide answers. For policymakers, that means there's often uncertainty. Something like an air quality standard is based on value judgments that don't uniquely belong to scientists. We may have unique expertise, but we don't have any unique privilege.

Q: Has your advocacy cost you professionally?

A: I'm a tenured professor, so having an opinion is not one of the reasons I can be fired. Not everyone is in that position. What I'm doing now is advocacy for science, for a process not an issue. I'm not at a point in my career where I'm ready to do issue advocacy. I'm not going to chain myself to a fence because of an issue, unless it's science advising.

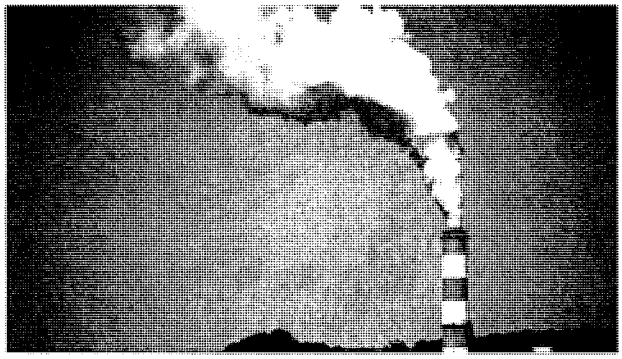
Even if you're an early career researcher, however, if you have unique knowledge [such as on air or water pollution], there is some responsibility to do something. Even if it means sharing it with someone else, or engaging someone else to take it the next step, or to be engaged yourself.

Advocacy isn't the first thing to do if one is building their research program. Establish your individual niche as a researcher and scholar. Be mindful that that's a very special and precious thing. The reputation you build is your most important asset, hard to build but easy to destroy.

Even Geologists Hate the EPA's New Science Rule

Dozens of scientific and medical groups oppose the proposal, which began under former EPA Administrator Scott Pruitt.

ROBINSON MEYER JUL 17, 2018



JEFF SWENSEN / STRINGER / GETTY

Oops.

A few months ago, the Environmental Protection Agency proposed a new policy that it claimed would "strengthen transparency" in the science it uses to craft regulation. To support its case, the agency alluded to a few major research institutions—namely, three of the world's most prestigious scientific journals and two bipartisan reports on science and policy.

"The proposal is consistent," bragged an EPA statement, "with data access requirements for major scientific journals like *Science*, *Nature*, and *Proceedings of the National Academy of Sciences* as well as recommendations from the Bipartisan Policy Center's Science for Policy Project and the Administrative Conference of the United States' Science in the Administrative Process Project."

It was not, actually. Within a week, the editors in chief of those three "major scientific journals" clarified that the proposed rule had nothing to do with their policies. And a lead author of the two bipartisan reports rejected the rule as well, saying that her colleagues "would laugh and hoot" at its ideas.

"They don't adopt any of the recommendations of any of the sources they cite," says that author, Wendy Wagner, a law professor at the University of Texas. "I'm not sure why they cited them."

The seven-page proposed rule—one of Scott Pruitt's most ambitious initiatives from his last months at the EPA—uses the language of "scientific transparency" to prohibit the agency from consulting a wide swath of peer-reviewed scientific research. If adopted, the policy would essentially bar the EPA from consulting most large-scale medical studies when creating rules about air pollution, toxic chemicals, and water contaminants. The proposal could also force the agency to revoke decades of clean-air protections.

The proposal may not, on its face, seem particularly far-reaching. It requires that scientific studies that support "pivotal regulatory science" publish their underlying data, models, and assumptions. Some scientific studies—in ecology, for instance—may already meet this requirement.

But scientific and medical institutions have rejected the proposal en masse because it would paralyze most medical researchers. These scientists cannot publish their supporting material for public consumption without invading patients' privacy, as one study's data may encompass the identifying details and full medical history of hundreds of people. Often, subjects will only agree to participate in a medical study after being promised their data will be kept private.

The EPA rule creates a catch-22 for these researchers. If they disclose the identity of their research subjects, then they could face criminal penalties under federal medical-privacy laws. But if they respect the privacy of their subjects, then their final study cannot be used by the EPA.

If this seems strange, it is: The proposal would forbid the EPA, whose mission is to "protect human health," from consulting scientific research into humans.

On Tuesday, the EPA will hold the first public hearing about the proposal. It will serve as a test of sorts for whether EPA policy can command public attention after the departure of its infamous leader. The proposal has failed to capture the mainstream attention (or the press coverage) that met even minor Pruitt scandals, such as his pursuit of Ritz-Carlton lotion or his illegal purchase of a $43,000 soundproof phone booth.

But dozens of scientific and medical leaders have taken notice, arguing that the proposed rule doesn't seem to be about scientific transparency at all.

"If the EPA wanted to engage in a good-faith discussion in how to improve transparency, that's certainly something they could have done. But this doesn't seem to be that," Jeremy Berg, the editor in chief of *Science* and a computational biologist at the University of Pittsburgh, told me.

Berg issued a statement decrying the proposal, which was co-authored by the editors of four other major scientific journals: *Nature*, *Cell*, *PLOS One*, and *Proceedings of the National Academy of Sciences (PNAS)*.

Recall that the EPA had once claimed that *Nature*, *Science*, and *PNAS* had inspired its policy in the first place. Berg said, in so many words, that this was bullshit.

"What concerns me and what concerns the other editors is that the proposed rule is much more rigid than our policies," Berg said. "Based on our experience, that could have some very negative impacts in preventing the use of high-quality science."

"We're interested in making things as transparent as possible," he added. "But we understand there are circumstances where this isn't possible, and we think there's a lot of scientific values in those papers."

It's also possible to craft transparency rules that allow for these exceptional circumstances, Berg said. For instance: While some human-subject studies can't release their data publicly, researchers can still make their data available confidentially to other academics, who can then check and replicate their findings. *Science* and *Nature*'s policies both allow for this possibility. The EPA proposal does not.

On Monday, 69 professional and public-health organizations—including the American Lung Association, the American Heart Association, the American Medical Association, and the American Psychological Association—also denounced the proposal.

"We strongly oppose EPA's efforts to restrict the use of the best available science in its policymaking and encourage EPA to withdraw its proposal," said a statement from the coalition. "If EPA excludes studies because the data cannot be made public, people may be exposed to real harm."

The group included representatives of the natural sciences who have historically avoided politics, including the American Geophysical Union and the Geological Society of America. Chris McEntee, the chief executive of the American Geophysical Union, wrote that the proposal was a "a wolf-in-sheep's-clothing policy that would undermine how the agency uses science in decision-making."

Harvard has also opposed the policy, as has the Association of Public and Land-grant Universities. Drew Gilpin Faust, the president of Harvard, wrote in a June letter to Pruitt that the proposal "is fundamentally flawed" and that it "would significantly limit the EPA's ability to consider the best available scientific findings."

It "risks not just erosion of public trust in the EPA's important work, but also progress on improving the health and wellbeing of our communities and our nation," she added.

As I wrote in April, the proposal is believed to target one study in particular: the Harvard "Six Cities" report, which in 1993 found that Americans living in more-air-polluted cities died faster than Americans living in less-polluted cities. The study used confidential medical information, but its data has been shared with other research teams and replicated several times.

Particulate matter, the specific type of air pollution identified by the study, has since been found to cause type 2 diabetes, and has been associated with elevated rates of lung cancer, heart attacks, asthma attacks, emergency-room visits, and hospital admissions. But because the Six Cities study cannot publish its data publicly, some Republican activists and lobbyists have attacked it as "secret science" and argued that particulate matter does not harm human health.

"If you have data that's really important for public health, then you ought to be willing to share it," Steven Milloy, a policy

adviser at the Heartland Institute and a longtime advocate of "anti-secret science" policies, told me in April.

He added that the Six Cites study was "the granddaddy of all this stuff" and the "biggest science fraud that has gone on in this country's history." Milloy also rejects the mainstream scientific consensus that greenhouse-gas emissions are warming Earth's climate.

"To call such science 'secret' is to misrepresent the scientific process," Faust wrote in her letter. "Harvard has shared significant information and cooperated entirely in a full independent reanalysis of the [Six Cities] data by the Health Effects Institute (HEI), which confirmed the validity of the findings ... Beyond the HEI reanalysis, the findings of Six Cities have been replicated numerous times in many independent studies."

It's true that mainstream public-health researchers have concluded that particulate matter is intensely dangerous to public health. But many of their studies are based on confidential medical information as well. If the policy is adopted, the Trump administration could possibly try to repeal or weaken policies restricting the amount of particulate matter in the air.

A peer-reviewed EPA report has found that the agency's particulate-matter rules have prevented roughly 200,000 early deaths since 1990. But even at their current levels, the EPA's rules are not strong enough to prevent type 2 diabetes, according to a recent study.

An EPA spokeswoman did not respond directly when asked about the wide number of scientific and medical agencies who have opposed the proposal.

"The EPA is committed to public participation and transparency in the rulemaking process," Molly Block, an agency spokeswoman, wrote in an email. "This proposed regulation is intended to strengthen the transparency of EPA regulatory science. EPA will consider all submitted comments—both those given orally at the hearing and those submitted in writing to the docket—as it moves forward in the rulemaking process."

"The public comment period for the rule closes on August 16, 2018," she added.

EPA left key official out of 'secret science' rule

BY MIRANDA GREEN - 10/03/18 05:40 PM EDT

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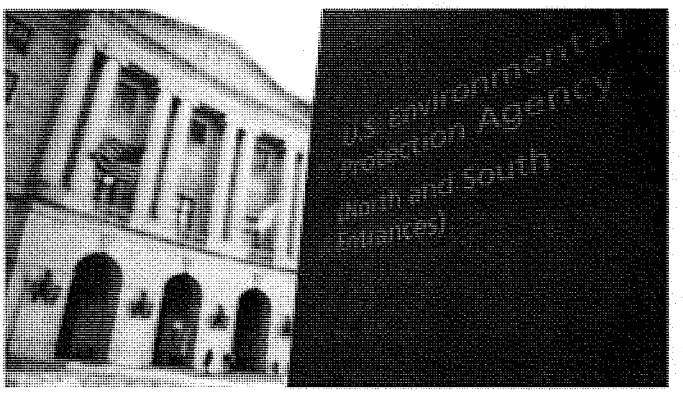


© Getty Images

The Environmental Protection Agency (EPA) under former Administrator Scott Pruitt excluded one of its top scientists while devising its new "secret science" rule, the Washington Post reported Wednesday.

Emails obtained through a Freedom of Information Act request by the Union of Concerned Scientists show that the EPA's director of the Office of the Science Advisor (OSA),Tom Sinks, was self-admittedly completely out of the loop as the EPA worked to devise the new rule that aimed to limit the types of science that could be used by the agency in devising new regulations.

> In an April 24 email, Sinks wrote, "Even though OSA [the Office of Science Advisor] and I have not participated in the development of this document and

I just this moment obtained it (have yet to read it), I am listed as the point of contact."
Sinks added that he was also concerned about his lack of involvement because the rule clearly would affect the roles of his office, saying "the proposal likely touches upon three aspects of OSA work — public access to EPA funded research, human subjects research protection, and scientific integrity."

An EPA spokesperson said in a statement to The Hill that the agency "received input from a number of stakeholders and utilized the intra and interagency process to ensure a robust proposal was put forward."

The rule is formally known as the "Strengthening Transparency in Regulatory Science," and was introduced in April. It aims to expose the methodology behind scientific findings and cut back on what Pruitt had deemed "secret science."

It is one of many decisions made by Pruitt under the auspices of increasing transparency and getting rid of conflicts of interest. Last year he announced a new agency-wide policy that would bar scientists receiving money through an EPA grant from sitting on any science advisory board.

The rule met almost immediate resistance from the science community, which argued that it would exclude a number of peer reviewed scientific studies related to public health because many would not be able to share the details of the patients studied.

Instead, critics feared, the rule would place more reliance on industry produced studies that might reaffirm arguments that certain chemicals or emissions had little harmful side effects on human health or the environment.

In June, a group of 103 lawmakers signed a letter sent to Pruitt calling on him to reverse course on the rule-making.

"Contrary to its name, the proposed rule would implement an opaque process allowing EPA to selectively suppress scientific evidence without accountability and in the process undermine bedrock environmental laws," the lawmakers wrote.

The Senate's Environment and Public Works Committee on Wednesday held a hearing to discuss the merits and disadvantages posed by the new rule.

Sen. Cory Booker (D-NJ.) likened the rule to the tobacco industry's old playbook, where companies paid for and pushed studies that appeared to find no heath risks associated with smoking.

"This rule is far more likely to hinder science-based regulation than help it," he said, adding that this was "deja vu all over again."

EPA confirmed to the Hill last week that it is reorganizing a number of offices within ORD including merging the Office of the Science Advisor with the Office of Science Policy, a move that critics fear would diminish the role of the scientists there and push it further down the totem pole.

The New York Times

E.P.A. to Disband a Key Scientific Review Panel on Air Pollution

By Lisa Friedman

Oct. 11, 2018

*Want climate news in your inbox? Sign up here for **Climate Fwd:**, our email newsletter.*

WASHINGTON — An Environmental Protection Agency panel that advises the agency's leadership on the latest scientific information about soot in the atmosphere is not listed as continuing its work next year, an E.P.A. official said.

The 20-person Particulate Matter Review Panel, made up of experts in microscopic airborne pollutants known to cause respiratory disease, is responsible for helping the agency decide what levels of pollutants are safe to breathe. Agency officials declined to say why the E.P.A. intends to stop convening the panel next year, particularly as the agency considers whether to revise air quality standards.

Environmental activists criticized the move as a way for the Trump administration to avoid what they described as the panel's lengthy but critical assessment of how much exposure to particulate matter is acceptable in the atmosphere.

"To me this is part of a pattern," said Gretchen Goldman, research director at the Union of Concerned Scientists, a science-oriented environmental nonprofit. "We're seeing E.P.A. trying to cut science out of the process."

She and others noted that the move follows other decisions at the E.P.A. they find worrisome, including eliminating a senior science advisory position and pressing for new rules that would restrict the number and type of studies the E.P.A. could consider when writing new regulations.

Dr. Goldman, an environmental engineer, wrote on Twitter that the E.P.A. quietly telegraphed its latest move in a personnel announcement Wednesday. In that announcement, the E.P.A. said that a smaller, seven-person umbrella advisory board would from now on be conducting reviews of federal air standards and that the administration hoped to complete any revisions by late 2020.

When asked about the future of the larger, 20-person scientific board, the E.P.A. spokesman confirmed that the board was not "listed" in agency documents as continuing its work past 2018. The body is slated to meet in December.

The EPA is responsible for updating six air standards every five years under the Clean Air Act: carbon monoxide, particulate matter, nitrogen oxides, sulfur dioxide, lead, and ozone.

The smaller, seven-member group, known as the Clean Air Scientific Advisory Committee, or C.A.S.A.C., is legally obligated to provide advice to the administrator about those air quality standards. But the work of its sub-panels, such as the one on particulate matter, is not required by law.

Those panels are typically made up of researchers, doctors and others with specific expertise in the individual pollutants. Their reviews can take as long as 18 months, Dr. Goldman said.

At the same time, the C.A.S.A.C. also is going through a shake-up. Andrew Wheeler, the acting administrator of the E.P.A., announced Wednesday he was installing new members to that panel. They include a biochemist from the Texas Commission on Environmental Quality; an air pollution control engineer with the Jefferson County, Ala., Department of Health; a toxicologist with the Utah Department of Environmental Quality; and a pulmonary doctor and professor emeritus from the University of Rochester Medical Center.

Lianne Sheppard, a professor of biostatistics at the University of Washington who until Wednesday served as a member of the C.A.S.A.C. and also is on the particulate-matter review board, expressed concern that the resulting panel may be too small and inexperienced in some of the specific issues to handle the new volume of work.

"They're being asked to implement a new process, which will significantly increase their workload," Dr. Sheppard said. "All of this will result in poorer-quality scientific oversight."

Thomas Pyle, president of the Institute for Energy Research, a think tank that supports fossil fuels, dismissed concerns about the changes. "Apparently it seems the enviros still don't understand that elections have consequences," he said.

Last year Scott Pruitt, Mr. Wheeler's predecessor, barred advisory committee members from also receiving E.P.A. grants, a change he said was designed to limit conflicts of interest. It also had the effect of making it harder for academic researchers to participate on agency boards. With Mr. Wheeler's additions to the panel, the C.A.S.A.C. board now has only one researcher.

Mr. Wheeler, in a statement, praised the group as being highly qualified with a diverse set of backgrounds needed to take on new responsibilities.

"These experts will provide critical scientific advice to E.P.A. as it evaluates where to set national standards for key pollutants like ozone and particulate matter," he said, adding the group would "work hard over the next two years to advise E.P.A. in a manner consistent with the Clean Air Act and the protection of public health."

For more news on climate and the environment, follow @NYTClimate on Twitter.

Senator BARRASSO. Senator Merkley.

Senator MERKLEY. Thank you, Mr. Wheeler.

Yesterday when we talked, I laid out all the things that are affecting Oregon through climate chaos, affecting our forests, our farming, and our fishing. I asked you how concerned are you about these impacts on my constituents, the people of the United States, and you shifted to saying, "My job is to follow rules and work to obey lawsuits."

I came back to you again, and I said again, these are tremendous impacts that we are seeing, hugely damaging. How concerned are you? You shifted to saying you are looking forward to going to Africa to talk about clean drinking water for Africans.

I am going to give you a third chance to answer this question. The calamities we are seeing are enormous in my State and across this country, more powerful hurricanes, more devastating forest fires, more acidic waters affecting our shellfish industry, loss of water for irrigation from snow packs, and pine beetles that are eating up our forests.

On a scale of 1 to 10 with 10 being you stay awake nights worrying about it and 1 being it occasionally crosses your mind, how concerned are you about this devastating impact on our Nation and the world?

Mr. WHEELER. I would say I stay awake at night worrying about a lot of things.

Senator MERKLEY. One to 10, please answer my question and not answer some other questions. On a 1 to 10 scale, how concerned are you?

Mr. WHEELER. Eight or nine.

Senator MERKLEY. Really? Then let us turn to the issue of ACE, the Affordable Clean Energy Plan. You told me this gets just as much carbon reduction as does the Clean Power Plan. However, your own agency says it will result in 3.5 percent higher CO_2 production by 2030 than the Clean Power Plan.

Why did you come to my office and tell me it is the same when your agency experts say it will produce a lot more carbon dioxide?

Mr. WHEELER. My agency experts have told me that we are going to get a 34 percent reduction in $CO_2$2 based on 2005 levels once the ACE regulation is fully implemented.

Senator MERKLEY. Yes, but what you quoted to me was a comparison to the Clean Power Plan so when you shift statistics, that is not transparency, and that is not integrity.

A study from Boston University, Harvard University, and Syracuse University found that because ACE has no meaningful reductions in CO_2, because it allows plants to bypass pollution controls, that in 20 States you have a significant increase in sulfur dioxide and nitrogen dioxide and you have, in 6 States, an increase in CO_2 as compared to no regulation at all.

How is does a plan have integrity when you get more reductions from no regulations than from your plan?

Mr. WHEELER. I believe that study just came out yesterday or today. I saw an article about it this morning. I have not had a chance to review it. I am not sure how they are calculating that, but that is not what the career people at the agency are telling me about the ACE.

Senator MERKLEY. Let us turn to forest fires. It is really shocking to hear you say it is forest management. All the conditions of longer, hotter summers have tremendously increased the fire potential in our forests.

We saw it devastating Idaho, Montana, Washington, Oregon, and California under very different types of conditions. Is forest management an issue? Yes, which is why I advocate for thinning and fuels reduction, but that is not the reason these fires are so much longer. It is because the summer season is so much hotter and longer. We have different types of storms that are starting a lot more fires.

I encourage you to actually become informed on this issue if you are going to comment publicly on it. Would you agree to actually read some of the literature on this?

Mr. WHEELER. I will agree to continue to read the literature on this, yes.

Senator MERKLEY. When I spoke to you yesterday, I asked if you were aware of how much carbon dioxide rates of production and levels of pollution have increased in your lifetime. Can you now share with the answer to that question?

Mr. WHEELER. I believe you told me it was close to 100 percent increase in CO_2 since I was born.

Senator MERKLEY. No, that is not the case but 100 percent would be dramatic but it is not that dramatic. In your lifetime or my lifetime, I am a few years older than you, it is 100 points from about 314 to 414, 100 points or is it more like a 30 percent increase. That is a very significant change in the chemistry of our air on this planet.

The other thing I talked to you about was when you were born or I was born, it was about a rate of a third of a point per year, and now it is aiming toward two and a half points per year. The rate of pollution, despite all the conversation we have been having, is accelerating. This is of enormous concern, that the rate is actually accelerating despite the international conversations.

My time is up. I hope you will become more familiar with these issues. Our entire ecosystem and our rural agricultural base—which you have been talking about—our fishing, our farming, and our forests, are at grave risk.

Mr. WHEELER. Thank you, Senator.

Senator MERKLEY. I do want to clarify I meant 100 points, not percent. That was a mistake.

Senator BARRASSO. Thank you.

Senator Ernst.

Senator ERNST. Thank you, Mr. Chair.

Thank you, Mr. Wheeler. I do want to commend you because you have been actively engaged with me and my staff. I truly do appreciate the time you have taken to address some of our concerns.

I would like to just have you reaffirm for me today—and you know exactly the questions I am going to ask—the commitment that we will see E15 for our summer driving season.

Mr. WHEELER. Yes, we are still on schedule for that. It depends on if we are not able to work on it during the Government shutdown. When I listed some of the States I visited and talked to

farmers—I was obviously in Iowa talking to your farmers. I am sorry I did not mention that.

Senator ERNST. I do appreciate that, because I know the RFS is very important to our Iowa farmers as well as WOTUS. Thank you very much for working on that. We have had a very good response.

I do understand we are in a Government shutdown. I hope we can resolve this very soon. Have you been able to take any steps that would mitigate any sort of delays we might see due to the shutdown for the implementation of E15 year round?

Mr. WHEELER. I am afraid not on the E15. It is not a court ordered deadline for us, and it is not considered an emergency. At this point, we can only work on the court ordered deadlines emergencies and the constitutional authorities such as assisting in my preparation for the confirmation hearing.

Senator ERNST. We know just this past Monday, the President also reiterated again that he wants to see E15 year round, so we will hope for the best as we work through the Government shutdown.

When President Trump was elected, REM prices were more than a dollar at that time. During 2016 and 2017 we saw over four dozen small refinery exemption petitions granted during that time period.

In the last 2 years REM prices have dramatically dropped, so they are down to 10 cents and lower now. With the REM prices being so much lower today than they were 2 years ago, do you agree this means there is less economic hardship associated with having to purchase those REMs?

Mr. WHEELER. The REM prices are certainly one criteria that is looked at to determine the economic hardship. The analysis for that is conducted by the Department of Energy, and they send their recommendations over to EPA.

Senator ERNST. In terms of addressing those sent over from DOE, I do understand they evaluate for that hardship. I would say with REMs being a tenth of what they were many years ago, the prices, the DOE evaluates for the hardship and makes that recommendation to you at the EPA. What is the EPA's role in granting or denying a full or partial waiver? Can you describe that process to me?

Mr. WHEELER. It is done by our technical team and the Air Office where they review the information from the Department of Energy, and they move forward with the recommendation to the Administrator for Air and onto myself for a recommendation on whether or not to grant a full, partial, or no relief.

Senator ERNST. Can you assure me that you will be examining those exemptions and not giving blanket exemptions as it appears has been done in the past by your predecessor?

Mr. WHEELER. Yes, we will be examining each one individually to make sure each one is warranted individually.

Senator ERNST. Certainly we understand the potential for hardship out there, but we do not agree that every exemption given in the past has been due to a hardship.

I have 1 minute left. I want to touch on WOTUS, and again, thank you very much for working on that issue. Our Iowa farmers

and ranchers are very, very appreciative of the work that has been done.

Can you elaborate on how the replacement rule provides more clarity to our farmers and landowners than the original 2015 rule?

Mr. WHEELER. Absolutely. As I mentioned earlier, we specifically define what is a water of the United States, and we also define what is not. We are very clear on what is and what is not.

Again, my overarching goal for the WOTUS program is so that the property owner can decide for themselves whether or not they have water of the U.S. without having to hire outside consultants or attorneys to do that for them.

Senator ERNST. I thank you for that.

I will give my time back. Thank you, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Ernst.

Senator Booker.

Senator BOOKER. Thank you, Mr. Chairman.

Thank you, Mr. Wheeler.

I know a lot of my colleagues have brought this up, but you are aware of the Intergovernmental Plan on Climate Change?

Mr. WHEELER. Yes, sir.

Senator BOOKER. You disagree with the findings of it?

Mr. WHEELER. No, I have not disagreed with the findings.

Senator BOOKER. I guess I am asking are you aware.

Mr. WHEELER. I have not disagreed with the findings. I have been briefed once by my career staff. They gave me a number of background information to read, and we scheduled additional briefings on it for early January. Those have been postponed, but no, I do not disagree with the findings.

I am still examining the findings, trying to understand what was in it and what was covered.

Senator BOOKER. I find that frustrating because of the urgency of the challenges we face before us. Again, the review talks about the emissions, the urgency to reduce greenhouse gas emissions and keeping warming below 1.5 degrees, and potentially catastrophic natural disasters, extreme heat, literally potentially seeing upwards of $1 trillion worth of damage to U.S. property.

What about the National Climate Assessment issued by the 13 Federal agencies, including the EPA that was issued last November? Are you familiar with that, sir?

Mr. WHEELER. I am sorry; I thought that was what you were asking me about.

Senator BOOKER. No, the ITCC report.

Mr. WHEELER. Oh, the ITCC. I am talking to my staff about the U.S. Government assessment.

Senator BOOKER. Again, sir, this is cross-agencies that have concluded that we are going to suffer impacts, heat related deaths, coastal flooding, and infrastructure damage. In light of the ITCC scientists, the Federal Government scientists that range from the United States military to your very own agency, the compelling and overwhelming science of this, there is this urgency to move as quickly as possible.

Yet it seems in light of this the consistency of the different regulatory changes you are making fly in the face—and I know others of my colleagues have brought this up, but when it comes to the

clean car standards, according to the EPA's own analysis of the proposal, you estimated over time your recommended approach would result in 7.4 billion tons of additional carbon pollution. Do you not agree with that?

Mr. WHEELER. My career staff has told that it is a slight incremental increase from what the Obama administration's proposal was. I think a lot of people do not understand that under the Obama numbers, they offered a number of exemptions so that the actual number itself, the end effect would be lower.

Senator BOOKER. I am pulling from the EPA's own analysis. You may call it slight, but 7.4 billion tons of additional carbon pollution, your Clean Power Plan repeal when it released its proposed Affordable Clean Energy Rule, repealing and replacing the Clean Power Plan, again, your own analysis from your own agency estimates this will lead to substantially higher levels of greenhouse gas warming.

If you go to your air pollution from oil and gas infrastructure—again, your own scientists—EPA releases its proposed rules, and looking at methane, one of the very powerful greenhouse gases, again your own analysis shows your weakening of this rule will lead to substantially more greenhouse gas pollution.

Your air pollution from landfills efforts, later in October, you released a proposed rule to delay for 2 years, if I am correct, the deadline for landfill mission guidelines that would limit these very dangerous methane emissions and other pollution.

Again, this 2 year delay seems to again add to that larger problem. It seems a consistency of actions you are taking to weaken rules undermining the sense of urgency that cross-agencies are telling us we face growing challenges, not just now but really over the next 25 years.

I am just wondering if your mission at the EPA which is to protect human health and the environment, which you swore an oath to faithfully discharge these duties, yet you seem to be consistently doing things that undermines the health and safety of this Nation, the economic well being of our Nation and frankly, putting in further peril not just our country but the planet.

I am trying to understand what is motivating this. I do not want to be cynical in that question, but why are you pulling back on regulations that will ultimately help us to deal with what our climate scientists say we need to do in terms of reducing the greenhouse gas emissions?

Mr. WHEELER. I believe we are moving forward on a proactive basis on the ACE regulation. I believe that is going to show a 34 percent reduction in CO_2. In the course of the regulatory analysis for each of our regulations, we do a number of different scenarios, a number of different data runs. I would be happy to supply information to you in writing, but my career staff tells me that our proposal is going to get us a 34 percent reduction in CO_2 and the Obama proposal would have gotten between 33 and 35 percent reduction.

Senator BOOKER. I know my time has expired. I would like to introduce for the record the data from his own scientists that shows what he is saying just does not hold water and contradicts the claims he is making.

Senator BARRASSO. Without objection.
[The referenced information follows:]

Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program

Table ES-5 Projected CO_2 Emission Impacts, Relative to Base Case (CPP) Scenario

	CO_2 Emissions (MM Short Tons)			CO_2 Emissions Change (MM Short Tons)			CO_2 Emissions Change Percent Change		
	2025	2030	2035	2025	2030	2035	2025	2030	2035
No CPP	1,829	1,811	1,794	50	74	66	3%	4%	4%
Base Case (CPP)	1,780	1,737	1,728	--	--	--	--	--	--
2% HRI at $50/kW	1,816	1,798	1,783	37	61	55	2%	3%	3%
4.5% HRI at $50/kW	1,812	1,797	1,787	32	60	59	2%	3%	3%
4.5% HRI at $100/kW	1,799	1,785	1,772	20	47	44	1%	3%	3%

Table ES-6 shows the projected CO_2 emissions impacts of each scenario, relative to the No CPP alternative baseline.

Table ES-6 Projected CO_2 Emission Impacts, Relative to No CPP Alternative Baseline

	CO_2 Emissions (MM Short Tons)			CO_2 Emissions Change (MM Short Tons)			CO_2 Emissions Change Percent Change		
	2025	2030	2035	2025	2030	2035	2025	2030	2035
No CPP	1,829	1,811	1,794	--	--	--	--	--	--
2% HRI at $50/kW	1,816	1,798	1,783	-13	-13	-11	-1%	-1%	-1%
4.5% HRI at $50/kW	1,812	1,797	1,787	-18	-14	-7	-1%	-1%	0%
4.5% HRI at $100/kW	1,799	1,785	1,772	-30	-27	-22	-2%	-1%	-1%

Table ES-7 shows projected emission increases relative to the base case for carbon dioxide (CO_2), sulfur dioxide (SO_2) and nitrogen oxides (NO_X) from the electricity sector.

Regulatory Impact Analysis for the Proposed Reconsideration of the Oil and Natural Gas Sector Emission Standards for New, Reconstructed, and Modified Sources

2016 using a 7 percent discount rate, and are in millions of 2016$. The total emissions are the sum of the increase in emissions from 2019 through 2025.

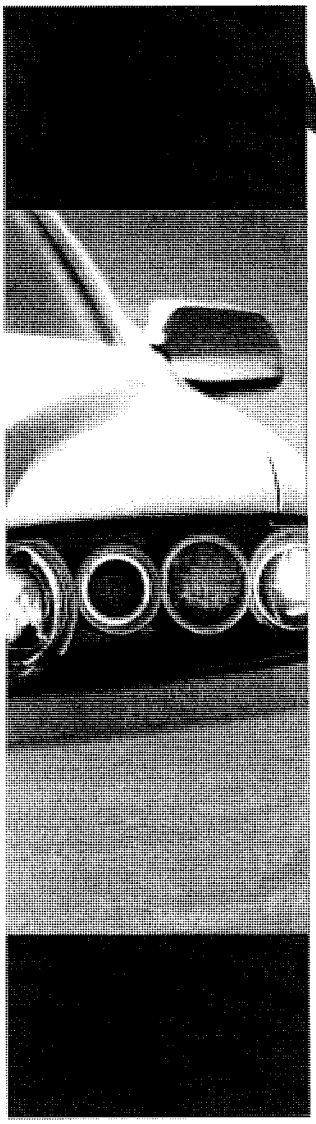
Table 2-18 Total Cost Savings and Increase in Emissions of the Co-Proposed Options Under Alternative Monitoring Frequencies at Compressor Stations

	Quarterly	Semiannual (Co-Proposed Option)	Annual (Alternative Co-Proposed Option)
Present Value			
Total Cost Savings	$277	$380	$424
Cost Savings	*$312*	*$429*	*$485*
Forgone Value of Product Recovery	*$35*	*$48*	*$61*
Equivalent Annualized Cost			
Total Cost Savings	$48	$66	$73
Cost Savings	*$54*	*$74*	*$84*
Forgone Value of Product Recovery	*$6.1*	*$8.4*	*$11*
Total Emissions Increase (2019 through 2025)			
Methane (short tons)	270,000	380,000	480,000
VOC (short tons)	76,000	100,000	120,000
HAP (short tons)	2,900	3,800	4,700
Methane (million metric tons CO_2 Eq.)	6.2	8.5	11

[1] Total cost savings include the planning cost savings for all fugitive emissions, the annual operating and maintenance cost savings for the fugitive emissions requirements every year, the cost savings of certifications in each year, the cost savings from streamlined recordkeeping and reporting, and the forgone revenue from the decrease in product recovery, discounted to 2016.
Totals may not sum due to independent rounding.

Table 2-18 presents a comparison of the co-proposed Option 3, which requires semiannual monitoring at compressor stations, with the alternative co-proposed option, which requires annual monitoring at compressor stations, and a third alternative that requires quarterly monitoring at compressor stations, that vary only with respect to the frequency of the fugitive emissions monitoring requirements for compressor stations. All other requirements are those of the co-proposed Option 3, as shown in Table 2-1. The cost savings, forgone value of product recovery, and total emissions decrease compared to the co-proposed Option 3 under quarterly monitoring and increase under the alternative co-proposed option (annual monitoring).

Assuming a 7 percent discount rate, and including the forgone value of product recovery, the present value of the total cost savings from 2019 through 2025 are about $43 million greater under the co-proposed option assuming annual monitoring than under the co-proposed option assuming semiannual monitoring. This is associated with an increase in the equivalent annualized value of total cost savings of about $7.5 million per year in comparison to the co-proposed option under semiannual monitoring.



The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks

Draft Environmental Impact Statement

July 2018

Docket No. NHTSA-2017-0069

U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Air Quality

Market-driven changes in the energy sector are expected to affect U.S. emissions and could result in future increases or decreases in emissions. Trends in the prices of fossil fuels and the costs of renewable energy sources will affect the electricity generation mix and, consequently, the upstream emissions from energy production and distribution as well as electric vehicle use. Temporal patterns in charging of electric vehicles by vehicle owners would affect any increase in power plant emissions. Potential changes in federal regulation of emissions from power plants also could result in future increases or decreases in aggregate emissions from these sources.

The forecasts of upstream and downstream emissions that underlie the air quality impact analysis assume the continuation of existing emissions standards for vehicles, oil and gas development operations, and industrial processes such as fuel refining. These standards have become tighter over time as state and federal agencies have sought to reduce emissions to help bring nonattainment areas into attainment. To the extent that the trend toward tighter emissions standards could change in the future, total nationwide emissions from vehicles and industrial processes could change accordingly.

Cumulative changes in health impacts due to air pollution are expected to be consistent with trends in emissions. Higher emissions would be expected to lead to an overall increase in adverse health impacts while lower emissions would be expected to lead to a decrease in adverse health impacts, compared to conditions in the absence of cumulative impacts.

Greenhouse Gas Emissions and Climate Change

The global emissions scenario used in the cumulative impacts analysis differs from the global emissions scenario used for climate change modeling of direct and indirect impacts. In the cumulative impacts analysis, the Reference Case global emissions scenario used in the climate modeling analysis reflects reasonably foreseeable actions in global climate change policy.

Greenhouse Gas Emissions

The following cumulative impacts related to GHG emissions are anticipated:

- Projections of total emissions increases from 2021 to 2100 under the Proposed Action and alternatives and other reasonably foreseeable future actions compared with the No Action Alternative range from 1,800 $MMTCO_2$ (under Alternative 7) to 7,400 $MMTCO_2$ (under Alternative 1). The Proposed Action and alternatives would increase total vehicle emissions by between 2 percent (under Alternative 7) and 10 percent (under Alternative 1) by 2100. Figure S-6 shows projected annual CO_2 emissions from passenger cars and light trucks by alternative compared with the No Action Alternative.
- Compared with projected total global CO_2 emissions of 4,044,005 $MMTCO_2$ from all sources from 2021 to 2100, the incremental impact of this rulemaking is expected to increase global CO_2 emissions between 0.04 (Alternative 7) and 0.18 (Alternative 1) percent by 2100.

Senator BARRASSO. I would like to interject that the EPA's decision to withdraw this so called Clean Power Plan I believe was the right one. Twenty-seven States challenged the Clean Power Plan in court. The Supreme Court stayed the rule; it was not just bad policy, it was against the law.

Senator Braun.

Senator BRAUN. Thank you.

It is good to be on a Committee like this. It means a lot to me. I have been a steward of the land for over 30 years. I have always felt that conservatives need to do a better job of talking about conservation and talking about the things that we believe in that really make a difference.

I have been a tree farmer for nearly 30 years, involved in agriculture. I used it in the campaign. I started the Ecology Club back in high school. What we are talking about here is important.

To me, I always view something in the process that you look at how you are going to accomplish the goal. I think clean air and clean water is important to everyone. I also look at the fact that over the weekend—and I know it has been discussed here before—I had three different farmers approach me about dealing with the technicalities of Waters of the U.S.

I am going to ask you a couple specific questions, and then I want to get your viewpoint on how we navigate this dynamic of wanting to adhere to what I think all of us believe in, clean air, clean water, good health, and then the practicality of doing what you do through the EPA to make sure we take care of the big picture and not unduly complicate lives for people on the firing line.

Waters of the U.S., the ruling, as given in 2015, has it changed at all in the meantime, or is it in the process of being looked at?

Mr. WHEELER. The 2015 Obama proposal was stayed by some courts, has been implemented by others. Right now we have a patchwork quilt of what is the current regulatory process for Waters of the United States which is why we came out with our proposal in December to rewrite and redo the Waters of the United States going forward.

I believe we are going to provide the certainty the American public needs in order to protect the waters of the United States.

Senator BRAUN. In my State of Indiana, is the regulation component being administered more through State agencies trying to figure out what the ruling is or the interpretation of it, or is it being mandated more from the EPA?

In other words, I get the feeling in our case we might be not fully understanding what that regulation is and maybe being overbearing in the enforcement of it.

Mr. WHEELER. It is a rulemaking in conjunction with the Army Corps of Engineers. They are the ones that issue the permits on the ground and would be working with your constituents in Indiana. It varies from State to State right now based upon the district courts as far as which standard is in place, the prior to 2015 or the current 2015.

Senator BRAUN. What is your goal to have that fully clarified so farmers and State agencies know what is what?

Mr. WHEELER. We issued our proposal in December. It is out for public comment. I do not believe it has been published in the Fed-

eral Register because of the shutdown. Our goal is to have that rulemaking completed before the end of this year.

Senator BRAUN. Do you consider yourself a conservationist? How will you measure your own success in this job once you get into it?

Mr. WHEELER. I do consider myself a conservationist. I am an Eagle Scout, I am an avid hiker and camper. I still hike and still camp. When I met with you last week, I shared with you so far my favorite job in my life has been as a Boy Scout summer camp counselor for three summers when I was in college.

I am a big believer in the outdoors, and I think success will be that we have moved the ball forward on reducing pollution. I will go back to what I said in the opening statement, helping communities that are ravaged by Superfund sites. It greatly impacts low income Americans, oftentimes and in most cases, minority communities, and try to help those communities.

Some of the Superfund sites we have cleaned up and we are getting cleaned up are contaminated by lead. These are areas and communities where actually people and families are living today. To get those areas cleaned up so those children are not exposed to lead is very important.

There is one site in Colorado that I did not mention in my opening statement. It was on track to be cleaned up over I think 20 years. We are speeding that up. We are going to get that cleaned up in the next few years so that we will not have two generations of children growing up in low income housing subjected to lead in their ground.

Senator BRAUN. Thank you.

Mr. WHEELER. Thank you.

Senator BARRASSO. Thank you very much.

Senator Duckworth.

Senator DUCKWORTH. Thank you, Mr. Chairman.

Deputy Administrator Wheeler, as you know, I am very proud that my State is home to EPA's Region V office, which features civil servants who are leaders in the fields of water quality, Superfund cleanup, and Great Lakes restoration.

I am, however, concerned that EPA Regional Administrator Cathy Stepp and other political appointees are working to undermine that important work. An ATSDR report published last year indicated an elevated cancer risk in the community of Willowbrook, Illinois, as a result of being next to a facility that uses ethylene oxide, a known carcinogen.

I do want to thank you for how accessible you have been to me and Senator Durbin on this issue, for numerous personal phone calls you got on, and meeting with us in person. Thank you for how accessible you have been. It has been a nice change from your predecessor.

However, recently my office received alarming information alleging that senior political appointees instructed EPA personnel not to inspect any facilities in Region V that emits ethylene oxide. Yesterday evening when we checked EPA's public enforcement tool, the Eco tool, we found there has been no ethylene oxide inspection across the country in at least the last 6 months. This disclosure is incredibly disappointing to me.

The EPA Office of Inspector General should immediately begin an independent investigation into this allegation that political appointees within the EPA are issuing orders to not conduct ethylene oxide inspections.

Will you commit now to joining me in requesting that the EPA OIG initiate an investigation into this public health matter?

Mr. WHEELER. First, Senator, I would like to talk to my staff and find out what is going on. This is news to me. I would like to know whether or not it is accurate before I go further with that.

Senator DUCKWORTH. We ran the check just yesterday evening after you and I had spoken.

Will you at least commit to issuing a document retention order to all personnel in Region V and promise to me that EPA will monitor all facilities in my State that emit this carcinogen?

Mr. WHEELER. I know we are monitoring a number of facilities that release ethylene oxide not just in your region but across the country. We are looking at all of them.

The Willowbrook facility that mentioned, we have had a couple of public meetings there where we have discussed the monitoring data with the residents of the community. We are looking at the emissions at other facilities around the country. I know that is taking place.

Senator DUCKWORTH. What about issuing a document retention order to all personnel as I will be requesting an IG inspection?

Mr. WHEELER. If there is an issue there, certainly we want those documents retained, not just for this but for anything. We maintain all of our documents.

Senator DUCKWORTH. Thank you.

Right before the holidays and the Government shutdown, you announced release of the Administration's long delayed Lead Action Plan. I was disappointed to see that this plan walks back earlier goals on eliminating lead exposure. In fact, the new plan has the objective to reduce children's exposure as opposed to eliminate their exposure in homes and child occupied facilities with lead based hazards.

Will you commit EPA to the goal of eliminating—not just reducing but eliminating—lead exposure in children?

Mr. WHEELER. It is certainly our goal to eliminate lead exposure in children, and we do want to do that. We are moving forward with a number of regulatory programs to accomplish that, the Lead Dust Rule that I mentioned earlier, or Lead and Copper Rule. This would be the first time in over 20 years. We take very seriously lead contamination at Superfund sites around the country.

Senator DUCKWORTH. Thank you.

Will you immediately reinstate Dr. Ruth Etzel who led the Office of Children's Health Protection and was abruptly put on leave?

Mr. WHEELER. I am sorry, what were you asking about Dr. Etzel?

Senator DUCKWORTH. Will you immediately reinstate her?

Mr. WHEELER. She is on investigative leave because of allegations by her employees. I cannot go into more detail in a public setting because of personnel issues, but I would be happy through the oversight function of the Committee to brief you. I think we have to go through the Chairman to do that. I want to make sure my

general counsel is involved to go into more detail about the circumstances around that.

Senator DUCKWORTH. Thank you.

As some of my colleagues across the aisle have mentioned, the state of renewable fuels industry in this country is at a turning point. Over the last 6 months, we have seen more ethanol plants sold, idled, or closed than ever before.

Meanwhile, EPA is granting the world's largest refining companies the so called hardship waivers. My colleague, Senator Ernst, brought up the issue of these hardship waivers.

These companies are earning record profits—billions with a B. The CEOs of these companies have even pointed to the fact they were able to obtain these hardship waivers on their earnings calls as contributing to their profitability.

You promised to finalize a waiver for E15 blends by May 31. Will you also promise that you will end this abuse of the hardship waivers by companies like Exxon or Chevron?

Mr. WHEELER. Senator, the hardship waiver is based on the refinery itself not the refiner. It is based on the actual refinery. It does not matter who the parent company is. There could be a hardship at a refinery. We want to make sure that just because you are a large company, if a refinery is not economical, we do not want those shut down because of this program.

Oftentimes these small refineries are located in the Rocky Mountains and other areas where they are the only supplier of gasoline in their region. We have to base it according to both the statute and the regulations on the size of the refinery, not the refiner.

Senator BARRASSO. The Senator's time has expired.

Senator DUCKWORTH. Thank you, Mr. Chairman.

Senator BARRASSO. Thank you.

Senator Sullivan.

Senator SULLIVAN. Thank you, Mr. Chairman.

Mr. Wheeler, thank you for your service to our country and your willingness to take on this job. I also want to thank your family. As you know, these jobs oftentimes entail the whole team, so thank you. I know some of them are here, and we really appreciate you guys being here. I am sure you are proud of your spouse or your dad who is in the chair. Thank you.

I also appreciate the time you spent with me. I think one of the themes here is how responsive you are to Democrats and Republicans. That is a real important part of the job.

Our discussion yesterday had a number of Alaska related issues, the $PM_{2.5}$ non-attainment problem in Fairbanks and North Pole, Alaska, working on clean water issues in my State, particularly in rural communities, cleaning up ANCSA, contaminated lands which the Ranking Member and I had a bill last year that passed that helped do that. Transmining issues are a big challenge in Alaska. I am not going to go into each of those.

One commitment I do want to get from you is to get up to Alaska soon after your confirmation. Can I get a commitment from you on that?

Mr. WHEELER. Yes, sir, I would be happy to.

Senator SULLIVAN. Maybe even if I invite you in the winter, it is 45 below in Fairbanks right now, so you have to be a little tough to come up.

Mr. WHEELER. August sounds great.

Senator SULLIVAN. Maybe I am not going to be so supportive. No, I am just kidding.

This is a confirmation hearing that is supposed to look at your past qualifications and experience for the job. What was your first job out of law school?

Mr. WHEELER. My first job was a career employee at EPA working in the Toxics Program.

Senator SULLIVAN. You were a career employee at the EPA. You did that for how long?

Mr. WHEELER. For 4 years.

Senator SULLIVAN. You received some awards I believe during that time?

Mr. WHEELER. I did. I received three bronze medals.

Senator SULLIVAN. What does that mean?

Mr. WHEELER. They were not gold or silver but they were still very important.

Senator SULLIVAN. You got medals though, right, from the EPA as a career employee?

Mr. WHEELER. Yes, a career employee.

Senator SULLIVAN. I think that is important. You would probably be one of the first career employees to run the agency, wouldn't you?

Mr. WHEELER. I believe Steve Johnson, an Administrator under President Bush, was probably the first.

Senator SULLIVAN. Then you came to this Committee, which has oversight of the EPA and all the issues covered; how long were you at this Committee?

Mr. WHEELER. Fourteen years.

Senator SULLIVAN. Fourteen years as counsel and staff director?

Mr. WHEELER. I was the staff director and chief counsel for the last 6 years that I worked here.

Senator SULLIVAN. Essentially, you were the main guy running the Committee, with the exception of the Senators?

Mr. WHEELER. I had a lot of help. There was a Chairman with a gavel, yes.

Senator SULLIVAN. I think it was Senator Inhofe, so I do not want to get in trouble here, but you know what I mean.

We are talking almost 20 years in the public sector either at the EPA or at the Committee overseeing the EPA, correct?

Mr. WHEELER. Correct.

Senator SULLIVAN. I think that is really strong qualifications for this job. Hopefully my colleagues on both sides of the aisle will at least acknowledge that, because it is obvious. You come highly, highly qualified in the public sector. We appreciate that, your service to America.

Mr. WHEELER. Thank you, Senator.

Senator SULLIVAN. I hope the media that is watching this hearing will write about your almost 20 years of public sector because what they love to write about is "a lobbyist for a coal company." So you were a lobbyist.

Mr. WHEELER. I was.

Senator SULLIVAN. Can you talk about what you did in that job, and I know Murray Energy comes up. What was your big issue with representing them? You represented a lot more.

Mr. WHEELER. Yes, I represented over 20 different clients during my time as a consultant. I ranged from companies to trade associations to NGOs. I represented an air quality management district in California. For the last 4 years that I represented Murray Energy, the No. 1 issue I was asked to work on each of those 4 years was to try to shore up the United Mine Workers pension and health care funds.

They were underfunded. We were successful on the health care side, but we were not successful in getting the pension bill through Congress before I left, but I am very proud of the service that I did there. I am very proud of the work I did.

Senator SULLIVAN. I hope our friends in the media might want to cover that issue as well. I am sure Senators Capito and Manchin also appreciate that hard work. We all do. I have coal miners in my State, I have miners in my State, and they are great Americans.

Let me ask one final question. Oceans and ocean pollution and plastics is a huge issue, an issue we have made a lot of bipartisan progress on, pointing to Senator Whitehouse's empty seat. He and I had a bill last year that the President signed. The Trump administration is doing great work on this, arguably much better than the previous Administration.

We are going to soon put forward our Save Our Seas Act 2.0. Save Our Seas Act 1.0 was signed by the President just a couple months ago with Senator Whitehouse and I both in the Oval Office.

Do you have any ideas that we can move forward with on addressing the big challenges we have with ocean pollution, plastics, and the role that you have already played in that regard with regard to the EPA?

Senator BARRASSO. Perhaps the nominee could very briefly answer and in writing as well.

Senator SULLIVAN. Or maybe just commit to work with us just to keep it short.

Mr. WHEELER. I would be happy to commit to work with you. It is a very big problem internationally and something we are on top of.

Senator SULLIVAN. Great.

Thank you very much.

Senator BARRASSO. I would like to interject that the nominee has received praise from the United Mine Workers of America. Cecil Roberts, the United Mine Workers International President has said the following of Mr. Wheeler, and I am going to submit the statement to the record. He said, "He will be a reasonable voice within the agency and will recognize the impact on both the workers and the mining communities directly affected as EPA develops future emissions regulations."

That will be submitted to the record without objection.

[The referenced information follows:]

United Mine Workers of America

CECIL E. ROBERTS
INTERNATIONAL PRESIDENT

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November 8, 2017

The Honorable Tom Barrasso
Chair, Senate Committee on Environment and Public Works

The Honorable Tom Carper
Ranking Member, Senate Committee on Environment and Public Works

Dear Chairman Barrasso, Ranking Member Carper and Members of the Committee:

As you consider the nomination of Andrew R. Wheeler for Deputy Administrator of the Environmental Protection Agency, I ask that you take into consideration his hard work on behalf of America's active and retired coal mine workers. For the past five years, Mr. Wheeler has been an ally as the United Mine Workers of America has worked to preserve the health care and pensions that retired miners worked for over their lifetimes.

Andrew worked alongside our UMWA team to successfully pass legislation that has ensured that our miners will have the health care that was promised to them, and that they earned. As you are aware, this effort lasted years, and we faced major setbacks along the way. However, Andrew was a strong partner to us and we are very appreciative of that.

Andrew will bring a wealth of experience, from both the public and private sectors, to EPA. It is our belief that he will be a reasonable voice within the agency, and will recognize the impact on both the workers and mining communities that are directly affected as EPA develops future emissions regulations.

We look forward to working productively with Andrew in this role at EPA. I am available to discuss this further at your convenience.

Sincerely,

Cecil E. Roberts

Cecil E. Roberts

Senator BARRASSO. Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman.

Mr. Wheeler, earlier you said that you thought we were having a climate issue and not a climate crisis. Is that correct?

Mr. WHEELER. I did say that, yes.

Senator MARKEY. Let me just begin by saying I think you are 100 percent wrong. We are having a climate crisis. How do I know? I know because 13 Federal agencies, including your own, in November issued a report. Here is what all 13 Federal agencies said: "Our efforts do not yet approach the scale necessary to avoid substantial damages to the economy, environment and human health."

How did President Trump respond when asked about the conclusion of the National Climate Assessment that your agency helped to produce that climate change could devastate the American economy? He said, "I don't believe it." Do you agree with Donald Trump?

Mr. WHEELER. I believe President Trump was referring to the media reports of the assessment itself. I questioned the media reports as well because they focused on the worst case scenario and also focused on one study that was actually not in the report. That is the study that said there would be a 10 percent hit to the GDP. I believe that was what he was referring to, and that was what I raised questions about after the assessment was released.

Senator MARKEY. So you do not agree with the broader conclusion that the actions we are taking do not approach the scale necessary to avoid substantial damage to our country? You do not agree with that?

Mr. WHEELER. No, I did not say that, Senator.

Senator MARKEY. I am asking you that question. Do you agree with that conclusion?

Mr. WHEELER. I have been briefed by my career staff after the assessment came out, and I have asked a number of questions. We have a number of follow up briefings scheduled for them to go over the findings in the assessment.

Senator MARKEY. The report came out in November. You are the head of the EPA. We are heading to the end of January.

Mr. WHEELER. I did not review the report before it came out. There was no political interference in the assessment. We have been shut down for the last few weeks. I have been briefed by my staff once on the assessment, and we have several briefings scheduled before I can make further public comment.

Senator MARKEY. That is not acceptable. You are looking to be confirmed as the head of the Environmental Protection Agency. We are having a hearing on your worthiness for this job, and you very conveniently have not had enough time yet to review whether or not there is an extra level of urgency to this problem.

You are saying it is a worst case scenario they are talking about, so therefore you do not have to deal with it, but the worst case scenario is your proposal to roll back the fuel economy standards in our country.

The worst case scenario is your proposal to roll back the rule to reduce emissions dramatically from the coal burning plants in our country. That is where it is relevant that you are a former coal in-

dustry lobbyist who is sitting here. Your proposal to roll back those regulations is the worst case scenario, what you are proposing.

My question to you is in terms of fuel economy standards, we import 2.5 million barrels of oil a day from OPEC, 2.5 million barrels a day. We have young men and women all over the Middle East protecting that oil coming in.

Do you think that is a worst case scenario, or do you think that is something we should accept by not increasing the fuel economy standards because interestingly under the Obama standards, we back out 2.5 million barrels of oil a day every day that we would import from OPEC. Do you think that is a worst case scenario, or do you think that is something we should maintain and increase as our goal, Mr. Wheeler?

Mr. WHEELER. Senator, first of all, we did not roll back the Clean Power Plan because the Clean Power Plan never took effect. It was stayed by the Supreme Court. Our proposal follows the Clean Air Act, follows the court decisions.

Senator MARKEY. The effect of your decision is to not implement the Clean Power Plan. It dramatically reduces greenhouse gases.

Mr. WHEELER. It was stayed by the Supreme Court because it went outside the bounds of the Clean Air Act. What we put forward is a proposal that follows the Clean Air Act and follows the law.

Senator MARKEY. Here is the problem I have, sir, with you. In this hearing, you are putting up a smoke screen to ensure that there is an advancement of Donald Trump's dirty policies. The impact on ordinary families, their health, the health of our country, the security of our country is absolutely urgent.

The American people want higher fuel economy standards, they want higher standards for reducing pollutants going into the lungs of the people in our country, and what you are here doing is defending Donald Trump's policy. I don't believe it, he said. The American people believe it because they know it is American scientists that came to this conclusion, including your own.

You can say you have not had time to read it but that, in and of itself, from my perspective, is a disqualification for having the job which you are sitting here seeking to be nominated for.

Mr. WHEELER. I did not say I did not read it. I said I that I have not finished being briefed on it by my staff.

Senator BARRASSO. The Senator's time has expired.

I would like to interject. The EPA's decision to review the vehicle standards was the right one. In 2017 the Alliance of Automobile Manufacturers sent a letter to the EPA stating, "If left unchanged, these standards could cause up to 1.1 million Americans to lose their jobs due to lost vehicle sales, and low income households would be hit the hardest."

I ask unanimous consent to enter this statement into the record.

Without objection, it will be done.

[The referenced information follows:]

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February 21, 2017

G. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code 1101A
Washington, D.C. 20460

RE: Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation

Dear Administrator Pruitt,

I write on behalf of the Alliance of Automobile Manufacturers (Alliance), an association representing twelve leading manufacturers of cars and light trucks,[1] to request that the U.S. Environmental Protection Agency (EPA) withdraw the Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (Final Determination) which was announced on January 13, 2017 but never published in the *Federal Register*.

For the auto industry, the Final Determination may be the single most important decision that EPA has made in recent history. The Alliance requests that EPA withdraw the Final Determination and resume the Midterm Evaluation, in accordance with its original timetable, to remedy the severe procedural and substantive defects that have infected the process to date. We explain, in more detail below, EPA's authority to withdraw the Final Determination and why that withdrawal is appropriate and essential.

1. EPA Should Exercise Its Authority to Withdraw the Final Determination

As you know, on January 20, the White House issued a memorandum to the heads of all executive departments and agencies instituting a freeze on regulatory activity, pending review by the Office of Management and Budget (OMB) Director.[2] The Alliance urges EPA to withdraw the Final Determination on its own initiative in accordance with the regulatory freeze. Irrespective of whether EPA considers the Final Determination a rule or an adjudication, the Final Determination should be reviewed

[1] Alliance members are BMW Group, FCA US LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche Cars North America, Toyota, Volkswagen Group of America, and Volvo Car USA.

[2] *See* Memorandum for the Heads of Executive Departments and Agencies, Jan. 20, 2017, https://www.whitehouse.gov/the-press-office/2017/01/20/memorandum-heads-executive-departments-and-agencies.

and withdrawn. As the Alliance has noted, a wealth of precedents confirm that the Final Determination is a rule, and all rules not yet published in the *Federal Register* are subject to the regulatory freeze.[3] Even if EPA continues to construe the Final Determination as an adjudication, however, it is still subject to the regulatory freeze as an "agency statement of general applicability and future effect 'that sets forth a policy on a statutory, regulatory, or technical issue or an interpretation of a statutory or regulatory issue.'" The Final Determination reaffirms and reinstates industry-wide greenhouse gas emissions standards for all light vehicles sold in America for MY 2022-2025, and thereby establishes a policy on a regulatory issue of central importance to the auto industry.

Furthermore, EPA has ample authority to withdraw the Final Determination on its own initiative, irrespective of whether EPA considers it a rule or an adjudication. If the Final Determination is a rule, it is clearly a nonfinal one, because it has not been published in the *Federal Register*. *See* 5 U.S.C. § 553(d); *Kennecott Utah Copper Corp. v. U.S. Dep't of Interior*, 88 F.3d 1191, 1209 (D.C. Cir. 1996). And, as a nonfinal rule, EPA can readily withdraw the Final Determination without engaging in notice-and-comment rulemaking. *Kennecott*, 88 F.3d at 1206.

Even if EPA continues to endorse the view that the Final Determination is an adjudication, however, EPA has broad inherent power to reconsider its decision "within the period available for taking an appeal." *Am. Methyl Corp. v. EPA*, 749 F.2d 826, 835 (D.C. Cir. 1984). Agencies have long exercised this power to fix determinations like this one that suffer from "serious procedural and substantive deficiencies." *Belville Min. Co. v. United States*, 999 F.2d 989, 998 (6th Cir. 1993). Regardless of how EPA classifies the Final Determination, EPA should promptly withdraw it in light of the many procedural and substantive flaws described below.

2. EPA Has Abrogated Its Commitment to a Robust Midterm Evaluation

As the Supreme Court has recognized, EPA's regulatory efforts to address greenhouse gases have already produced "the single largest expansion in the scope of the [Clean Air Act] in its history."[4] In 2009, EPA issued an Endangerment Finding that motor vehicle greenhouse gas emissions contribute to climate change and thereby threaten public health and welfare. Thereafter, EPA and the National Highway Traffic Safety Administration (NHTSA) began jointly setting greenhouse gas emissions and fuel economy standards for new light-duty motor vehicles, starting with Model Year (MY) 2012-2016. Then, in 2012, EPA and NHTSA took the unprecedented step of

[3] *See* Alliance Comments on Proposed Determination on Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation at 11-13, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827; Memorandum for the Heads of Executive Departments and Agencies, Jan. 20, 2017.

[4] *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427, 2436 (2014) (internal quotation marks omitted).

setting joint greenhouse gas and fuel economy standards over a decade in advance for MY 2022-2025 vehicles. 77 Fed. Reg. 62,628 (Oct. 15, 2012). No agency ever had set emissions standards so far into the future, and all stakeholders understood that no one could accurately project the circumstances affecting the technological and economic feasibility of these standards.

The Alliance supported these efforts—but only on the condition that EPA and NHTSA would reassess standards as data became available to test their feasibility. That commitment was essential because of the great uncertainty regarding the feasibility of the future standards. Based on the projections in the 2012 rule, manufacturers must achieve an average 54.5 miles per gallon equivalent across their new vehicle fleets by 2025. Even today, no conventional vehicle today meets that target, and conventional vehicles comprise 96.5% of the new light-duty vehicle fleet. Only some non-conventional vehicles (i.e., hybrid, plug-in electric, and fuel-cell vehicles), which comprise fewer than 3.5% of today's new vehicles, currently can do so.[5] Even under EPA's optimistic estimates, the automotive industry will have to spend a staggering $200 billion between 2012 and 2025 to comply, making these standards many times more expensive than the Clean Power Plan.[6]

EPA and NHTSA committed to a robust Midterm Evaluation that would take a fresh look at these standards by April 2018. The agencies promised that this review would be collaborative, so that the industry could offer the agencies real-life data to adjust their model-driven forecasts. The agencies also committed to developing greenhouse gas emissions standards and fuel economy standards in tandem.[7] And they repeatedly represented that they would not complete the Proposed Determination/Notice of Proposed Rulemaking until mid-2017 at the earliest.[8] The industry took the agencies at their word, commissioning complex studies critical to assessing the MY 2022-2025 standards and the processes used by EPA in its analysis, that we had expected to add to the administrative record for the Midterm Evaluation in 2017.

On November 30, 2016, EPA abruptly abrogated these commitments. EPA issued a Proposed Determination that the MY 2022-2025 standards should go into force

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[5] "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2016," at 118. U.S. Environmental Protection Agency. EPA-420-R-16-010, Nov. 2016.

[6] *See* EPA Regulatory Impact Analysis for 2012-2016 rule (EPA-420-R-10-009, Apr. 2010) at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2012-2016-light-duty-vehicle; EPA Regulatory Impact Analysis for 2017-2025 rule (EPA-420-R-12-016, Aug. 2012) at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle.

[7] *See* 40 C.F.R. § 86.1818-12(h), 77 Fed. Reg. 62,784 (Oct. 15, 2012), 40 C.F.R. § 86.1818-12(h)(1) -(2); 81 Fed. Reg. 49,219 (July 27, 2016).

[8] *See* Alliance Comments on Proposed Determination at 10, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827.

without modification. EPA issued the Proposed Determination without coordinating with NHTSA. EPA demanded comments by December 30, 2016, even though the Proposed Determination was not published in the *Federal Register* until December 6. The public and industry had a mere 24 days, spanning a major national holiday, to comment on nearly 1,000 pages of documents, plus additional cited documents and computer modeling, regarding requirements that will profoundly affect the automobile industry and the more than 900,000 American workers it directly employs.[9] After EPA denied requests by various stakeholders to extend the abbreviated comment period, we did our best to file substantive comments. EPA received more than 100,000 public comments, including 63 sets of comments from various organizations spanning hundreds of pages.[10] Many objected that the comment period was inadequate. EPA denied all requests to extend the abbreviated comment period and yet EPA issued the Final Determination on January 13, 2017, just 14 days after the comment period closed. EPA brushed aside objections to its procedural shortcuts and never justified the need for such an abbreviated comment period. EPA also rejected commenters' substantive and technical concerns by resting on its earlier analysis.

3. EPA Should Withdraw the Final Determination Immediately

The Final Determination is the product of egregious procedural and substantive defects and EPA should withdraw it.[11] In EPA's rush to promulgate the Final Determination before the new administration took office, EPA bypassed required procedures, failing for instance to provide an adequate period for meaningful notice and comment. The Final Determination asserts that there was no need for more time because the Proposed Determination did not include much new material. But that contention is belied by EPA's acknowledgement that the Proposed Determination adjusted a number of EPA assumptions in response to commenters who pointed out errors at earlier stages. The industry also had an unacceptably short period to try to ascertain why EPA rejected many of its objections.[12] These procedural defects are significant irrespective of whether the Final Determination constitutes rulemaking or adjudication.

EPA's unilateral announcement of its Final Determination also constitutes a failure to harmonize its greenhouse gas emissions standards with NHTSA's fuel-economy standards, contrary to the letter and intent of EPA's own regulations. NHTSA has not yet reached a determination on its fuel economy standards and continues its

[9] U.S. Department of Labor, Bureau of Labor Statistics, 2015, U.S. Vehicle and Equipment Manufacturing Employment equaled 909,700 people.

[10] Final Determination, Response to Comments at 1-3.

[11] *See* Alliance Comments on Proposed Determination, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827.

[12] *See* Final Determination, Response to Comments at 7.

Midterm Evaluation rulemaking activities. EPA's failure to act in coordination with NHTSA also casts serious doubt on the legitimacy of EPA's data and conclusions, given the substantial discrepancies between EPA's and NHTSA's analysis of the technologies and costs associated with the MY 2022-2025 standards.[13]

Furthermore, EPA's Final Determination that the MY 2022-2025 greenhouse gas standards should remain unchanged, is riddled with indefensible assumptions, inadequate analysis, and a failure to engage with contrary evidence. Here are just a few examples:

- EPA estimated that these standards will cost the industry at least $200 billion. But EPA underestimated the burden. Contrary to EPA's assumptions, manufacturers will have to rely on much more expensive electrified technologies (i.e., hybrids and plug-ins), driving up vehicle prices and depressing auto sales.

- EPA refused to conduct an analysis of consumer acceptance and technology affordability needed for compliance, claiming this was too difficult.

- EPA refused to analyze substantively the economic impact of the MY 2022-2025 standards, instead making cursory assertions that downplayed the impact of its mandate on auto sales and employment.

- EPA refused to consider many of the Alliance's technical concerns even when supported by an outside consultant[14], asserted the Alliance provided insufficient data, and then refused further meetings for clarification.

4. <u>Studies and Data Highly Relevant to the Midterm Evaluation Have Not Been Submitted to EPA Because They Still Are Pending</u>

It is particularly critical that EPA withdraw the current Final Determination and reopen the Midterm Evaluation process because analysis commissioned according to EPA's original timetable is ongoing and the Alliance expects that new information relevant to the Final Determination's underlying assumptions and resulting analysis will soon emerge. EPA's rushed timetable, coupled with its about-face on the timing of the Midterm Evaluation, prevented consideration of this information.

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[13] *See* Alliance Comments on US EPA, US DOT, California's Air Resources Board Draft Technical Assessment Report of Greenhouse Gas Emissions and Fuel Economy Standards for Model Year 2022-2025 Cars and Light Trucks at ES-9, Sept. 26, 2016, Docket ID No. EPA-HQ-OAR-2015-0827, NHTSA's costs are approximately 42% higher than EPA's (NHTSA Table ES-2 v. EPA ES-4 Table ES-1).

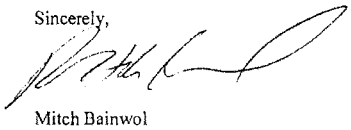
[14] *See* Novation Analytics Comments on Draft Technical Assessment, Sept. 26, 2016; Docket ID No. EPA-HQ-OAR-2015-0827.

We urge EPA to reconsider imposing such a far-reaching mandate on an entire industry without adequately considering the consequences, and without giving stakeholders a meaningful opportunity to comment. The MY 2022-2025 standards threaten to depress an industry that can ill afford spiraling regulatory costs. If left unchanged, those standards could cause up to *1.1 million* Americans to lose jobs due to lost vehicle sales.[15] And low-income households would be hit the hardest.[16]

The Alliance is not asking EPA to make a different Final Determination at this time. All we are asking is that EPA withdraw the Final Determination and resume the Midterm Evaluation, in conjunction with NHTSA, consistent with the timetable embodied in EPA's own regulations. We believe that, if carried out as intended, the Midterm Evaluation can lead to an outcome that makes sense for all affected stakeholders and for society as a whole.

The Alliance welcomes the opportunity for further dialogue about ways to rekindle the industry's longstanding cooperation with EPA on these issues.

Sincerely,



Mitch Bainwol
President and CEO

Cc: Secretary Elaine Chao, DOT
Kevin Green, DOT
Bill Charmley, EPA
Chris Grundler, EPA
Michael Olechiw EPA
Rebecca Yoon, NHTSA
James Tamm, NHTSA
Mike McCarthy, CARB
Annette Hebert, CARB

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[15] McAlinden, Sean, et al., *The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy*, Center for Automotive Research (Sep. 2016) at 49. Referring to the $3.00 per gallon gasoline price $6,000 technology cost scenario.

[16] Walton, Tom, et al., *The Impact of Future Fuel Economy Standards on Low Income Households*, Defour Group LLC (Sep. 2016); Walton, Tom, et al., *Defour Group Response to EPA Rejoinders to Defour Group / Alliance of Automobile Manufacturers Submission Regarding the Regressivity/Affordability of EPA's Proposed Fuel Economy Standards*, (Dec. 2016).

Senator BARRASSO. Senator Cramer.

Senator CARPER. Mr. Chairman.

Senator BARRASSO. Senator Carper.

Senator CARPER. I would like to ask unanimous consent to submit for the record a letter I sent to Mr. Wheeler last month asking about the possible coordinated campaign between Mr. Wheeler and the White House to bury the results of the report mentioned by Senator Markey and other materials as well related to EPA's efforts to take us backward on climate change and the climate change crisis.

Senator BARRASSO. Without objection.

[The referenced information follows:]

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United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

December 3, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Dear Acting Administrator Wheeler:

I write to express my grave concerns regarding the recent public comments made by you and your agency with respect to the release of the Fourth National Climate Assessment. These comments appear to run afoul of the commitment you made to me during your confirmation hearing, when you committed not to distort climate science studies, saying, "[m]y goal would be to not distort any scientific or economic analysis."[1]

On the day after Thanksgiving, thirteen federal agencies led by NOAA released the Fourth National Climate Assessment. This nearly 1,700-page, congressionally-mandated report highlighted the devastating impacts that climate change will have over the next eighty years if we do not change course now. The report was a dire warning to our nation and our planet, a warning that the world's leaders are today attempting to heed as the 24th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change begins this week.

The Fourth National Climate Assessment took three years to develop and write. It was written with input from more than 300 federal experts – some of which are EPA employees – as well as non-federal experts who volunteered their time. The scientific report was finalized following an extensive public outreach and interagency review process, and its conclusions are important to every person living on this planet.

Since the report was released, comments made by you and other Trump Administration officials have sought to undermine the findings of the report. For example, on November 26, 2018, President Trump stated "I don't believe it" when asked about the report, adding that "we're at the cleanest we've ever been."[2] The following day, White House Press Secretary Sarah Huckabee Sanders stated at the White House press conference that "We think that this is the most extreme

[1] https://www.eenews.net/assets/2017/11/28/document_pm_06.pdf
[2] https://www.cnn.com/2018/11/26/politics/donald-trump-climate-change/index.html

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version and it's not based on facts." She also said that "[I]t's not data-driven" and that it "contradicts long established trends."[3]

At a *Washington Post* event held on November 28, 2018, you stated that "The drafting of this report was drafted at the direction of the Obama administration"...and "[G]oing forward, I think we need to take a look at the modeling that used for the next assessment" and "I don't know this for a fact — I wouldn't be surprised if the Obama administration told the report's authors to take a look at the worst case scenario for this report."[4] The EPA then doubled down on these comments the next day, by releasing a statement[5] that purported to validate your remarks, citing an article[6] issued by *The Daily Caller*, a publication with a long history of issuing false statements about climate change.[7] This article greatly mischaracterized the scope of the climate report by falsely asserting that Obama Administration officials directed it to focus on the 'worst-case' scenario.

As you must certainly know, the National Climate Assessment is not developed at the direction of any one Administration, but was directed by Congress through the Global Change Research Act of 1990, which passed the United States Senate unanimously and was signed into law by President George H.W. Bush. This law requires, every four years, a report that, "analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity" and "analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years."[8] The memo mischaracterized by EPA and *The Daily Caller* clearly states that the Fourth National Climate Assessment should use scenarios and science that are consistent with previous reports.[9]

If the United States continues to ignore the dangers of climate change, the costs for all Americans will be devastating. This isn't an alarmist prediction. It doesn't come from some left-leaning organization, and it doesn't come from talk radio. It comes directly from our nation's leading scientists. We may not all agree about what to do to address these dire warnings, but it disturbs me greatly that counter to the commitment you made to me during your confirmation hearing, you seem to be actively working to undermine and distort the scientific evidence itself.

So that I can understand the basis for EPA's views and involvement in shaping the Trump Administration's response to its own report, I ask that you provide me with the following materials, no later than January 15, 2019:

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[3] https://www.cnn.com/2018/11/28/politics/climate-fact-check/index.html
[4] https://www.politico.com/story/2018/11/28/epa-trump-next-climate-study-992872
[5] https://www.epa.gov/newsreleases/fact-check-obama-administration-pushed-worst-case-scenario-climate-assessment
[6] https://dailycaller.com/2018/11/28/epa-andrew-wheeler-obama-climate-report/
[7] https://dailycaller.com/2018/03/23/deceptive-language-ruins-earth-hour/
[8] Pub.L. 101-606
[9] https://scenarios.globalchange.gov/sites/default/files/External%20memo%20NCA4%20scenarios%20framing_20150506.pdf

1. Copies of all briefing materials prepared for you or other Trump Administration EPA political officials related to the preparation and release of the Fourth National Climate Assessment, including but not limited to the May 2, 2018 briefing for the Office of Air and Radiation whose invited participants included Bill Wehrum and David Harlow, the May 14, 2018 briefing for the Office of Water whose invited participants included Lee Forsgren and Owen McDonough, and the May 29, 2018 briefing for the Office of Research and Development whose invited participants included Richard Yamada.
2. Copies of all briefing or materials prepared by EPA that were sent to any other entity within the Trump Administration related to the preparation or release of the Fourth National Climate Assessment.
3. Copies of all documents, including emails, white papers, memos, briefing slides, meeting minutes, drafts of press remarks or talking points, or other materials related to the release of the Fourth National Climate Assessment, including documents related to the decision to release the report the day after Thanksgiving.
4. Copies of all documents, including emails, white papers, memos, briefing slides, meeting minutes, drafts of press remarks or talking points, or other materials related to your appearance at the November 28, 2018 *Washington Post* event or the EPA press release the following day.

Thank you for your assistance in this matter. If you or your staff have questions about this letter or the requests, please contact me directly or have your staff contact Laura Gillam or Michal Freedhoff of the Environment and Public Works Committee staff. I look forward to your timely response.

With best personal regards, I am,

Sincerely yours,

Tom Carper
Ranking Member

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RICHARD M. RUSSELL, *MAJORITY STAFF DIRECTOR*
MARY FRANCES REPKO, *MINORITY STAFF DIRECTOR*

United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

October 16, 2018

The Honorable Elaine L. Chao
Secretary
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20530

The Honorable Andrew Wheeler
Acting Administrator
Environmental Protection Agency
1301 Constitution Ave. NW
Washington, DC 20460

Dear Secretary Chao and Acting Administrator Wheeler:

I write to strongly urge you to reverse course on your August, 2018 proposal to dramatically weaken future vehicle fuel economy and greenhouse gas tailpipe standards. The proposal, which is currently out for public comment, also seeks to remove California's authority to set and enforce its own greenhouse gas tailpipe standards (as well as the authority of the 12 additional states, including Delaware, which have adopted them). The proposal wrongly asserts that California's authority is preempted by law.

As I noted in my May, 2018 correspondence[1] regarding an earlier version of the draft rule that my office received, your proposal, if finalized, would harm U.S. national and economic security. It would also undermine efforts to combat global warming pollution, create regulatory and manufacturing uncertainty for the automobile industry and unnecessary litigation, and increase the amount of gasoline consumers would have to buy.

In past months, I have urged you both repeatedly to work to negotiate a 'win-win' solution on federal fuel economy and greenhouse gas tailpipe standards that can be supported by both the automobile industry and the State of California. President Trump[2], the automobile industry[3] and the State of California[4] have also indicated that they support such an approach.

Regrettably, your proposed vehicle standards do not seem to reflect the almost universally-shared view that a consensus approach is within reach and should be pursued. Moreover, the pending proposal is rife with seemingly unlawful assertions and erroneous assumptions. Specifically, the proposal makes the inaccurate assertion that the 'maximum feasible' fuel economy and tailpipe standards can legally be frozen for the better part of a decade, bases its

[1] https://www.carper.senate.gov/public/index.cfm/2018/5/carper-calls-on-chao-pruitt-to-abandon-draft-proposal-to-weaken-fuel-economy-and-tailpipe-emissions-standards
[2] https://www.cbsnews.com/news/trump-hopes-to-negotiate-with-california-on-fuel-standards/
[3] https://www.reuters.com/article/us-autos-emissions/major-automakers-urge-trump-not-to-freeze-fuel-economy-targets-idUSKBN1I821P
[4] https://www.reuters.com/article/us-autos-emissions/california-regulator-sees-window-for-deal-on-fuel-economy-rules-idUSKBN1JZ2TS

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safety analysis on a model that in no way reflects real-world driving or consumer behavior, artificially inflates the costs and minimizes the benefits of fuel-efficient technologies that are currently being used by automobile manufacturers, and fails to follow statutorily mandated requirements and procedures.

In fact, in comments submitted to the Department of Transportation and the White House Office of Management and Budget (OMB), EPA observed[5] that "EPA analysis to date shows significant and fundamental flaws in CAFE model… These flaws make the CAFE model unusable in current form for policy analysis and for assessing the appropriate level of the CAFE or GHG standards."

I have attached a non-exhaustive list of some of the most significant deficiencies in your Agencies' proposal. As you work to evaluate public comments, I want to underscore the consequences that could result if these deficiencies are not addressed in a final rule – which include precisely the sort of litigation and regulatory uncertainty the automobile industry wishes to avoid. Moreover, a likely outcome of that litigation is that courts will overturn NHTSA's proposed model year 2021-26 fuel economy standards, leaving no fuel economy standards whatsoever in place starting in model year 2022, and will additionally overturn EPA's proposed modifications to its existing model year 2021-26 tailpipe standards, leaving the current, more stringent EPA tailpipe standards in place. This appears to be the opposite of the outcome this Administration has said it wants.

I have spent considerable time over the past year talking frequently and extensively with automobile manufacturers, suppliers, officials representing the State of California, and other stakeholders. I remain convinced that an agreement is well within reach that would provide near-term flexibility and predictability for the auto industry, more rigorous standards going forward, and continued compliance flexibilities and incentives to develop electric and other advanced technology automobiles, all while avoiding years of unnecessary litigation with California and others. I urge you to abandon your current approach and do all that you can to support efforts to identify and finalize a 'win-win', consensus approach.

Thank you very much for your attention to this important matter. If you have any questions or concerns, please contact me directly or have your staff contact Michal Freedhoff of the Environment and Public Works Committee staff, at 202-224-8832.

With best personal regards, I am,

Sincerely yours,

Tom Carper
Ranking Member

[5] See the June 18, 2018 email from William Charmley which can be accessed at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453

Attachment 1

A non-exhaustive list of significant deficiencies in the proposed rules that, if finalized, could leave the rules vulnerable to legal challenge.

1. **Freezes the standards for almost a decade:** The Energy Policy and Conservation Act, as modified by the Energy Independence and Security Act, requires NHTSA to set the 'maximum feasible' fuel economy standard each year[6]. The Trump Administration's 'preferred alternative' freezes the stringency of the fuel economy standards in place from model years (MYs) 2020-26. Historic data (Attachment 2) shows that the fuel economy of the fleet has increased by 2-2.5 percent per year since the Bush Administration began increasing fuel economy standards for light duty trucks in 2005. It is simply implausible that the 'maximum feasible' fuel economy standard required under NHTSA's statute could legally be left unchanged for seven model years. Moreover, because the Notice of Proposed Rulemaking (NPRM) seeks to eliminate EPA's compliance credits for automakers that switch to less polluting air-conditioning refrigerants, the proposal effectively freezes the stringency of EPA's standards for almost nine model years[7].

2. **Ignores the statutory requirement to consider the need to conserve energy:** The law[8] states that when setting fuel economy standards, the Secretary of Transportation is required to consider "the need of the United States to conserve energy." This is a core tenet of the Energy Policy and Conservation Act, as modified by the Energy Independence and Security Act. Despite this explicit mandate, NHTSA proposes to abandon or minimize this consideration, stating that: "Given the discussion above, NHTSA tentatively concludes that the need of the U.S. to conserve energy may no longer function as assumed in previous considerations of what CAFE standards would be maximum feasible....The world has changed, and the need of the U.S. to conserve energy, at least in the context of the CAFE program, has also changed." Contrary to NHTSA's statutory fuel conservation mandate, the proposed rule would increase fuel consumption by about half a million barrels per day.[9]

3. **Relies on modeling of driver habits that contains documented errors and yields conclusions which defy common sense, distorts projections of regulatory impact, and lacks credibility.** NHTSA is required by law to consider economic practicability when it is setting fuel economy standards.[10] As part of this analysis, NHTSA developed a new and not-yet-peer-reviewed module for predicting consumer behavior. The module essentially assumes stronger fuel economy standards depress new car sales and keep more old cars on the road. Despite repeated corrections by EPA that are recorded in the docket, the NHTSA module projects that each new vehicle sale that is deferred results in many more old cars staying on the road, driving billions more miles than the new

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[6] 49 U.S.C. 32902(a)
[7] See Table I-3 of the NPRM, which shows that the tailpipe standard for MYs 2021-26 is proposed to be approximately the same as that for MY 2018.
[8] https://www.law.cornell.edu/uscode/text/49/32902
[9] NPRM, p. 42986
[10] 49 U.S.C. 32902(f) (2007) (discussed in NPRM, p. 42306)

vehicles themselves otherwise would have – a pattern that defies common sense. Because additional vehicle miles traveled (VMT) correlate to both emissions increases and roadway fatalities, these implausible modeling results distort the regulatory impact analysis and render its results virtually meaningless as a basis for the statutorily required economic analysis. Indeed, the NPRM concludes that leaving the more stringent standards in place would lead to 12,700 additional deaths by MY 2029,[11] 6,180 of them attributable to this new module. However, materials in the rulemaking docket[12] indicate that EPA believes this NHTSA module is fundamentally flawed, cannot be relied upon to justify the proposed rollback, and that EPA repeatedly brought these deficiencies to NHTSA's attention. Specifically:

- According to EPA's analysis, NHTSA's module predicts that if the current standards are left unchanged, there will be a 15-20% increase in registered vehicles because so many old cars will stay on the road – a conclusion that cannot be explained by any real-world policy or projection.
- According to EPA's analysis, NHTSA's module predicts that the current, more fuel-efficient, standards would result in 8,000 *new* vehicles that consumers would not purchase each year (because they would be too costly), and also result in an additional 512,000 *used* vehicles remaining on the road each year, a phenomenon that appears to be a fictitious creation of the module that has no real-world explanation.
- According to EPA's analysis, NHTSA's module predicts an unexplained 10-15% increase in vehicle miles traveled (VMT) if the standards remain unchanged. Specifically, the module predicts people will drive an extra almost 700 billion miles in model years 1977-2029 vehicles, with no real-world explanation for why that would be[13].
- The exaggerated estimates of vehicle miles traveled are magnified by a factor called the 'rebound effect,' to which NHTSA attributes 6,340 of the 12,700 additional deaths that would result if the current standards are left unchanged. This factor assumes that because fuel-efficient cars are cheaper to use, people will drive more. The NPRM assigns a value of 20 percent to the 'rebound effect' (meaning 20 percent more driving by consumers in more fuel-efficient vehicles) – twice the value that both EPA and NHTSA have determined to be appropriate since 2010, and absent any justification for departing from its past practice.[14] EPA also found flaws in the application of the rebound factor, noting[15] that NHTSA's model wrongly predicts *less* driving associated with more stringent standards when the rebound effect was set to 20 percent than when it was kept to 0 percent, which is the opposite of what would be expected in the real world. This

[11] Table II-73 of the NPRM
[12] See for example the June 18, 2018 email from William Charmley which can be accessed at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453
[13] Table VI-88 of the NPRM,
[14] See for example the June 18, 2018 email from William Charmley which can be accessed at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453
[15] See for example the June 18, 2018 email from William Charmley which can be accessed at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453

once again undermines the credibility of NHTSA's modeling results as a basis for legally justifying a regulatory decision.

4. **Ignores industry data on automobile safety**: Safety analysis has always been an important component of the balance that NHTSA seeks to achieve when setting fuel economy standards. Of the 12,700 additional deaths the NPRM states will occur if the currents standards are left unchanged,[16] 160 of them are attributed to 'mass changes'. This means that as vehicles are light-weighted to comply with more stringent standards, NHTSA believes that more people will die as a result of traffic accidents that occur in these lighter vehicles. Although the proposal notes that reducing the mass of light trucks generally improves the fleet's overall safety, it does not note that a recent study disproves[17] the argument that fuel economy standards result in more traffic fatalities in the first place. The proposal additionally fails to incorporate other industry[18] analysis[19] that shows that most of the mass reductions the industry is undertaking to improve fuel economy is being planned to occur in light trucks (which therefore, even by NHTSA's own flawed argument, should be projected to result in an overall *reduction* in traffic fatalities).

5. **The NPRM ignores premature deaths due to increased air pollution that are presented within their own environmental study:** Even NHTSA's contorted modeling shows that freezing fuel economy standards would increase air pollution, since vehicles that use more gasoline also emit more toxic air pollutants. Table 4.2.3.1 of the Draft Environmental Impact Statement[20] on the proposed rule shows that there will be as many as 299 premature deaths associated with freezing the standards from MYs 2020-26 by 2050. These additional deaths relative to the current standards are not factored into the total fatalities contained in Table 11-27 of the NPRM, and do not appear to be included in the analysis used to justify freezing the standards.

6. **Uses inaccurate and/or disputed cost, technology and compliance data that undermine the statutorily mandated analysis of 'technological feasibility'**: Another factor that NHTSA is required to consider when setting standards under the law is "technological feasibility."[21] Two years ago, NHTSA claimed there would be nearly $100 billon of net societal benefits[22] associated with maintaining the current standards, while now it claims that keeping these rules will lead to about $200 billion of net societal costs[23]. In its extensive comments[24] to NHTSA and OMB prior to the release of the proposed rule, EPA repeatedly highlighted examples of problematic cost, technology and

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[16] Table II-73 of the NPRM
[17] https://www.washingtonpost.com/news/energy-environment/wp/2017/05/03/scientists-just-debunked-one-of-the-biggest-arguments-against-fuel-economy-standards-for-cars/?noredirect=on&utm_term=.b872ce952443
[18] http://www.drivealuminum.org/wp-content/uploads/2018/08/Mass-Reduction-Chart.pdf
[19] http://www.drivealuminum.org/wp-content/uploads/2017/10/Ducker-Public_FINAL.pdf
[20] https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld_cafe_my2021-26_deis_0.pdf
[21] NPRM, 42306
[22] https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF page 13-103
[23] Table I-4 of the NPRM
[24] See for example the June 18, 2018 email from William Charmley which can be accessed at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453

compliance assumptions made by NHTSA, most, if not all of which, do not seem to have been remedied in the proposed rule. All of these assumptions result in an over-estimation of the current, more fuel-efficient standards' costs, and an under-estimation of their benefits. If these assumptions are not remedied in the final rule, litigation could be filed on the grounds that each or all of them are arbitrary and capricious. Some examples of these flaws include:

- EPA observed that NHTSA over-estimated the costs of some fuel-efficient technologies compared to their current, real-world costs and use. For example, EPA noted that NHTSA assigned a cost of Dynamic Cylinder Deactivation that "is 2-4 times higher than industry quoted costs for the version of the technology which is going into production in MY2019," observing that the high costs lead to a prediction that this technology will not be implemented *at all* under its 'preferred alternative,' even though GM is offering the technology in the MY 2019 Silverado which will be available for sale in late 2018. EPA believes that existing plans to use this technology will likely result in its inclusion in "well past 4.4%" of the new vehicles sold in the MY2019-2022 timeframe. In another example, EPA notes that NHTSA assumes that the cost of batteries for hybrid and plug-in vehicles is in most cases 20-40% more expensive than would be expected using Department of Energy projections.
- EPA told NHTSA and the White House Office of Management and Budget that the NHTSA model uses the most expensive technology packages available to meet the standards, which overestimates the most cost-effective ways to do so by $1-2,000 per vehicle. For example, NHTSA's assumptions about which types of hybrid technology to include in its model results in "strong hybrid packages that are significantly higher costs [sic] and less effective than the vast majority of real-world implementations."
- EPA identified NHTSA's omission of the benefits of some fuel-efficient technologies entirely, along with errors in the values NHTSA assigned to others. For example, 'start/stop' technology, which causes engines to automatically shut off while vehicles are stopped in traffic (and thus use no fuel), was estimated by NHTSA to have a negative effect on fuel-efficiency in some scenarios, which is simply not plausible. In another instance, EPA observed that the most advanced eight-speed transmission technologies are assigned unrealistically low fuel-efficiency effectiveness values for some vehicle types. EPA also noted that the more expensive version of an engine technology (TURBO2), which would be expected to be more fuel-efficient, was instead assigned a negative fuel-efficiency value for some types of vehicles in NHTSA's model. Additionally, an existing engine technology called cooled exhaust gas recirculation (CEGR1), which has been demonstrated in the market to significantly reduce carbon dioxide emissions, was assigned a fuel-efficiency effectiveness of at or near zero for nearly all of the options modeled by NHTSA.
- EPA also called out NHTSA's decisions to omit the existence of technologies that provide a significant improvement to fuel economy that are currently deployed in the marketplace, such as the Atkinson engine. EPA observed that with "Mazda applying the technology to the majority of their current vehicles, and Toyota

announcing its plan for at least 60 percent application (by volume) by 2021," it was unrealistic that the NHTSA model does not even project the inclusion of this technology in *future* compliance modeling scenarios of the companies that use the technology *today*.

- EPA also noted that NHTSA did not appear to recognize that the Clean Air Act allows trading of compliance credits between a company's car and truck fleets, which most companies currently and regularly engage in. This failure had the effect of driving compliance costs up since it assumes that a company would need to purchase credits from other companies rather than transfer credits from (for example) its over-compliant car fleet to its under-compliant truck fleet. According to EPA, the model also "inappropriately applies the credit cap (10g/mi) separately to each manufacturer's car and truck fleets" rather than the combined fleet as allowed for in the regulations.

7. **Relying on preemption analysis that has been rejected by courts**: The NPRM states that "States may not adopt or enforce tailpipe greenhouse gas emissions standards when such standards relate to fuel economy standards and are therefore preempted under EPCA [Energy Policy and Conservation Act], regardless of whether EPA granted any waivers under the Clean Air Act (CAA)." It additionally concludes that "the California ZEV [zero-emissions vehicle] mandate is expressly and impliedly preempted by EPCA." These assertions are starkly contradicted by the body of case law interpreting the interplay between EPCA, CAA[25], State waivers under the CAA, and the legislative history of both acts. That history affirms that EPCA's preemption provisions simply do not apply to pollution standards applicable to new motor vehicles, including greenhouse gas pollution standards, set by EPA or by California acting pursuant to a Clean Air Act waiver. The document also does not cite the clear Congressional intent on this point expressed by three of the principal[26] authors[27] of the fuel economy provisions of EPCA during their December, 2007 consideration on the House and Senate Floors that also refute the preemption proposal's premise.

8. **Unprecedented attempt to revoke California's waiver to set standards:** The NPRM also proposes to revoke the waiver California received under section 209 of the Clean Air Act to enforce its own light duty vehicle and zero-emissions vehicle standards, although EPA has never before revoked any of the more than 100 such waivers that have been granted.[28] The NPRM invokes all three statutory criteria that could be used to deny a waiver, namely that "EPA finds that California's determination that its standards are, in the aggregate, at least as protective of public health and welfare as applicable Federal

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[25] See for example *Massachusetts v. E.P.A.*, 549 U.S. 497, 532 (2007), which stated that the two statutory directives "may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency", and *Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1177 (E.D. Cal. 2007); *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295 (D. Vt. 2007), which both held that EPCA does not preempt California's standards.

[26] https://www.gpo.gov/fdsys/pkg/CREC-2007-12-06/pdf/CREC-2007-12-06-pt1-PgH14434-2.pdf. See page 10 for the remarks of then-Congressman Edward. J. Markey

[27] https://www.gpo.gov/fdsys/pkg/CREC-2007-12-13/pdf/CREC-2007-12-13-pt1-PgS15385.pdf. See page 2 for the remarks of Senator Feinstein and the late Senator Inouye

[28] https://www.nrdc.org/experts/irene-gutierrez/baseless-threats-californias-clean-car-waiver

standards, is arbitrary and capricious; that California does not need its own standards to meet compelling or extraordinary conditions; or that such California standards and accompanying enforcement procedures are not consistent with Section 202(a) of the CAA." Since the NPRM proposes to freeze federal standards between MYs 2020-26, it is difficult to understand how a determination that California's stronger standards would be more protective of public health and welfare could be arbitrary and capricious. No scientific or other evidence was provided to refute EPA's 2009 approval[29] of California's waiver application, which acknowledged the "adverse impact that climate change may have on local ozone conditions" as well as "the evidence submitted concerning the observed and projected impacts of global climate change in California and other states" when it determined that the conditions the California standards were intended to meet constituted compelling and extraordinary conditions. Finally, as noted in the above section, several court decisions have informed the question of whether fuel economy standards, EPA tailpipe standards and California's separate standards can co-exist free of conflict, as they have since 2009.

9. **EPA did not draft its own proposed rule, which may be unlawful:** Numerous reports have indicated that EPA provided almost no input into this proposal, which was written largely by NHTSA. One recently retired EPA official stated that "EPA staff had basically nothing to do with that entire document and analysis,[30]" and another current EPA official asked[31] that EPA's logo be removed from the document to reflect that fact. Not only is this a dramatic departure from past inter-agency processes, it is also likely illegal, as courts[32] have[33] repeatedly[34] ruled that agencies can use external input and advice when writing regulations under their own statutory authorities, but must write the regulations themselves.

10. **NHTSA failed to include a reasonable range of regulatory alternatives as mandated by the National Environmental Policy Act:** The range of alternative standards that were analyzed in NHTSA's Draft Environmental Impact Statement depart from past practice, because they do not appear to include a reasonable range of alternative rulemaking options. In fact, none of the alternatives analyzed are more stringent than the current (augural) standards. This also poses a legal vulnerability. In 1981, the Council on Environmental Quality published in a memorandum to agencies that addressed how alternatives should be selected,[35] saying that the range examined should include "the full spectrum of alternatives". It uses as an example a proposal to designate wilderness areas within a National Forest from 0 to 100 percent of the forest and states that "An appropriate series of alternatives might include dedicating 1, 10, 30, 50, 70, 90 or 100

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[29] https://www.gpo.gov/fdsys/pkg/FR-2009-07-08/pdf/E9-15943.pdf
[30] https://www.eenews.net/stories/1060091981
[31] https://www.washingtonpost.com/energy-environment/2018/08/15/trump-administration-said-weaker-fuel-standards-would-save-lives-epa-experts-disagree/?utm_term=.21f0b9849f67
[32] *U.S. Telecomm v. FCC*, 359 F. 3d 554, 567-68 (D.C. Cir. 2004)
[33] See the illustrative discussion in *Coalition for Responsible Regulation v. EPA* regarding EPA's use of the IPCC reports in crafting the endangerment finding at 684 f 3d at 120
[34] Ergon-West Virginia, Inc. v. EPA, No. 17-1839 (4th Cir. 2018)
[35] https://www.energy.gov/sites/prod/files/G-CEQ-40Questions.pdf

percent." The document goes on to explain that reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. Several[36] court[37] decisions[38] have opined on this 'reasonableness' test and required a broader range of alternatives to be required for consideration by agencies that were found to have unlawfully constrained them.

[36] Sierra Club v Marsh, 714 F. Sup. 539 (1989)
[37] Calvert Cliffs' Coordinated Committee v. Atomic Energy Commission, 449 F.2d 1109 (D.C. Cir. 1971), cert. denied, 404 U.S. 942 (1972)
[38] Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972)

Attachment 2 – Historic Tailpipe Performance of Cars and Trucks (not including advanced technology vehicle, air conditioning off-cycle or other compliance flexibilities)

Tailpipe efficiency improvement for cars and trucks combined			
Year	**EPA Unadj., Lab (MPG)**	**NHTSA CAFE (MPG)**	**Actual tailpipe improvement over prior year**
1975	15.3	N/A	
1976	16.7	N/A	9.15%
1977	17.7	N/A	5.99%
1978	18.6	19.9	5.08%
1979	18.7	20.1	0.54%
1980	22.5	23.1	20.32%
1981	24.1	24.6	7.11%
1982	24.7	25.1	2.49%
1983	24.6	24.8	-0.40%
1984	24.6	25.0	0.00%
1985	25.0	25.4	1.63%
1986	25.7	25.9	2.80%
1987	25.9	26.2	0.78%
1988	25.9	26.0	0.00%
1989	25.4	25.6	-1.93%
1990	25.2	25.4	-0.79%
1991	25.4	25.6	0.79%
1992	24.9	25.1	-1.97%
1993	25.1	25.2	0.80%
1994	24.6	24.7	-1.99%
1995	24.7	24.9	0.41%
1996	24.8	24.9	0.40%
1997	24.5	24.6	-1.21%
1998	24.5	24.7	0.00%
1999	24.1	24.5	-1.63%
2000	24.3	24.8	0.83%
2001	24.2	24.5	-0.41%
2002	24.1	24.7	-0.41%
2003	24.3	25.1	0.83%
2004	24.0	24.6	-1.23%
2005	24.8	25.4	3.33%
2006	25.2	25.8	1.61%
2007	25.8	26.6	2.38%
2008	26.3	27.1	1.94%
2009	28.2	29.0	7.22%
2010	28.4	29.3	0.71%
2011	28.1	29.0	-1.06%
2012	29.9	30.8	6.41%
2013	30.7	31.6	2.68%
2014	30.7	31.7	0.00%
2015	31.4	32.2	2.28%
2016	31.6		0.64%
2017 (prelim)	*32.3*		2.22%
Average, 2005-2016			2.35%
Average, 2012-2016			2.40%

Source: EPA's Fuel Trends, Table 9.1

United States Senate

WASHINGTON, DC 20510

October 25, 2018

The Honorable Elaine L. Chao
Secretary
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20530

The Honorable Andrew Wheeler
Acting Administrator
Environmental Protection Agency
1301 Constitution Ave. NW
Washington, DC 20460

Dear Secretary Chao and Acting Administrator Wheeler:

We write regarding your proposals to dramatically weaken the fuel economy and greenhouse gas tailpipe standards for cars and light trucks. These proposals additionally seek to remove California's authority to set and enforce its own greenhouse gas tailpipe standards, wrongly asserting that California's authority is preempted by the Energy Policy and Conservation Act (EPCA), as amended by the 2007 Energy Independence and Security Act (EISA).

As elected officials who were deeply involved in the negotiation of the fuel economy provisions of EISA, we can attest to Congress' intent that California's authority under the Clean Air Act be preserved. Not only did Congress include a broadly worded savings clause that expressly retains all authorities conferred by environmental laws,[1] we did so in rejection of several alternative proposals to preempt California's authority. This intent was clearly expressed by two[2] of us[3] during the provisions' December, 2007 consideration on the House and Senate Floors.

This letter transmits contemporaneous emails and other documents that demonstrate unequivocally that in the month before EISA was enacted, there were repeated efforts on the part of the automobile industry, some Members of Congress and the Bush Administration to preempt, limit or otherwise constrain both EPA's and California's authority under the Clean Air Act. All of these efforts were rejected, and were not included in the enacted law.

Specifically, these materials (also attached) include:

- Several draft legislative proposals shared by representatives of Cerberus[4] in late-November, 2007 that sought to constrain EPA's authority to set greenhouse gas tailpipe standards for cars and light trucks, and remove California's authority to do the same.
- A November 30, 2007 press release that describes the Congressional agreement on the fuel economy provisions of EISA.
- Two December, 2007 Statements of Administration Policy issued by the Bush White House that threatened a Presidential veto of EISA, in part because it did not eliminate EPA's Clean Air Act authority to set greenhouse gas tailpipe standards for cars and light

[1] See 42 USC 17002.
[2] https://www.gpo.gov/fdsys/pkg/CREC-2007-12-06/pdf/CREC-2007-12-06-pt1-PgH14434-2.pdf. See page 10 for the remarks of then-Congressman Edward. J. Markey
[3] https://www.gpo.gov/fdsys/pkg/CREC-2007-12-13/pdf/CREC-2007-12-13-pt1-PgS15385.pdf. See page 2 for the remarks of Senator Feinstein and the late Senator Inouye
[4] At the time, Cerberus had purchased Chrysler, and hired Patton Boggs to represent them. See, for example, http://www.pressreader.com/usa/the-detroit-news/20070718/282651798082147

trucks in order to abrogate the Supreme Court's decision earlier that year in *Massachusetts v. EPA*.

- Draft legislative language proposed in mid-December, 2007 that sought to prevent EPA from setting more stringent greenhouse gas tailpipe standards for cars and light trucks than the fuel economy standards that would be set by the Department of Transportation.
- A press release issued on the date EISA was signed into law acknowledging that the new law did not include any provisions that impacted EPA's or California's authority to set greenhouse gas tailpipe standards for cars and light trucks.

Your Agencies' proposals that assert that California's Clean Air Act authority is preempted by EPCA (as amended by EISA) are starkly contradicted by the body of case law interpreting the interplay between EPCA, Clean Air Act[5], State waivers under the Clean Air Act, and the legislative history of both acts. That history affirms that EPCA's preemption provisions simply do not apply to pollution standards applicable to new motor vehicles, including greenhouse gas pollution standards, set by EPA or by California acting pursuant to a Clean Air Act waiver. The documents we are transmitting today also make clear that Congress considered, and ultimately rejected, language that would have eliminated or otherwise constrained this authority, even when faced with two Presidential veto threats. We urge you to abandon your legally flawed proposal, and instead support efforts to identify and finalize a consensus approach to fuel economy and greenhouse gas tailpipe standards that has the support, and preserves the authority of, the State of California.

Thank you very much for your attention to this important matter. If you have any questions or concerns, please have your staff contact Michal Freedhoff of the Environment and Public Works Committee staff, at 202-224-8832, Trevor Higgins of Senator Feinstein's staff, at 202-224-3841 or Morgan Gray of Senator Markey's staff, at 202-224-2742.

With best personal regards, we are.

Sincerely yours,

Tom Carper
United States Senator

Dianne Feinstein
United States Senator

Edward J. Markey
United States Senator

[5] See for example *Massachusetts v. E.P.A.*, 549 U.S. 497, 532 (2007), which stated that the two statutory directives "may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency", and *Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1177 (E.D. Cal. 2007); *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295 (D. Vt. 2007), which both held that EPCA does not preempt California's standards.

From: [redacted] <[redacted]@PattonBoggs.com>
Sent: Tuesday, November 20, 2007 4:38 PM
To: Freedhoff, Michal
Subject: GHG Amendment
Attachments: WASHINGTON-#4911620-v16-GHG Rulemaking Nov 20.DOC¤.DOC

Importance: High

Here you go, will call in a few...

[redacted]

-----Original Message-----
From: Freedhoff, Michal [mailto:Michal.Freedhoff@mail.house.gov]
Sent: Tuesday, November 20, 2007 4:37 PM
To: [redacted]
Subject: RE: this dear colleague just went out

Great. Talk soon then.

Michal Ilana Freedhoff, Ph.D.
Policy Director
Office of Representative Edward J. Markey (D-MA)
2108 Rayburn House Office Building
Washington, DC 20515
202-225-2836

-----Original Message-----
From: [redacted] [mailto:[redacted]@PattonBoggs.com]
Sent: Tuesday, November 20, 2007 4:35 PM
To: Freedhoff, Michal
Subject: Re: this dear colleague just went out

You will have it momentarily - and a call from me as well.
[redacted]

Sent from my BlackBerry Wireless Handheld

----- Original Message -----
From: Freedhoff, Michal <Michal.Freedhoff@mail.house.gov>
To: [redacted]
Sent: Tue Nov 20 16:33:22 2007
Subject: RE: this dear colleague just went out

Happy to do so, I talk to him frequently. But it would help to have language....

Michal Ilana Freedhoff, Ph.D.
Policy Director
Office of Representative Edward J. Markey (D-MA)
2108 Rayburn House Office Building
Washington, DC 20515
202-225-2836

-----Original Message-----
From: [redacted] [mailto[redacted]@PattonBoggs.com]
Sent: Tuesday, November 20, 2007 3:14 PM
To: Freedhoff, Michal
Subject: Re: this dear colleague just went out

Please tlk to Matt Nelson on GHG rulemaking we talked about, please.

We are finishing with him now.

[redacted]

Sent from my BlackBerry Wireless Handheld

----- Original Message -----
From: Freedhoff, Michal <Michal.Freedhoff@mail.house.gov>
Sent: Tue Nov 20 14:42:37 2007
Subject: this dear colleague just went out

November 20, 2007

STUDY: CARS & TRUCKS - SAME SIZE, SAME FUEL ECONOMY

Support the Senate Fuel Economy Provisions

Dear Colleague:

Recently, you may have heard from certain auto industry lobbyists that eliminating the 'light-truck loophole,' which allows cars used for transporting people to be classified as trucks for purposes of fuel economy standards, "is a recipe for disaster." The basis for this assertion is that cars and trucks that are the same size should not have to meet the same fuel economy standard because of the different performance requirements of SUVs, minivans and pickups trucks.

Well guess what? It turns out that cars and trucks that are the same size ALREADY have the same fuel economy. Analysis recently conducted by Meszler Engineering Services plotted the size of EVERY SINGLE 2007 car and light truck against its fuel economy. Result? The "average" car fuel economy differs from the "average" truck fuel economy by only 1 mile per gallon - for every vehicle size.

The complaint raised by the Detroit companies is yet another red herring unsupported in any way by the facts. Don't be fooled. Support the Senate fuel economy language. For a copy of the study or more information, please have your staff contact Michal Freedhoff (Rep.

Attachment to 11/20/07 4:38 PM email

November 20, 2007

DRAFT AMENDMENT

On page 396, strike lines 1 through 4 and insert:

SEC. 519. GREENHOUSE GAS VEHICLE EMISSIONS REGULATIONS.

Chapter 329 of title 49, United States Code, is amended by adding a new section 32920 as follows:

"§ 32920. Greenhouse Gas Vehicle Emissions Regulations.

"(a) IN GENERAL.--Notwithstanding any other provision of law or regulation, should the Administrator of the Environmental Protection Agency (hereinafter "the Administrator") promulgate regulations applicable to emissions of greenhouse gases from automobiles, the Administrator shall promulgate regulations subject to the requirements set forth in subsections (b) and (c), and (d). Subject to subsections (b), (c), and (d), the Administrator may amend the regulations subsequent to their initial promulgation.

"(b) CONSULTATIONS.--In promulgating or amending regulations under this section, the Administrator shall consult with the Secretary of Transportation (hereinafter "the Secretary"). Before issuing a notice proposing to prescribe or amend regulations under this section, the Administrator shall give the Secretary at least 30 days from the receipt of the notice during which the Secretary may, if the Secretary concludes the proposed regulations would conflict with fuel economy standards established by the Secretary under section 32902 or vehicle safety standards established by the Secretary under section 30111 of this title, provide written comments to the Administrator regarding those concerns. To the extent that the Administrator does not revise a proposed regulation to take into account the Secretary's comments on any adverse impact of the standard, the Administrator shall include those comments in the notice. Before taking final action on a regulation under this section, the Administrator shall provide the Secretary a reasonable time to comment.

"(c) MAXIMUM FEASIBLE REDUCTIONS.--Any regulations promulgated or amended pursuant to subsection (a) shall result in standards to achieve the maximum feasible reduction of emissions through the use of technology that is or will be available for the model year to which the standards apply. Such standards shall be based on vehicle attributes related to fuel economy and emissions reductions. In determining the maximum feasible reduction of emissions pursuant to this subsection, the Administrator shall consider technological feasibility, economic practicability (including maintaining consumer choice and employment in the domestic automobile industry), the impact of the regulations on fuel economy standards established by the Secretary under section 32902, and the preservation or enhancement of vehicle safety.

"(d) LEAD TIME AND STABILITY.--Any standard promulgated or amended under subsection (a) shall—

"(1) take effect after such period as the Administrator finds necessary to permit the development and application of new technology, giving appropriate consideration to the cost of compliance within such period; and

"(2) apply for a period of no less than 2 model years beginning no earlier than the model year commencing 4 years after such revised standard is promulgated; *provided,* That an amendment that reduces the stringency of a standard may take effect as early as immediately.

"(e) STATE AND POLITICAL SUBVISION AUTOMOBILES.--A State or a political subdivision of a State may prescribe requirements for greenhouse gas emissions for automobiles obtained for its own use.

"(f) DEFINITION.--The term 'greenhouse gas' means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.".

From: [redacted] <[redacted]@PattonBoggs.com>
Sent: Wednesday, November 28, 2007 8:34 PM
To: Freedhoff, Michal
Subject: Language - GHG Rulemaking

Here you go: Its my understanding that there may be another iteration that may have been passed along, though not from us.

Chapter 329 of title 49, United States Code, is amended by adding a new section 32920 as follows:

"§ 32920. Greenhouse Gas Vehicle Emissions Regulations.

" IN GENERAL.--Notwithstanding any other provision of law or regulation, should the Administrator of the Environmental Protection Agency (hereinafter "the Administrator") promulgate regulations applicable to emissions of greenhouse gases from automobiles, the Administrator shall ensure that such regulations are fully consistent with Section 32902 of this title and any standards or regulations promulgated or enforced thereunder.

Sent from my BlackBerry Wireless Handheld

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From: [redacted]@PattonBoggs.com>
Sent: Thursday, November 29, 2007 12:17 PM
To: Freedhoff, Michal
Subject: GHG Language

Importance: High

[redacted]
>
> [redacted]
> **********
>
>
> What was proffered:
>
> Chapter 329 of title 49, United States Code, is amended by adding a
> new section 32920 as follows:
>
> "> § 32920. Greenhouse Gas Vehicle Emissions Regulations.
>
> "> IN GENERAL.--Notwithstanding any other provision of law or
> regulation, should the Administrator of the Environmental Protection
> Agency (hereinafter > "> the Administrator> ">) promulgate regulations applicable to emissions of greenhouse gases from automobiles, the Administrator shall ensure that such regulations are fully consistent with Section 32902 of this title and any standards or regulations promulgated or enforced thereunder.
>
> What we (Patton Boggs) propose as compromise:
>
> "§ 32920. Greenhouse Gas Vehicle Emissions Regulations.
>
> "(a) IN GENERAL.--Notwithstanding any other provision of law or
> regulation, should the Administrator of the Environmental Protection Agency promulgate regulations applicable to emissions of greenhouse gases from automobiles, the Administrator shall consider the impact of the regulations on fuel economy standards established by the Secretary under Chapter 329 and any regulations promulgated or enforced thereunder."
> "(b) STATE AND POLITICAL SUBVISION AUTOMOBILES.--A State or a political subdivision of a State may prescribe requirements for greenhouse gas emissions for automobiles obtained for its own use.
> "(c) DEFINITION.--The term 'greenhouse gas' means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.
> "(d) SAVINGS CLAUSE.--Nothing in this title shall be construed to diminish existing authority of any State or political subdivision thereof under section 209 of the Clean Air Act (42 USC 7543).".
>

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FOR IMMEDIATE RELEASE:
Friday, November 30, 2007

Contact: Scott Gerber (Feinstein) 202/224-9629
John Gentzel (Snowe) 202-224-8667
Jenilee Keefe (Inouye) 202-224-0411

Landmark Bipartisan Agreement to Increase Fuel Economy Standards Reached

- Agreement would raise fleet-wide fuel economy standards to 35 mpg by 2020 -

Washington, DC – A landmark, bipartisan agreement on increasing fuel economy standards has been reached by key Senate and House negotiators.

"The House and Senate have reached an historic agreement that achieves the first major mileage efficiency increase in two decades. It will increase the mileage of the overall fleet of vehicles by 10 miles per gallon over 10 years," Senator Feinstein said. **"We have been able to reach an agreement with the House that achieves the goal of the 10-in-10 Fuel Economy Act, without affecting the integrity of the bill.**

"It is a major milestone and the first concrete legislation to address global warming. Transportation produces about a third of global warming gases in the United States, and this bill addresses cars, light trucks, SUVs, and medium and heavy trucks – which account for the vast majority of transportation emissions. The standards are estimated to remove 192 million metric tons of global warming pollution in 2020, a savings that will continue to increase in subsequent years.

"This agreement is the culmination of years of hard work – and so many people contributed to this effort. I'd like to thank the cosponsors of the Feinstein-Snowe 10-in-10 Fuel Economy Act: Senators Inouye and Stevens, Boxer, Cantwell, Collins, Durbin, Kerry, Lautenberg, Lieberman, Menendez, Bill Nelson, Akaka, Cardin, Dodd, Leahy, Jack Reed, Sanders. I'd also like to thank Senators Alexander, Carper, Corker, Craig, Dole, Dorgan, Hagel, Klobuchar, Lott, Sununu, and Chairman Markey for their contributions to this effort.

Special thanks go to Inouye and Stevens who showed tremendous leadership as Chairman and Vice-Chairman of the Commerce Committee; Speaker Pelosi, who was determined from the very beginning to get this done; Chairman Dingell for the agreement; and all the others who have worked on this issue over the years.

"America's energy policy has been dormant for far too long, and tonight's agreement is a significant step in reviving our nation's commitment to America's

environment and security," Senator Snowe said. **"Improving our fuel efficiency by 40 percent will do immeasurable benefits to mitigating our addiction to oil, and I strongly urge the President and my colleagues in the Senate to expeditiously pass this historic legislation."**

"Increasing fuel economy standards places the country on a bright path toward reducing our nation's dependence on foreign oil, protecting the environment, and helping consumers deal with rising gas prices," Senator Inouye said.

The agreed-upon legislation stems from legislation introduced earlier this year by Senators Dianne Feinstein (D-Calif.) and Olympia Snowe (R-Maine) – the "Ten in Ten Fuel Economy Act."

By 2025, the fuel economy increases for cars and light-duty trucks would:

- **Save 1.1 million barrels of oil saved per year,** or nearly half the oil imported by the United States today from the Persian Gulf. (Union of Concerned Scientists)

- **Remove 192 million metric tons of global warming pollution in 2020**, a savings that will continue to increase in subsequent years. (Union of Concerned Scientists)

- **Save American families $700 - $1000 per year at the pump,** depending on driving habits, (based on a $3.00 gas price). By 2020, the standards are estimated to save consumers $22 billion in net consumer savings in that year alone, a savings that will continue to increase in subsequent years.

Summary of the Agreement

10-in-10: Increases Fuel Economy Standards for All Vehicles

- Beginning in 2011, the National Highway Traffic Safety Administration (NHTSA) will annually increase the nationwide average fleet fuel economy standards for cars and light trucks to achieve a standard of 35 miles per gallon (mpg) by 2020. This will be the first statutory fuel economy increase for passenger cars since 1975.

- For the years 2021-2030, car and light truck fuel economy standards will increase at the maximum feasible rate.

- For the first time, NHTSA will establish a program for medium and heavy duty trucks under which fuel economy standards will improve at the maximum feasible rate.

- NHTSA will establish a separate fuel economy standard for work trucks that will increase their fuel efficiency at the maximum feasible rate.

Ensures Fuel Economy Standards Will Be Reached

- The compromise eliminates the "off-ramp," which ensures that NHTSA will mandate a fuel economy standard of 35 mpg by 2020.

- The compromise eliminates the low volume manufacturer exception, which would have allowed any company that sells less than approximately 64,000 cars and trucks a year in the United States to be exempt from the 35 mpg by 2020 fuel economy standard.

Labor Protections

- The compromise inserts domestic car production rules intended to encourage continued production of small cars in the United States.

Manufacturer Flexibility

- The compromise phases out the flexible fuel vehicle (FFV) credit on the following schedule:

  2011: 1.2 mpg
  2012: 1.2 mpg
  2013: 1.2 mpg
  2014: 1.2 mpg
  2015: 1.0 mpg
  2016: 0.8 mpg
  2017: 0.6 mpg
  2018: 0.4 mpg
  2019: 0.2 mpg
  2020: 0 mpg

- NHTSA must tailor attainable fuel economy standards based on the physical attributes of particular models of cars and light trucks. Cars and light trucks will be accounted for on a separate basis.

- The compromise gives manufacturers the ability to trade extra fuel economy credits earned between the passenger car and light truck fleets when the performance of either fleet exceeds the standards. The amount of credit traded would be limited.

- Automakers will have the flexibility to borrow against future fuel economy gains up to 3 years in the future and to carry forward earned fuel economy credits earned for up to 5 years.

Improved Consumer Information

- Automakers will be required to provide improved fuel economy and emissions information to consumers. A label will be prominently placed on each vehicle that includes information on the fuel economy of the automobile and the greenhouse gas and other emissions consequences of operating the automobile over its likely useful life.

- The deal also includes improved consumer information on tire fuel efficiency, safety, and durability, and increased consumer awareness of flexible fuel automobiles.

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

December 6, 2007
(House)

STATEMENT OF ADMINISTRATION POLICY

H.R. 6 – Energy Independence and Security Act of 2007
(Rep. Rahall (D) WV and 198 cosponsors)

In his 2007 State of the Union Address, President Bush announced the "Twenty in Ten" Initiative, a plan to reduce projected gasoline usage in the United States by 20 percent in 10 years. "Twenty in Ten" called on Congress to pass legislation that would: (1) establish an Alternative Fuel Standard requiring the equivalent of 35 billion gallons of alternative fuels by 2017; and (2) provide the Department of Transportation (DOT) authority to increase fuel economy standards for cars under a reformed structure (CAFE reform) based on sound science, safety, and cost-benefit analysis.

The Administration appreciates that Congress, in response to the President's call, has produced a bill including aspects of the "Twenty in Ten" initiative. Unfortunately, the bill contains several highly objectionable provisions that would impose higher costs on American taxpayers, electricity consumers, and businesses. Specifically, the bill raises taxes in a way that will increase energy costs facing consumers. It would also impose a national renewable electricity standard that would ignore the specific energy and economic needs of individual States. If H.R. 6 were presented to the President in its current form, his senior advisors would recommend that he veto the bill.

The Administration's principal objections to H.R. 6 are described below.

Fuel Economy Standards (CAFE): The Administration supports significant increases in fuel economy standards, and has proposed such increases in the "Twenty in Ten" initiative; it soon will propose such increases by administrative rulemaking. Unfortunately, H.R. 6 leaves ambiguous the role of the Environmental Protection Agency (EPA) in regulating vehicle fuel economy, and as a result would likely create substantial regulatory uncertainty, confusion, and duplication of efforts. The bill could also delay effective implementation of new fuel economy requirements due to inevitable litigation. The double regulation that would result from this failure to clearly identify the relative roles of EPA and DOT in national fuel economy regulations could greatly undermine our shared objective of rapidly reducing gasoline consumption. The bill needs to clarify one agency as the sole entity, after consultation with other affected agencies, to be responsible for a single national regulatory standard for both fuel economy and tailpipe greenhouse gas emissions from vehicles.

Alternative/Renewable Fuel Standards (AFS/RFS): The "Twenty in Ten" initiative contained an ambitious alternative fuel standard to displace 35 billion gallons of gasoline consumption by 2017. H.R. 6's prescriptions regarding the greenhouse gas content of approved fuels lack flexibility, and would interfere with the bill's ability to facilitate alternative fuel generation. The

bill would fragment the market by picking and choosing among fuel types instead of relying on market forces to develop new, more advanced technologies and the next generation of fuels with lower greenhouse gas emissions. Additionally, a new alternative fuel standard should include an effective safety valve, should be technology neutral, and should rely on market innovation instead of excessive statutory prescription. The safety valve included in the bill is inadequate to its purpose. Whereas a properly functioning safety valve would limit price distortions arising from an alternative fuel mandate, the safety valve in H.R. 6 would be too limited to function effectively, being triggered only in the event that a single fuel (cellulosic ethanol) fails to meet prescribed production targets. Finally, the AFS/RFS programs established by this legislation must clearly be granted exclusivity over all other Federal, State, and local laws and regulations relating to alternative fuels.

Renewable Electricity Standards: The bill would impose a national renewable electricity standard (RES) for power generation, which the Administration previously has stated would be strongly opposed. A one-size-fits-all Federal RES would result in higher electricity costs for consumers in areas where renewable resources are less available and could place new strains on electricity reliability. Such a Federal RES mandate ignores the specific energy and economic needs of individual States. There are significant regional differences in availability, amount, and types of renewable energy resources, resulting in different regions of the country relying on different fuel mixes for their electric generation needs. As a result, standards are best left to the States' discretion. Efforts created by and tailored to individual States have led to a significant increase in lower-carbon power generation nationwide, including a four-fold increase in wind power from 2000 to 2006. The bill arbitrarily chooses certain technologies with low-carbon emission profiles, while excluding many existing and emerging technologies that perform similarly. Today, almost 30 States have portfolio standards. A Federal RES that is unfair in its applications and prescriptive in its definition will hurt consumers and undercut decisions States have made and are making.

Taxes: The Administration strongly opposes raising taxes in a way that will lead to higher energy costs to U.S. consumers and businesses. Furthermore, the Administration strongly opposes using the Federal tax code to single out specific industries for punitive treatment. For example, repealing the manufacturing deduction for certain oil and gas companies is a targeted tax increase that puts U.S. firms at a disadvantage relative to their foreign competitors. Changes to the foreign tax credit rules related to foreign oil and gas extraction income and foreign oil-related income will also disadvantage U.S.-based companies by reducing their ability to compete for investments in foreign energy-related projects.

As indicated in previous communications, the Administration supports an extension of the Secure Rural Schools program provided it is appropriately offset with spending reductions and that payments are phased out over time, which the provision in this bill does not achieve. The Administration also opposes shifting the Payment in Lieu of Taxes (PILT) program from discretionary to mandatory spending.

H.R. 6 also includes expensive and highly inefficient tax credit bonds for renewable energy production and conservation efforts. Current law already provides sufficient Federal assistance to encourage these efforts.

Davis-Bacon: H.R. 6 is contrary to the Administration's long-standing policy of opposing any statutory attempt to expand or contract the applicability of Davis-Bacon prevailing wage requirements. One example, among others, is Section 136, which would impose a new Davis-Bacon requirement for loans made under the Advanced Technology Vehicles Manufacturing Incentive Program.

High Performance Federal Buildings: The requirements of this subtitle are less flexible, more limiting, and inconsistent with the timelines of the High Performance Buildings goals of Presidential Executive Order 13423. E.O. 13423 includes additional building attributes beyond the energy efficiency and water consumption goals of the subtitle. These additional elements of the E.O., such as daylighting, building materials, and indoor air quality, are important to creating truly sustainable high performance buildings. E.O. 13423 also accounts for possible extenuating circumstances that keep an agency from meeting a goal in a particular year by allowing them to make it up in subsequent years to still achieve the overall goal of 30 percent reduction of energy intensity by 2015.

Additional Concerns: The Administration strongly opposes unnecessary and duplicative new Federal energy efficiency programs. These include provisions that would establish unnecessary new bureaucracies and impose unrealistic deadlines for promulgation of appliance standards, which conflict with existing court orders. Also highly objectionable are provisions that would establish unnecessary and duplicative workforce training programs and provisions that would unnecessarily increase taxpayer-funded subsidies for small business programs. Among the most problematic of these is a provision that would create a renewable fuel investment company program, providing subsidized venture capital where government assistance is not needed, in a manner that is likely to result in high taxpayer cost. The Administration strongly opposes provisions that are inconsistent with Federal credit policy, which would increase risk and displace private sector credit markets at the taxpayers' expense. Finally, the bill contains several provisions that would raise constitutional concerns.

* * * * *

From: Schafer, Jessica
Sent: Friday, December 07, 2007 4:03 PM
Subject: MARKEY: President Threatens to Undo Fuel Economy Deal

FOR IMMEDIATE RELEASE
DECEMBER 6, 2007
http://markey.house.gov

CONTACT: JESSICA SCHAFER (MARKEY)
202-225-2836 OR 202-812-8193
EBEN BURNHAM-SNYDER (SELECT CMTE.)
202-225-4081 OR 202-494-4486

MARKEY: PRESIDENT THREATENS TO UNDO FUEL ECONOMY DEAL

White House Wants to Reverse Supreme Court's Massachusetts v. EPA Global Warming Tailpipe Decision

WASHINGTON, D.C. – Today, Representative Edward J. Markey (D-MA), chairman of the Select Committee on Energy Independence and Global Warming and chief House proponent of raising fuel economy standards to 35 miles per gallon, deplored the White House's Statement of Administration Policy on the Energy Bill. The White House threatened to veto the bill unless Congress reverses the landmark Supreme Court decision in Massachusetts v. EPA that validated the authority of the EPA to cut heat-trapping emissions from cars, trucks and SUVs. Such a move would also imperil the efforts of 17 states, including Massachusetts, that have used their Clean Air Act authority to establish clean car programs.

"As delegates from almost 200 nations meet in Bali to lay the groundwork for a treaty to combat global warming, and an energy bill is now on the table that would raise fuel economy standards for America's vehicles, President Bush has once again shown his utter disregard for the environment, our economy, and the health of our planet," said Rep. Markey. **"By asking Congress to undo the landmark Supreme Court decision in Massachusetts v. EPA, the President has effectively thumbed his nose at the rest of the world.**

"As every other country in the world debates how best to combat the clear and present danger of rising carbon dioxide emissions, the Bush Administration is still trying to make up its mind about whether carbon dioxide emissions pose a danger at all."

On April 2, 2007, the Supreme Court determined in Massachusetts v. EPA that EPA has the authority under the Clean Air Act to regulate carbon dioxide (CO2) emissions from motor vehicles, and that it must do so if it determined that these emissions endangered public health or welfare.

In response to the Supreme Court ruling, the President issued an Executive Order on May 14, 2007, directing EPA to coordinate with the Department of Transportation and other agencies in developing any rule covering greenhouse gas emissions from motor vehicles, and EPA staff have been working hard to conduct the necessary technical analysis and craft a rule by the end of this year.

While the Supreme Court decision said that there was no conflict associated with two agencies having authority over motor vehicle regulations, the President is now threatening to veto the entire energy bill on this question—one that has already been asked and answered by the Supreme Court, and one that would also effectively throw out all of the work the President ordered the EPA to do in May.

The Energy Bill passed by the House of Representatives yesterday directs the Department of Transportation to set fuel economy standards for cars and light trucks of at least 35 miles per gallon by 2020. Despite efforts by auto industry supporters to reverse the April Supreme Court decision, the House chose to preserve EPA's full authority in the bill it passed yesterday.

The White House's December 6, 2007 Statement of Administration Policy on the Energy Bill states that the energy bill "needs to clarify one agency as the sole entity, after consultation with other affected agencies, to be responsible for a single national regulatory standard for both fuel economy and tailpipe greenhouse gas emissions from vehicles."

"The Bush Administration is saying to Congress, 'Please take away the authority I have to cut emissions, so I don't have to,'" concluded Markey. **"It follows years of legal wrangling by the White House to avoid any decisive action on global warming, and now they are willing to take down the entire energy bill with their climate inaction scheme."**

# # #

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Jessica Schafer
Communications Director
Congressman Ed Markey (MA-07)
202.225.2836 ofc
202.812.8193 cell

December 7, 2007

TO THE MEMBERS OF THE UNITED STATES SENATE:

The complexity and broad scope of the energy legislation now under consideration raises several important issues with regard to overlapping regulatory authorities under the Clean Air Act. These issues must be addressed now in order to prevent the unintended triggering of an expansive and costly stationary source control program.

Any effort to establish a low-carbon fuel standard or to control carbon or any other greenhouse gas emissions from vehicles or fuels under the Clean Air Act could cause these substances to be regarded as pollutants subject to regulation more broadly under the Act. Under the provisions of the Act, this in turn would trigger a pre-construction permit program that will affect hundreds of thousands of very small stationary sources that have hitherto not been subject to requirements under the Act. Initial estimates suggest that the majority of small, mid-sized, and large manufacturing businesses—over 300,000 facilities—would potentially become regulated stationary sources. In addition, hundreds of thousands of commercial buildings as well as over a hundred thousand farm operations could be impacted.

The expected transaction and administrative costs of the program for individual sources, states, and the federal government would be unprecedented. Thousands of determinations as to whether the Clean Air Act's regulatory requirements are triggered would be required. Given the potential number of permits and the resulting delay in permit issuance, the construction and modification of plants would likely come to a standstill, causing significant harm to the economy. Even the ability to produce renewable fuels could be hampered through the imposition of lengthy pre-construction permitting requirements.

To address this problem and the broader problem of conflicting and overlapping regulatory authorities, the energy bill now under consideration must do two things. First, the energy legislation must contain explicit language clarifying that nothing in this bill can be construed as triggering the regulation of CO2 or any other greenhouse gas under the Clean Air Act. This will prevent the unintended and costly regulatory program described above from being triggered.

Second, the legislation must address the potential for duplicating and conflicting regulatory requirements by clarifying that carbon dioxide and other greenhouse gases cannot be regulated under Title II of the Clean Air Act. Title II of the Clean Air Act addresses emissions from fuels and vehicles which are the same sources that are subject to requirements under the energy bill. Directing the National Highway Traffic Safety Administration to establish new fuel economy standards could be undermined if those same sources are required to achieve conflicting standards under the Clean Air Act. Given the extraordinary challenge industry may be asked to address, it is only fair that there be one regulatory body and one set of regulatory requirements. Creating duplicative and potentially conflicting regulatory requirements would almost certainly delay the very technology advances sought by the legislation. The vehicle efficiency improvement standard and the alternative fuels provisions in the President Bush's energy proposals and in the energy legislation are preferred approaches to achieving substantial reductions in greenhouse gas emissions while reducing U.S. reliance on foreign energy sources.

Sincerely,

American Forest & Paper Association
American Gas Association
Association of American Railroads
National Association of Manufacturers
National Mining Association
National Petrochemical and Refiners Association
U.S. Chamber of Commerce

From: Frank O'Donnell <cleanairfrank@cleanairwatch.org>
Sent: Wednesday, December 12, 2007 4:29 PM
To: 'Frank O'Donnell'
Subject: Car industry makes its move! -- Sen. Levin floats energy language to kneecap EPA, California and other states

Importance: High

For the past week, many of you have asked me, "what the heck is going on with all these efforts" (the White House, the car companies, the Chamber of Commerce, etc.) with regard to the energy bill and possible "coordination" of the efforts of EPA and DOT

Well now the truth (at least part of it) can be told.

All these letters apparently were an attempt to soften up the Senate leadership – the airstrikes before the ground invasion. But now the ground attack is on.

Language undoubtedly drafted by car company lobbyists is now floating around the US Senate. (See below.) It reportedly is being shopped not just by car companies, but by senators including Michigan's Carl Levin. (See story below.) We understand that the staff of Senator Ted Stevens of Alaska is making similar noises.

The language would require that any move made by the US EPA that could "affect the fuel economy of new motor vehicle engines or new motor vehicle engines" would have to be "consistent" with fuel economy requirements set by the federal Department of Transportation.

In other words, this is a bid to kneecap EPA and states led by California that seek to enforce tougher greenhouse gas standards for motor vehicles. EPA would become subordinate to the Transportation Department. And states like California would be left out in the cold.

The timing is most ironic, given the federal court decision today in California which shot down the very arguments being made by the car companies and their proponents in the Senate.

Look for California and other states to start pushing back against this ground attack.

**

On page 21, insert after line 4, at the end of section 102 (of the soon to be filed Reid substitute):

"(d) APPLICATION WITH CLEAN AIR ACT. -- Chapter 329 of title 49, United States Code, is amended by inserting after section 32919 the following:

"Section 32920. Consistent Standards.

"Notwithstanding any other provision of law or regulation, should the Administrator of the Environmental Protection Agency promulgate carbon dioxide emissions regulations under section 202 of the Clean Air Act (42 U.S.C. 7521) that affect the fuel economy of new motor vehicles or new motor vehicle engines, the Administrator shall adopt regulations that are fully consistent with chapter 329 of this title and any standards or regulations promulgated or enforced thereunder.".

"(e) RULE OF CONSTRUCTION -- Nothing in the amendments made by this title to chapter 329 of title 49 shall be construed to conflict with the authority provided by section 209 of the Clean Air Act (42 U.S.C. 7543)."

**

Levin Presses CAFE Authority in Energy Debate

By: Geof Koss
CongressNow Staff
Wednesday, December 12, 2007 2:23 PM

Sen. Carl Levin (D-Mich.) is continuing to press for the insertion of language in the Senate energy bill that would clarify the role of two key federal agencies in setting corporate average fuel economy, or CAFE, standards.

"I'm trying to clarify it to make sure there's no conflict," Levin told reporters this afternoon, of the role of the Environmental Protection Agency and the National Highway Transportation Safety Administration, or NHTSA.

The Senate is poised to pass a fleetwide CAFE increase of 35 miles per gallon - the first such increase in 30 years - in the Senate energy bill.

However, lawmakers whose home states are heavy in automobile manufacturing, including Levin and House Energy and Commerce Committee Chairman John Dingell (D-Mich.), as well as the White House, have raised concerns that future EPA rules regulating greenhouse gas emissions from automobiles could cause a conflict with NHTSA, which has historically overseen the CAFE program.

"We've got to try to make it clear that what the EPA is authorized to do is consistent with what everyone agrees should be the number," Levin said of the 35 mpg mandate.

The issue emerged after the Supreme Court earlier this year ruled that EPA has authority under the federal Clean Air Act to regulate greenhouse gas emissions like carbon dioxide.

That landmark ruling has been backed by similar rulings in other federal courts. For instance, a federal judge in California today upheld that state's authority to regulate greenhouse gases under the Clean Air Act in a lawsuit brought by automakers.

The rulings have sparked concerns by the auto industry that they will face conflicting federal CAFE rules as EPA moves to control greenhouse gas emissions from auto tailpipes.

Levin declined to say whether he would withhold support for the larger energy bill over the matter. "For me, it's an important issue," he said.

The White House also raised the issue last week in a Statement of Administration Policy on the energy bill (H.R. 6).

"Unfortunately, H.R. 6 leaves ambiguous the role of the Environmental Protection Agency in regulating vehicle fuel economy, and as a result would likely create substantial regulatory uncertainty, confusion, and duplication of efforts," the statement reads.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

December 13, 2007
(Senate)

STATEMENT OF ADMINISTRATION POLICY

H.R. 6 – Energy Independence and Security Act of 2007 (Reid Amendment)
(Rep. Rahall (D) WV and 198 cosponsors)

The Administration opposes the Reid substitute amendment, which fails to correct many of the highly objectionable provisions identified in previously-issued Statements of Administration Policy on H.R. 6. If H.R. 6 were presented to the President as modified by the Reid substitute amendment, his senior advisors would recommend that he veto the bill.

The Administration strongly opposes the amendment's tax title, which would raise taxes in several ways that will increase energy costs facing consumers. More specifically, the Administration strongly opposes using the Federal tax code to single out specific industries for punitive treatment. Furthermore, the tax increases included in the Reid substitute amendment vastly exceed the amount necessary to offset the estimated revenue reductions arising from the bill's fuel economy provisions. The Administration compliments the Senate for giving the Department of Transportation (DOT) the authority to establish a new CAFE standard, which would both improve fuel economy and reduce tailpipe greenhouse gas emissions. The bill should clarify, however, that DOT should establish this single national regulatory standard, in consultation with the Environmental Protection Agency, and that neither agency should add additional layers of regulation. The Administration also supports an ambitious alternative fuel standard, which should include an effective safety valve, should be technology neutral, and should rely on market innovation instead of statutory prescription. The proposed legislation, however, is excessively prescriptive and fails these tests, picking and choosing among fuel types, and failing to include an adequate safety valve. The Administration also retains several additional concerns previously outlined in the Statements of Administration Policy on the underlying bill. Congress should seize the current opportunity to enact bipartisan legislation to enhance American energy security and to achieve vital goals of the President's "Twenty in Ten" initiative proposed more than ten months ago. The Administration urges Congress to put political considerations aside, to repair the repeatedly noted problems with the energy bill, and to send the President legislation that he can sign.

* * * * *

From: Energy&CommercePress
Sent: Wednesday, December 19, 2007 7:36 PM
Subject: Dingell on EPA decision

NEWS RELEASE
Committee on Energy and Commerce
Rep. John D. Dingell, Chairman

For immediate release: December 19, 2007
Contact: Jodi Seth, 202-225-2927

Dingell on EPA Decision

Rep. John D. Dingell, Chairman of the Committee on Energy and Commerce, made the following statement in response to EPA's decision regarding the California waiver:

"EPA's decision raises serious and important public policy questions about the roles and responsibilities of different agencies at different levels of government.

"For decades, this Committee has carefully examined these issues and we will continue to monitor the situation going forward.

"The energy bill signed into law by the President today takes measurable and concrete steps to reduce greenhouse gas emissions and energy consumption. While the legislation did not explicitly address policy questions relevant to the EPA's decision, these and other matters must be raised as we craft comprehensive climate change legislation next year."

- 30 -

The Trump administration said weaker fuel standards would save lives. EPA experts disagree.

An analysis by the National Highway Transportation Safety Administration, EPA experts said, used faulty assumptions.

Traffic heads eastbound on Route 50 in Bowie, Md. Internal documents show the Environmental Protection Agency questioned the Trump administration's finding that freezing Obama-era mileage standards would make drivers safer. (Susan Walsh/AP)

By **Chris Mooney** and **Dino Grandoni**
August 15, 2018

Staffers at the Environmental Protection Agency strongly criticized the logic behind a recent move to loosen future gas mileage rules for cars, at one point requesting that the EPA's name and logo be removed from a key regulatory report.

Documents released Tuesday provide a window into a tense technical battle between experts at two separate government

agencies — the EPA and the National Highway Traffic Safety Administration (NHTSA), an agency of the Transportation Department — and show that just months or even weeks before the rollout of a massive new policy proposal, the two agencies behind it had major disagreements.

The contested policy represents one of the Trump administration's single largest reversals of an Obama-era move to fight climate change by cutting polluting emissions from vehicle tailpipes. New evidence of an internal dispute will probably strengthen the hand of California and other states suing over the proposed changes. If finalized, the freeze would translate to an average fleetwide fuel economy of about 37 miles per gallon, rather than rising to more than 51 mpg by 2025.

ADVERTISING

"EPA's technical issues have not been addressed, and the analysis performed ... does not represent what EPA considers to be the best, or the most up-to-date, information available to EPA," agency expert William Charmley wrote in a critique less than two months before the proposal was released.

Several weeks later, Charmley, the agency's central point person on the technical aspects of the car standards, sent the White House's Office of Management and Budget comments on a vast regulatory document weighing the costs and benefits of the changes. Charmley wanted EPA's name taken off the document, called a Preliminary Regulatory Impact Analysis or RIA.

"This Preliminary RIA is a work product of DOT and NHTSA, and was not authored by EPA," wrote Charmley, adding: "EPA's name and logo should be removed from the DOT-NHTSA Preliminary Regulatory Impact Analysis document."

The Post reported earlier this month that EPA career staff warned the agency's leaders just days before the proposal's release that the plan for cars and ligbt trucks did not reflect their technical input.

The document as ultimately released has both agencies' names on it.

EPA experts also called "indefensible" some aspects of a program the transportation agency used and said they had corrected "erroneous and otherwise problematic elements of the model's logic and algorithms."

Transportation Department officials countered that EPA was using a "developmental version" of the model and that the

agency's changes relied on "strong assumptions" about the future size of the auto fleet and how much people will drive their cars in the future.

The key disagreement centered on the transportation agency's claim that the Obama-era car rules would lead to more deaths. The agency contended upping car mileage per gallon would cost automakers money and make new cars several thousand dollars pricier — leading people to stay in older cars that perform less well in accidents, resulting in more auto fatalities.

Ultimately, the transportation agency prevailed. The joint proposal EPA and NHTSA issued to freeze car fuel standards at 2020 levels through 2026 endorsed the idea that the Obama standards would lead to more deaths.

"It is now recognized that as the stringency of standards increases, so does the likelihood that higher stringency will increase on-road fatalities," said a joint notice of the proposed regulatory change released two weeks ago. "As it turns out, there is no such thing as a free lunch."

But EPA's internal analysis suggested the opposite — that *freezing* the Obama-era rules would lead to slightly more fatalities (seven for every trillion miles driven), cost jobs, and in economic terms, have a net negative impact of $83 billion.

"The EPA material seriously casts the whole proposal in a very negative light with respect to its technical adequacy," said Chet France, former director of assessment and standards at the agency, who now works with the Environmental Defense Fund as a consultant.

In their joint statement, the agencies claimed that the rollback "is anticipated to prevent thousands of on-road fatalities and injuries as compared to" the Obama-era standards.

Little changed between the time of the EPA staff critiques and the final release of the proposed rollback, according to former EPA employee Jeff Alson, a 40-year agency veteran and senior engineer at the agency's Office of Transportation and Air Quality, who retired in April.

"We know at most they made minor changes, because they're still quoting the thousand fatalities per year," said Alson, who worked closely on the standards. "They may have made some less important changes."

The decision to include the revealing documents directly challenging the rollback's logic was approved by senior EPA political appointees, according to two federal officials with direct knowledge of the matter who spoke on the condition of anonymity to discuss internal deliberations. Including the records in the regulatory docket could influence the shape of the final rule, one of the officials said, since it won't be finalized for months.

The fact that Trump appointees agreed to make such documents public suggests that agency leaders, from acting EPA Administrator Andrew Wheeler on down, harbored serious concerns that Transportation officials used faulty assumptions to justify freezing fuel standards.

An EPA spokesman said the documents show only a limited picture of what was going on.

The emails represent "but a fraction of the robust dialogue that occurred during interagency deliberations for the proposed rule. EPA is currently soliciting comments on eight different alternative standards and we look forward to reviewing any new data and information," said EPA spokesman John Konkus in a statement.

In a statement, NHTSA said, "As is typical for any joint rulemaking, the agencies provided feedback to each other as they developed their policy and analysis for the proposal."

The two agencies have reached different findings about aspects of fuel efficiency targets in the past, but the chasm has never been this wide. Margo Oge, a former director of EPA's Office of Transportation and Air Quality, said in an email that the transportation agency suggested in 2009 that stricter limits on vehicle greenhouse gas emissions would cost consumers roughly $5,000 per car. After EPA "corrected their inputs," Oge said, NHTSA staff agreed the Obama standards would have increased auto price tags by about $900.

The EPA staff's critiques could empower critics of the proposed rollback, particularly in California. The Trump administration's proposal would block California's ability to set its own, more-

stringent standards. And the state has given every indication it is preparing for a courtroom fight.

Xavier Becerra, California's attorney general, said the freeze is "a brazen attack, no matter how it is cloaked." And California Air Resources Board Chair Mary D. Nichols said her team "will examine all 978 pages of fine print to figure out how the Administration can possibly justify its absurd conclusion that weakening standards to allow dirtier, less efficient vehicles will actually save lives and money."

Next month, the California air agency will vote on scrapping a provision that would keep California's tailpipe rules in line with the federal government's. Though the Clean Air Act grants California special authority to restrict auto emissions to clean up its historically smoggy cities, for the past decade policymakers there and back east in Washington had agreed to keep a uniform set of standards so carmakers did not need to meet different rules in different U.S. states.

"The EPA documents challenging the Administration's alleged safety rationale for rolling back fuel economy and tailpipe emissions standards are devastating from a legal perspective," said David Hayes, who served as the Interior Department's deputy secretary under presidents Bill Clinton and Barack Obama.

"If in fact there was internal warfare, that just provides further grist for litigators."

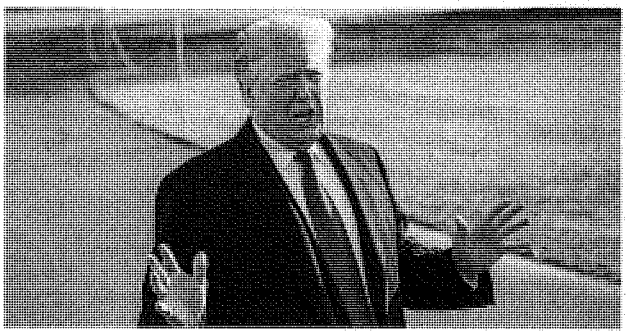
Juliet Eilperin contributed to this report.

WHITE HOUSE

'Deregulation is not always helpful for manufacturing jobs'

Maxine Joselow, E&E News reporter

Climatewire: Friday, November 30, 2018



President Trump's environmental policies could hurt manufacturers. He's pictured talking with reporters yesterday. Polaris/Newscom

President Trump promised to revitalize the manufacturing sector after decades of decline, a message that has especially resonated in the Midwest, where manufacturing has an outsize share in total state employment.

But his rollbacks of key Obama-era environmental rules could test that pledge.

The Trump administration has proposed to rework tailpipe pollution rules for cars. It's also looking to unwind actions the Obama administration took to phase out the use of potent heat-trapping gases known as hydrofluorocarbons, or HFCs.

Both moves could spell bad news for the manufacturing sector. That's because auto companies have already made big investments in technology aimed at improving vehicle fuel efficiency. Similarly, air conditioning and refrigeration companies have invested in replacements to the planet-warming gases.

And those investments have created good-paying jobs that could go away, industry sources said.

"These are jobs that will be lost to other markets," Laurie Holmes, senior director of environmental policy at the Motor & Equipment Manufacturers Association, said of the car rule. "A lot of these jobs will probably be lost to China because they are moving forward with the fuel efficiency standards and with electric vehicles.

"We know that one area that the Trump administration cares about is manufacturing jobs," Holmes added. "But I would say that it's important to understand that deregulation is not always helpful for manufacturing jobs."

Trump's regulatory rollbacks could reverberate in the Midwestern states that helped him clinch victory in 2016. The top five manufacturing states — Indiana, Wisconsin, Iowa, Michigan and Alabama — all backed Trump in the election.

The impending closure of a General Motors Co. factory in Ohio illustrates this dynamic.

Speaking to a group of autoworkers in Ohio's Mahoning Valley last year, Trump promised that jobs were "all coming back. They're all coming back. Don't move. Don't sell your house."

But GM announced this week that it would close the assembly plant in Mahoning Valley and lay off hundreds of workers, prompting a national outcry.

To be sure, GM's decision stemmed from a variety of factors, including the administration's tariffs on imported steel and aluminum. But at least one lawmaker — Ohio Democratic Rep. Tim Ryan — linked the decision to Trump's rollback of Obama-era clean car rules (***E&E News PM***, Nov. 26).

David Cohen, a political science professor at the University of Akron, said Midwestern constituents may feel that Trump made them empty promises. That could muddy his chances of being re-elected.

"When people in these areas see their jobs going away and their plants closing, they're going to connect that with the president, who has told them all along that they should not move away, that they should keep their house, and that the jobs are going to be there," Cohen said.

"You know, Donald Trump cannot win a second term to the presidency without carrying the industrial Midwest," he added. "The electoral math just doesn't work. If he is the Republican candidate in 2020, the road to the White House goes through Ohio, Michigan and Wisconsin."

The car rules

In 2008, General Motors and Chrysler signaled that they were on the verge of bankruptcy. President George W. Bush agreed to bail them out — a politically unpopular decision. But he handed their long-term future to his successor, President Obama.

When Obama took office, he oversaw a comprehensive bailout of GM and Chrysler, although he imposed a number of conditions aimed at helping them stay competitive. One was that the companies must set fuel efficiency standards.

In 2011, EPA and the National Highway Traffic Safety Administration got to work on drafting the first-ever greenhouse gas and fuel economy standards for cars. And when the agencies issued those rules in 2012, they expected them to encourage job creation.

"The agencies anticipate that these final standards will ... spur economic growth and create high quality domestic jobs," EPA and NHTSA wrote in their 2012 **final rule**.

The agencies' reasoning went like this: Achieving greater fuel efficiency in vehicles would require new technologies. And more workers would be needed to develop and install those technologies.

A recent **report** from the BlueGreen Alliance, which aims to unite environmental and labor groups, bore out this thinking. It found that more than 1,200 factories in 48 states — comprising 288,000 workers — are building technology that improves fuel economy in vehicles.

The top five states for jobs in fuel-efficient vehicle technology were Michigan, Indiana, Ohio, Tennessee and Kentucky, the report found.

"Over the past decade, we've seen a real comeback in the automotive sector. And the fuel economy standards have been a critical part of that recovery," said Zoe Lipman, director of the BlueGreen Alliance's vehicles and advanced transportation program.

"Improving fuel economy drives investment in new and added technology that goes into all of our cars and trucks," Lipman added. "Building, designing and installing that technology requires more labor hours and creates jobs. And that's something we've seen on the ground in factories and manufacturing communities all across the United States."

Enter Trump.

When Trump took office in 2017, he indicated that he planned to take a fresh look at the car rules. And in August of this year, his administration proposed freezing fuel economy requirements at 2020 levels, rather than increasing their stringency each year as Obama had envisioned.

The administration acknowledged in its own proposal that freezing the fuel efficiency targets could result in a labor reduction equivalent to 60,000 jobs. That figure was quietly tucked into the 978-page document from EPA and NHTSA (***Climatewire***, Aug. 7).

"The agencies' own analysis of the rollback predicted that it would result in [50,000]-60,000 fewer jobs from 2021 onward," Lipman said. "And that's just spending that doesn't happen on advanced technology. It doesn't get into what happens if we fall behind on the next generation of investments."

Furthermore, it's widely acknowledged that freezing the standards would lead to a lengthy legal battle among the Trump administration, California and the 13 other states that have set tougher tailpipe pollution rules than the federal government.

During litigation, automakers would be left with prolonged regulatory uncertainty, which could undermine their long-term planning.

"The proposal does put suppliers in a situation where it's difficult to make long-term decisions," said Holmes of the motor equipment trade group.

33,000 jobs

Obama also made phasing out HFCs — a gas more potent than carbon dioxide at trapping heat in the atmosphere — a key part of his strategy for curbing global warming.

In 2015, EPA issued a rule effectively banning uses of the chemicals across four industrial sectors: aerosols, air conditioning for new cars, retail food refrigeration and foam blowing.

But two foreign HFC manufacturers sued EPA over the rule. And in an August 2017 majority opinion penned by Judge Brett Kavanaugh, the U.S. Court of Appeals for the District of Columbia Circuit sided with them, ruling that EPA had exceeded its authority under the Clean Air Act (***Greenwire***, Aug. 8, 2017).

The Trump administration later aligned itself with Kavanaugh, who would go on to become a Supreme Court justice, and the foreign companies (***Greenwire***, Aug. 29). It's unclear whether EPA will issue a replacement rule. The agency has already taken steps to water down a separate HFC rule.

But two American companies, Honeywell International Inc. and Chemours Co., remain committed to phasing out HFCs. That's because they've made significant investments in safer alternatives. For instance, Honeywell last year opened a $300 million Louisiana facility to manufacture an HFC replacement for use in cars.

Francis Dietz, vice president of public affairs at the Air-Conditioning, Heating and Refrigeration Institute (AHRI), said the Trump administration's stance on HFCs has created regulatory uncertainty for his member companies.

"It created uncertainty for the industry where there was not uncertainty before," Dietz said.

Dietz also noted that the United States has yet to ratify the Kigali Amendment to the Montreal Protocol, which aimed for a global phase-down of HFCs. Finalized in October 2016, the amendment would avert enough emissions from air conditioning units and refrigerators to reduce warming by 0.5 degree Celsius by 2100.

Nearly 200 countries have said they're on board with Kigali. But Trump has refused to send the amendment to the Senate for ratification.

A recent **report** from AHRI and the Alliance for Responsible Atmospheric Policy projected that U.S. ratification would create an additional 33,000 jobs.

"U.S. implementation of the Kigali Amendment is good for American jobs," the report states. "It will both strengthen America's exports and weaken the market for imported products. Finally, it will enable U.S. technology to continue its world leadership role."

"What sticks in my mind is the figure that there would be 33,000 more manufacturing jobs in the ratification case than in the case where we spurn the treaty," said Natural Resources Defense Council attorney David Doniger, who has been working with industry to phase out HFCs.

"Basically, it's an international market in chemicals and in equipment," Doniger said. "The United States currently has a lot of leadership in the technology and the patents. And we're poised to expand on that if we're part of [Kigali].

"But if we don't participate," he said, "that investment and those jobs will end up being located elsewhere."

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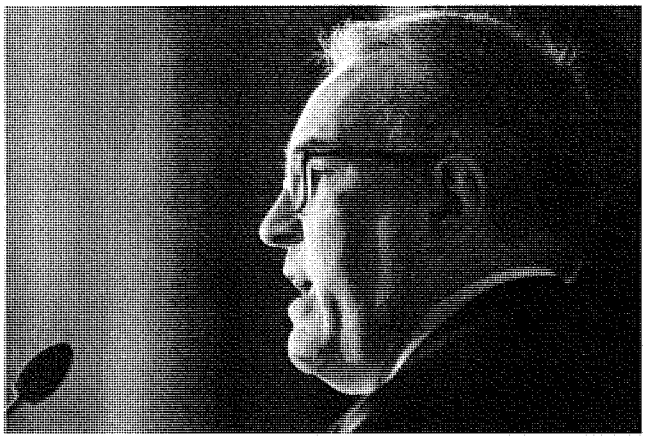
The Energy 202: Trump's EPA is targeting rules for yet another greenhouse gas

By Dino Grandoni
September 21, 2018

THE LIGHTBULB



Environmental Protection Agency acting administrator Andrew Wheeler speaks to headquarters staff in July, shortly after taking over the agency. (AP Photo/Jacquelyn Martin)

First it was carbon dioxide, when the Environmental Protection Agency proposed in August relaxing pollution standards for coal-fired power plants meant to curb emissions of that most common greenhouse gas.

Then it was methane, when both the EPA and Interior Department each took steps in recent weeks toward replacing Obama-era rules regulating the leaking of that climate-warming gas from oil and natural gas infrastructure.

Now, the Trump administration is trying to replace regulations for an even more obscure set of greenhouse gases in an effort apparently aimed at slowing down the Obama administration's efforts to deter global warming.

On Wednesday, the EPA announced it wanted to get rid of rules meant to prevent the leaking and venting of a set of organic compounds called hydrofluorocarbons, or HFCs, from large refrigerating and air-conditioning units.

The new rule, which has yet to be finalized, is the latest in a flurry of EPA proposals over the past month or so further attempting to unwind Obama's climate legacy. The actions — on CO_2, on methane and now on HFCs — demonstrate the agency still has much of the same attitude toward climate regulations under acting administrator Andrew Wheeler, who took over the agency in July, as it did under former EPA chief Scott Pruitt.

In the case of HFCs, even tiny amounts leached into the atmosphere pack a wallop of a punch to the climate. On a pound-for-pound basis, those compounds have a warming potential thousands of times greater than that of carbon dioxide.

"This is climate vandalism," contended David Doniger, director of the climate and clean air program at the Natural Resources

Defense Council. "They're just going through all these things that Obama did and trying to destroy them all."

ADVERTISING

Some Democrats held up the proposal as yet more evidence the Trump administration is unwilling to do even the bare minimum to address climate change.

"Unfortunately, this action is yet another reminder the Trump Administration isn't willing to take even the smallest step to address climate change or protect Americans from the threats of extreme weather," Sen. Thomas R. Carper (Del.), the ranking Democrat on the Environmental and Public Works Committee, said in a statement.

If the new rule goes through, large commercial and industrial appliances using HFCs will no longer need to conduct certain leak rate calculations and make repairs when the machines are letting off too much of the gas. Facilities such as supermarkets, ice rinks and factories, which use such units, will also no longer need to report to the EPA on chronic leaking problems or retire units that are not fixed.

Like with most of Trump-era decisions, the EPA justified the new rule by pointing out the benefit to businesses if it is finalized. The agency said its new rule would save companies $39 million annually in regulatory costs.

But the cost of the rule could be borne by the rest of society in the form of higher temperatures later on. If enacted, the estimated annual leakage would have an effect on the climate equal to that of an additional 642,000 passenger cars on the road per year.

Not all companies are on board with Obama-era efforts regulating the chemicals. In particular, makers of chemical alternatives to HFCs, Honeywell and Chemours, have petitioned the Supreme Court to reverse a ruling on another set of HFC regulations on manufacturers of air conditioners, refrigerators and other appliances.

Last year, the U.S. Court of Appeals for the District of Columbia, a court one step below the Supreme Court, struck down those rules. The opinion was written by Judge Brett Kavanaugh, who is now President Trump's nominee for the high court.

The decision was classic Kavanaugh. Throughout his time on what many call the second-most important court in the country, the judge consistently gave more regulatory power to federal bureaucrats only when Congress clearly spelled out in the law that that is what it wanted.

"EPA's well-intentioned policy objectives with respect to climate change do not on their own authorize the agency to regulate," Kavanaugh wrote. "The agency must have statutory authority for the regulations it wants to issue."

Senator BARRASSO. Senator Cramer.

Senator CRAMER. Thank you, Mr. Chairman.

Thank you, Mr. Wheeler, for being here and your willingness to serve in this capacity. I believe when you and I sat down in my transitional office, I had not been appointed to this Committee yet, but you were telling me it was the best committee in Congress.

Mr. WHEELER. I stand by that. It is the best committee in Congress.

Senator CRAMER. I appreciate that.

Before I forget, up front, I want to also invite you to my State of North Dakota. You can come in August if you like, but January and February are not quite as cold as Alaska, but you could bring your family and go camping. We would love to have you and would especially invite you to the Energy and Environmental Research Center at the University of North Dakota where we could have a discussion on these and several other topics that are important.

I also want to thank you for your very good work on the rollback of Waters of the U.S. and coming up with what I am sure is a much more common sense and legal definition of Waters of the U.S. and the same with regard to the Clean Power Plan being replaced by ACE.

While I appreciate the passion from some on the other side, I am quite certain that ignoring a Supreme Court stay is not in your authority, is it?

Mr. WHEELER. No, it is not. We have to follow the Supreme Court.

Senator CRAMER. I would think so. Thank you for that.

I also want feedback a little bit on what Senator Ernst talked about with regard to the year round E15. That was something that I had advocated for a long time. Certainly she and others, not just advocates of ethanol, but I think as conservatives, we like to eliminate barriers to markets.

While some might argue over the RFS or the volume set, again, the law is the law. I think it was an appropriate move, and I congratulate you and appreciate what you and the President did in making that commitment. With regard to the RFS, there are as many opinions and there are divergent opinions in North Dakota as you might imagine as there are in this room on the RFS and what it should do and what it should not do.

I would like to ask you though, what is your professional opinion on what happens in 2022, because I think sometimes we discuss this issue or pass each other without a clear understanding of what exactly the law does in 2022 and what options there are, and what happens if we do nothing?

Mr. WHEELER. If Congress does nothing by 2022, then the implementation and operation of the program would be up to the agency, up to the EPA. We could continue the program as is. There are a number of different options we could do. We have not started to look at what we might do in 2022. I know there is legislation at least in the House on extending the program further, but we will have to make some decisions as far as what the RFS Program looks like post-2022.

Senator CRAMER. Would it be your recommendation that Congress get together with all our divergent views and find a prescrip-

tive solution that does not leave too much discretion over the course of Administration after Administration?

Mr. WHEELER. I think it is always helpful for Congress to write the legislation that directs the agency to implement the programs. I think where the agency, the EPA has gotten into trouble in the past in the Obama administration with the Clean Power Plan is when they went beyond the law.

Senator CRAMER. I agree. Thank you for that.

Now, just as a matter of following up a little bit on what Senator Sullivan was talking about, and I have sat here—and I apologize, Mr. Chairman, for being late. I had my first day of presiding over the Senate this morning. And not nearly as exciting as this, I might add.

I am perplexed a little bit. Let's go back to what Senator Sullivan said. It occurred to me as he was talking, did those 18 years as a professional staff person at the EPA prepare you well for your work in private industry?

Mr. WHEELER. It did. And I think my overall career, both implementing laws at the EPA and at the beginning of my career to helping to draft the laws here when I worked in the Senate to talking to a wide variety of different clients, potential clients, clients when I was in the private sector, to see how the regulations, the laws were impacting hard working people who were trying to make a living.

Senator CRAMER. And I would suspect that your further work in industry prepared you well for this job, and I want to appreciate that. With time running out, I would just like to propose some scenarios, like should we bar farmers from being Secretary of Agriculture? Should we bar doctors from being the head of Health and Human Services, or attorneys from being the Attorney General? Or bankers from being head of the Treasury Department and whatnot? I just think this is a very funny path to go down, realizing this is my first confirmation hearing. Maybe I don't know everything I should.

Mr. WHEELER. I agree with you, I don't think we should ban farmers from being head of the USDA, or doctors at HHS and bankers of, whatever the banker's the head of.

[Laughter.]

Senator CRAMER. Treasury.

Thank you, I yield back, Mr. Chairman.

Senator BARRASSO. Thank you so very much.

Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman, and welcome, Mr. Wheeler. I do want to associate myself with some of the comments made by the ranking member and others regarding climate change, auto emissions standards, mercury rules. And I do appreciate your working with Senator Cardin and I and others on the Chesapeake Bay and look forward to continuing that work together.

But I wanted to use my time today to talk about this shameful and unnecessary Government shutdown. We are now 26 days into it, the longest Government shutdown in U.S. history. My understanding is there are about 13,000 EPA employees that are currently furloughed. Is that correct? Approximately?

Mr. WHEELER. Approximately, yes, sir.

Senator VAN HOLLEN. And that there are approximately 891 who are on the job, is that approximately right?

Mr. WHEELER. That sounds pretty exact, 891. It varies from day to day. We bring back people to work on specific issues.

Senator VAN HOLLEN. Right. Including some that you brought on to prepare for this hearing, is that right?

Mr. WHEELER. Yes, Senator.

Senator VAN HOLLEN. And you've worked at the EPA, you've had experience. In your experience, are these hard working, dedicated civil servants?

Mr. WHEELER. Yes, they are. I have full confidence in the EPA staff.

Senator VAN HOLLEN. And have they shared, some of them, their stories of hardship with you, what they're experiencing now because of the shutdown?

Mr. WHEELER. Yes, and I was an EPA employee back in the 1990s when it was shut down, and I remember the frustration at the time. And my heart goes out to the EPA employees and all the other ones who are on furlough.

Senator VAN HOLLEN. And I appreciate that, because they are definitely stuck in the middle of something they had nothing to do with.

I just want to read some of the statements I am getting from EPA employees; I am sure you are as well. "I work for the EPA and have been furloughed." Then it goes on to say, "I have triplets that are in college, and it is very tough to meet their education needs and pay our bills without my salary, which is the major income source for our family. My son has Crohn's disease, requiring expensive medical treatments." She also goes on to say, "Our younger employees at EPA have just started out, and are unable to make rent and loan payments."

Here's another employee who's been furloughed. She actually may be here in the audience today. "I work for EPA. I love my job, and feel like my program is important to protecting public health." She goes on to say, "My son is a junior in high school. I found out yesterday that fees for the AP exams are due January 31st. I don't see how I can afford to pay these fees. He is going to lose the opportunity to pass four AP tests. Ironically, one of them is U.S. Government."

Another one, 15 year old student, Montgomery County, Maryland: "I am a 15 year old student. My father, like many people in this area, is a Federal employee working at the EPA. He has now missed an entire pay check from the shutdown, will likely miss another if this keeps up. Please vote to override the veto." Of course, we don't have a chance to override the veto because we haven't passed legislation that is pending here in the U.S. Senate.

Mr. Wheeler, I have here in my hand the mission statement for the EPA. First line, the mission of the EPA is to protect human health and the environment. EPA works to ensure that. It goes on to list a number of things, starting with Americans have clean air, land, and water. I assume you are familiar with the EPA mission statement.

Mr. WHEELER. Yes, I am.

Senator VAN HOLLEN. And there is nothing in this statement about how the EPA is the lead agency when it comes to issues of border security, is there?

Mr. WHEELER. Border security, no.

Senator VAN HOLLEN. Border security, homeland security.

Mr. WHEELER. We do a lot of border work, that is, a lot of pollution.

Senator VAN HOLLEN. I am referring, Mr. Wheeler, to the security aspects of the job with respect to border security. That is done primarily by the Department of Homeland Security, is it not? This is not a trick question.

Mr. WHEELER. Well, no, because we do a lot of inspections along the border.

Senator VAN HOLLEN. I know you do stuff along the border. But here is my question. You are familiar that last August the U.S. Senate passed the appropriations bill for the EPA by a vote of 92 to 6? Are you familiar with that?

Mr. WHEELER. Yes, Senator.

Senator VAN HOLLEN. It was an overwhelming vote.

Mr. WHEELER. Yes.

Senator VAN HOLLEN. That bill is now before the Senate again, as part of other bills that had overwhelming bipartisan support in the U.S. Senate. And the Republican leader says that we can't vote on this bill, because the President of the United States won't sign them. My question to you is, why won't the President, you are the senior Administration official here today in this middle of this shutdown, and this Committee, why won't the President sign a bill to fund EPA, which has nothing to do with the Government shutdown, a bill that passed this body 92 to 6? Can you just explain to people, including the people that wrote in to me, why that is the position of the President of the United States?

Mr. WHEELER. Well, the President takes border security very seriously.

Senator VAN HOLLEN. I am asking about the EPA bill, Mr. Wheeler. Why is it that he refuses to support a bill that passed the Senate by 92 to 6? We care about border security, too. Why is it that he says he won't sign a totally unrelated bill? Why is that?

Mr. WHEELER. Well, I believe the President has been very up front about his desire to have all the appropriation bills pass at the same time, along with the border security. The border security, as you mentioned, is outside of the—outside of our authority at the EPA.

I do want to take a moment to thank you for helping pass legislation guaranteeing that all the furloughed employees will get back pay. That is very important to the employees. On behalf of my employees at EPA, I thank you for your work on that, and Congress. I think that was a very important message to send.

Senator VAN HOLLEN. I am grateful that you mentioned that. Thank you for saying that. And I just have one request as we leave here. The President has not yet signed that bill. Will you urge the President of the United States to sign that bill?

Mr. WHEELER. I think it is important to have all the appropriations bills signed along with the border security that the President, that the American people want.

Senator VAN HOLLEN. No, we passed this is in the Senate and the House separately, right? And I have no reason to believe that the President is not going to sign; in fact, the Republican leader said that the President was going to sign it. My question is, will you on behalf of your employees urge the President to sign the bill?

Mr. WHEELER. I am sure that the wants to reopen the Government as much as you do.

Senator VAN HOLLEN. No, this is not a question of reopening the Government. This is a bill that has already passed during the Government shutdown to provide some confidence and certainty that at the end of the day people will be made whole. I appreciate your mentioning the importance of that bill. On behalf of your employees at EPA, can you ask the President to sign the bill?

Mr. WHEELER. Senator, I also know that this is part of a larger negotiation, and I hope that all the parties can come to the table and negotiate and end this shutdown as soon as possible.

Senator VAN HOLLEN. Well, this Senate, on a bipartisan basis, was able to do this for the reasons you say in the middle of a shutdown. I hope the President will sign the bill, and I really encourage you to let your employees know that you support the bill.

Senator BARRASSO. The Senator's time has expired.

This is the end of the first round of questioning. We are going to proceed, if we could, to the second round. Probably fewer members will want to ask a second round of questions, and we do have a roll call vote coming up at 12:30.

So I just want to go into round two. I understand that when considering a small refinery's petition for hardship relief, under the Renewable Fuels Standard, RFS, the EPA consults with the Department of Energy, as you mentioned.

Mr. WHEELER. Yes.

Senator BARRASSO. These two agencies conduct a detailed, objective analysis based on the small refineries confidential business information. Under the Clean Air Act, the agencies must look at each small refinery on an individual basis, which you had mentioned in a comment earlier, regardless of whether the refinery is part of a larger company. Is that your understanding of the law?

Mr. WHEELER. Yes, it is, sir.

Senator BARRASSO. OK. Now, I also want to thank you for withdrawing the Obama administration's proposed duplicative rule on groundwater monitoring on in situ uranium recovery. This rule was a midnight regulation the EPA issued the day before President Obama left office. When you talk about a midnight regulation, that by definitely really, really fits it.

The Nuclear Regulatory Commission—our Nation's principal nuclear regulator—stated that there was no health or safety justification for the rule. The NRC has also said that the rule interfered with its jurisdiction over uranium recovery activities. To ensure this doesn't happen again, I have written EPA, asking the agency to sign a memorandum of understanding, which would clarify the NRC's and the EPA's jurisdiction over those activities.

Do you know if this work has begun on that memorandum of understanding?

Mr. WHEELER. It has begun; it began before the end of last year. At this point, we are not working on it because it is part of the shutdown. But it has begun, sir, yes.

Senator BARRASSO. Great. The cost of regulations coming out of the EPA was staggering before President Trump took office. According to the Office of Management and Budget, major EPA rules cost between $54 billion and $86 billion a year, between the years 2006 and 2016. That total was more than the cost of major rules from seven other Cabinet level Federal agencies combined. Seven agencies combined.

Has this Administration taken a hard look at those costs, and in your opinion, has the EPA better balanced regulatory costs with environmental protection?

Mr. WHEELER. We have. And we have a cost-benefit rule that we proposed in early last year, we received 3,200 comments on it. We are reviewing those comments and plan to go forward with that, which will help define how we look at cost-benefit analysis across the board.

Senator BARRASSO. I have seen some stories in the press the EPA enforcement cases have fallen. In my opinion, how many enforcement cases are filed isn't the best metric to measure the EPA's successes. Our goal should be to actually make sure that people are following the law in the first place. This is called the compliance assurance, making sure that businesses across the country comply with the law up front, so that enforcement actions aren't needed.

What is the EPA doing to improve compliance assurance?

Mr. WHEELER. We are working very hard on compliance assurance. I think the agency has for a number of years. I think the more compliance assurance that we have, the fewer enforcement actions that we need to take.

But there has been lot of misleading information in the news media about our enforcement program. I would like to correct two items real fast if you don't mind. Last summer, a group, EGGI, released a report on what they thought our enforcement numbers were. We went over it, and we went over it again, and our career people went over it, and it appears that they made some simple mathematical errors in their report. They claimed, for example, that our administrative compliance orders were down 42 percent, but actually they were up 3 percent.

And just recently, PEER released a report on our criminal enforcement program. They said that we are making the criminal referrals. We don't actually make criminal referrals. We make requests for prosecutorial assistance. And at the agency, the metric that we use is to track the number of new criminal enforcement cases that open each year. Last year we opened more criminal enforcement cases than in 2017. That reversed a downward trend that started in 2011. So since 2011 we have been on a steady decline. Last year we reversed the decline for the first time.

Senator BARRASSO. Anything else from the first round of questions that something has just come to you, and you say, gee, I would like to clarify something?

Mr. WHEELER. Well, I would like to clarify, because there has been a lot of discussion on our CAFE proposal. And a lot of it having to do with the CO_2 remissions and reductions from the CAFE

proposal. And yes, under President Obama's proposal on CAFE, that was their one goal for the program, was energy efficiency, CO_2.

We have multiple goals for the program, multiple policy goals, including protecting lives. Under our proposal, we have submitted that there will be 1,000 lives saved a year under our CAFE proposal. I neglected to mention that earlier, but I think that is very important for everyone to understand. It would decrease the cost of a new care by $2,300. And that will get older cars off the road. And when you get an older car off the road, people are buying safer cars, and it will save 1,000 lives a year. I think that is a very important fact to get out there in the public.

Senator BARRASSO. Thank you.

Senator Inhofe, do you have a unanimous consent?

Senator INHOFE. I do have a unanimous consent request. I would like to submit these studies into the record. Both are from the Department of Agriculture and Consumer Economics at the University of Illinois–Urbana. The first study is from September 2018. Its conclusion: "Little if any evidence that the blend rate for ethanol has been reduced by small refinery exemptions." The second one: "The updated analysis in this article shows even less evidence that the blend rate for ethanol has been reduced by SREs."

Senator BARRASSO. Without objection.

[The referenced information follows:]

farmdoc DAILY

Department of Agricultural and Consumer Economics, University of Illinois Urbana-Champaign

Small Refinery Exemptions and Ethanol Demand Destruction

Scott Irwin

Department of Agricultural and Consumer Economics
University of Illinois

September 13, 2018

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Small refinery exemptions (SREs) represent the latest controversy to engulf the Renewable Fuel Standard (RFS). When the U.S. Congress first created the RFS in the Energy Policy Act of 2005 (P.L. 109-58) it included a temporary exemption for small refineries from the mandate through 2011. Under the Obama Administration, SREs were rarely granted after 2011. This changed radically under the Trump Administration, which granted a total of 48 SREs retroactively for 2016 and 2017. As detailed in this *farmdoc daily* article (July 12, 2018), SREs effectively reduced the conventional ethanol mandate for 2017 from 15 billion gallons to 13.9 billion gallons. This was not only a large reduction in absolute terms, but it also resulted in the conventional mandate being set below the E10 blend wall. If similar numbers of SREs are granted for 2018 and 2019, comparable reductions in the effective conventional ethanol mandate should be expected (assuming the SRE volumes are not reallocated to non-exempt obligated parties).

While there is no doubt that SREs have opened a backdoor mechanism for EPA to reduce the statutory and obligated RFS volumes, there is sharp disagreement about the impact of SREs on the physical consumption of ethanol. On one side, obligated parties, mainly refiners, argue that physical ethanol demand has been unaffected. On the other side, the corn ethanol industry argues there has been substantial destruction of demand in the physical ethanol market due to the SREs. The purpose of this article is to investigate the impact of SREs on demand for ethanol in the physical market.

Analysis

There are two key questions for the analysis of the impact of SREs on the physical demand for ethanol. First, what measure should be used to detect the impact? Second, what is the relevant time window? With respect to the first question, we do not want to examine the physical consumption of ethanol directly because ethanol use has trend and seasonal components. Instead, we want to remove trend and seasonal effects by examining consumption of ethanol relative to something else. In this case, there is an obvious something else—the consumption of gasoline. By dividing ethanol consumption by gasoline consumption, we obtain the blend rate for ethanol, a measure that should be normalized to systematic trends and seasonality, at least in recent years.

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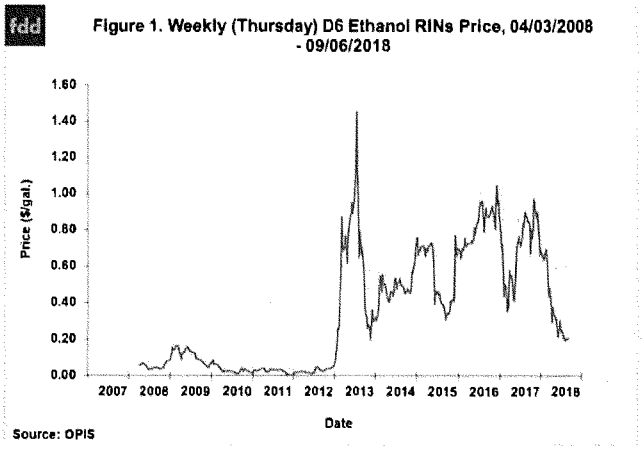
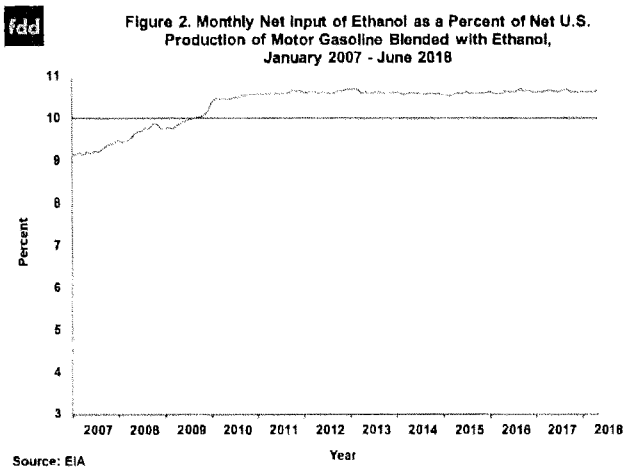
Determining the time window for the analysis is not as clear-cut. With the exception of two SREs reportedly granted for 2018, all of the SREs granted to date were retroactive for 2016 and 2017, and therefore, could not have impacted physical ethanol demand after the fact. However, the argument made by many in the corn ethanol industry is that the impact on ethanol consumption of SREs is indirect through incentives provided by D6 ethanol RINs. The granting of SREs did increase the supply of RINs substantially, with the EPA estimating that the size of the RIN bank ballooned to over 3 billion gallons. Naturally, this caused a large decline in RIN prices, which is then argued to have reduced incentives for physical blending of ethanol. Based on this logic, the relevant time window should start when the SREs were granted and D6 RIN prices dropped. Figure 1 presents weekly D6 RIN prices from April 3, 2008 through September 6, 2018. The figure shows that D6 prices were around $0.90 per gallon in November 2017 and then plummeted to the current level of around $0.20 per gallon. This suggests the impact of SREs on the physical demand for ethanol, if any, should start around December 2017.



A further complication is that there are different methods for computing the ethanol blend rate, depending on the particular data series used. We follow Radich and Hill (2011) and compute three ethanol blend rates to determine whether the results are sensitive to different assumptions about the relevant data from the U.S. Energy Information Agency (EIA). All three measures are computed on a monthly basis because monthly EIA ethanol and gasoline consumption data are more accurate than weekly data because the monthly data is based on more comprehensive surveys.

The first measure of the ethanol blend rate is presented in Figure 2 for January 2007 through June 2018. The EIA surveys refiners and blenders in the U.S. about the net input of ethanol into gasoline and this is used in the numerator. The EIA also surveys refiners and blenders about the net production of motor gasoline that is blended with ethanol. In other words, if a gallon of gasoline contains ethanol then it is counted towards the denominator of this measure. Based on this data, the ethanol blend rate started relatively high, a bit higher than 9 percent in 2007, rose quickly to around 10.5 percent in 2010, and then stayed remarkably stable through June 2018. The blend rate exceeds 10 percent with this measure because higher ethanol blends such as E15 and E85 are included in the accounting but 100 percent petroleum gasoline (E0) is not. There does not appear to be any perceptible change in the ethanol blend rate with this measure starting in December 2017. In fact, the average ethanol blend rate for the seven months from May 2017 through November 2017, 10.6 percent, is exactly the same as the seven months between December 2017 and June 2018.

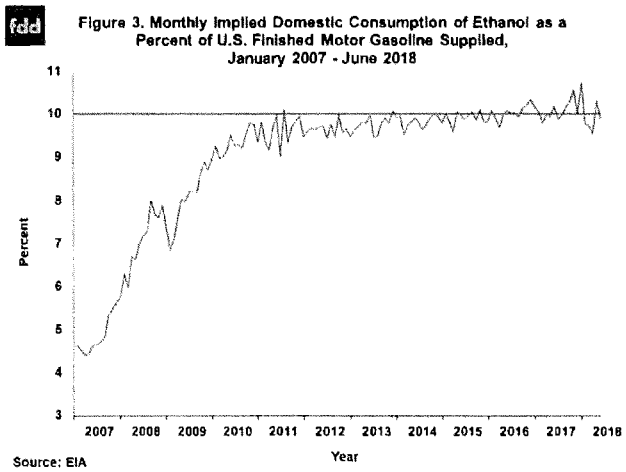


A potential limitation of the previous measure of the ethanol blend rate is that it does not reflect ethanol blended outside of the refiners and blenders surveyed by the EIA, and as noted above, the data series on gasoline does not reflect E0 consumption. Both could bias the measure of the blend rate. The second measure of the ethanol blend rate attempts to correct for these two sources of bias by using more inclusive measures of physical ethanol and gasoline consumption. Rather than being a direct survey estimate, ethanol consumption for this measure is implied based on the ethanol balance sheet as follows:

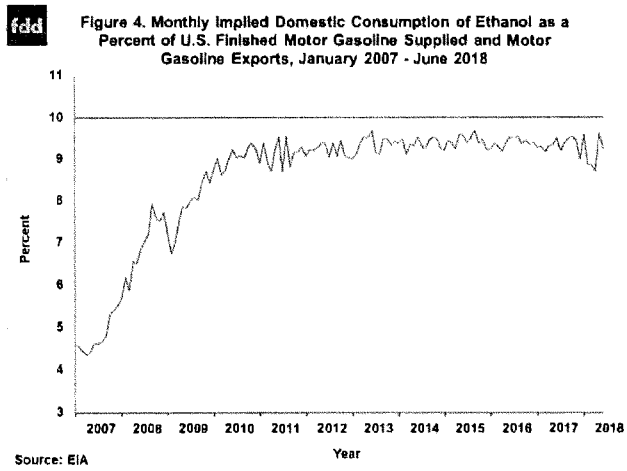
Domestic Use = Beginning Stocks + Production + Imports – Exports – Ending Stocks.

This measure of physical ethanol consumption in theory includes all domestic sources (E10, E15, and E85) in the numerator of the blend rate. However, it also may be subject to more measurement error since consumption is implied. In this sense, it is analogous to the computation of feed and residual use on a corn balance sheet. Finished motor gasoline consumption is implied in a similar manner by the EIA, and therefore E0 consumption is included in the denominator of the blend rate.

Figure 3 presents the second ("implied") measure of the ethanol blend rate on a monthly basis over January 2007 through June 2018. As expected, this measure is noisier than the first one. It also starts at a much lower level because of the large amounts of E0 that were being consumed in the early part of the sample. This measure of the ethanol blend rate started to consistently hit 10 percent in 2013 and has basically been in a fairly tight range near 10 percent ever since. There is an unusual amount of volatility in this measure of the blend rate starting in November 2017 when it hit 10.6 percent, reached another peak of 10.8 percent in January 2018, dropped back to 9.5 percent in April 2018, and then recovered back to near 10 percent. It is possible that some of the decline in this measure of the blend rate in early 2018 was related to SREs and the D6 incentive effect, but since the decline in the blend rate was not sustained, a more likely explanation is volatility associated with unusually large amounts of ethanol shipped by rail for the surging ethanol export market. The coverage of ethanol in rail transit in EIA surveys is uncertain, and while in transit this would increase implied domestic ethanol consumption. Once the railed ethanol is counted in exports it would show up as a drop in implied domestic ethanol consumption. This explanation is consistent with the fact that the average ethanol blend rate declined very slightly from 10.1 percent for the seven months from May 2017 through November 2017 to 10.0 percent for the seven months between December 2017 and June 2018.

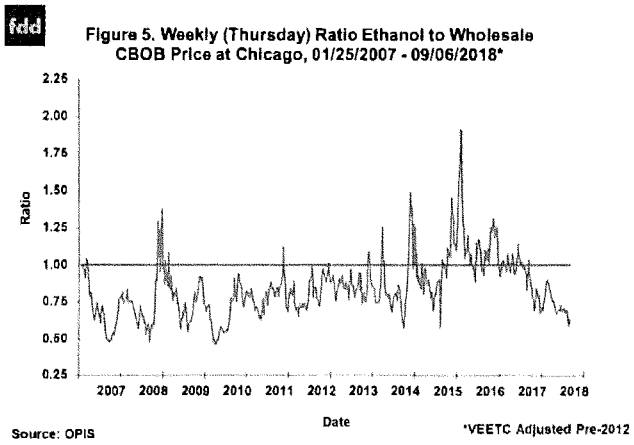


A third measure of the physical blend rate for ethanol takes into account gasoline exports. Some ethanol is likely blended in gasoline that is exported but it is not separately counted in EIA data. Therefore, in order to have the broadest possible measure of gasoline supplies, this third measure simply adds gasoline exports to the denominator of the second measure of the blend rate. Figure 4 presents the exports-included ethanol blend rate on a monthly basis over January 2007 through June 2018. Not surprisingly, this measure closely resembles the second measure, but with somewhat lower percentages due to the inclusion of gasoline exports in the denominator. This measure shows a slightly larger decline during the period in question, dropping from an average of 9.4 percent over the seven months from May 2017 through November 2017 to an average of 9.1 percent for the seven months between December 2017 and June 2018. However, this decline can be explained by surging gasoline exports, which reached record levels that exceeded 1 billion gallons each month between November 2017 and April 2018, and therefore, would depress this measurement of the ethanol blend rate.



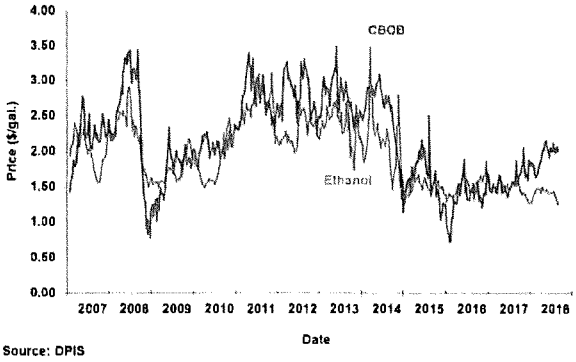
Overall, the three measures of the ethanol blend rate provide a consistent picture of the impact of SREs on physical consumption of ethanol. There is little if any evidence that the blend rate for ethanol was reduced as the waivers went into effect. If there has been any ethanol "demand destruction" to date it was very small, perhaps a drop in the ethanol blend rate of a tenth, which equates to only about 140 million gallons of ethanol consumption on an annual basis. This may seem counter-intuitive given the magnitude of the impact of SREs in reducing the conventional ethanol mandate and the precipitous drop in D6 RINs prices that followed. The answer turns out to be straightforward and something that has been discussed in several previous *farmdoc daily* articles (e.g., January 30, 2015, February 3, 2016, February 17, 2016, March 15, 2017). The essential insight is that the demand for ethanol fundamentally consists of two segments, one for E10 and one for E15 and E85.

The value of ethanol in E10 is based on two components: i) an energy (MPG) penalty relative to petroleum gasoline because ethanol has a lower energy content; and ii) an octane premium based on the generally lower price of ethanol relative to petroleum sources of octane. The analysis found in this *farmdoc daily* article (March 15, 2017) shows that the energy penalty and octane premium for E10 almost exactly offset one another over time. This means that all else constant the breakeven price of ethanol in E10 is equal to the price of petroleum gasoline. With this background, consider Figure 5, which shows the ratio of weekly wholesale prices in Chicago for ethanol and CBOB gasoline blendstock from January 25, 2007 through September 6, 2018. Pre-2012 ethanol prices are adjusted for the blender tax credit that was in place (VEETC). What this figure reveals is that ethanol prices since late 2017 have become very cheap relative to gasoline. In recent weeks, the ratio has fallen all the way to 0.60, which is near historical lows. This is the reason ethanol demand in the form of E10 has not been affected by SREs and low D6 RIN prices. Put differently, ethanol is a highly price competitive in the E10 gasoline blend in the U.S. at the present time and the conventional ethanol mandate up to the E10 blend wall is non-binding.



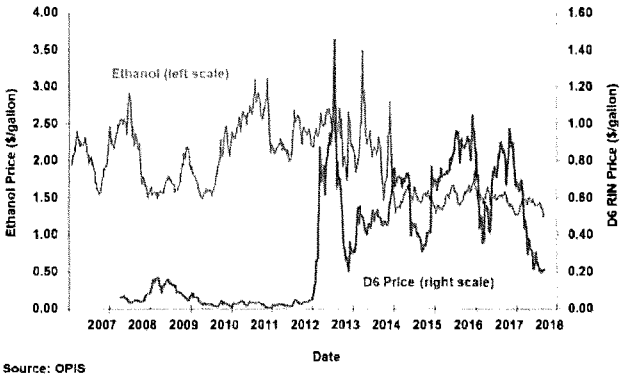
One possible concern with the above conclusion is that the timing of the precipitous drop in the ethanol/gasoline price ratio since late 2017 roughly matches the drop in D6 RIN prices shown in Figure 1. If D6 prices are positively related to ethanol prices as many claim ("the incentive effect") then the fall in the price ratio could simply be due to a D6-driven decline in ethanol prices. This is not the case. Figure 6 shows the underlying ethanol and CBOB gasoline prices used to compute the price ratio in Figure 5. It is clear that the fall in the ethanol/gasoline price ratio since late 2017 is almost entirely due to the jump in gasoline prices, as ethanol prices moved in a narrow sideways range. Figure 7 provides further evidence in this regard by plotting the wholesale ethanol price versus the D6 ethanol RIN price. The lack of correlation is obvious.

Figure 6. Weekly (Thursday) Wholesale CBOB and Ethanol Price at Chicago, 01/25/2007 - 09/06/2018



Source: DPIS

Figure 7. Weekly (Thursday) Wholesale Ethanol Price at Chicago and D6 Ethanol RIN Price, 01/25/2007 - 09/06/2018



Source: OPIS

The story for E15 and E85 is quite different from E10. While there is some controversy in this regard, it is generally acknowledged that the additional octane in E15 and E85 does not provide extra value, and therefore, there is no offset to the energy (MPG) penalty for these higher ethanol blends. Further, the energy penalty is larger for E15 and E85 simply because the ethanol content is higher than for E10. This means that, unlike E10, higher ethanol blends are not price competitive at the pump without a subsidy. D6 RINs (in theory) provide the subsidy needed to incentivize drivers to purchase E15 and E85, and therefore, the demand for higher ethanol blends above the E10 blend wall depends on D6 RIN prices. If SREs drove D6 RIN prices below the level necessary to incentivize E15 and E85 consumption, then demand for this segment of physical ethanol consumption would be reduced by SREs. A recent study by Lade, Pouliot, and Babcock (2018) suggests this is precisely what happened. However, consumption of E15 and E85 is so small and difficult to measure that it barely registers in the aggregate statistics on physical ethanol consumption. With at most a few hundred million gallons of ethanol consumed in E15 and E85, cutting demand in this segment has little overall effect.

Implications

There is widespread interest in whether small refinery exemptions (SREs) under the RFS have "destroyed" demand for ethanol in the physical market. It seems obvious that this would be the case since SREs have the effect of waiving more than a billion gallons of the conventional ethanol mandate under the RFS. However, analysis of data on ethanol and gasoline consumption in the U.S. shows there is little if any evidence that the blend rate for ethanol has been reduced by SREs. If there has been any ethanol "demand destruction" to date it was very small, perhaps a drop in the ethanol blend rate of a tenth, which equates to only about 140 million gallons of ethanol consumption on an annual basis. The reason for this counter-intuitive result is that all but a tiny sliver of ethanol in the U.S. is consumed in the form of E10 and the price of ethanol in recent months has been very low relative to gasoline. The price competitiveness of ethanol in E10 means that the conventional ethanol mandate is non-binding up to the E10 blend wall.

This finding does not preclude SREs from having an impact on ethanol demand in the future or a demand impact on other biofuels at the present time. First, if the price of ethanol increases sharply, say, due to corn supply problems at some point in the future, then ethanol could become expensive enough relative to gasoline that the conventional mandate would become binding even for E10. SREs could result in some destruction of physical demand for ethanol under this scenario. Second, SREs have in all likelihood reduced the demand for ethanol in the form of E15 and E85. While the magnitude of this impact is very small at the present time, it also means that further expansion of the demand for higher ethanol blends is not in the cards so long as SREs are granted (and not reallocated). Third, the demand for biomass-based diesel in all likelihood has been reduced in direct proportion to the impact of SREs on total obligated gasoline and diesel gallons because the biomass-based diesel mandate is highly binding. This form of "demand destruction" from SREs will be explored in a future *farmdoc daily* article.

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More on Small Refinery Exemptions and Ethanol Demand Destruction

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December 13, 2018

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The impact of small refinery exemptions (SREs) under the RFS continues to be a highly controversial subject. While there is no doubt that SREs have opened a backdoor mechanism for the EPA to reduce the statutory and obligated RFS volumes (*farmdoc daily*, July 12, 2018), there is sharp disagreement about the impact of SREs on the physical consumption of ethanol. Some argue that physical ethanol demand has been unaffected, while others argue there has been substantial destruction of demand in the physical ethanol market due to the SREs. An earlier *farmdoc daily* article (September 13, 2018) reported little evidence that the blend rate for ethanol had been reduced by SREs through June 2018. Since the impact of SREs likely started no earlier than December 2017, it is important to revisit the issue with more up-to-date data. The purpose of this article is to investigate the impact of SREs on demand for ethanol in the physical market using data through September 2018. In addition, the reason for the extreme volatility in the implied ethanol blend rate during the second half of 2017 and the first half of 2018 is investigated.

Analysis

When the U.S. Congress first created the RFS in the Energy Policy Act of 2005 (P.L. 109-58) it included a temporary exemption for small refineries from the mandate through 2011. Under the Obama Administration, SREs were rarely granted after 2011. This changed radically under the Trump Administration, which granted a total of 48 SREs retroactively for 2016 and 2017. As detailed in this *farmdoc daily* article (July 12, 2018), SREs effectively reduced the conventional ethanol mandate for 2017 from 15 billion gallons to 13.9 billion gallons. This was not only a large reduction in absolute terms, but it also resulted in the conventional mandate being set below the E10 blend wall. If similar numbers of SREs are granted for 2018 and 2019, comparable reductions in the effective conventional ethanol mandate should be expected (assuming the SRE volumes are not reallocated to non-exempt obligated parties).

We examine here two of the three measures of the ethanol blend rate used in the *farmodc daily* article of September 13, 2018 in order to test the impact of SREs on ethanol demand. We do not consider the blend rate measure that includes gasoline exports here because of concerns about the noise added by gasoline exports. The first measure of the ethanol blend rate is based directly on EIA surveys. The

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numerator is U.S. refiner and blender net input of ethanol in gasoline and the denominator is U.S. refiner and blender net production of motor gasoline that is blended with ethanol. In other words, if a gallon of gasoline contains ethanol then it is counted in the denominator of this measure. Potential limitations of this first measure of the ethanol blend rate are twofold: i) it does not reflect ethanol blended outside of the refiners and blenders surveyed by the EIA; and ii) the survey on gasoline blending does not reflect E0 consumption. Both could bias the measure of the blend rate.

The second measure of the ethanol blend rate attempts to correct for the two sources of bias mentioned above by using more inclusive measures of physical ethanol and gasoline consumption. Rather than being a direct survey estimate, ethanol consumption for the second measure is implied based on the ethanol balance sheet as follows:

Domestic Use = Beginning Stocks + Production + Imports – Exports – Ending Stocks.

This measure of physical ethanol consumption in theory includes all domestic sources (E10, E15, and E85) in the numerator of the blend rate. However, it also may be subject to more measurement error since consumption is implied. Finished motor gasoline consumption is implied in a similar manner by the EIA, and therefore E0 consumption is included in the denominator of this version of the blend rate.

Figure 1 presents the first measure of the ethanol blend rate on a monthly basis over January 2007 through September 2018. Based on this data, the ethanol blend rate started relatively high, a bit higher than 9 percent in 2007, rose quickly to around 10.5 percent in 2010, and then stayed remarkably stable through September 2018. The blend rate exceeds 10 percent with this measure because higher ethanol blends such as E15 and E85 are included in the accounting but 100 percent petroleum gasoline (E0) is not. There does not appear to be any perceptible change in the average ethanol blend rate with this measure during 2017 or 2018.

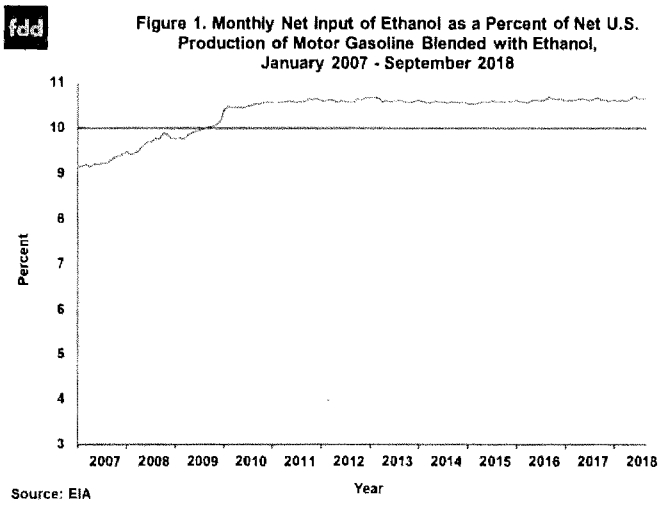
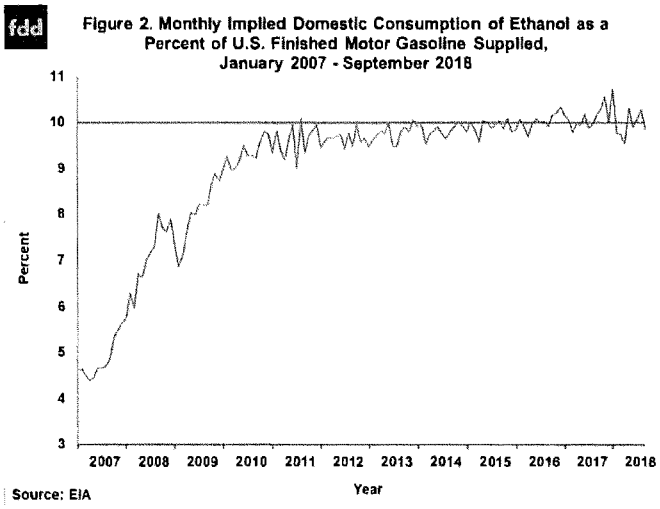


Figure 2 presents the second ("implied") measure of the ethanol blend rate on a monthly basis over January 2007 through September 2018. As expected, this measure is noisier than the first one. It also starts at a much lower level because of the large amounts of E0 that were being consumed in the early part of the sample. This measure of the ethanol blend rate started to consistently hit 10 percent in 2013 and has generally been in a fairly tight range near 10 percent ever since. There is an unusual amount of volatility in this measure of the blend rate starting in November 2017 when it hit 10.6 percent, reached another peak of 10.8 percent in January 2018, dropped back to 9.5 percent in April 2018, and then

recovered back to near 10 percent. Once again, there does not appear to be any perceptible change in the average ethanol blend rate during 2017 or 2018 with this second measure.



In order to more formally analyze changes in ethanol blend rates in relation to SREs, average blend rates for various breakpoints are presented in Table 1. The first breakpoint is December 2017, which is when the price of D6 RINs began to decline sharply. The argument is that granting of SREs increased the supply of RINs substantially and caused a large decline in RIN prices. This in turn is allegeded to have reduced incentives for physical blending of ethanol. Averages are computed for the 10 months before and after December 2017. The second breakpoint is February 2018, when the implied blend rate dropped sharply. In this case, averages are computed for the same February-September period in 2017 and 2018. The third breakpoint is January 2018 in order to compute year-to-date average blend rates for 2017 and 2018.

Table 1. Average U.S. Ethanol Blend Rates for Various Breakpoints

Comparison	Average Net Input Blend Rate (%)	Average Implied Domestic Blend Rate (%)
RIN Price Break:		
February 2017 - November 2017	10.64	10.09
December 2017 - September 2018	10.65	10.03
Blend Rate Break:		
February 2017 - September 2017	10.65	10.00
February 2018 - September 2018	10.65	9.94
Year to Date Break:		
January 2017 - September 2017	10.64	10.02
January 2018 - September 2018	10.65	10.03

Regardless of the break point considered, Table 1 shows that the average ethanol blend rate based on net inputs (first measure) is virtually unchanged at 10.64 or 10.65 percent. There is some evidence of a very slight decline in the average implied blend rate (second measure) depending on the breakpoint

considered. Both the RIN price (December 2017) and the blend rate (February 2018) breaks show declines in the average blend rate of 0.06 percent. It is important to keep in mind that the decline in average rates is less than one-tenth of a percent in these cases. The year-to-date comparison shows almost no difference in average implied blend rates for 2018 versus 2017.

Overall, the comparisons in Table 1 provide very little evidence that the blend rate for ethanol has been reduced by SREs. If there has been any physical ethanol "demand destruction" to date it has been very, very small, perhaps a drop in the ethanol blend rate of a half-a-tenth or so, which equates to only about 70 million gallons of ethanol consumption on an annual basis. This may seem counter-intuitive given the magnitude of the impact of SREs in reducing the conventional ethanol mandate and the precipitous drop in D6 RINs prices that followed. As discussed in the *farmdoc daily* article on September 13, the answer is simply that all but a tiny sliver of domestic ethanol is consumed in the form of E10 and ethanol is highly price competitive in the E10 gasoline blend in the U.S. The implication is that the conventional ethanol mandate up to the E10 blend wall is non-binding, and therefore, SREs should not have any impact on this component of domestic ethanol demand. This is not the case for E15 and E85 demand, which should be highly sensitive to the price of D6 RINs. However, the amount of ethanol consumed in the form of these higher blends is so small that any RIN price incentive effect barely registers in the aggregate amount of ethanol consumed in the U.S.

One remaining issue is the extreme volatility of the implied ethanol blend rate (Figure 2) in the second half of 2017 and the first half of 2018. It is possible that some of the sharp decline in this measure of the blend rate in early 2018 is related to SREs and the D6 incentive effect, but since the decline in the blend rate was not sustained, this argument is not persuasive. In addition, the D6 incentive effect cannot explain the sharp increase in the implied blend rate in the second half of 2017. The likely explanation is measurement error in EIA export surveys. The issue is coverage of ethanol in rail transit in EIA export surveys. Ethanol being transported by rail for export should be counted in the current EIA production survey as having been produced but it may not yet be counted as exported in the EIA export survey because it is in transit. This has the effect of inflating implied domestic use of ethanol in the current month because ethanol that is produced has to be balanced by usage. The impact on implied domestic use is reversed in the following month when the ethanol in transit is properly counted as part of exports. Of course, the larger the amount of ethanol in rail transit for exports the large the impact on implied domestic use. It is interesting to note that exactly the same issue arises in grain markets when implying feed and residual use (Irwin, Sanders, and Good, 2014).

Figure 3 provides confirmation that measurement errors in the EIA export survey are the likely culprit in explaining the volatility in the implied domestic blend rate in the second half of 2017 and first half of 2018. The red line in the figure is the implied domestic blend rate in the current month and the blue line is ethanol exports in the following month. There is clearly a positive relationship between the current implied blend rate and the following month's exports, consistent with the logic laid out in the previous paragraph. In particular, the surge in ethanol exports in the second half of 2017 and early 2018 must have been associated with large amounts of ethanol in transit for ethanol. This created the appearance of a surge in implied domestic ethanol use and the implied ethanol blend rate over this same time period. Once the surge in ethanol exports receded, there was a compensating drop in implied domestic ethanol use and the implied ethanol blend rate. While this episode is a dramatic illustration of the impact of measurement errors on implied ethanol blend rates, Figure 4 shows this is not an isolated phenomenon, but, rather, a systematic tendency in the data for some time.

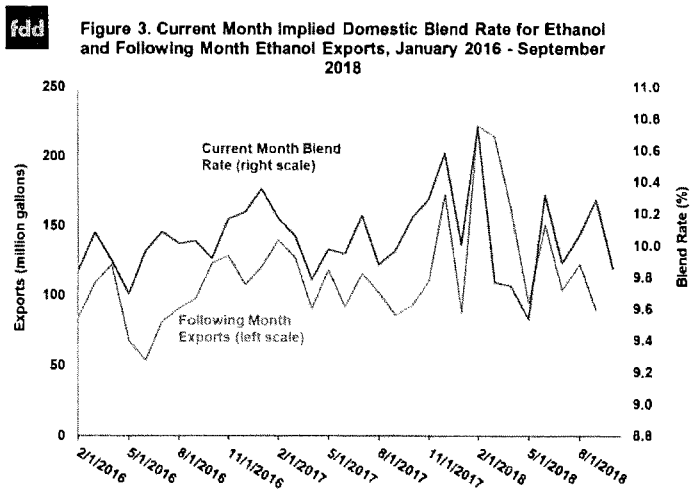


Figure 3. Current Month Implied Domestic Blend Rate for Ethanol and Following Month Ethanol Exports, January 2016 - September 2018

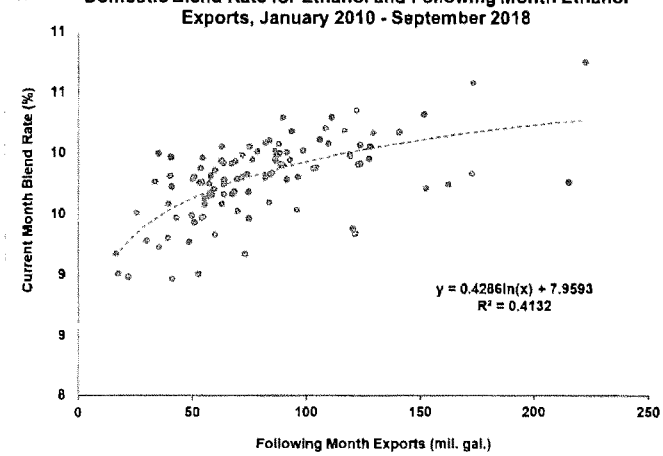


Figure 4. Relationship Between Current Month Implied Domestic Blend Rate for Ethanol and Following Month Ethanol Exports, January 2010 - September 2018

Implications

There is widespread interest in whether small refinery exemptions (SREs) under the RFS have "destroyed" demand for ethanol in the physical market. It seems obvious that this would be the case since SREs have the effect of waiving more than a billion gallons of the conventional ethanol mandate under the RFS. The updated analysis in this article shows even less evidence that the blend rate for ethanol has been reduced by SREs. If there has been any ethanol "demand destruction" to date it was very, very small, perhaps a drop in the ethanol blend rate of a half-a-tenth or so, which equates to only about 70 million gallons of ethanol consumption on an annual basis. The reason for this counter-intuitive

result is that all but a tiny sliver of ethanol in the U.S. is consumed in the form of E10 and ethanol is very price competitive in the E10 gasoline blend. This article also shows how measurement errors in the EIA export survey likely explain the extreme volatility of the implied domestic blend rate in the second half of 2017 and first half of 2018.

As discussed previously (*farmdoc daily*, September 13, 2018), the finding that SREs have not had a material impact on physical ethanol demand to date does not necessarily mean that all biofuels demand has been unaffected. First, the drop in RIN prices associated with SREs should have reduced E15 and E85 demand. While the magnitude of this impact is very small now, it also precludes further expansion in the demand for higher ethanol blends so long as SREs are granted (and not reallocated). Second, the demand for biomass-based diesel in all likelihood has been reduced in direct proportion to the impact of SREs on total obligated gasoline and diesel gallons because the biomass-based diesel mandate is highly binding.

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Senator BARRASSO. Senator Carper.

Senator CARPER. I have a couple UC requests, Mr. Chairman. First of all, Mr. Chairman, I ask unanimous consent to submit for the record articles that describe Mr. Wheeler's troubling decision to continue his predecessor's efforts to weaken EPA's enforcement power, including maintenance of the sue and settle directive changes, and the Clean Water Act enforcement, and the twice introduced proposal to eliminate the Office of Environmental Justice.

Senator BARRASSO. Without objection.

[The referenced information follows:]

POLITICS | JAN. 10, 2019

Andrew Wheeler Is Bad News for Coal Miners and Environmentalists Alike

By Sarah Jones

Andrew Wheeler. Photo: Andrew Harrer/Bloomberg via Getty Images

Donald Trump formally nominated Andrew Wheeler to be the Environmental Protection Agency's new administrator, the White House announced on Wednesday. Wheeler has been the EPA's acting administrator since last July, when his predecessor and former boss, Scott Pruitt, resigned amid a corruption scandal. The prospect of administrator Wheeler presents its own ethics concerns: Wheeler is a former coal lobbyist, and his ties to K Street create a number of possible conflicts of interest. The Sierra Club, an environmental advocacy group, has filed an open records request for thousands of emails between EPA officials and fossil-fuel industry representatives. The Washington *Post* reported on Monday that a federal judge has ordered the EPA to release those emails within the next ten

months. "The agency had initially asked the court to have until 2022 — halfway into the next presidential term — to complete the requests," the *Post*wrote.

Wheeler's nomination also affirms the Trump administration's persistent commitment to the fossil-fuel industry. Though Wheeler is generally regarded as a more competent administrator than Pruitt, his actual policies differ little from those of his predecessor. He is a climate denialist, and as Carolyn Kormann reported for *The New Yorker* in July 2018, he pushes a deregulatory agenda informed by his free-market economic commitments, not by scientific evidence. Wheeler makes much of his status as the grandson of a coal miner; *Rolling Stone* reportedlast November that he mentioned the connection in his first remarks to EPA staffers. "My grandfather was a coal miner during the Depression," he said. "My grandmother raised her children in the coal camps in West Virginia. In fact, I still have some of the company scrip that she used to buy food in the company store."

Maybe Wheeler longs for the good old days. Under Pruitt's watch, the EPA relaxed regulatory standards on the storage of coal ash, which can leak into local water sources and poison people, and there's no reason to think Wheeler will change course. As a lobbyist, he represented Murray Energy, the largest coal operator in the country. Trump has been good for Murray. In June 2018, the company managed to avoid insolvency thanks to news that the Trump administration planned a bailout of coal and nuclear plants. Murray's debt holders were encouraged by the development, Bloomberg reported at the time, and "agreed to refinance a chunk of the company's bonds and loans." In December, during Wheeler's time as acting administrator, the EPA introduced a proposal that "would require new power plants to have more advanced technology than in their older counterparts and proposes a higher limit on how much carbon dioxide they can release," ABC News reported. If these new rules go into effect they would make it easier for corporations to create new coal plants, as ABC noted at the time.

The Trump administration's conciliatory posture toward the coal industry is expansive, involving other federal agencies and departments. While Wheeler waited in the wings at the EPA, Labor Secretary Alexander Acosta eased federal oversight of West Virginia's Affinity Mine, which is operated by Pocahontas Coal Company. As NBC News reported in September, Affinity had become subject to "tough enforcement actions" because of a

pattern of safety violations. Wheeler obviously doesn't make Acosta's decisions, but the Affinity case does help illustrate the potential impact of Wheeler's continued tenure at the EPA. A proliferation of coal plants plus the deregulation of coal-ash storage and a rollback of worker-safety oversight spells trouble both for the environment and for coal miners themselves. Wheeler might be the proud grandson of a miner, but if the Senate confirms his nomination, he'll probably make mining communities even more difficult places to live.

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The New York Times

Scott Pruitt's Environmental Rollbacks Stumbled in Court. His Successor Is More Thorough.

By Lisa Friedman

Nov. 21, 2018

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WASHINGTON — Before resigning as the head of the Environmental Protection Agency this year, Scott Pruitt delighted President Trump with his zeal for proclaiming sweeping regulatory rollbacks, even though he left behind a trail of courtroom setbacks.

Andrew R. Wheeler, a former energy lobbyist whom Mr. Trump plans to nominate to lead the E.P.A., has been quietly cleaning up the mess.

Where virtually all of Mr. Pruitt's hastily written rollbacks and suspensions have been blocked by the courts, Mr. Wheeler has taken a far more deliberative approach, immersing himself in the legal intricacies — a strategy that could make Mr. Wheeler one of the most effective drivers of the Trump administration's ambitious plan to rewrite the nation's rule book on the environment and climate.

"He's done a fantastic job," Mr. Trump said Friday of Mr. Wheeler, who has served as the E.P.A.'s acting administrator since Mr. Pruitt stepped down in July amid a wave of ethics scandals. Supporters say the White House sees in Mr. Wheeler the anti-Pruitt: drama-free, low-key, and, most importantly, able to get the proposed rollbacks through the courts.

In doing this, however, Mr. Wheeler has already found himself at odds not only with conservative groups but others within his own administration.

But these tensions underscored what many say is the essential difference between Mr. Trump's first and second choices for E.P.A. chief: Where Mr. Pruitt sought the limelight, Mr. Wheeler sweats the details. And that could make him a far more formidable weapon than his predecessor in the Trump administration's vast reshaping of environmental and climate rules.

"Andy Wheeler is one of the few calm spots in the turbulent seas of this executive branch," said Scott Segal, a fossil fuel lobbyist for Bracewell who has worked closely with Mr. Wheeler. "That must come as a pretty welcome relief to this White House." He also has "sufficient process understanding to make that agenda stick," Mr. Segal added.

This summer, for instance, the E.P.A. took steps to replace the Clean Power Plan, a major Obama administration policy designed to reduce greenhouse gas emissions from power plants. The new version of the plan is significantly weaker.

But Mr. Pruitt had wanted to eliminate the program entirely, while Mr. Wheeler, according to several industry sources, insisted that the government was legally obligated to have a climate plan. Therefore, eliminating the Clean Power Plan without replacing it could be challenged in court and leave an opening for even tougher regulations under a future Democratic president.

"I got phone calls from conservatives wanting to know, 'Why did we do anything? Why are we putting forward a proposal at all?'" Mr. Wheeler acknowledged in an interview last week. His argument, that more restrictive replacement is better than killing off the climate regulation entirely, won the day.

Then, in August, the E.P.A. and the Transportation Department moved to gut another major federal effort to combat climate change by relaxing rules aimed at reducing car tailpipe pollution. The Trump administration plan also voided California's ability to set its own, stricter standards, triggering a potentially ugly legal battle between Washington and blue states over the ability to fight global warming.

CLIMATE

Mr. Wheeler, left, and Mr. Pruitt, during Mr. Wheeler's swearing in as deputy administrator in April. He became acting administrator in July. U.S. Environmental Protection Agency

That hasn't endeared him to environmental groups, however. In fact, many say Mr. Wheeler's softer touch has made it harder to focus the public's attention on his weakening of clean air and water laws.

"In some ways Pruitt distracted from some of the very negative things that were going on in environmental law, but in other ways there was a lot of attention being paid to E.P.A.," said Conrad Schneider, advocacy director for the Clean Air Task Force, an environmental nonprofit organization.

Analysts on both sides say Mr. Wheeler is more pragmatic than his predecessor and more disciplined. Where Mr. Pruitt would throw his energy into ideological battles, like trying to create support for a military-style televised debate of climate science, Mr. Wheeler has eschewed the limelight and strategically focused on a handful of major policy initiatives.

Under Mr. Wheeler's watch, the E.P.A. has moved forward with rolling back or weakening every major Obama-era climate change regulation. In addition to the proposal to loosen car pollution rules, those moves include replacing a landmark effort to curb greenhouse gas emissions from coal-fired power plants with a plan that the agency says will see air pollution actually rise, and reducing limits on methane pollution, a powerful greenhouse gas, from oil and gas wells.

He also has focused on work begun by Mr. Pruitt to revise Mr. Obama's clean water regulation, known as the Waters of the United State rule, saying on Friday that the revisions "will be coming out soon." He has taken on an effort to weaken and perhaps repeal a 2011 rule that limits mercury, a toxic chemical that is emitted from coal plants.

And, while he has pushed back to 2020 a plan initiated by Mr. Pruitt to impose broad new restrictions on the types of scientific research the E.P.A. uses to write regulations, he said he fully intended to finalize it. Emails obtained by the Union of Concerned Scientists, an advocacy group, have found that Mr. Pruitt's political staff excluded the E.P.A.'s chief science adviser from helping to design the rule. The group says the absence of scientists in the writing of the regulation undermined the administration's argument that the proposal was done in the interest of science.

"Which is why we're taking our time with it now," Mr. Wheeler said. "It was proposed before I got here."

However, under Mr. Wheeler, the E.P.A. also has eliminated the office of chief science adviser.

"By word and deed, Wheeler is proving to be as bad and dangerous as Pruitt," said John Walke, clean air director at the Natural Resources Defense Council.

Conservatives see Mr. Wheeler and his predecessor in a different light. Among them is Myron Ebell, who led Mr. Trump's E.P.A. transition team. "Pruitt was an outstanding advocate for the Trump agenda, and now it's up to Andy Wheeler to be the outstanding implementer of the Trump agenda," Mr. Ebell said.

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Mr. Wheeler, according to several people involved in the discussions, pushed back forcefully against an analysis used by highway officials to justify the rollback, which argued that stricter fuel pollution rules would cause thousands of deaths in road accidents. The agency argued that more efficient cars are less safe because they are lighter.

People who have attended meetings with Mr. Wheeler said he argued that the fatality numbers relied on bad calculations and were likely to be successfully challenged in court.

Mr. Wheeler on Friday denied that he had clashed with Jeffrey A. Rosen, the chief Transportation Department architect of the auto-standards rollback, saying he merely sought to understand his colleagues' mathematical modeling and legal reasoning. "I wanted to make sure what we were putting forward would be upheld in the courts, and he assured me that the work they had done would be," Mr. Wheeler said.

A department official, speaking on condition of anonymity because he was not authorized to speak on the record, said on Tuesday that there was "no dispute" between the agencies.

Mr. Wheeler's predecessor, Mr. Pruitt, faced more than a dozen federal investigations into his conduct, including his extensive use of first-class air travel, renting a condo from the wife of an energy lobbyist with business before the E.P.A. and enlisting aides on personal tasks like buying a used mattress from Trump International Hotel and seeking a Chick-fil-A franchise for his wife.

The grandson of a coal miner and an Ohio native, Mr. Wheeler studied biology in college and got his first job after law school in the 1990s working at the E.P.A.'s office of pollution prevention and toxics. He later worked in the Senate for 14 years, most of that time for Senator James Inhofe, an Oklahoma Republican who has denied the established science of climate change.

During that time, Mr. Pruitt was seen as a protégé of Senator Inhofe. The senator last week said he strongly supported Mr. Wheeler's nomination.

As an energy lobbyist since 2009, Mr. Wheeler's top client was Robert E. Murray, the chief executive of one of the country's largest coal companies, a fierce opponent of E.P.A. climate change regulations and a denier of established climate science.

Asked last week to describe his understanding of the best available science on global warming, Mr. Wheeler said: "I think climate change is happening. Man has an impact. CO2 has an impact."

It's not a full acceptance of the scientific consensus that humans are the dominant cause of rising global temperatures. But it's closer to it than the positions of Mr. Pruitt, who falsely claimed that there was "tremendous disagreement" among scientists about how great a role humans play in driving warming, or Mr. Trump, who said "I don't know that it's man-made."

Still, Mr. Wheeler argued, sweeping regulations, like the plan put forth by the Obama administration to force a shift toward renewable energy by asking states to reduce emissions from coal plants, would have "basically ended the coal industry in the United States."

"People have to realize the use of coal worldwide has not peaked," Mr. Wheeler said.

Since taking over as acting E.P.A. administrator, Mr. Wheeler has replaced Mr. Pruitt's artwork of Henry Clay, a former senator and secretary of state, with wall hangings of the Senate roll call vote for a highway spending bill he helped pass in 2005 and the bronze medals he earned for budgetary work at E.P.A. in the 1990s. He said he has not needed to use the $43,000 secure phone booth Mr. Pruitt installed.

He also has made a point of being more deeply involved in the agency's inner workings. He visited all 10 of the E.P.A.'s regional offices at the start of his tenure and has involved the agency's longtime career employees in policy meetings, things Mr. Pruitt hadn't done. Moves like these have won praise from some of Mr. Pruitt's fiercest critics.

"He's somebody that respects the institution of the E.P.A.," Kevin Minoli, the E.P.A.'s former top ethics counsel who had called for investigations into Mr. Pruitt, said of Mr. Wheeler.

The New York Times

Correction: *November 21, 2018*

An earlier version of this article referred incorrectly to a work of art that was removed from the E.P.A. administrator's office. It was a portrait of Henry Clay, not former President James Madison.

Lisa Friedman reports on climate and environmental policy in Washington. A former editor at Climatewire, she has covered nine international climate talks. @LFFriedman

A version of this article appears in print on Nov. 23, 2018, on Page A18 of the New York edition with the headline: Steady Hand at E.P.A. After String of Setbacks

EPA braces for onslaught of lawsuits in 2019

BY TIMOTHY CAMA - 12/23/18 08:30 AM EST

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Barr hearing marks first time Senate Judiciary

The Environmental Protection Agency (EPA) is confident that its prospects in federal court are about to change for the better when it comes to fights over regulatory rollbacks.

Federal judges have frequently blocked the EPA's attempts to implement President Trump's aggressive deregulatory agenda by delaying or changing major environmental rules.

In the coming year, the EPA is expected to get sued over a slate of finalized repeals or rollbacks, mostly pertaining to Obama-era policies.

"On procedural grounds, we have lost a number of the last year-and-a-half," acting EPA chief Andrew Wheeler told The Hill in an interview this month. "And our goal is not to lose them going forward."

Trump's opponents, however, don't see an end to their winning streak. Environmentalists and Democrats argue that the EPA is not living up to its statutory obligations, and they say federal courts are inclined to agree.

"We're really alarmed by the climate and public health implications of all of those actions, and we see them as contrary to EPA's mandate under the Clean Air Act, and in many cases, the record EPA has gathered in the past in supporting these standards," said Tomás Carbonell, lead attorney at the Environmental Defense Fund, which has successfully sued Trump over previous rollbacks.

The first major round of litigation at the EPA next year is likely to start in late March. That's when Wheeler hopes to release a final version of the

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Safer Affordable Fuel Efficient (SAFE) Vehicles Rule, the joint effort with the Department of Transportation to roll back fuel efficiency and greenhouse gas rules for cars made through 2026.

As proposed, the rollback would freeze standards in 2021, canceling out the plans to make them more stringent going forward.

The plan rests largely on the Trump administration's argument that it would save 1,000 lives per year to stop the Obama administration's standards — an estimate opponents say is critically flawed.

"A lot of the people who are criticizing the 1,000 lives saved are some of the people that think we should only be looking at energy efficiency and not lives saved or safety factors," Wheeler said.

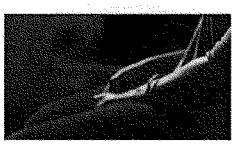
It's a near certainty that once the forthcoming rules are finalized — a step expected next year for many of the most consequential rollbacks — environmentalists and Democratic state attorneys general will take legal action.

That case and other EPA-related lawsuits could even make their way up to the Supreme Court, where two new Trump-nominated judges will help decide their fate.

The EPA has been dealt court losses, either in full decisions or in smaller orders, for various actions and inaction: deciding not to ban the pesticide chlorpyrifos; delaying its designation of which areas don't comply with ozone pollution standards; postponing implementation of an Obama-era chemical plant safety rule; attempting to avoid enforcing pollution standards on certain heavy trucks; and delaying the Obama administration's methane pollution rules for oil and natural gas drillers.

Wheeler said that writing legally defensible regulations has been an emphasis of his since he took over the agency following Scott Pruitt's resignation in July.

"That has been the overarching message that I've given to all of our political [appointees] here, is that I want to put forward regulations that will be upheld by the courts," Wheeler said.



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BY SANOFI-GENZYME AND REGENERON
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But Wheeler's confidence also stems from the fact that the upcoming battles will be about the merits of the regulatory rollbacks, like the agency's weaker replacement for the Clean Power Plan, its attempt to stop automobile emissions rules from getting more stringent and and redefinition of which waterways are subject to federal jurisdiction.

That's in contrast to the procedural problems the EPA had before, which courts said the agency didn't follow the right processes.

"A lot of those were procedural and they were regulatory actions to delay Obama regulations," Wheeler said. "As we're moving forward, we're replacing those. I certainly hope and expect that those replacements will go through."

Thomas Lorenzen, an attorney at Crowell & Moring LLP and a former lawyer in the Justice Department's environment division, said the EPA could fare better going forward.

"You would think the procedural issues would be the easier ones, and the substantive issues would be harder ones for EPA to nail. But it turns out that's exactly the opposite in this realm," said Lorenzen, who has represented some of the companies and industry groups who support the rollbacks.

When it comes to the EPA's final regulations, "they do have the deck stacked slightly more in their favor," he said. "The standards of review tend to be deferential to executive authority."

Lorenzen expects judges reviewing lawsuits against the EPA's final rules to stick to judicial precedent that defers to agencies in areas of their expertise, like science or how far rules must go to protect public health.

"They are the experts on environmental protection, and the courts are not expected to second guess them unless there really is no substantial evidence that supports the agency's view," Lorenzen said.

But the groups likely to sue the EPA say the agency has crossed that threshold, and that judges will overturn those changes.

Many of those lawsuits will come from Democratic attorneys general like California's Xavier Becerra and Brian Frosh of Maryland.

"AGs are really uniquely situated to stop these rollbacks, because it's their job to look out for the legal interests of all citizens in their states," said David Hayes, executive director of the State Energy & Environmental Impact Center, a project housed in New York University and funded by former New York City Mayor Michael Bloomberg.

"They come to litigation with a real credibility and responsibility to look out for the public welfare of their citizens," he added.

Hayes, who served as deputy secretary of the Interior Department during the Obama administration, predicted that the state attorneys general suing Trump will keep racking up victories.

"The rationale cited in these rulemakings really opens them up to challenges, and to me, likely successful challenges," he said.

"In a number of cases, the agency is openly admitting that it's focused almost entirely on the cost to industry for compliance," he said, arguing that the EPA isn't properly accounting for the environmental and health benefits being lost when a rule is weakened.

TAGS **XAVIER BECERRA** **DONALD TRUMP** **SCOTT PRUITT**

EPA Enforcement is Declining Across All Regions of the Country in Programs Designed to Protect Air, Water, Land and Public Health

Posted on December 7, 2018 Leif Fredrickson Posted in Blog

By Leif Fredrickson and Sarah Lamdan

Following up on our recent report on enforcement at the Environmental Protection Agency (EPA), we wanted to dig into the numbers to see what was happening in different EPA regions and programs across the nation. The results are startling, showing huge declines in environmental enforcement actions across most regions and programs. These enforcement actions — which include orders to institute anti-pollution measures, fines, requirements for clean up and so on — are critical to getting companies and other regulated entities to comply with environmental laws, which in turn help assure a clean and healthy environment.

In our report, A Sheep in the Closet: The Erosion of Enforcement at the EPA, we showed that, based on the EPA's enforcement and compliance database, enforcement has significantly declined in Fiscal Year (FY) 2018. (Fiscal years run from October 1 to September 30). The reasons for the declining enforcement numbers and the negative health and safety impacts related to decreased environmental law enforcement are elucidated in news coverage of our report, and in the report itself, which is based on extensive interviews with agency staff and internal documents we obtained.

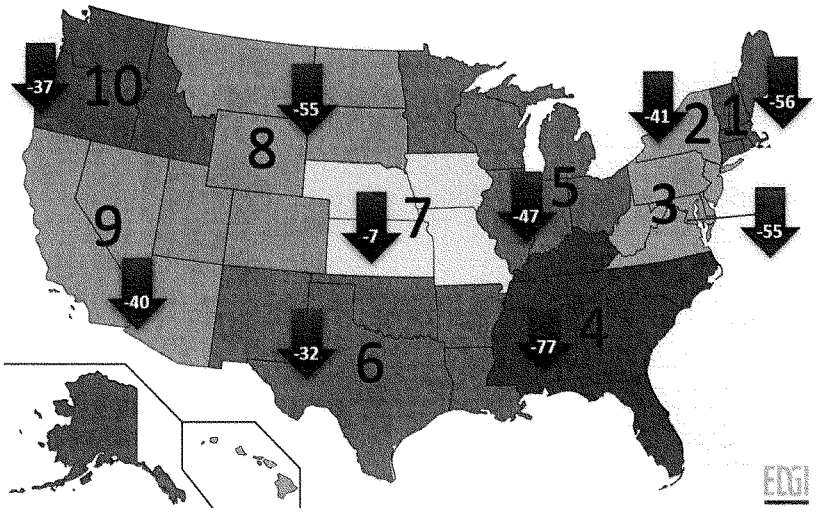
Among other things, EPA's internal documents include a detailed analysis of the agency's declining enforcement broken down by EPA region and by the major statutory programs (e.g., the Clean Air Act, the Clean Water Act, and so on). We wanted to include the EPA's internal analysis in our report to show that the agency, not just our group, had found steep declines in enforcement across regions and programs.

But that analysis of regional and program declines in enforcement was only based on mid-fiscal year numbers. And since we have released our report, people have asked about the regional implications of the national decline rates — are these declines happening in every EPA region? Are they affecting some areas worse than others? To answer some of these questions, we decided to look at full fiscal year data for different regions and programs.

Large Regional Declines in Enforcement

Our original map breaking down declining enforcement by region was intriguing to us and others. We wanted to understand what enforcement declines looked like for the full fiscal year by region (rather than just national trends), so we created a map with full fiscal year numbers (below).

Percentage Decline in Civil Enforcement Case Conclusions by EPA Region, FY 2017 to FY 2018



Percentage decline in civil case conclusion from FY 2017 to FY 2018. As the map shows, there were declines in every region, and most regions showed huge, double-digit declines. Source: ICIS FE&C Data Set, downloaded from Enforcement and Compliance History Online, Data Downloads, Environmental Protection Agency, accessed December 3, 2018, https://echo.epa.gov/tools/data-downloads.

As the map shows, the number of civil cases concluded declined in every region. Civil case conclusions are the number of civil (as opposed to criminal) cases the EPA has completed — whether through settlements, administrative orders or court orders.

Another way of measuring enforcement is to count the number of cases started, or what the EPA calls "case initiations." The two are linked, of course, because a case must be initiated before it can be concluded. Today's case initiations are tomorrow's conclusions. However, data on case initiations are not publicly available, nor is detailed information on criminal cases. Civil case conclusion are, nevertheless, a fundamental measure of EPA enforcement. Civil cases conclusions provide a glimpse into how many cases are being initiated and provide a way to measure how diligently the EPA is pressing to conclude cases. In the opaque realm of EPA enforcement, civil case conclusion data provide evidence of how the EPA is pursuing environmental law violations.

In several regions, the drop in civil cases settled is enormous. Region 4 saw a decline of 77%, and three other regions (1, 3, and 8) saw declines of about 55%. Three more regions (2, 5, 9) saw declines of 40% or more. Regions 6 and 10, had relatively smaller declines, although in absolute numbers the declines were still quite large (32% and 37% respectively). Region 7 saw the smallest declines, the only one in the single digits, but the EPA region nevertheless closed out fewer civil enforcement cases in 2018 than in 2017.

Percentage Declines in Civil Case Conclusions, FY 2017 to FY 2018, by Region										
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
FY 2018	46	184	122	136	213	251	224	53	78	118
FY 2017	104	313	274	598	399	371	242	118	129	186
Percent Decline	-56%	-41%	-55%	-77%	-47%	-32%	-7%	-55%	-40%	-37%

Percentage decline in civil case conclusions from FY 2017 to FY 2018. As the table shows, there were declines in every major region except Region 7. Source: ICIS FE&C Data Set, downloaded from Enforcement and Compliance History Online, Data Downloads, Environmental Protection Agency, accessed December 3, 2018, https://echo.epa.gov/tools/data-downloads.

Accelerating Declines in the Second Half of Fiscal Year 2018

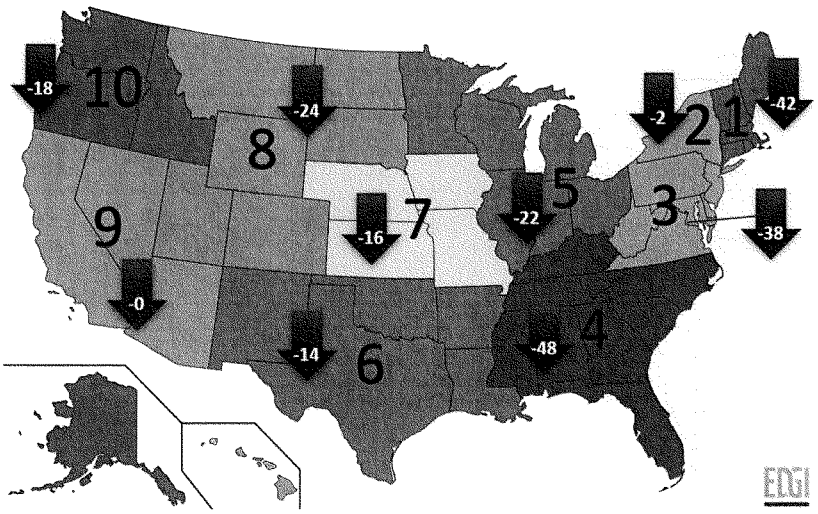
We also wanted to review and update the numbers because the EPA has responded to our report by claiming that our numbers are based on preliminary, mid-fiscal year data, and that the agency expects that its final 2018 numbers will show "a significant improvement from mid-year" [i.e., the mid-fiscal year].

Curious whether the EPA's data showed that enforcement actions did improve in the second half of the fiscal year compared to the first, we went ahead and pulled data from their site and analyzed it.

The short answer is: No, EPA enforcement numbers did not improve from mid-year 2018 to the end of the year. In fact, based on civil case conclusion data, enforcement got *worse* in the second half of fiscal year 2018, not better.

In every region except Region 7, the decline in civil enforcement case conclusion was even more severe when comparing all of fiscal year 2018 to all of fiscal year 2017, rather than just the first halves of those fiscal years. This especially obvious when you compare the above map to the one below, from our report.

Percentage Decline in Civil Enforcement Case Conclusions by EPA Region, Midyear FY 2017 to Midyear FY 2018



Percentage decline in civil case conclusions from the first half of FY 2017 to the first half of FY 2018. Comparison with the map above shows that these declines got even more severe in the second half of the fiscal year (with the exception of Region 7). Source: Office of Enforcement and Compliance Assurance, "FY17 to FY18 Mid-Year Analysis for Regional Evaluation," June 16, 2018 [document in EDGI's possession].

Overall, there were 1,435 case conclusions in fiscal year 2018, but 935 of these came in the first half of the fiscal year. This means that nearly two-thirds of the EPA's civil case conclusions happened in the first half of 2018, showing clearly lagging civil enforcement work, especially in the second half of 2018.

Enforcement Decline by Environmental Program

Looking at how enforcement has declined by program (i.e., specific environmental laws) shows the same overall pattern that enforcement declines by region show, namely that the declines are across the board. Every major program saw substantial declines. The bedrock programs that protect the air (the Clean Air Act, CAA), the water (the Clean Water Act, CWA, and the Safe Drinking Water Act, SDWA) and the land (the Resource Conservation and Recovery Act, RCRA) all saw declines of over 40%.

Even the Superfund program (Comprehensive Environmental Response, Compensation, and Liability Act, CERCLA) — which forces polluters to clean up the polluted land and had been one of the few anti-pollution programs former EPA administrator Scott Pruitt's said who would champion — saw a decline of 24%.

Other programs that deal with toxic and hazardous substances, such the Toxic Substances Control Act (TSCA) and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) saw declines of 47% and 60%.

Last, but not least, the Emergency Planning and Community Right-to-Know Act (EPCRA) — a foundational law for environmental justice that warns people about hazardous substances nearby — saw a 48% declines in case conclusions.

Percentage Declines in Civil Case Conclusions, FY 2017 to FY 2018, by Statute								
Statute	**CAA**	**CERCLA**	**CWA**	**EPCRA**	**FIFRA**	**RCRA**	**SDWA**	**TSCA**
FY 2018	199	147	320	56	363	149	121	80
FY 2017	405	194	565	107	910	275	178	152
Percent Decline	-51%	-24%	-43%	-48%	-60%	-46%	-32%	-47%

Percentage decline in civil case conclusion from FY 2017 to FY 2018. As the table shows, there were declines in every major declines in every major environmental program (statute). Source: ICIS FE&C Data Set, downloaded from Enforcement and Compliance History Online, Data Downloads, Environmental Protection Agency, accessed December 3, 2018, https://echo.epa.gov/tools/data-downloads.

A Closer Look at Regions 4 and 8

Region 4 and 8 were two of the regions with the largest declines in the number of civil case conclusions from FY 2017 to FY 2018. As with most other regions and the overall nation, these regions showed declines in enforcement in the second half of fiscal year 2018, not increases. Region 4 had 89 case conclusions in the first half of the fiscal year, but only 47 in the second half. Region 8 had 34 case conclusions in the first half of the fiscal year, but only 19 in the second half.

Looking back at data from prior fiscal years shows that the number of civil cases concluded in FY 2018 in Regions 4 and 8 is historically low. Region 8's 53 cases are the lowest since at least 2006. Indeed, they are not even half as much as the next lowest year (FY 2017 with 118 cases). Region 4's numbers are even worse. There were 136 civil case conclusions in FY 2018, by far the lowest number since at least 2006. The next lowest year was FY 2015, with 376 cases — over two and a half times as many as in 2018.

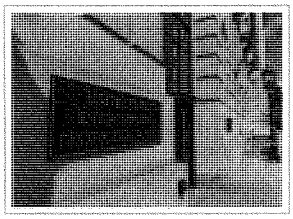
Penalties were also very low in these regions compared to previous years. Region 4 levied about $2.95 million in penalties in FY 2018, the lowest since at least 2006. The next lowest was $7.99 million in 2009.

EPA's Criminal Enforcement Against Polluters Plummets Under Trump

EWG: Shameful, but No Surprise

Contact: Alex Formuzis
(202) 667-6982
alex@ewg.org

FOR IMMEDIATE RELEASE: TUESDAY, JANUARY 15, 2019



WASHINGTON – Under President Trump and Acting Administrator Andrew Wheeler, the Environmental Protection Agency has cut back criminal action against polluters to the lowest levels since the Reagan administration, according to an analysis of federal data.

The Associated Press reported Tuesday that data obtained by the nonprofit **Public Employees for Environmental Responsibility**, or PEER, show the EPA referred only 166 cases to the Justice Department for criminal prosecution last year, the fewest since 1988. The report comes a day before Wheeler, a former top coal-and-chemical-industry lobbyist, goes before the Senate Environment and Public Works Committee for a confirmation hearing on his nomination as EPA administrator.

PEER said in the first two months of this year, the pace has slowed even further, with EPA making only 24 referrals. In 1998, during the Clinton administration, the EPA referred more than 590 cases for criminal prosecution – the most in a single year.

News of the Trump administration's shameful failure to hold polluters criminally accountable does not come as a surprise, said Environmental Working Group President Ken Cook.

"If you're in the business of illegally dumping pollution into the environment, your prospects of staying out of jail and piling up profits could not be better with Trump and Wheeler in charge of the EPA," said Cook.

Much of the progress that has been made since the early 1970s to clean up the nation's air and water came because the EPA and federal prosecutors held polluters criminally responsible.

Before former President Nixon established the EPA and the agency took on polluters, rivers in Ohio caught on fire and the skylines of America's largest cities were not visible from a few miles away because the air was so contaminated.

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Do You Think Glyphosate Should be

"Since the days of the **Cuyahoga River** burning, much progress has been made by both Republican and Democratic administrations – until now," said Cook. "The lack of enforcement by the Trump administration, combined with its rollbacks of public health programs, should trouble all Americans, especially those who remember when rivers burned and the skylines of **New York** and **Los Angeles** were buried behind smog."

###

The Environmental Working Group is a nonprofit, non-partisan organization that empowers people to live healthier lives in a healthier environment. Through research, advocacy and unique education tools, EWG drives consumer choice and civic action.

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December 6, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Acting Administrator Wheeler:

We are writing to request information on a series of actions by the Trump Administration regarding the U.S. Environmental Protection Agency (EPA) Office of Enforcement and Compliance Assurance (OECA). EPA documents and press reports over the past year indicate several disturbing trends, including a decline in the number of enforcement cases initiated; a reduction in enforcement staff; an overreliance on state enforcement programs; and an increased political review of potential or pending enforcement actions. We are deeply concerned that these actions undermine key enforcement programs and severely limit EPA's ability to address climate change and protect public health and the environment.

Enforcement Action Reductions Suggest EPA Is Taking Lenient Approach to Polluters

EPA continues to reduce the number of enforcement actions against polluters. Agency data indicates an ongoing decline across a range of key EPA enforcement activity during the first year of the Trump Administration.[1] An analysis by NBC News noted:

> The EPA initiated 20 percent fewer civil cases against polluters for violating environmental laws from the beginning of September 2016 to end of September 2017, as compared to the previous fiscal year, according to the EPA's latest enforcement numbers. The EPA also opened 30 percent fewer criminal enforcement cases during the same time period. The past fiscal year marked a historic low for enforcement actions across the board: the number of new civil and criminal cases, defendants charged, and federal EPA

[1] U.S. Environmental Protection Agency, *Enforcement Annual Results Analysis and Trends for Fiscal Year 2017* (https://www.epa.gov/enforcement/enforcement-annual-results-analysis-and-trends-fiscal-year-2017).

> inspections and evaluations all reached their lowest levels in at least a decade, according to the data.[2]

A similar analysis by *The New York Times* also suggested that the Agency has adopted a more lenient approach to enforcement compared to the two previous administrations.[3] As the *Times* noted:

> During the first nine months under Mr. Pruitt's leadership, the E.P.A. started about 1,900 cases, about one-third fewer than the number under President Barack Obama's first E.P.A. director and about one-quarter fewer than under President George W. Bush's over the same time period.
>
> In addition, the agency sought civil penalties of about $50.4 million from polluters for cases initiated under Mr. Trump. Adjusted for inflation, that is about 39 percent of what the Obama administration sought and about 70 percent of what the Bush administration sought over the same time period.[4]

Former enforcement experts described these reductions as stark, noting "if you're not filing cases, the cop's not on the beat … [o]r has the cop been taken off the beat?"[5]

Staff Reductions Hinder EPA's Ability to Protect the Public

We are concerned that historically low staffing levels, combined with a series of recent actions taken by EPA management, undermine the Agency's enforcement capability. Over 1,600 workers reportedly departed EPA during the first 18 months of the Trump Administration, bringing the Agency's staffing levels to an historic low.[6]

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[2] *EPA Enforcement Actions Hit 10-year low in 2017*, NBC News (Feb. 8, 2018) (www.nbcnews.com/politics/white-house/epa-enforcement-actions-hit-10-year-low-2017-n846151).

[3] *Under Trump, EPA Has Slowed Actions Against Polluters, and Put Limits on Enforcement Officers*, New York Times (Dec. 10, 2017) (www.nytimes.com/2017/12/10/us/politics/pollution-epa-regulations.html).

[4] *Id.*

[5] *See* note *3*.

[6] *With a Shrinking EPA, Trump Delivers on His Promise to Cut Government*, Washington Post (Sept. 8, 2018) (www.washingtonpost.com/national/health-science/with-a-shrinking-epa-trump-delivers-on-his-promise-to-cut-government/2018/09/08/6b058f9e-b143-11e8-a20b-5f4f84429666_story.html?utm_term=.663579406f6b).

EPA's enforcement operation has been particularly hard hit by staff departures, losing more than 100 employees in that time.[7] Experts have warned that a staffing cut of this significance will require the Agency to reduce both enforcement and compliance efforts.[8] As noted by the *Washington Post*:

> One of the EPA divisions hardest hit by staff cuts is the Office of Enforcement and Compliance Assurance, whose numbers dipped 15.7 percent between January 2017 and August 2018. Several experts said that any cuts to that division have a major impact because the vast majority of its budget comes from personnel costs rather than grants or other expenditures.
>
> Granta Nakayama, who headed the office from 2005 to 2009, said that it couldn't sustain that deep a staffing cut without curtailing some of its operations.[9]

Additional Political Review and Overreliance on State Enforcement Programs Could Deter Enforcement Activity

EPA recently announced a series of policies which require political appointees to review enforcement activities. Examples of enforcement announcements with review requirements include:

- A May 31, 2017 memorandum stating that EPA enforcement staff no longer have authority to require information requests under the Clean Air Act and the Resource Conservation and Recovery Act (RCRA) without first receiving approval from EPA headquarters for requests where EPA has no information that a recipient is in violation of the law; those requests which require testing or sampling; or requests in authorized or delegated states where EPA and a state are not in agreement.[10]

- A January 22, 2018 interim guidance memorandum requiring review by the Assistant Administrator in certain instances where EPA and a State do not agree on a particular enforcement matter.[11]

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[7] Email from Christian Rodrick, U.S. Environmental Protection Agency, Office of Congressional Affairs to Minority Staff, House Energy and Commerce Committee and Majority Staff, House Energy and Commerce Committee (June 21, 2018).

[8] *See* note 6.

[9] *See* note 6.

[10] U.S. Environmental Protection Agency, Memorandum from Susan Shinkman, Office of Civil Enforcement Director to EPA Regional Counsels, Regional Enforcement Directors, Regional Enforcement Coordinators, and Office of Civil Enforcement Division Directors on Interim Procedures for Issuing Information Requests Pursuant to Clean Air Act (May 31, 2017).

[11] U.S. Environmental Protection Agency, Memorandum from Susan Parker Bodine, Assistant Administrator, Office of Enforcement and Compliance Assurance to Regional

- A March 23, 2018 memorandum instituting interim procedures requiring early notice to EPA political appointees of civil judicial referrals to the U.S. Department of Justice (DOJ).[12]

- An April 31, 2018 memorandum introducing interim procedures for providing early notice of civil judicial referrals under the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA) to the Office of Enforcement and Compliance Assurance (OECA) Assistant Administrator.[13]

According to a recent *Washington Post* report regarding political review of referrals to DOJ:

> Former enforcement officials worry the new procedures will have a chilling effect among career employees who are already worried about running afoul of an administration that is trying to roll back many environmental rules at the behest of companies the agency regulates.
>
> George Czerniak, the former director of the air and radiation division at the EPA's Chicago office, said the new policy is a sign to potential polluters that they will face less scrutiny. "Industry will take this as a signal that the cop on the beat is relaxing a little," Czerniak said, "and I think a little bit of the deterrence that has been built up will be lost."[14]

We are concerned these changes could also undermine EPA's ability to ensure states are, in fact, executing their delegated authorities to ensure a consistent minimum level of protection nationwide, particularly in states which are "philosophically opposed to taking enforcement

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Administrators on Interim OECA Guidance on Enhancing Regional-State Planning and Communication on Compliance Assurance Work in Authorized States (Jan. 22, 2018).

[12] U.S. Environmental Protection Agency, Memorandum from Susan Parker Bodine Office of Enforcement and Compliance Assurance Assistant Administrator to EPA Regional Counsels, Regional Enforcement Directors, Regional Enforcement Coordinators, and Office of Civil Enforcement Division Directors Director, Deputy Director, and Division Directors on Interim Procedures for Providing Early Notice of Civil Judicial Referrals (Mar. 23, 2018).

[13] U.S. Environmental Protection Agency, Memorandum from Susan Parker Bodine Office of Enforcement and Compliance Assurance Assistant Administrator to EPA Regional Counsels and Regional Superfund Directors on Interim Procedures for Providing Early Notice of CERCLA Civil Judicial Referrals (Apr. 31, 2018).

[14] *The Energy 202: Trump Appointee at EPA to Scrutinize Which Pollution Cases May Go to Court,* Washington Post (June 15, 2018) (www.washingtonpost.com/news/powerpost/paloma/the-energy-202/2018/06/15/the-energy-202-trump-appointee-at-epa-to-scrutinize-which-pollution-cases-may-go-to-court/5b22ee7e1b326b3967989aee/?utm_term=.351047094bb3).

action."[15] In addition, we are concerned that headquarters review will cause further delays in the enforcement process. According to Justin Pidot, former deputy solicitor for land resources at the Interior Department, "[t]he notion that this process will speed up enforcement is laughable to me … anytime you bring in the front office, everything slows down."[16]

To better understand changes the Administration made to EPA's enforcement program, and the human health and environmental impacts of these changes, we request a briefing on these issues and that you provide the following:

1. A list of the following OECA positions at headquarters and EPA regional offices. For each, please provide position title, description, GS level, and location:

    a. Positions vacated during the period from January 2017 to present, including the reason the position was vacated (e.g. buyout, retirement, dismissal) and current status of the position (e.g. filled by new hire, currently vacant, eliminated).

    b. Positions created or filled from January 20, 2017 to present, through new agency hires and intra-agency hires.

2. Did EPA conduct any workforce analysis of the impact on OECA operations and enforcement activity of staff reductions and staff turnover since January 2017, current OECA staffing levels, or the Agency's proposed reorganization of regional offices? If so, please provide this analysis.

3. Regarding the May 31, 2017 memorandum which established headquarters review prior to the issuance of certain information requests pursuant to major environmental statutes:[17]

    a. How many requests for sampling, monitoring, and testing that meet the criteria of the May 31, 2017 memorandum did OECA send in FY2014, FY2015, FY2016, and FY2017?

    b. In the period from May 31, 2017 to present:

        i. How many requests for sampling, monitoring, and testing have been submitted to headquarters for review?

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[15] U.S Environmental Protection Agency, Office of Inspector General, *EPA Must Improve Oversight of State Enforcement* (Dec. 9, 2011) (Report No. 12-P-0113).

[16] *See* note 14.

[17] *See* note 10.

ii. How many have headquarters reviewed and, of those reviewed, how many were approved and how many were denied?

c. How many information requests are currently pending headquarters review?

4. Regarding the March 23, 2018 memorandum instituting interim procedures requiring early notice to EPA political appointees of civil judicial referrals to DOJ:[18]

   a. How many civil judicial referrals did the OECA Assistant Administrator, Regional Administrator, or other EPA political appointees receive briefings on or otherwise review, and decide not refer to DOJ? Please provide the number of civil judicial referrals to DOJ, by month, from January 2017 to present.

   b. How many civil judicial referral recommendations are currently pending review by the OECA Assistant Administrator or Regional Administrators?

5. Regarding the April 31, 2018 memorandum that introduced interim procedures for providing early notice of CERCLA civil judicial referrals:[19]

   a. Since the introduction of this policy, has the OECA Assistant Administrator requested additional review time of a week or greater for any CERCLA referrals going to DOJ?

   b. Since introduction of this policy, has the OECA Assistant Administrator or any other EPA political appointee prevented referrals from going to DOJ?

6. With respect to the January 22, 2018 interim guidance memorandum:[20]

   a. Which state enforcement officials are eligible to raise disagreements that require elevating issues to the OECA Assistant Administrator under this policy? Is this power limited to certain positions?

   b. The memorandum imposed a September 28, 2018 deadline for regions to provide OECA with a progress report on work following this interim guidance, including their views on how well it is working and areas for improvement. We request a copy of all progress reports.

   c. Under this policy, are EPA enforcement officials authorized to independently decide to no longer pursue an enforcement issue even if a state disagrees? Or does this policy require EPA enforcement officials to elevate to the OECA

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[18] *See* note 12.

[19] *See* note 13.

[20] *See* note 11.

Assistant Administrator the decision to no longer pursue the enforcement issue?

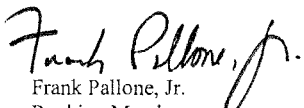
7. For each consent decree under the Clean Air Act, Safe Drinking Water Act, CERCLA, and RCRA revised by EPA from January 20, 2017 to present:

   a. Please explain which EPA political appointees participated in EPA's decision to authorize the revisions.

   b. For each revised consent decree, does the Agency calculate the anticipated emissions impacts of the revised consent decree compared to the consent decree before revisions? If so, please explain the anticipated emissions impacts for each revised consent decree compared to that consent decree before revision.

Thank you in advance for your prompt and full attention to this request. Please respond to this inquiry as soon as possible, but no later than December 20, 2018. Should you have any questions, please contact Jon Monger with the Democratic Committee staff at (202) 225-3641.

Sincerely,



Frank Pallone, Jr.
Ranking Member

Paul D. Tonko
Ranking Member
Subcommittee on Environment

Diana DeGette
Ranking Member
Subcommittee on Oversight
and Investigations

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 2 1 2018

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Transition from National Enforcement Initiatives to National Compliance Initiatives

FROM: Susan Parker Bodine
Assistant Administrator

TO: Regional Administrators

The EPA's FY 2018-2022 Strategic Plan includes enforcement-related strategic measures to increase the environmental law compliance rate and reduce the average time from violation identification to correction.[1] To accomplish these goals, the EPA recognizes that (1) joint governance and accountability is a key principle and (2) increased compliance requires a broad range of compliance assurance tools to be available for use.

Recognizing the need to focus resources to achieve environmental law compliance, the EPA identifies national priorities, currently called National Enforcement Initiatives (NEIs).[2] The EPA intends to evolve the National *Enforcement* Initiatives program into a National *Compliance* Initiatives (NCIs) program by providing states and tribes with additional opportunities for meaningful engagement, by developing and applying a broader set of compliance assurance tools, and by aligning the NCIs with the Agency Strategic Plan measures and priorities.

Background

For the past two decades, the EPA has strategically focused its enforcement and compliance resources on the most serious environmental violations at facilities across the country by developing and implementing national priorities (currently called NEIs). The EPA generally reviews the NEIs every three years to determine whether to conclude an NEI, or, where it is decided that an NEI should be continued, whether any changes are appropriate.[3]

The EPA's work has increased compliance and reduced pollution in the priority areas. For example, under the initiative to Keep Raw Sewage and Contaminated Stormwater Out of Our Nation's Waters, 97% of large combined sewer systems, 92% of large sanitary sewer systems, and 70% of Phase 1 municipal separate stormwater systems are now either in compliance, or are on an agreed upon schedule to come into compliance. Under the initiative to Reduce Air Pollution from the Largest Sources, EPA enforcement actions addressing Clean Air Act violations have resulted in annual reductions of over 2.8 million tons of NOx and SO_2 air pollution emissions.

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[1] *FY 2018-2022 U.S. EPA Strategic Plan*, https://www.epa.gov/planandbudget/strategicplan.
[2] For about 10 years prior to FY 2011, NEI work was called "National Priorities," with other names used earlier.
[3] For information on the eight NEIs currently in effect, *see* https://www.epa.gov/enforcement/national-enforcement-initiatives.

Transition to National Compliance Initiatives
NEIs have always focused on improving compliance and reducing pollution, and have often used not only enforcement actions but also other compliance assurance tools, such as compliance assistance and compliance alerts. To better convey the message that increased compliance is the goal, and enforcement actions are not the only tool for achieving this goal, the EPA will change the name of its priorities from National *Enforcement* Initiatives to National *Compliance* Initiatives.

In the transition to NCIs, we are making four important adjustments: (1) modifying our selection criteria for the FY 2020-2023 NCI cycle to better align with Agency Strategic Plan measures and priorities; (2) engaging more fully with states and tribes in the selection and development of the initiatives; (3) enhancing the EPA's use of the full range of compliance assurance tools in an NCI; and (4) extending the priorities cycle to four years to better align with the Agency's National Program Guide cycle.

1. **NCI Selection Criteria for the FY 2020-2023 Cycle.**
   In selecting the NCIs for the FY 2020-2023 cycle, the EPA plans to consider the following factors:

   a) Alignment with the Agency Strategic Plan measures and priorities to address: nonattainment areas, impaired waters, public health threats posed by drinking water non-compliance, populations vulnerable to air toxics or chemical accidents, and children's exposure to lead. OECA will emphasize selecting new NCIs that advance our progress in meeting our Strategic Plan measures and priorities (see Box 1).
   b) Need for EPA expertise, authority, or resources – States or the EPA may determine that the EPA's expertise, authority, or resources are needed to improve compliance. Examples may include: remedying violations where states lack the authority or the expertise; sharing technologies; providing national compliance assistance tools; or, creating data analytic tools to identify serious environmental problems or disproportionate adverse impacts to public health.
   c) Need to address serious and widespread non-compliance across the country. While a non-compliance problem may not be present in every EPA region or state, it may be so common that a national focus is necessary to remedy the non-compliance to maintain certainty for regulated entities through a level playing field and a consistent level of environmental and public health protection across our country.

Box 1: Agency Strategic Plan Measures (SM) & Priorities Related to NCIs

SM-1: Reduce the number of nonattainment areas.

SM-2: Reduce the number of community water systems out of compliance with health-based standards [drinking water].

SM-4: Reduce the number of square miles of watershed with surface water not meeting standards [impaired waters].

SM-17: Reduce the average time from violation identification to correction.

SM-18: Increase the environmental law compliance rate.

Strategic Plan: "With our partners, we will pay particular attention to vulnerable populations." (p. 7)

2. **NCI Co-Regulator and Stakeholder Input.**
   The EPA will provide new opportunities for early and meaningful input from states and tribes at several key points in the process. The EPA looks forward to receiving state and tribal input on the current NEIs - such as whether to continue, modify, or conclude them - and suggestions for new

NCIs. Opportunities for state and tribal engagement in the identification and development of the FY 2020-2023 NCIs will follow the schedule in Attachment 1. In addition to getting input from states and tribes, the EPA will continue its practice of seeking public comments through the publication of a Federal Register notice.

For example, the EPA has begun exploring the possibility of adding drinking water as an NCI in the FY 2020-2023 cycle to support the EPA's Strategic Plan goal to increase compliance with drinking water standards. The Agency is interested in state and tribal input and engagement on this topic, and has already begun discussions with the Association of State Drinking Water Administrators on the value of this possible NCI.

3. **Enhanced use of the full range of compliance assurance tools.**
After the EPA selects NCIs for the FY 2020-2023 cycle, the EPA will develop an implementation strategy for each NCI. The NCI implementation strategies will include options for remedying the most significant non-compliance problems and improving overall compliance in the timeliest manner.

The implementation strategies will identify the most appropriate tools for achieving the goals described in the strategy. During strategy development, the EPA will seek the views of states and tribes on which compliance assurance tools would be most effective for the implementation of each NCI. Compliance assurance tools could range from general compliance assistance to inspections to informal and formal enforcement actions.

Consistent with the January 2018 *Interim OECA Guidance on Enhancing Regional-State Planning and Communication on Compliance Assurance Work in Authorized States* (hereinafter, January 2018 *Interim OECA Guidance*), the EPA welcomes active state and tribal participation in implementing the NCI if the state or tribe is authorized for the particular program.[4] This participation, which is voluntary, may include state action in lieu of EPA action where the result is a return to compliance consistent with national expectations to maintain a level playing field.

The EPA will continue to pursue and publicize NCI enforcement actions. Enforcement actions will continue to be a critical tool for addressing serious violators and deterring violations. Publicizing enforcement actions, both to the public and the regulated community, also is a critically important tool for deterring violations and ensuring a level playing field. In addition, the EPA will strive to make the public more aware of our use of other tools to achieve compliance.

Measurable goals for each NCI will need to be developed and included in each specific NCI strategy. Historically, the lack of reliable national information on compliance rates has been a challenge, especially when the regulated universe being addressed by an NEI was large. The EPA will seek state input in developing these goals and piloting new ways to measure progress and success.

4. **Extending the NCI cycle from three years to four years to better align with the Agency's National Program Guide cycle.**
States and others have requested that we align the NEI cycle with the National Program Guidance cycle (formerly "National Program Managers Guidance"). The National Program Guidance is

[4] January 2018, *Interim OECA Guidance*, https://www.epa.gov/compliance/interim-oeca-guidance-enhancing-regional-state-planning-and-communication-compliance.

revised every two years; in most cases however an NCI cannot be completed in a single two-year cycle. OECA believes that the better approach would be to extend the NCI cycle from three to four years to facilitate this alignment.

Modified Implementation of NEIs to NCIs in FY 2019
For FY 2019, the EPA will modify its implementation of the existing NEIs to evolve them into NCIs, guided by the Agency Strategic Plan measures and priorities, as follows:

1. Keeping Industrial Pollutants Out of the Nation's Waters.
   The EPA has started to engage with authorized states, initially with the Association of Clean Water Administrators, as we transition this NEI to become the NPDES Significant Non-Compliance (SNC) NCI. This new NCI would have a broad focus on increasing the percentage of NPDES permittees in compliance with their permit limits (as measured by reducing the rate of permittees in SNC). The new NCI supports the EPA's five-year Strategic Plan measure and two-year Agency Priority Goal to increase the environmental law compliance rate. This change would redeploy EPA resources from the current NEI to the broader NCI Clean Water Act SNC rate reduction effort, and could establish a model for improving compliance rates that could be used in other programs.

2. Prevent Animal Waste from Contaminating Surface and Ground Water.
   Starting in FY 2019, OECA intends to return this NEI to our core program rather than keep it as a national priority. As part of the core program, in collaboration with authorized state programs, regions will continue to conduct inspections and enforcement actions to address serious violations in this area, focusing on the Strategic Plan goal to address water quality impairments.

3. Keeping Raw Sewage and Contaminated Stormwater Out of Our Nation's Waters.
   The EPA has almost completed this NCI, obtaining significant improvement in compliance and major reductions in water pollution. Work in FY 2019 will be focused on completing ongoing enforcement cases and monitoring compliance with existing enforcement settlements. In collaboration with authorized state programs, work in these areas will continue as part of core program in FY 2020, especially with a focus on addressing impaired waters.

4. Reducing Air Pollution from the Largest Sources.
   The EPA has almost completed this NCI, obtaining significant improvement in compliance and major reductions in air pollution. Work in FY 2019 will be focused on completing ongoing enforcement cases and monitoring compliance with existing enforcement settlements. In collaboration with authorized state programs, work in these areas will continue as part of the core program in FY 2020, especially with a focus on addressing clean air non-attainment areas.

5. Reducing Risks of Accidental Releases at Industrial and Chemical Facilities.
   This NCI is still in its first cycle. It will continue to focus on the most serious situations of non-compliance, with a focus on the Strategic Plan objectives of addressing vulnerable populations and achieving a timely return to compliance. The EPA will enhance our use of compliance assistance and expedited settlement agreements to address the numerous smaller sources in urban areas.

6. Cutting Hazardous Air Pollutants (HAPs).
   This NCI will continue to focus on addressing the most significant sources of hazardous air pollution, with a focus on the Strategic Plan objectives of addressing vulnerable populations, addressing clean air non-attainment areas, and achieving a timely return to compliance.

7. Ensuring Energy Extraction Activities Comply with Environmental Laws.
   This initiative historically focused on one industrial sector, implying that the EPA considers all problems in this sector – large or small – to be a priority. For FY 2019, the EPA is clarifying that work under this NCI will focus on significant public health and environmental problems: exposure to significant releases of volatile organic compounds, reducing non-attainment, and reducing water quality impairment. When we consider the FY 2020-2023 NCI cycle, we will evaluate the idea of merging this work into the "Cutting Hazardous Air Pollutants" NCI or focusing this NCI on significant sources of VOCs that have a substantial impact on air quality (without regard to sector), including the potential to adversely affect an area's attainment status, and returning other work in this sector to the core program and Regional priorities.

8. Reducing Toxic Air Emissions from Hazardous Waste Facilities.
   This NCI is in its first cycle and will continue to focus on addressing the most serious situations of non-compliance, prioritizing our work based on the Strategic Plan objectives of addressing vulnerable populations, reducing non-attainment areas, and achieving a timely return to compliance. We will also continue our work to build state capacity in this program.

As noted above, we plan to rename the NEIs in FY 2019 as NCIs to highlight the focus on compliance as the goal, the broader use of compliance assurance tools, and the opportunity for enhanced state engagement per the January 2018 *Interim OECA Guidance*.

We look forward to working with the regional compliance and enforcement programs and our state partners as we move forward with these changes.

Attachment

cc: Assistant Administrators
Regional Enforcement Directors and Program Division Directors
Regional Counsels
Enforcement Coordinators
OECA Office Directors
OC and OCE Division Directors

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CRIMINAL ENFORCEMENT COLLAPSE AT EPA

Lowest Number of New Anti-Pollution Cases in 30 Years

Posted on Jan 15, 2019 | Tags: **EPA**

Washington, DC — Even before the government shutdown, the U.S. Environmental Protection Agency's criminal enforcement program was missing in action, according to new figures posted today by Public Employees for Environmental Responsibility (PEER). In 2018, EPA generated the fewest new criminal case referrals for prosecution than any year since 1988.

- In Fiscal Year 2018 (ending in October), EPA made only 166 referrals for prosecution to the Department of Justice. That represents a nearly 60% reduction from 2011 and a 72% decline from the level of enforcement activity twenty years ago in 1998;
- In the first two months of FY 2019, the pace has slowed even further, with EPA making only 24 referrals. When the effects of the government shutdown are figured in, the current year will likely set another all-time enforcement low mark; and
- EPA cases resulted in only 62 convictions in FY 2018, fewer than any year dating back to 1992.

"These figures indicate that the Trump plan to cripple EPA is working," stated PEER Science Policy Director Kyla Bennett, a scientist, wetland specialist, and attorney formerly with EPA, pointing out that a dearth of new cases means fewer prosecutions, convictions, and prison sentences in the years ahead. "Not enforcing our anti-pollution laws steadily transforms them into dead letters."

These numbers also reflect a decrease in the number of criminal investigators assigned to pollution cases. In April 2018, there were only 140 special agents in EPA's Criminal Investigation Division. Reportedly, that number has dropped to only 130 today. This is more than a third less than the number of CID agents in 2003, well below the minimum of 200 agents required by the U.S. Pollution Prosecution Act of 1990.

Policies launched by EPA Administrator Scott Pruitt and continued by acting Administrator Andrew Wheeler may also be driving enforcement declines. They replaced EPA's Enforcement Initiative with a Compliance Initiative that lets offenders avoid prosecution by merely agreeing to suspend their violations.

At the same time, decisions on prosecution referrals are now centralized in headquarters, enabling Wheeler and political deputies to nix criminal referrals. In addition, states have been given veto power, thus injecting local politics into prosecution decisions.

"The absence of criminal prosecution means corporate polluters can be comfortable that they will suffer no personal consequences, no matter how egregious the offense," remarked PEER Executive Director Jeff Ruch, noting that Wheeler had been a lawyer handling corporate pollution defense before his 2017 EPA appointment. "Nothing could be more core to EPA's mission than enforcing our nation's pollution laws."

Nor are the sharp declines confined to criminal cases. PEER points to similar drop-offs in EPA civil and administrative enforcement since 2017.

Tomorrow, January 16th, the Senate Environment and Public Works Committee takes up Wheeler's nomination to shed his "acting" title and succeed Pruitt as EPA Administrator.

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See the EPA criminal referrals and convictions from1986-2018

Compare the environmental enforcement records of this and previous administrations

Look at the drop in the number of CID agents

Attachment 1 Schedule for FY 2020-2023 NCI Selection with State and Tribal Engagement	
1. Early September thru October 2018	OECA will share this memo with the state and tribal associations and solicit input from them, specifically: • ECOS • ACWA, NACAA and APCA, ASTSWMO, ASDWA, SFIREG and APCO • National Tribal Water Council, National Tribal Toxics Council, and the Tribal Waste and Response Assistance Program • National Tribal Air Association and National Tribal Pesticides Council OECA will offer conference calls with the associations to solicit their input. Input need not be consensus.
2. Mid-September to October 2018	Regions will solicit early input from all their states and tribes. OECA will provide the regions with a framework for these discussions. These meetings would solicit input on current NEIs (continue/modify/return-to-core) and ideas for new NCIs.
3. November 2018	OECA reviews state, tribal, and media association comments and development of a Federal Register notice that solicits public comments on the next round of NCIs. This may include ideas for possible new NCIs as well as plans for continuing, modifying or concluding existing NEIs.
4. December 2018	OECA solicits public input via Federal Register notice, and then compile public input.
5. February 2019	OECA evaluates input received from public with state and tribal engagement using ECOS, the National Tribal Caucus, and the state and tribal media associations. • Input sought on narrowing proposed NCIs, as well as potential strategies and range of compliance assurance tools best suited to each strategy.
6. Early March 2019	OECA will discuss with ECOS specific options for the FY 2020/2023 NCIs.
7. Early April 2019	OECA Assistant Administrator makes selection of the FY 2020-2023 NCIs.
8. April 22, 2019	OCFO publishes FY 2020-2021 NP Guidance including the newly selected NCIs.
9. April 2019 – September 2019	OECA develops strategies for implementing NCIs, with engagement of states and tribes that want to collaborate with EPA on specific strategies.

Overnight Energy: Watchdog investigating EPA enforcement numbers | EPA's Wheeler faces Senate grilling | Interior's offshore drilling staff returning to work during shutdown

BY MIRANDA GREEN - 01/15/19 06:18 PM EST

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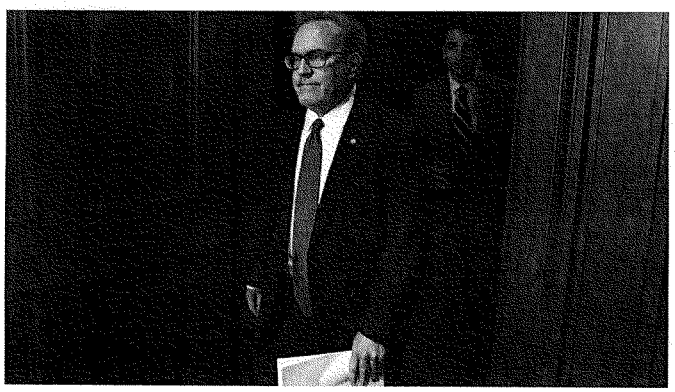

GAO INVESTIGATING EPA'S LAW ENFORCEMENT NUMBERS: The Government Accountability Office (GAO) has launched an investigation into declining enforcement actions against companies accused of violating EPA's pollution standards during the Trump administration.

A GAO spokesman said Tuesday that the probe began in October, with a focus on 2017 enforcement data that showed a significant drop in dollar amounts for settlements made with polluters.

The final report is underway but not expected to be completed "until later in the year, likely fall," the spokesman said.

News of the probe comes as EPA's Inspector General (IG) continues its own investigation into the agency's enforcement figures and as the EPA is gearing up to release its 2018 enforcement numbers, which are expected to be even lower than the previous year.

The numbers: Data compiled by Public Employees for Environmental Responsibility (PEER) and released Tuesday, found that the EPA in 2018 generated the fewest new criminal case referrals for prosecution to the Justice Department than any year since 1988.

Those numbers follow a November report by the Environmental Data and Governance Initiative, which found that EPA's data showed steep declines in enforcement and compliance actions and outcomes. The 2018 declines were seen in civil settlement amounts, cases filed against polluters, compliance orders and criminal enforcement.

Last year's annual EPA enforcement report showed that polluters were fined a total of $1.6 billion in penalties in fiscal 2017 -- about one-fifth of the $5.7 billion EPA penalties collected the prior year.

The drop in the EPA's enforcement of regulations were even more stark when looking at the agency's actions on injunction relief -- the monetary commitments polluters pledge to spend in order to remediate their pollution and keep it from recurring.

Injunctive relief in 2017 stood at $20 billion, compared to $13.7 billion the previous year, but $15.9 billion of the recent total come from the landmark Volkswagen settlement. When the settlement is taken out of the calculation, injunctive relief payments in fiscal 2017 totaled $4 billion -- less than one-third of the previous year's amount and less than half of the total in 2015.

The probe: EPA's IG office in November began a comprehensive investigation, comparing the agency's enforcement rates between 2006 and 2018. The probe is comparing overall enforcement trends and intends to determine the factors for the falling numbers.

At EPA, political officials are said to be aware of the bad optics of lower enforcement numbers.

"The numbers are down," said an EPA source with knowledge of internal discussions. "Now there is a different emphasis -- we're encouraging compliance... so you can't just count the number of cases."

Read more on the probe here.

Happy Tuesday! The government shutdown clock is at 25 days. Here'sthe latest on the shutdown front.

Welcome to Overnight Energy, The Hill's roundup of the latest energy and environment news.

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INTERIOR TO BRING OFFSHORE DRILLING STAFF BACK DURING SHUTDOWN: The Trump administration is bringing dozens of federal employees back to work to carry out the administration's plan to expand offshore oil and natural gas drilling.

The Interior Department's Bureau of Offshore Energy Management (BOEM) updated its plan for the ongoing partial federal government shutdown last week to state that 40 workers would be brought in for offshore drilling, in addition to the 84 others who have already been working during the shutdown.

The employees are working in four areas: geological testing for offshore oil and natural gas in the Atlantic Ocean; the administration's proposal last year to allow offshore drilling in the Atlantic, Pacific and Arctic oceans; environment review for that proposal and preparations for two upcoming offshore drilling lease sales in the Gulf of Mexico.

Other BOEM responsibilities, like opening offshore areas for wind energy development, remain closed.

Each of the areas is being financed through "carryover funds," BOEM said.

Most federal employees who are being asked to work during the shutdown are there for a variety of very limited reasons, including "protection for life and property," since federal law severely restricts who can work.

But BOEM made clear that the workers newly exempted from the shutdown are there to carry out President Trump's agenda.

"In order to comply with the Administration's America First energy strategy to develop a new OCS Oil and Gas leasing program, work must continue toward issuing the Proposed Program per the Outer Continental Shelf Leasing Act requirements," BOEM said of bringing back workers for the plan to expand drilling.

As for the Gulf of Mexico sales, "Failure to hold these sales would have a negative impact to the Treasury and negatively impact investment in the U.S. Offshore Gulf of Mexico," BOEM said.

BOEM and Interior did not respond to requests for comment.

Interior has been under fire by Democrats and environmentalists for bringing on workers in many areas related to fossil fuel extraction during the shutdown, while parks, wildlife refuges and other Interior responsibilities suffer.

Read more here.

WATCHDOG FILES ETHICS COMPLAINT AGAINST EPA CHIEF: A government watchdog group filed an ethics complaint against EPA acting

Administrator Andrew Wheeler on Tuesday over meetings held with past fossil fuel clients after he took over the agency.

Citizens for Responsibility and Ethics in Washington (CREW), in a letter to the EPA's acting inspector general, asked the office to investigate whether Wheeler, a former energy lobbyist, violated his ethics pledge.

Specifically, the group asked the office to look into two 2018 meetings with former clients Darling Ingredients, Inc., Growth Energy, and the Archer Daniels Midland Company, during his two-year recusal period.

CREW also questioned whether Wheeler was right to participate in the rulemaking process for several EPA standards over which he had previously lobbied the agency. Those regulations include the Coal Combustion Residuals (CCR) rule, the Affordable Clean Energy (ACE) rule and the Renewable Fuel Standard (RFS) program.

"Mr. Wheeler's involvement in these matters also gives rise to the appearance of a lack of impartiality, which critically undermines the agency's integrity in carrying out these programs and operations," the CREW letter read. "As a result, unless he was authorized to participate, his involvement violated his ethical obligations under the Standards of Ethical Conduct for Employees of the Executive Branch ("Standards of Conduct")."

Before being sworn in as deputy EPA administrator in April, Wheeler signed an ethics pledge that prohibited him from participating "in any particular matter involving specific parties" that is directly and substantially related to his or her former employer or former clients for two years after appointment."

Wheeler became acting administrator in July following former EPA head Scott Pruitt's resignation. Trump formally nominated Wheeler to be EPA administrator last week.

EPA response: An EPA spokesperson denied the accusations.

"All of these baseless accusations are wrong. Acting Administrator Wheeler works closely with career EPA ethics officials and follows their guidance. This is nothing more than a last second political stunt by a group to try to attack President Trump's nominee hours before his confirmation hearing and should be recognized as such."

More on the ethics complaint here. And more on his confirmation hearing below.

ON TAP WEDNESDAY:

Acting Environmental Protection Agency (EPA) chief Andrew Wheeler will face a Senate grilling Wednesday on the aggressive deregulatory actions he's undertaken during the last six months as head of the agency.

He will testify at a Senate Environment and Public Works Committee hearing on President Trump's nomination for him to be the official administrator of the EPA.

Wheeler is no stranger to Capitol Hill. He was confirmed by the Senate to be deputy administrator and has been in charge at EPA since former chief Scott Pruitt was forced out under pressure from ethics and spending allegations in July 2018.

His first appearance before Congress since August is likely to focus on his efforts at the EPA's helm to scale back regulations, including moving to undo the climate change rules for power plants, cars and oil drillers, and federal protections for small waterways like wetlands and streams.

Sen. Ed Markey (D-Mass.), who sits on the Environment Committee, told The Hill he's expecting the hearing to feature "very tough questions on his relationship to the coal industry, pollution and harming the public health of Americans."

Check out our preview of what to expect at Wheeler's confirmation hearing.

OUTSIDE THE BELTWAY:

-Bark beetle outbreaks expand in Colorado, the Colorado State Forest Service reports.

-Yellowstone plans to ship 600-900 bison to slaughter this winter, The Billings Gazette reports.

-Energy Department says surging oil output will push US towards energy independence in 2020, CNBC reports.

IN CASE YOU MISSED IT:

Check out Tuesday's stories...

The Washington Post

Health & Science

With a shrinking EPA, Trump delivers on his promise to cut government

By Brady Dennis ,
Juliet Eilperin and
Andrew Ba Tran
September 8, 2018

On the campaign trail, Donald Trump vowed to dismantle the Environmental Protection Agency "in almost every form. We're going to have little tidbits left, but we're going to take a tremendous amount out."

As president, he is making headway on that promise.

During the first 18 months of the Trump administration, records show, nearly 1,600 workers left the EPA, while fewer than 400 were hired. The exodus has shrunk the agency's workforce by 8 percent, to levels not seen since the Reagan administration. The trend has continued even after a major round of buyouts last year and despite the fact that the EPA's budget has remained stable.

Those who have resigned or retired include some of the agency's most experienced veterans, as well as young environmental experts who traditionally would have replaced them — stirring fears about brain drain at the EPA. The sheer number of departures also has prompted concerns over what sort of work is falling by the wayside, from enforcement investigations to environmental research.

According to data released under the Freedom of Information Act and analyzed by The Washington Post, at least 260 scientists, 185 "environmental protection specialists" and 106 engineers are gone.

Several veteran EPA employees, who have worked for both Republican and Democratic administrations, said the agency's profound policy shifts under Trump hastened their departure.

"I felt it was time to leave given the irresponsible, ongoing diminishment of agency resources, which has recklessly endangered our ability to execute our responsibilities as public servants," said Ann Williamson, a scientist and longtime supervisor in the EPA's Region 10 Seattle office.

She left in March after 33 years at the agency, exasperated by having to plan how her office would implement President Trump's proposed cuts and weary of what she viewed as the administration's refusal to make policy decisions based on evidence. "I did not want to any longer be any part of this administration's nonsense," she said.

In a statement Friday, Acting Administrator Andrew Wheeler said he was focused on right-sizing the EPA, which Republicans have argued overreached under President Barack Obama, burdening industry with

regulations such as those focused on climate change.

"With nearly half of our employees eligible to retire in the next five years, my priority is recruiting and maintaining the right staff, the right people for our mission, rather than total full-time employees," he said.

Congress has so far maintained the EPA's budget at just more than $8 billion, and while current proposals could shrink that amount, any cuts are likely to be modest.

"The Trump administration comes in and goes way, way beyond what the budget requires," said Rep. David E. Price (D-N.C.), a senior member of the House Appropriations Committee and whose district is home to a major EPA research center. Price said multiple constituents have told him that working at the EPA has become "intolerable" after seeing their findings sidelined.

"It is profoundly demoralizing, and I think, profoundly damaging in terms of tbe agency's mission," he said.

The EPA is not alone in shedding personnel under Trump, despite the fact that Congress passed a $1.3 trillion budget bill in March that boosted both military and domestic spending.

The State Department's total number of permanent employees, for instance, fell 6.4 percent between Trump's inauguration and March 2018, according to federal records, while the Education Department declined 9.4 percent during that time.

Part of the drop stems from a government-wide hiring freeze Trump imposed after his inauguration, which lasted nearly three months. The president has continued to press for a leaner federal payroll, asking Congress recently to withhold pay raises for federal workers in 2019.

In a few instances, Trump's deputies are trying to fill the widespread vacancies in their department's ranks. Secretary of State Mike Pompeo recently began trying to staff the many senior positions that remained empty under his predecessor, Rex Tillerson. Meanwhile, Veterans Affairs is eager to hire doctors, nurses and other medical professionals to fill thousands of vacancies.

But at the EPA, it is largely a case of career staff members headed for the exits. Hundreds of employees accepted buyouts last summer, and records show that nearly a quarter of the agency's remaining 13,758 employees are uow eligible to retire. At its peak in the late 1990s, the EPA employed more than 18,000 people.

Christopher Zarba, who retired in February after serving as director of the EPA's Scientific Advisory Board, disagreed with former administrator Scott Pruitt's decision last year to overhaul the board's membership. Zarba, a 38-year EPA veteran, said that for mauy staff members, a belief in the agency's mission had compensated for less-than-ideal working conditions.

"That is the crazy glue that holds the place together, the idea, 'This is important. We're making a difference,' " he said. "And when that crazy glue begins to fall apart, things change."

That sentiment played a role in Betsy Smith's decision to retire in June after 20 years with the EPA's Office of Research and Development — a department singled out for massive cuts in Trump's first budget proposal. She said officials largely shelved a project she was leading that aimed to help port communities deal with climate change and other environmental challenges.

"It's really awful to feel like you don't have any role to play, that there's not any interest in the work you're doing," said Smith, 62. "My feeling was I could do better work to protect the environment outside the EPA."

Troy Hottle, 32, arrived at the EPA in early 2016 as a research fellow after getting his doctorate in sustainable engineering at Arizona State University. He expected to forge a career there, as others like him had historically done.

"I really felt good about what I was doing and who I was working with," Hottle said.

But a year and a half into his time at the EPA, the future hiring prospects within the Office of Research and Development seemed uncertain at best. The career path he had "spent half a lifetime" pursuing, he said, no longer looked so appealing.

Last September, when he got a job offer from a national environmental consulting firm, he decided to make the leap.

After his arrival, Pruitt quickly gained a reputation for excluding career officials from key decisions and showing little regard for the agency's own research. He also took the president's desire to scale back the EPA to heart, repeatedly boasting about how a buyout and early retirement push last year reduced the agency workforce.

Other conservatives also have cheered the whittling down of EPA's size and reach as appropriate and overdue.

"It doesn't take a bigger bureaucracy to clean our environment," Rep. Ken Calvert (R-Calif.), who chairs the House subcommittee overseeing the EPA's budget, said in a statement. "A lean and efficient workforce at the EPA is a win for taxpayers and the environment by allowing more funding to go towards efforts to clean our water and air." The agency also underwent buyouts during the Obama administration, but EPA still had about 15,000 employees when he left office.

EPA officials last year launched a reorganization aimed at streamlining the agency, and Wheeler has struck a more measured tone as he has pursued it. A former EPA staff member himself, he praised career employees in a speech after his appointment, saying his "instincts" would be to defend their work and sympathizing about the stress that comes with the changes the agency is undergoing.

On Thursday, he sent an agencywide email announcing that regional offices would be redesigned to mirror the structure at headquarters.

As the departures continue, some EPA workers have voiced worries that the administration's refusal to fill vacancies with younger employees has effectively blocked the pipeline of new talent.

Dan Costa, 70, joined the EPA 34 years ago as a staff scientist, rising through the ranks to direct its national air, climate and energy research program in 2011. He stepped down from that post in January, and he said he spent part of the last year counseling younger researchers who saw no possibility of replicating his career path.

"I had young people come into my office, close the door and say, 'What should I do? Should I be looking for a job somewhere else?' " he said. He said he advised one young man to "test the waters" given the current regime. "These people are like termites, gnawing at the foundation."

Multiple current and former employees also say that the exodus at the EPA has left important work falling through the cracks. In Chicago, for instance, a civil investigator responsible for probing who is responsible for Superfund sites left earlier this year and has yet to be replaced, said Mike Mikulka, president of the local union that represents EPA employees.

"You can talk all you want, but your actions speak far louder," he said, noting that Pruitt had held up Superfund as a top priority during his tenure. "What's happening is that the lowest priority work just doesn't get done. And some of that work is really critical."

One of the EPA divisions hardest hit by staff cuts is the Office of Enforcement and Compliance Assurance, whose numbers dipped 15.7 percent between January 2017 and August 2018. Several experts said that any cuts to that division have a major impact because the vast majority of its budget comes from personnel costs rather than grants or other expenditures.

Granta Nakayama, who headed the office from 2005 to 2009, said that it couldn't sustain that deep a staffing cut without curtailing some of its operations.

"If you don't have people to enforce the regulations, you're not going to get enforcement, and you're not going to get compliance," said Nakayama, now a partner at the law firm King & Spalding. "If you don't have boots on the ground, it doesn't happen."

Brady Dennis
Brady Dennis is a national reporter for The Washington Post, focusing on the environment and public health issues. He previously spent years covering the nation's economy. Dennis was a finalist for the 2009 Pulitzer Prize for a series of explanatory stories about the global financial crisis. Follow

Juliet Eilperin
Juliet Eilperin is The Washington Post's senior national affairs correspondent, covering how the new administration is transforming a range of U.S. policies and the federal government itself. She is the author of two books -- one on sharks and another on Congress, not to be confused with each other — and has worked for The Post since 1998. Follow

Andrew Ba Tran

Vox

How Trump's EPA is letting environmental criminals off the hook, in one chart

Referrals for criminal prosecutions for environmental crimes are at a 30-year low.

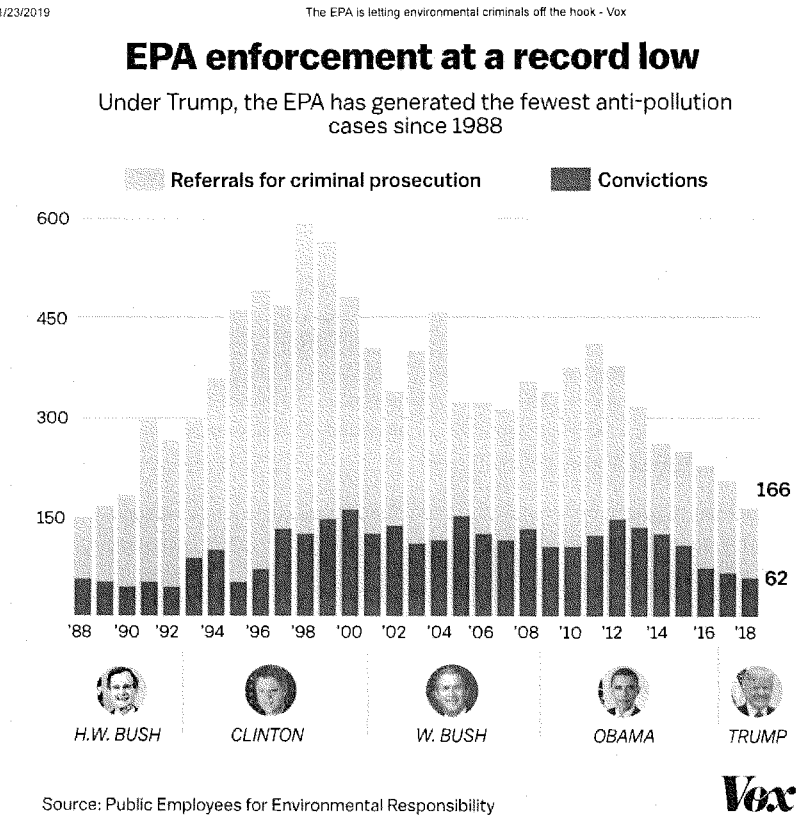
By Umair Irfan | Updated Jan 18, 2019, 9:02am EST

The Environmental Protection Agency isn't going after polluters like it used to.

At his Wednesday **confirmation hearing**, Acting Administrator Andrew Wheeler tried to make the case to senators on the Environment and Public Works Committee that enforcement is a priority. "In Fiscal Year 2018, EPA enforcement actions required the treatment, disposal, or elimination of 809 million pounds of pollutants and waste – almost twice as much as compared to 2017," he said.

But according to government watchdog groups, under the Trump administration, the agency has seen big declines in both civil and criminal enforcement of environmental laws.

A report this week from **Public Employees for Environmental Responsibility** (PEER), an advocacy group for public sector workers who deal with environmental issues, shows that the number of criminal cases the EPA referred to the Justice Department under President Trump is at the lowest level in 30 years:



Javier Zarracina/Vox

It follows a 2018 report from the Environmental Integrity Project, which found a massive drop in the amount of **fines Trump's EPA collected from polluters** relative to the past three administrations during the same time frame.

Both reports make the case that the EPA is neglecting its mission and letting bad actors off the hook. That, in turn, could lead more scofflaws to ignore critical air, water, and soil protection rules.

"The deterrent effect of these statutes gets limited," said Jeff Ruch, the executive director of PEER. "Arguably, if they're ignored altogether, you have pollution that goes on unabated."

A big part of the EPA's job is to go after individuals, businesses, and even local governments that violate environmental regulations. That can mean assessing a **civil penalty** for a company that doesn't refine fuel properly. It can also mean prosecuting an auto engineer conspiring to cheat emissions standards, leading to **federal prison time**.

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Generally, the cases referred for criminal prosecution involve actions that directly harm public health. But that requires the EPA to follow up on leads, analyze the evidence, and build a legal case.

One major reason this kind of enforcement has been down in recent years is that there's been a big drop-off in investigations by its **Criminal Investigation Division**, the armed law enforcement branch of the EPA whose agents are trained to fight environmental crime.

In 2017, the **number of agents** at the division fell to 147, below the legal minimum of 200 set out in the Pollution Prosecution Act of 1990. That's less than half the tally of agents employed in 2003.

"There's a direct relation between personnel and the cases you can prosecute," Doug Parker, a former EPA career employee who led CID under President Obama, told me. With fewer investigators to pursue leads, "you are absolutely missing cases."

However, the Justice Department also has discretion over which cases it chooses to prosecute out of the cases it receives from the EPA. So a referral is only the first step in advancing a case against a polluter. "If you look at the data, they decline a healthy percentage of the referrals from the EPA," said Ruch.

Over the past 32 years, the Justice Department prosecuted between 24 percent and 63 percent of the cases it received from the EPA in a given year. However, there were just 62 convictions in fiscal year 2018, the fewest since 1995.

Many of the cases underway now under the current EPA started under the prior administration, Parker noted. "Everything that I have seen announced in terms of substantive prosecutions have been cases that originated in the Obama administration," he said. "There is little that I've seen that is not an Obama-era investigation."

When asked for a comment about the decline in enforcement, an EPA spokesperson referred me to an EPA statement on the **Fiat Chrysler settlement** on emissions cheating allegations announced last week. The settlement requires the company to recall and repair vehicles that were equipped with a defeat device to fool emissions tests. Fiat Chrysler also has to pay a civil penalty of $305 million.

The statement explains the EPA's enforcement strategy:

> The [Fiat Chrysler] settlement also demonstrates how enforcement accomplishments for each year are highly influenced by large cases. The civil penalty for the FCA case alone is more than four times greater than all the civil penalties collected in FY2018. This case also demonstrates that while our overall number of case conclusions declined slightly in FY2018 from 1,978 to 1,818 cases, EPA is continuing to direct its resources to the most significant and impactful cases.
>
> For example, the cases EPA concluded in FY2018 required regulated entities to address over 809 million pounds of waste and pollutants, an increase of more than 40% over FY2017. Similarly, while the dollar value of Superfund cleanup commitments, oversight costs, and cost recoveries obtained in FY2018 ($613 million) is lower, those numbers also are greatly impacted by a few cases. In FY2018, EPA used its Superfund enforcement tools to facilitate cleanup and redevelopment at over 150 sites.

In essence, the EPA is arguing that the agency is going after the big fish — that the number of cases is down, but the impact of the cases it does pursue, in terms of settlements and pollution avoided, is up.

Ruch isn't convinced by this. He said the EPA should be able to fight big and small cases at the same time, and that the reduced number of referrals reflects a lower priority on enforcement under the current administration. "We view enforcement as a core part of their mission," he said.

And Fiat Chrysler's emissions cheating was first uncovered by the EPA in 2015. The settlement is also a civil penalty, not a criminal penalty.

At the same time, the EPA is pursuing an aggressive policy agenda of rolling back and relaxing environmental regulations: **greenhouse gas limits**, **mercury regulations**, and

clean water authority, among others.

By changing the rules, the EPA is changing what counts as a violation in the first place. That means if the Trump administration's changes stick and aren't undone in the courts, we may see even fewer prosecutions in the future.

Senator CARPER. And second, I would like to ask unanimous consent to submit for the record materials that indicate that the safety analysis that Mr. Wheeler referred to with respect to the previous Administration's CAFE proposals, that that his safety analysis, which I think is badly flawed from this Administration, I would like to have for the record an analysis that indicates as much.

Senator BARRASSO. Without objection, and please feel free to proceed with your round two of questions.

[The referenced information follows:]

October 26, 2018

VIA ELECTRONIC SUBMISSION

Heidi King
Deputy Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Andrew R. Wheeler
Acting Administrator,
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Attn: Docket No. NHTSA-2018-0067

Docket No. EPA-HQ-OAR-2018-0283

Re: Comments of Environmental Defense Fund on National Highway Traffic Safety Administration's and Environmental Protection Agency's Proposed Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986 (Aug. 24, 2018)

On behalf of our members across the country, Environmental Defense Fund ("EDF") respectfully submits these supplemental comments on the National Highway Traffic Safety Administration's ("NHTSA") and the Environmental Protection Agency's ("EPA") Proposed Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42986 (Aug. 24, 2018) ("Proposed Rule" or "Proposed Rollback").

These short, supplemental comments address certain additional flaws with the agencies' safety-related analysis in the Proposed Rule.

The Administration is falsely claiming that rolling back the Clean Car Standards will save lives. This could not be further from the truth.

The Agencies claim that they need to roll back the Clean Car Standards in order to reduce traffic fatalities. The Agencies own analysis, however, shows that the Clean Car Standards will, if anything, *improve* the safety of driving. The large number of traffic fatalities projected by the Agencies are instead due to the Agencies' projections that under the standards, *driving* will increase. These projections are unsound, but even if they were not, the increase in traffic accidents associated with individuals choosing to drive more cannot be seen as "imposed by" the standards – a position the Agencies agree with in some contexts but inexplicably ignore in others. Because the Agencies rely on this projected increase in driving and the traffic accidents

associated with it to justify the rollback, the proposal must be abandoned as arbitrary and capricious.

There is no increased vehicle safety risk under the standards.

There are two ways that the number of traffic fatalities can change – one is that there is a change in the fatality rate, or the number of fatalities per mile, and the other is that people can change the amount they drive, because driving more increases the chance of being involved in an accident.

Notably, the agencies have not provided information on the overall change in the fleet average fatality *rate* due to the proposed rollback. Under their analysis, there are two possible sources of changes in the fatality rate. The first is that some automakers might reduce the weight of vehicles to make them more fuel efficient (called mass reduction). However, the Agencies actually concede that their analysis finds no statistically significant effect of mass reduction on the fatality rate. As the Agencies state, "None of the estimated effects have 95-percent confidence bounds that exclude zero" (Proposed Rule at 43,111) – which means that traffic fatalities could go up slightly, go down slightly, or be zero. As a result, there is simply no foundation for attributing any traffic fatalities to the existing standards from changes made to vehicles.

This is the case even though the Agencies' mass reduction analysis is inappropriately skewed to in ways that understate how the standards can reduce traffic fatalities. First, to analyze the effect of reducing vehicle weight, the Agencies inappropriately use historical data that does not reflect advances in high-strength materials and design that enable vehicles to be made lighter while making them safer. [See comments submitted to these dockets by: Van Auken, R.M. *Comments on the Preliminary Regulatory Impact Analysis of the Proposed Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks*. DRI-TR-18-07. October 25, 2018; Consumers Union; Gregory Peterson, *Modern Vehicle Lightweighting: A Review on Safety of Reduced Weight Vehicles*, CONSUMERS UNION (Oct. 24, 2018), https://consumersunion.org/research/modern-vehicle-lightweighting-a-review-on-safety-of-reduced-weight-vehicles/, appended to comments submitted to these dockets by Consumers Union.] Second, the Agencies are, contrary to their prior approach, allowing the model to reduce the weight of smaller vehicles. Evidence from the auto industry and their suppliers indicates that in fact automakers have been reducing the weight of heavier vehicles, and plan to do so going forward—which will reduce overall fatalities. [See NRDC (October 2018), *Evaluation of Mass Reduction Assumptions in NHTSA Volpe Model*, appended to comments submitted to these dockets by Natural Resources Defense Council.]

The second possible source of changes to the overall average fleet fatality rate is changes in the make-up of the fleet, or in other words, the prevalence of different model years in the overall fleet. If, for example, more older cars (which have a higher fatality rate than newer cars) are kept in operation, that could change the overall average fatality rate for the fleet. As discussed more below, the agencies' analysis of these types of changes – the sales of new vehicles, scrappage of old vehicles, changes in the share of cars and trucks in the fleet, and additional driving due to lower operation costs under the current standards (known as the "rebound" effect)

– is fundamentally flawed. From a lack of peer review, to misapplication of economic theory, to basic missteps in model design, to a failure to recognize or reconcile the bizarre results they were getting from the models, the agencies' failings on these fronts are now well documented.

Despite these numerous errors and contrary to the Agencies' assertions, however, even the Agencies' analysis shows that under the standards, the end result of all the projected changes to fleet composition is a *decrease* in fatalities. [See ACEEE, *Breakdown of NPRM incremental fatalities (augural fuel economy and existing GHG standards vs proposed standards) by cause*, appended to comments filed to these dockets by the American Council for an Energy-Efficient Economy.]

Given the lack of statistical significance of the mass reduction analysis, which the Agencies acknowledge, the associated traffic fatality projections must be treated as zero. Taking this into account, under the Agencies' own analysis of the effects of mass reduction and changes in fleet composition, the impact of the existing standards is to improve the overall fatality rate of the fleet and decrease fatalities. Under the standards, the percentage of total vehicle miles traveled by newer, safer vehicles is greater than the percentage of total vehicle miles traveled by older, less safe vehicles, and overall, traffic fatalities from fleet composition shifts decline.

The Agencies' projected traffic fatalities are not due to changes in vehicle safety risk, but instead are due to *increased driving*, which cannot be attributed to the standards.

Leaving the statistically insignificant results of mass reduction aside, *all* of the fatalities the Administration claims to be avoiding through the roll back are from their projections that under the standards people will *drive more*—drive new vehicles more, and drive existing vehicles more.

The Agencies' projections of increased vehicle miles traveled are in direct conflict with established economic theory and the best available evidence, as discussed more below. But furthermore, it is not, as the Agencies themselves note, appropriate to view the traffic accidents that occur because individuals make a choice to drive more as "compelled by" the standards. Nor can the Agencies lawfully rely upon the repercussions of increased driving as a justification for failing to fulfill their statutory mandates to set maximum feasible fuel economy standards and to mitigate the dangerous air pollution from vehicles. The fact that the standards do not "compel" this driving prevents such reliance, and so do the respective statutes, which nowhere indicate that the Agencies can refuse to comply with their statutory obligations by pointing to a projection that individuals might drive more and in doing so, some of them will get into traffic accidents.

It is especially unlikely that Congress intended for NHTSA to consider potential increases in driving (or "vehicle miles traveled," or "VMT"). Under basic economic theory and under the Agency's traditional analysis (including their analysis of this proposal), an improvement in fuel economy—which makes driving cheaper—would be expected to lead to some increase in driving for households that are sensitive to and conscious of that effect on their budgets. Thus, consideration of VMT impacts could be used to undermine *any* fuel economy standard. Because VMT is "a factor [that] is both so indirectly related to [fuel economy] and so full of potential for

canceling the conclusions drawn from [a fuel economy analysis] . . . it would surely have been expressly mentioned in [the statute] had Congress meant it to be considered." *Whitman v. Am. Trucking Associations*, 531 U.S. 457, 469 (2001).

Even setting aside the plain illegality of attributing traffic fatalities that result from individuals choosing to change their driving habits to the standards, the Agencies' projections of increased driving are so fundamentally flawed as to be unusable.

The increases in VMT come from three sources in the Agencies' modeling – the rebound effect, the scrappage model, and the dynamic fleet share model.

Rebound. The Agencies have doubled the rebound rate that they are using to project how much more the owners of new vehicles will drive because those vehicles are more fuel efficient, and thus cheaper to drive. As laid out in great detail elsewhere in the comments submitted to these dockets, the rebound rate the Agencies have chosen cannot be supported when the best available and most relevant research is examined. [See comments submitted to these dockets by: Environmental Defense Fund and the Union of Concerned Scientists; Kenneth Gillingham, *The Rebound Effect of Fuel Economy Standards: Comment on the Safer Affordable Fuel-Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, October 19, 2018, appended to comments submitted to these dockets by the California Air Resources Board; the Institute for Policy Integrity at NYU School of Law.] Further, the Agencies themselves note that the fatalities and accident costs that happen because of rebound driving cannot be attributed to the standards, because they are the result of an individual's choice to drive more. [Proposed Rule at 43,107.] The fact that the Agencies nonetheless cite rebound traffic fatalities as a justification for rolling back the standards is inappropriate and deeply misleading to the public. [See, e.g, Proposed Rule at 43,266; comments submitted to these dockets by Environmental Defense Fund and the Union of Concerned Scientists.]

Scrappage. The development, design, and validation of the Agencies' scrappage model are so flawed from an economics point of view that the model is unusable for policy purposes. That the model is fatally flawed is obvious from its own projections, as the model predicts that existing vehicles will become more expensive and that as a result there will be higher demand for those vehicles. This is a violation of basic economics (and common sense), which dictates that as the price of a good increases, demand for it will decrease. Nonetheless, the Agencies' scrappage model predicts that because existing vehicles become more expensive, total fleet size will increase—and that those vehicles will be driven the same amount as the average vehicle of that type and age. In other words, the Agencies assume that it is solely the number of vehicles that determines the amount of driving—not the demand for driving, the availability of alternative options, or the state of the economy. And it is that (unjustified) increase in driving, due to the (unjustified) increase in the size of the existing vehicle fleet, that results in increased accident costs and increased traffic fatalities. [See comments submitted to these dockets by: the Institute for Policy Integrity at NYU School of Law; the Environmental Defense Fund; David Bunch, *An Evaluation of NHTSA's Economics-based Modeling and Implications for Benefit-Cost Analysis in the NHTSA/EPA August 24, 2018 Notice of Proposed Rulemaking (NPRM) ["The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks"]*, October 24, 2018, appended to comments filed by the California Air Resources

Board; David Greene, *How Consumers Value Fuel Economy and Implications for Sales of New Vehicles and Scrappage of Used Vehicles*, October 21, 2018, appended to comments filed by the California Air Resources Board; Mark Jacobsen and Arthur van Benthem, NHTSA-2018-0067-7788.]

Dynamic Fleet Share. The Dynamic Fleet Share model is intended to project what types of vehicles individuals will purchase. Because its design is flawed, its projections cannot be credited. The model looks at the effect of changes in fuel economy on the decision to purchase a car versus a truck, but it does not incorporate the cost of those changes. As a result, if a truck's fuel economy had been improved by 5% at a cost of $2 million, and a car's fuel economy had been improved by 4% at a cost of $100, the model would project that truck sales would increase and car sales decrease. This is not a rational projection. Further, the Agencies assume that the individual who purchased a truck rather than a car because of the greater fuel economy improvement in the truck will drive more, just because they purchased a truck rather than a car. This is also not a rational projection. [See comments submitted to these dockets by Consumers Union (CU), Consumer Federation of America (CFA), and American Council for an Energy-Efficient Economy (ACEEE), *Joint Comments on Vehicle Sales, Ownership Costs, and Consumer Willingness to Pay for Fuel Economy.*]

In short, these projections of increased driving are not credible, and even if they were, it would be inappropriate—as the Agencies themselves concede in their discussion of rebound—to attribute traffic fatalities that result from individuals' decisions to drive more to the standards.

There are, of course, many things the federal government can and should do to make driving safer—including finalizing vehicle safety standards proposed under the prior Administration that NHTSA projects could dramatically reduce accident rates. But claiming that highly dubious projections of increases in driving prevent the Agencies from fulfilling their statutory obligations to set maximum feasible fuel economy standards and mitigate dangerous greenhouse gas emissions from vehicles is neither appropriate nor lawful.

Respectfully submitted,

Peter Zalzal
Chet France
Environmental Defense Fund

From: Charmley, William
Sent: Monday, June 18, 2018 12:51 PM
To: Achanta, Chandana L. EOP/OMB <Chandana_L._Achanta@omb.eop.gov>; 'Whiteman, Chad S. EOP/OMB' <Chad_S_Whiteman@omb.eop.gov>; Laity, Jim A. EOP/OMB <James_A._Laity@omb.eop.gov>
Cc: Burch, Julia <Burch.Julia@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Simon, Karl (Simon.Karl@epa.gov) <Simon.Karl@epa.gov>; Bolon, Kevin <Bolon.Kevin@epa.gov>; Michael Olechiw (olechiw.michael@epa.gov) <olechiw.michael@epa.gov>; Robin Moran <Moran.Robin@epa.gov>
Subject: Material for today's Light-duty GHG NPRM discussion.

Dear Chad, Chandana, and Jim –

Attached are materials for our conference call this afternoon. Most of this material you have seen previously, here is what we have sent for our discussion

1) An EPA staff presentation dated today, which builds off of our April 16, 2018 presentation to OIRA. This is what we would like to discuss with OIRA today. The file is 8 pages, and is named "1. EPA Staff Review of CAFE Model for OMB June 18, 2018.pdf"

2) An EPA staff memo dated today, which includes the detailed assessment supporting the information in today's presentation

3) EPA initial observations on the CAFE model from February 9, 2018

4) EPA further observations on the CAFE model and inputs from February 28, 2018

5) EPA Presentation to OMB from April 16, 2018

Thanks
Bill

Summary points from EPA review of CAFE model (NPRM version) – Effect of EPA code revisions

Meeting with Office of Management and Budget/OIRA

6/18/2018

Growth in Fleet Size Due to Scrappage Model

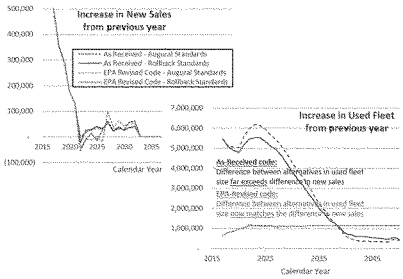
Issues with CAFE model implementation

The new vehicle sales model produces small reductions in projected sales under the Augural standards, while the scrappage model projects an increase in fleet size that far outweighs the sales reductions (by a factor of 60:1.) The combined result is a fleet size that grows much more rapidly than AEO projections.

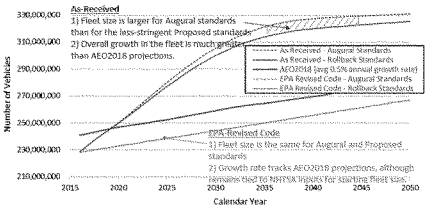
EPA-Revised code issue resolution

Specific the overall fleet growth as an input, and scale the scrappage rate curves (maintain the new sales model as is)

Year-over-year change in new vehicle sales (top) and increase in used fleet size (bottom) (note the difference in y-axis scale)



Total Fleet size

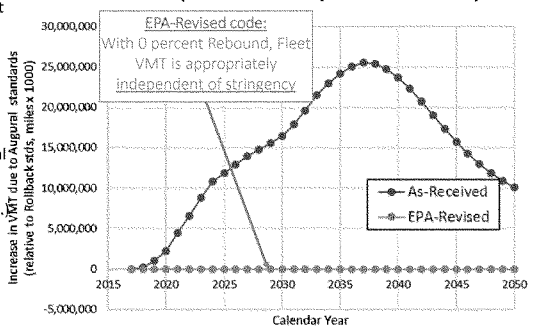


Growth in VMT beyond the intended rebound-related increase

Issues with CAFE model implementation
Per-vehicle VMT schedules are fixed, and not dependent on the scrappage model. As a result, total VMT can vary in an unexpected/unintended ways (e.g., VMT changes with zero rebound, zero rebound growth more expensive new and used vehicles.)

EPA-Revised code issue resolution
Scale per-vehicle VMT schedules so that total VMT is consistent with definition of rebound (i.e. Total VMT remains constant across regulatory alternatives at 0 percent rebound.

Change in VMT due Augural standards, with 0 percent rebound (relative to Proposed standards)



Anomalous definition of cost-per-mile (CPM) reference in rebound calculations

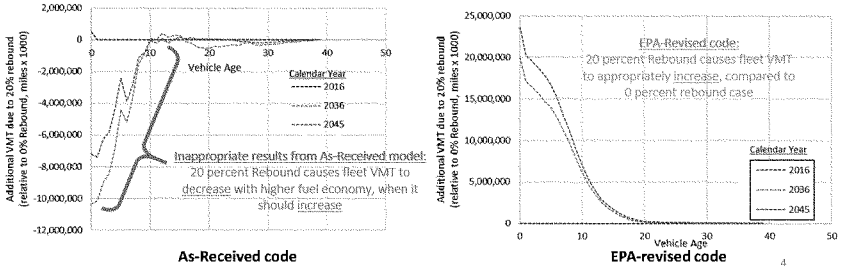
Issues with CAFE model implementation

The CPM 'reference' in calculation of rebound VMT erroneously tracks FE values backward in time. (i.e. Analysis year MY2017 uses a MY2015 FE reference; MY2018 uses a MY2014 FE reference; MY2019 uses a MY2013 FE reference, etc.) The fuel price in the CPM 'reference' remains fixed in CY2016, while fuel price projections in future analysis years generally increase. The combined effect produces an anomalous results with VMT reductions under the Proposed standards, despite increases in FE.

EPA-Revised code issue resolution

CPM 'reference' is defined based on each vehicle's own MY2016 baseline FE, and the current analysis year fuel price.

Change in VMT due to 20 percent rebound. Proposed standards case (relative to 0 percent rebound)



As-Received code **EPA-revised code**

Model logic contains an error in ranking factor for manufacturer tech package application decisions

Background of CAFE model logic

Cost-minimizing 'Efficiency' metric is used to select packages. Based on tech cost, fuel savings to consumer (2.5 years), consumer welfare loss from electrified vehicles, and manufacturer valuation of compliance credits

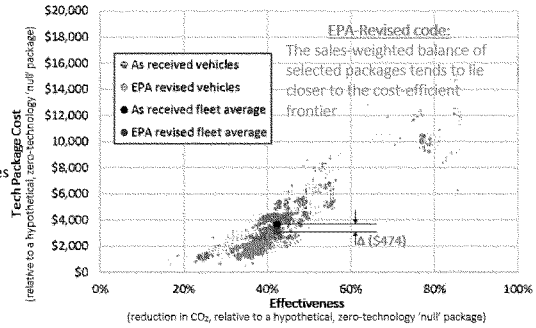
Issues with CAFE model implementation

- In GHG mode, **reducing CO_2 below a vehicle's CO_2 target is erroneously given a manufacturer valuation of zero.**
- Consumer welfare loss for electrified vehicles is taken as the difference between technology cost and observed WTP for electrification from transaction price

EPA-Revised code issue resolution

- 'Efficiency' metric revised so that net cost per gCO_2 credit is minimized, regardless of above or below vehicle target CO_2 value
- Results in significant reduction in tech costs, and more efficient utilization of available technology packages, including electrification

Cost and Effectiveness of MY2030 vehicles relative to a 'null' tech package



Model logic for determining manufacturer compliance status inhibits fleet averaging (car-truck trading)

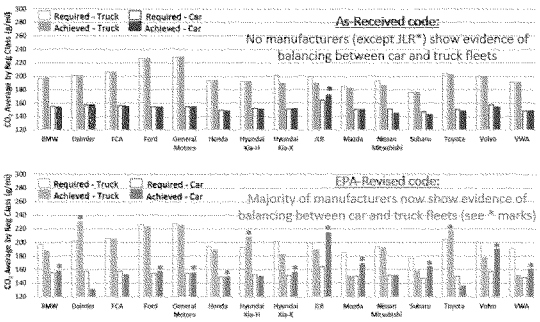
Issues with CAFE model implementation

- Logic for manufacturer compliance status requires that both car and truck fleets have positive credits. As a result, within-year transfer of credits between car and truck fleets is prevented.

EPA-Revised code issue resolution

- Changed the manufacturer compliance status determination so that a positive sum of car and truck fleet credits will be appropriately considered as 'in compliance." The results show broad transfer of credits between car and truck fleets, as would be expected.

MY2030 Required and Achieved CO2 levels for Each manufacturers regulatory car and truck fleets



Technology Cost and Fuel Savings Results: Comparison of As-Received (Apr17) and EPA-revised code

Table 3 Technology Costs, Fuel Savings, Payback

Source	As Received		EPA Revised Code	
Scenario	Augural	Proposed	Augural	Proposed
MYs	2017-2025	2021-2026	2017-2025	2021-2026
Annual Rate of Stringency Increase	No Action	0%/yr PC 0%/yr LT	No Action	0%/yr PC 0%/yr LT
Total Tech Costs, $/veh, MY2030 relative to MY2016 packages	$2,518	$639	$2,044	$474
Incremental Tech Costs, $/veh, MY2030	Baseline	-$1,879	Baseline	-$1,570
Fuel Savings, $/veh, MY2030 (3% discounting) *	Baseline	-$1,519	Baseline	-$1,734
Payback based on Total Cost of Ownership 20% Rebound (years, 3% discounting)	11.6	4.1	3.5	1.0

*Negative fuel savings indicate an increase on consumer spending on fuel.

Fatality and Net Benefits Results: Comparison of As-Received (Apr17) and EPA-revised code

Table 4 Changes in Fatality Metrics and Net Social Benefits

Source	As Received		EPA Revised Code	
Scenario	Augural	Proposed	Augural	Proposed
MYs	2017-2025	2021-2026	2017-2025	2021-2026
Annual Rate of Stringency Increase	No Action	0%/yr PC 0%/yr LT	No Action	0%/yr PC 0%/yr LT
Change in Average Annual Fatalities, Calendar Years 2036-2045, No Rebound *	Baseline	-150	Baseline	+17
Change in Average Annual Fatalities per Trillion Miles, Calendar Years 2036-2045, No Rebound	Baseline	+4.5	Baseline	+6.9
Average Annual Employment, Lifetimes of MY2016-2032 vehicles	Baseline	-35,020	Baseline	-27,269
Change in Net Social Benefits, 20% Rebound, excluding rebound-related fatality and non-fatal crash costs and 'value-loss' associated with electrified vehicles, ($Billions, 3% discounting) **	Baseline	+$49	Baseline	-$83

*The change in average annual fatalities during CYs 2036-2045 including the additional miles driven voluntarily due to rebound are projected by the model as -863 (As-Received) and -321 (EPA-Revised).

**The change in net social benefits inclusive of rebound-related fatality and non-fatal crash costs and NHTSA's 'value-loss' associated with electrified vehicles would be +$202 billion for the As-Received code and +$103 billion for the EPA-Revised code. Social benefits sum Technology, Maintenance/Repair, Value Loss, Pretax Fuel, Drive and Refuel Value, Fatality, Crashes/Congestion/Noise and all Emission Damage costs changes for the lifetimes of MY2016 through 2032 vehicles; a negative Net Social Benefit represents a net social cost.

EPA Further Review of CAFE Model & Inputs, June 18, 2018

Overview

Since first receiving a copy of the CAFE model executable from NHTSA in January, EPA technical staff have been attempting to answer the question of whether or not the model and its inputs are suitable for use in representing the EPA GHG program for the upcoming NPRM. We have adopted a number of approaches, including in-depth analysis of the input and output files, running the executable model with alternate settings which more closely represent the GHG program, and using input files that reflect EPA's technical assessments. Our initial findings stemming from this work were summarized in the briefing we gave to OIRA career staff on April 16th, with additional detail in our March 1st materials.[1] Among these findings were several issues related to the internal logic and calculations within the CAFE model. First, the scrappage model produces vastly unrealistic growth in the overall fleet size, which in turn causes an unrealistic over-inflation of the fatalities estimated for the Augural standards.[2] Second, the technology packages applied by the model tend to be much more costly than necessary for any specified set of inputs and application constraints. Finally, the model tends to produce fleets that over-comply and make sub-optimal use of available credits, resulting in an unrealistic over-estimation of costs.

In this memo, we document our investigation of the underlying computer code for the version of the CAFE Model as received from NHTSA on April 13, 2018. We also document a small number of modifications to the CAFE Model code. The combined effects of our revisions are presented in tables and figures at the end of this memo.

Altogether, the effects of our code revisions on the CAFE model outputs are substantial, and resolve several of the most indefensible aspects of the CAFE model's representation of the GHG program. Compared to the results from the As-Received version, our EPA-Revised version provides technology costs that are nearly $500 lower[3] and safety outcomes that show the Proposed standards are detrimental to safety, rather than beneficial as suggested by the As-Received version. In other words, results with our code revisions indicate that the Proposed standards would result in an increase in the fatality rate of 7 deaths per trillion miles driven, and an average increase of 17 fatalities per year in CYs2036-2045 relative to the Augural standards.[4] Additionally, the EPA-Revised version shows that the Augural standards have a consumer payback period of 3.5 years, instead of the 11.6 year payback period in the As-Received model. Additionally, both As-Received and EPA-Revised code suggest job losses under

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[1] Document titled 'EPA Feb 28, 2018 findings on review of NHTSA Jan-22, 2018 CAFE model runs'

[2] In this memo, we use the term "Augural standards" for ease of discussion since that term is used throughout the As-Received input files provided by NHTSA/Volpe to reference the standards that would align with EPA's existing MY 2022 to 2025 standards.

[3] For the Augural standards, the MY2030 technology cost increase from the baseline vehicle fleet is estimated to be $2,044 per vehicle (EPA-Revised version), compared to $2,518 per vehicle (As-Received version.) The incremental technology cost for the Augural standards relative to the Proposed standards in MY2030 is estimated to be $1,570 (EPA-Revised version), compared to $1,879 (As-Received version.)

[4] The safety outcomes from our EPA-Revised CAFE model version show 17 additional fatalities per year attributable to the Proposed standards, excluding any fatalities that occur from voluntary changes in VMT due to the rebound effect.

the Proposed standards, with 35,000 and 27,000 jobs lost per year, respectively. Finally, the EPA-revised version shows that the Proposed standards would reduce Net Social Benefits by $83B, in stark contrast with the increase of $49B indicated by the As-Received version.[5]

In summary, with the EPA-Revised version of the CAFE model;

- Proposed standards increase fatalities by 17 fatalities per year in CYs 2036-2045
- Proposed standards increase fatality rate by 7 deaths per trillion miles driven in CYs 2036-2045
- Proposed standards result in 35,000 jobs lost per year
- Proposed standards reduce Net Social Benefits by $83B
- Augural standards have a consumer payback period of 3.5 years

Scope of this memo

The significant changes in outcomes with our EPA-Revised version for the CAFE model were achieved solely by correcting some erroneous and otherwise problematic elements of the model's logic and algorithms. We did not make any modifications to the input files, or to the particular elements of the CAFE model that constrain technology applications based on platform sharing and redesign cycle considerations. While the results of the EPA-Revised version of the CAFE model are now directionally closer to our previous work where we used our own tools and models for the 2012 FRM, 2016 DTAR, and 2016 Proposed Determination, we are not endorsing the use of our modified version of the CAFE model for use in policy setting for the GHG program, in part because of the range of issues we have previously identified with the modeling inputs and assumptions—such as unduly high battery costs, production-ready but unconsidered and/or overly constrained technologies and technology application processes, etc.—that are outside of the scope of this memo and are not addressed by the EPA-revised version of the CAFE model.

Note that we did not attempt to evaluate the suitability of the As-Received version for policy use in the CAFE program. While some of the issues that we identify here are unique to the GHG program (e.g. accounting for the compliance value of CO_2 credits), other elements are common to both the GHG program and the CAFE program (e.g. the implementation of the rebound effect calculations, and logic and decision rules for comparing and selecting cost-efficient technology packages.) Given the opportunity, we would therefore recommend that NHTSA consider these issues further before using the As-Received version of the model for setting policy for the CAFE program.

Table 1 CAFE model changes itemized by NHTSA in the draft NPRM text – Scope of this EPA review

NHTSA-identified changes since 2012 FRM	Within scope of this memo?
Expansion of model inputs, procedures, and outputs to accommodate technologies not included in prior analyses	Not addressed in this memo
Updated approach to estimating the combined effect of fuel-saving technologies using large scale simulation modeling	Not addressed in this memo
Modules that dynamically estimate new vehicle sales and existing vehicle scrappage in response to changes to new vehicle prices that result from manufacturers' compliance actions	See Issue #1 in this memo

[5] These net social benefit values exclude the additional fatality and non-fatal crash costs from voluntarily-driven miles associated with rebound, and the 'value loss' that NHTSA adds on top of the tech costs for electrified vehicles.

A safety module that estimates the changes in light-duty traffic fatalities resulting from changes to vehicle exposure, vehicle retirement rates, and reductions in vehicle mass to improve fuel economy	See issue #1 in this memo
Disaggregation of each manufacturer's fleet into separate "domestic" passenger car and "import" passenger car fleets to better represent the statutory requirements of the CAFE program	Not addressed in this memo
Changes to the algorithm used to apply technologies, enabling more explicit accounting of shared vehicle components (engines, transmissions, platforms) and "inheritance" of major technology within or across powertrains and/or platforms over time	See issue #3 in this memo
An industry labor quantity module which estimates net changes in the amount of U.S. automobile labor for dealerships, Tier 1 and 2 supplier companies, and original equipment manufacturers (OEMs)	Not addressed in this memo
Cost estimation of batteries for electrification technologies incorporates more direct and internally consistent use of Argonne National Laboratory's BatPAC (battery) model for HEVs, PHEVs and BEVs	Not addressed in this memo
Expanded accounting for CAFE credits carried over from years prior to those included in the analysis (a.k.a. "banked" credits) and application to future CAFE deficits,	See issue #3 in this memo*
The ability to represent a manufacturer's preference for fine payment (rather than achieving full compliance exclusively through fuel economy improvements) on a year-by-year basis,	See issue #3 in this memo

* Also discussed in the 'Unresolved Issues' section of this memo.

Table 2 CAFE model revisions specific to GHG program – Scope of this EPA review

NHTSA-identified changes since 2012 FRM	Within scope of this memo?
Calculation of vehicle models' CO2 emission rates before and after application of CO2-reducing technologies	Not addressed in this memo
Calculation of manufacturers' fleet average CO2 emission rates under attribute-based CO2 standards	Not addressed in this memo
Accounting for adjustments to average CO2 emission rates reflecting reduction of air conditioner refrigerant leakage	Not addressed in this memo
Accounting for the treatment of alternative fuel vehicles for CO2 compliance	See issue #3 in this memo
Accounting for production "multipliers" for compressed natural gas (CNG) vehicles, plug-in hybrid electric vehicles, (PHEVs), battery electric vehicles (BEVs), and fuel cell vehicles (FCVs)	Not addressed in this memo
Accounting for transfer of CO2 credits between regulated fleets	See issue #3 in this memo
Accounting for carried-forward (aka "banked") CO2 credits, including credits from model years earlier than modeled explicitly	Not addressed in this memo

Issue #1: Unrealistic growth in overall fleet size due to scrappage model

Background on the CAFE model approach for developing a fleet of new and used vehicles in each calendar year

The As-Received version of the CAFE model contains two elements added since the 2012 FRM which are intended to dynamically estimate new vehicle sales and existing vehicle scrappage in response to the various regulatory alternatives under consideration. The first element is a Dynamic Fleet Share model (DFS), which estimates new vehicle sales and car/truck split as a function of vehicle price (as determined by the average MY2016 vehicle price plus the average additional technology costs to future standards in a given year) and the macroeconomic variables of GDP and a consumer confidence index.[6] The second element is a scrappage model which estimates the quantity of used vehicles remaining in each calendar year by vehicle type and age. The Volpe-developed scrappage rate equation was estimated by a regression of historical new vehicle prices, and average fuel costs per mile for the car, van/SUV, and pickup vehicle types.[7] As shown in Figure 1, the total fleet in each calendar year is the combination of the outputs from these two fleet models: a fleet of new vehicles sold in that year, and a fleet of used vehicles of various ages remaining in the fleet that have not been scrapped.

Figure 1 As-Received CAFE model generation of total fleet of registered vehicles by in each calendar year

Directionally, the incorporation of new vehicle price as an independent variable tends to drive the individual outputs of sales and scrappage models in offsetting ways; higher vehicle prices result in lower new vehicle sales and additional retention of existing vehicles, while lower vehicle prices result in greater new vehicles sales and increased scrappage of existing vehicles. However, these models operate completely independently, and there is no mechanism within the CAFE model to reconcile the combined effects of the sales and scrappage models in order to produce a realistic total fleet of registered vehicles.

Identification of the problem with the overall fleet size in the CAFE model

The effect of the disconnect between the new sales and scrappage models in the As-Received version is illustrated in Figure 2. Both the new sales fleet (i.e. vehicles of age 0) and the used fleet (i.e. vehicles of age greater than 0) generally increase year-over-year in the Augural and Proposed cases. For the used fleet, this is an expected trend since new vehicle prices and GDP increase for both the Augural and

[6] In other words, the DFS is a consumer choice model.

[7] The scrappage model represents an added layer of consumer choice modeling in that it attempts to predict whether consumers will purchase new or retain used vehicles and the types of vehicles consumers will continue to drive versus shed in favor of a new purchase. As with the dynamic fleet share model, we do not believe that such a model should be integrated into the primary analysis and should instead be presented as a sensitivity, if at all.

Proposed cases, resulting in the model's prediction of delayed scrappage. The new vehicle sales model has increasing sales for all but a few years, indicating that the positive effects of GDP growth generally outweigh the negative effect of increased vehicle prices.

While directionally those trends are logical, the difference in the magnitude of impact the Augural standards have on the new sales and scrappage models is difficult to justify. The As-Received model estimates that the Augural standards will reduce the year-over-year annual increase sales of new vehicles by approximately 8,000 vehicles on average between CY2021 and CY2032. However, during the same period, the As-Received model estimates that the used fleet will grow by an average of 512,000 vehicles per year, far exceeding the decrease in new vehicle sales. It's hard to imagine any real-world scenario under which over 60 additional used vehicles are retained for each new vehicle that the sales model predicts will be unsold as a result of the higher new vehicle prices.

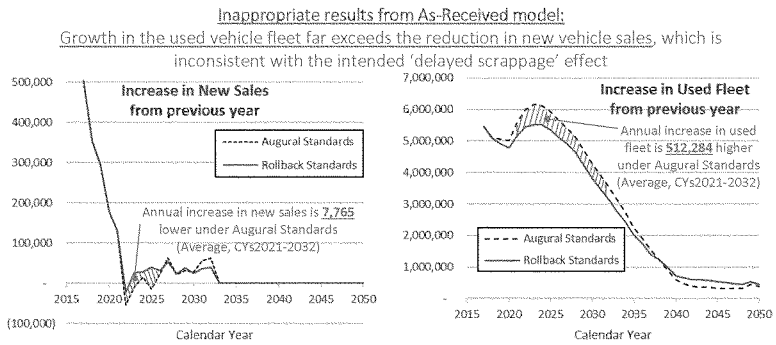


Figure 2 Year-over-year increase in new vehicle sales (left) and increase in used fleet size (right) using As-Received CAFE model (note the difference in y-axis scale)

Figure 3 shows the combined effect of the new vehicle sales model and the scrappage model in the As-Received version of the CAFE model. A change in the overall fleet size due to the Augural standards might not in and of itself be problematic, as long as the VMT schedules are adjusted to account for overall travel activity that is distributed over a larger number of vehicles. However, the As-Received version of the model does not adjust VMT schedules, with the result that the additional unscrapped vehicles inflate total VMT proportionately. During the period over which the summary statistics for fatalities are reported in the draft NPRM (CYs 2036-2045), the difference in the estimated fleet sizes between the Augural and Proposed standards is approximately 7 million vehicles, or over 2% of the

roughly 300 million vehicles in the fleet. The effect of this error is to erroneously inflate the total VMT, and thus increase the estimated fatalities due to the Augural standards by many hundreds of lives.[8]

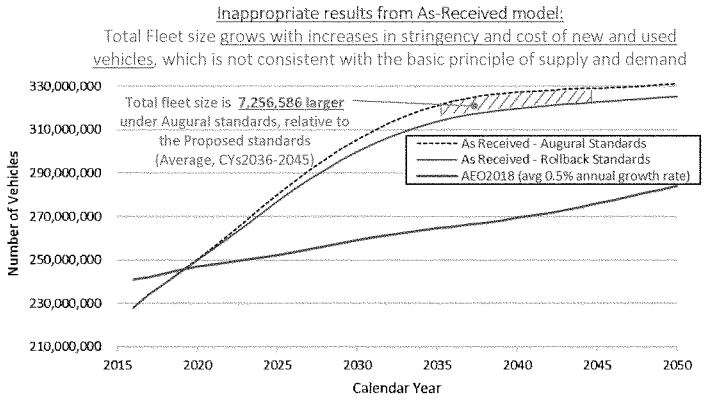


Figure 3 Total fleet size in As-Received CAFE model (AEO 2018 0.5% growth rate shown for reference)

Description of EPA Revision to resolve unrealistic growth in overall fleet size

NHTSA's written description in the draft NPRM indicates that the intent of the As-Received scrappage model was to capture the effect of changes in new vehicle prices and fleet fuel economy on the composition of total fleet (i.e., the balance between new and old vehicles and proportion of the various vehicle types), rather than the effect on the total fleet size. The emphasis on fleet composition is re-iterated in one of NHTSA's conclusions in the scrappage model section of the draft NPRM, that '*differences in the composition of the baseline fleet and the fleet under each alternative are the source of many of the proposed action's benefits and costs.*'

EPA modified the CAFE model to align with the NHTSA's stated intent, so that the scrappage model predicts fleet composition, but does not dictate total fleet size. Our modified code allows the user to select a fleet growth rate (we have used the AEO value of 0.5% growth per year by default, but other rates could be used.) Our code then allows the model to run as usual to determine new vehicle sales and the composition of the used vehicle fleet. These values are then used to scale the size of the used vehicle fleet (maintaining the predicted composition) to achieve the user-provided growth in fleet size. This way the new vehicle sales are identical to the As-Received values, the used vehicle fleet has the identical composition as the As-Received values, but the fleet size grows at much more reasonable rates.

[8] The As-Received CAFE model and inputs apply a fixed safety effect of about 10 fatalities per billion miles in CY2030. Assuming an average vehicle drives 10,000 miles per year, an overestimation of fleet size by 7 million vehicles would result in the model's overestimation of fatalities by approximately 700 lives.

Finally, because the real-world consequence of substituting older vehicles for newer vehicles would cause a departure from the empirically-derived mileage accumulation schedules (which define annual mileage by vehicle age), we developed mileage accumulation scaling factors in a similar manner to the fleet size scaling factors described above to maintain total fleet VMT under a 0 rebound case. Then in a second pass of the effects model, we apply the scaling factors to produce a realistic total VMT in the 20 percent rebound case.

See Appendix B for the details of the code revisions.

Issue #2: Inconsistency between total VMT estimates and specified value of the Rebound Effect

Background on the CAFE model approach for accounting for the rebound effect when estimating VMT

The Proposed standards would produce higher fuel costs per mile than the Augural standards. This higher cost may result in a reduction in miles driven – what NHTSA refers to in the draft NPRM text as a 'reverse rebound effect.' The principle is the same as the rebound effect we normally associate with improvements in fuel economy, but in the opposite direction. The As-Received CAFE model assumes that the magnitude of the effect is the same (20 percent), irrespective of whether cost per mile increases and VMT decreases, or cost per mile decreases and VMT increases. In the CAFE model code, the rebound value is used to estimate the fractional change in VMT (CPMrate) that results from a change in the cost per mile relative to a reference cost per mile according to:

(Equation 1)

CPMrate = (CPMnew / CPMref - 1.0) * reboundEffect; where reboundEffect is equal to -0.2

The fractional change in VMT (CPMrate) is then applied to the mileage accumulation values from the 'parameters' input file which specify the annual miles (MILESPERYEAR) based on the age of the vehicle. Separate mileage accumulation curves are defined for Car, Van/SUV, and Pickup vehicle styles. The total VMT for a vehicle of a given age, i, is defined according to the following equation:

(Equation 2)

$VMT_{(age=i)} = FLEET_{(age=i)} * MILESPERYEAR_{(age=i,vehiclestyle)} * (1.0 + CPMrate)$; where FLEET is the number of vehicles remaining at that age as determined by the scrappage model

Identification of the problem with VMT estimation and the application of the rebound effect in the CAFE model

One of the problems with the implementation of the rebound calculations in the code of the As-Received model is illustrated in Figure 4 for the Proposed standards. In this case, the inclusion of 20 percent rebound causes a reduction in VMT in future calendar years, despite the fact the Proposed standards produce a fleet with higher fuel economy and lower cost per mile than the baseline (MY2016) fleet. This result is clearly inappropriate, since by definition the rebound effect should result in more miles driven as cost per mile decreases.

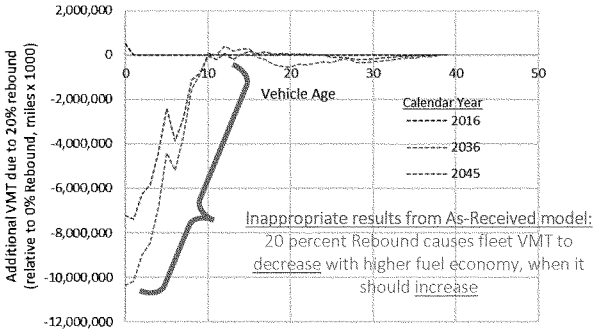


Figure 4 Change in VMT due to 20 percent rebound with As-Received model, Proposed standards case (change shown is relative to 0 percent rebound)

Figure 5 gives a closer view of the CPMrates determined from Equation 1 for three example vehicles, with MY2016 versions which maintain a constant fuel economy at levels equal to, 25 percent above, and 25 percent below an average MY2016 car.[9] These values are maintained until a MY2025 redesign, when the fuel economy is improved by either 10 percent (left panel) or 50 percent (right panel) compared to the MY2016 versions.

One notable observation is how the CPMrates vary by calendar year as the individual vehicles age. This is unexpected, since the CPMrate is applied to the annual mileage values that already account for the progressive decline in the miles driven each year as vehicles age. What the age- or year-related phenomenon this variation in CPMrate would be intended to represent is not clear. Another notable observation is the inconsistency in the direction of change in CPMrate of the new MY2025 vehicle, relative to the 8-year old MY2016 vehicle in CY2024. When the MY2025 vehicle is 50 percent more fuel efficient than MY2016 (right panel of Figure 5), the CPMrate shifts upward, resulting in higher VMT for the vehicle with greater fuel economy as would be expected. However, when the MY2025 vehicle is only 10 percent more fuel efficient than MY2016 (left panel of Figure 5), the CPMrate shifts downward. This tendency to produce VMT reductions for newer vehicles with moderate levels of fuel economy improvement is consistent with the inappropriate VMT results shown in Figure 4 above, indicating that this issue is caused by the calculation of CPMrate within the CAFE model.

[9] The average car fleet fuel economy is 36.9 mpg for a MY2016 car, as defined in the CAFE model's 'parameters' input file.

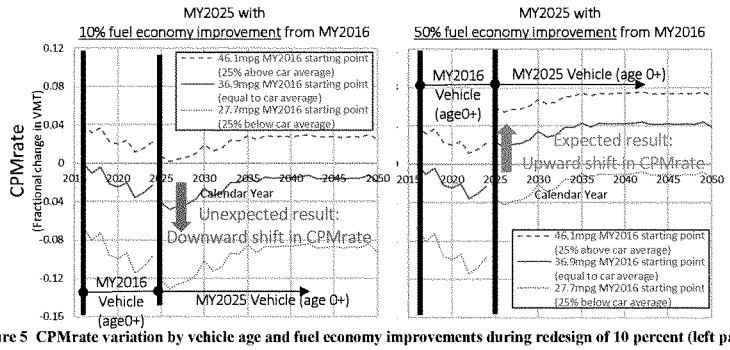


Figure 5 CPMrate variation by vehicle age and fuel economy improvements during redesign of 10 percent (left panel) and 50 percent (right panel)

In addition to the problems described above with the As-Received model's implementation of the rebound effect, an additional inconsistency between VMT estimates generated by the model and the specified rebound value became evident when we looked at the VMT results for alternatives with different stringencies, holding rebound at 0 percent.[10] With no rebound, we would not expect to see any change in total VMT, since by definition rebound is measured as the change in VMT for a given change in fuel cost per mile. However, even with 0 percent rebound, the As-Received model does produce total VMT values that are influenced by stringency level. See Figure 6, below. We believe that this zero-rebound VMT growth is an artifact of the disconnect between the sales model, scrappage model and mileage accumulation schedules described with Issue #1. And while this problem is not directly related to the model's calculation of the rebound effect, it points to the importance of carefully considering how the various elements are integrated when making changes or additions to a model.

[10] We evaluated a range of rebound values as part of our QAQC process and to investigate the sensitivity of the model to changes in the rebound effect. Note that we are not suggesting here that a value of 0 is the most appropriate assumption for the rebound effect.

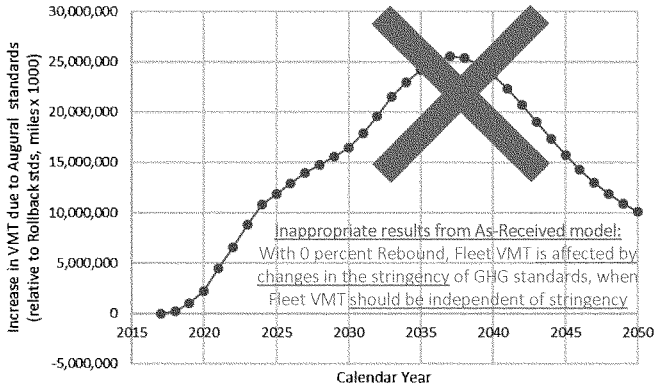


Figure 6 Change in VMT due Augural standards, with 0 percent rebound (relative to Proposed standards)

In total, the As-Received model 1) inappropriately incorporates a vehicle age-related effect due to rebound, 2) exhibits directionally incorrect VMT changes in response to fuel economy improvements, and 3) produces a VMT response to changes in stringency even when the rebound value is set to 0. We conclude that the model's implementation of the rebound effect is inappropriate, and that the model code produces VMT values that are inconsistent with the 20 percent rebound value that is specified in the input files. As with the problems described for the Scrappage Model in Issue #1, resolving the problems with the CAFE model's implementation of the rebound effect is critically important. An inappropriate accounting of the rebound effect will produce unreliable VMT estimates, which in turn will produce unreliable estimates of net fuel savings, emissions costs, fatalities, etc., making it impossible to accurately evaluate and compare the various policy alternatives.

Description of EPA Revision to resolve rebonnd effect implementation errors and total VMT estimation

After reviewing the CAFE model code, we have determined that the directionally incorrect reduction in total fleet VMT with 20 percent rebound shown in Figure 4 and Figure 5 above is due to the combined effect of two problematic assumptions used for calculating the reference cost per mile (CPMref) in Equation 1. The first assumption is the use of a constant CY2016 fuel price to calculate CPMref, even as CPMnew is calculated using the future year's fuel price. The consequence of using two fuel prices that diverge further with each year (due to future projected increases in fuel prices) is that VMT calculated from Equation 2 becomes lower over time, independent of any changes in fuel economy. Such a result is unjustified since it ignores the economic and income growth that is projected to occur concurrently with fuel price increases.

The second problematic assumption is the selection of fuel economy values used to determine the reference cost per mile. When determining the reference cost per mile, the As-Received code uses a fleet average MPG value that tracks backward in time. In other words, a MY2016 vehicle in CY2019 (i.e.,

age=3 where CY2016 would be age=0) would not use a baseline MPG value for a MY2016 vehicle, but would instead use a MPG value for a MY2013 vehicle (i.e., age=-3).

A hypothetical example will help to illustrate the importance of making appropriate assumptions when selecting CPMref. Building off the example in Figure 5 with MY2025 improvements to an average MY2016 car with fuel economy of 36.9mpg, Figure 7 shows how the CPMrate (and therefore the VMT) can change dramatically based on assumptions for CPMref. The inappropriate referencing of progressively older fleet average fuel economy values (red and gray curves), causes the CPMrate to be higher than when constant MY2016 reference fuel economy values are used (black and green curves.) The inappropriate referencing of CY2016 fuel prices (red and black curves) causes the CPMrate to be lower than when the current CY fuel prices are used (gray and green curves.) While these two problematic assumptions for CPMref tend to work in opposite directions, the general tendency of the As-Received model to produce a negative CPMrate in the example in Figure 7, despite the improvement in fuel economy, seems to indicate the assumption of maintaining CY2016 fuel prices is dominant.

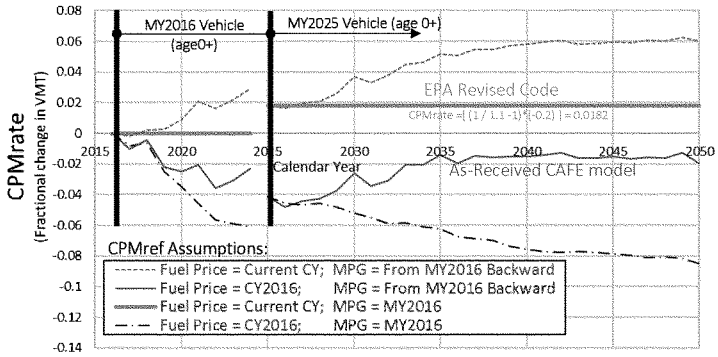


Figure 7 Effect of CPMref assumptions on CPMrate with 20 percent rebound (hypothetical example shown for MY2025 vehicle with 10 percent fuel economy improvement from MY2016 vehicle)

We believe that the most defensible implementation of the rebound effect is one that maintains the same CPMrate over every calendar year in the course of a vehicle lifespan. In the example shown by the green line in Figure 7, the CPMrate for the MY2025 vehicle then becomes simply a function of the ratio of the reference fuel economy to the new fuel economy and the 20 percent rebound effect value, or [(1 / 1.1 -1)* (-0.2)] = 0.0182. To achieve this, we revised the CAFE model code so that:

1) CPMref is calculated using the fuel prices in current calendar year rather than the fixed CY2016 fuel price, and
2) CPMref is calculated using the MY2016 baseline fuel economy of the specific vehicle, rather than a fleet average fuel economy of progressively older MY vehicles.

Please see Appendix B for the details of the code revisions.

Issue #3: Cost-ineffective technology ranking and application decisions

Background on the CAFE model selection of technology packages and ranking decisions

The selection of technology packages by the CAFE model is based on an 'efficiency' measure, which in simple terms prioritizes decisions where the value of CO_2 credits (to the manufacturer) most exceeds the net cost of the technology package.[11] When comparing two packages, given the availability constraints for redesign years, platform sharing, etc., the model will select the one with the most negative efficiency calculated as:

(Equation 3)

efficiency = (netpackagecost - DeltaCO2CreditValue) / totalAffectedSales;
where netpackagecost = techCost + consumer_valueloss - 2.5years_FuelSavings; and
DeltaCO2CreditValue is an assumed monetary value of the difference in compliance credits between the two packages considered.

Identification of the problem with technology package ranking and application in the CAFE model

Figure 8 shows the total technology cost and effectiveness for all technology packages applied by the As-Received CAFE model to the MY2030 fleet, relative to a 'null' package with only basic technologies.[12] While we would not expect manufacturers to consistently apply technology packages that lie exactly on the cost-efficient 'frontier', the frequency with which the As-Received CAFE model applies packages that are several thousand dollars more expensive than other available packages is striking.

[11] The As-Received CAFE model will only consider technology packages where the value of CO_2 credits to the manufacturer exceeds the net package cost, ignoring the potential for any cross-subsidization within a manufacturer's vehicle lineup. This net cost could be thought of as the amount a manufacturer would need to adjust the vehicle price, higher or lower, in order to offset any changes in consumers' willingness to pay for the vehicle due to the added technologies. The model assumes that consumers will be willing to pay for 2.5 years of fuel savings, and that consumers face a loss in value for electrified vehicles between approx. $1,300 (for strong hybrids) and $16,000 (for BEVs.)

[12] I.e. a 5-speed transmission, port fuel injected naturally aspirated engine, no improvements in tires, aerodynamics, or mass reduction.

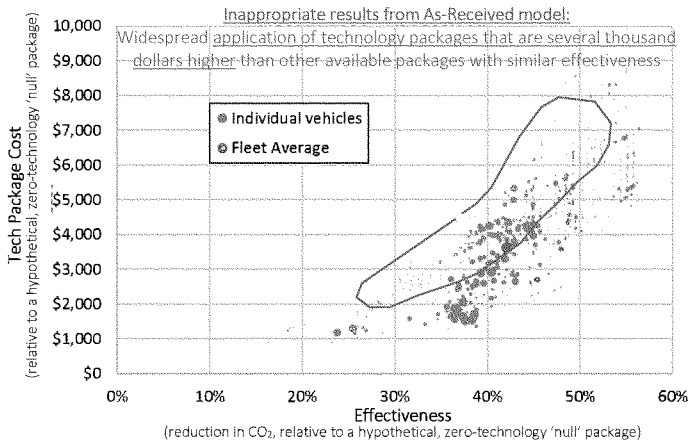


Figure 8 Cost and Effectiveness of MY2030 vehicles relative to a 'null' tech package (PEV's are off chart area, but included in fleet average)

Based on our review of the CAFE model code, we have identified several factors that contribute to the model's widespread application of cost-inefficient packages. The first factor is the problematic approach used by the model for estimating the DeltaCO2CreditValue variable in Equation 3 above. In reality, the value of a CO_2 compliance credit to any manufacturer is a function of complex and inter-related factors, making it difficult to incorporate a realistic estimate into any model. The dollar value of a credit for a particular manufacturer would depend on their compliance status, their fleet composition and applied technologies, the cost of the available technologies for further reducing CO_2 emissions, the availability of banked credits, the level of future stringency increases, and many other factors.

Figure 9 shows the CO_2 Credit Values by Model Year, which are defined in CAFE model input files using a simple scaling of the CAFE fine rates by a constant factor of 6.53. While the application of a uniform credit value is problematic given all the potential variations among manufacturers, it is probably even more problematic that the CO_2 value is assumed to be decreasing over time. Given that the GHG program does not allow manufacturers to pay fines as a compliance strategy, we assume that NHTSA's intent was for the CO_2 credit value to represent a market value for trading credits between manufacturers. Regardless of the intent, as the adoption of the lower-cost technologies leaves only the more expensive alternatives available to meet future year stringency increases, it is implausible that the value of CO_2 credits to a manufacturer will decrease in this way over time.

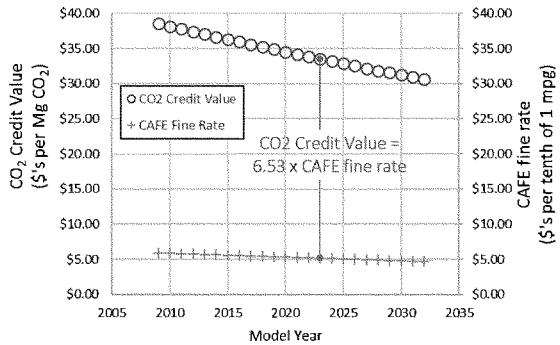


Figure 9 CO_2 Credit Value, by Model Year, as defined in As-Received CAFE model inputs

The second factor that contributes to the CAFE model's application of cost-inefficient packages is in the calculation of the difference in CO_2 credit values between the two packages being considered in Equation 3 above. The newCO2CreditValue and curCO2CreditValue variables in Equation 4 below represent a dollar value of the CO_2 credits or deficits, based on the value of a single credit from Figure 9, and the gap between the given package CO_2 and the CO_2 target for that vehicle. Negative values result from packages above the target (CO_2 deficit), and positive values result from packages below the target (CO_2 credit).

The problem is that in truncating credit values at zero as shown in Equation 4, the CAFE model gives less consideration to technologies that reduce a vehicle's CO_2 below its target, regardless of how cost-effective that technology might be. For example, Package A might reduce CO_2 to well-below the target and be cost-effective in terms of dollars per gram CO_2 reduced, but the CAFE model would give preference to any Package B that meets or exceeds the target by a lesser amount with lower net costs, even if the dollars per gram CO_2 reduced were much higher for Package B than Package A.

(Equation 4)

```
DeltaCO2CreditValue = Min(0.0, newCO2CreditValue)) - Min(0.0, curCO2CreditValue));
```

The consequence of truncating CO_2 credit values at zero in the efficiency calculation may be difficult to understand in the abstract, so to illustrate the concept, we're providing an example here of two vehicles from the same manufacturer which have the same starting CO_2 and sales volume, but different technology pathways and CO_2 targets. Absent other considerations, a manufacturer would choose the most cost-effective packages which, in total, would achieve compliance for the manufacturer's entire fleet, whether those packages were applied to Vehicle A, Vehicle B, or both.

However, because Vehicle A starts out further from its CO_2 target than Vehicle B, the CAFE model will generate efficiency values for Vehicle A that are more negative (and thus preferable) than Vehicle B

as shown in Figure 10, since the credit value for reducing Vehicle B below its 280 g/mi target is truncated and not included in the efficiency calculation. The CAFE model will choose to apply technology to Vehicle A to reduce CO_2 to 200 g/mi, even though that technology pathway is less cost effective than one where technology is applied to Vehicle B (point B′ in Figure 10) – with a technology cost of $1,417 for Vehicle A compared to $1,246 for Vehicle B for the same CO_2 reduction.

	Vehicle A	Vehicle B
Initial CO_2 (g/mi)	310	310
CO_2 Target (g/mi)	200	280
Tech pathway cost ($ per incremental % CO_2 reduction)	33 $/ %$CO_2$	29 $/ %$CO_2$
Volume	1000	1000
Total technology cost to reduce CO_2 to 200 g/mi	$1,417	$1,246 (Δ-$171)

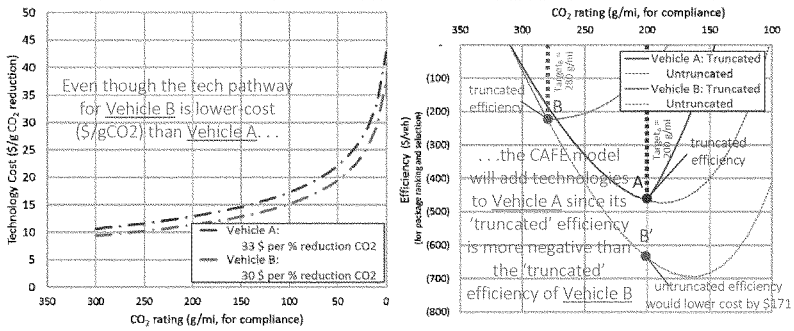


Figure 10 Effect of truncating CO_2 credit value in CAFE model's 'efficiency' calculation for tech package selection
Assuming $3/gal fuel price, $35/MgCO2 credit value, and 30k miles driving in first 2.5 years (for consumer payback)

The third factor that contributes to the CAFE model's application of cost-inefficient packages is the separate treatment of regulatory classes when determining compliance status. Figure 11 below shows that with only one exception,[13] the achieved CO_2 levels for the regulatory car and truck fleets for all manufacturers in MY2030 is below the required CO_2 level. This result is striking, not only in the consistency of overcompliance, but also in the apparent lack of balancing within a manufacturer between car and truck regulatory fleets. A more realistic modelling representation would tend to show some overcompliance in one regulatory fleet, offset by undercompliance in the other fleet as the manufacturer seeks to reduce compliance costs by applying technology to reduce emissions where it is most cost-effective.

[13] JLR's car fleet is the only regulatory fleet for which the achieved CO_2 value is above the target CO_2 value in MY2030.

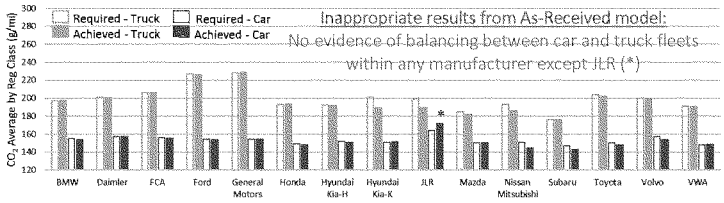


Figure 11 MY2030 Required and Achieved CO2 levels for Each manufacturers regulatory car and truck fleets in As-Received CAFE model output

After our review of the CAFE model code, we have identified an issue that contributes to this lack of within-manufacturer fleet averaging. As shown in Equation 5, the CAFE model does not flag a manufacturer as 'in compliance' unless both the car and the truck fleets have positive credits. While this model requirement may produce the intended results for modeling of the CAFE program, it is not appropriate for representing the GHG program, which has the provision of unlimited transfer of credits between car and truck fleets.

(Equation 5)

$$\text{mfrInCompliance} = (\text{GetNetCO2Credits}_{cars} >= 0) \text{ AND } (\text{GetNetCO2Credits}_{trucks} >= 0)$$

Description of EPA Revision to resolve cost-ineffective technology ranking and application decisions

To resolve the issue of the cost-ineffective technology application decisions, EPA revised two elements of the CAFE model code. First, we revised "efficiency" calculation used for package ranking. Because we don't believe that the value of a CO_2 credit to any manufacturer can be reasonably determined in advance[14], we have removed the monetary valuation of CO_2 credits from the numerator of Equation 3, and instead include the change in quantity of compliance credits (in grams CO_2) as a normalizing factor in the denominator of the efficiency calculation. The modified calculation, shown as Equation 6, can be interpreted as the cost-efficiency of a technology application in terms of the net cost per gram CO_2 credits earned. We think that this decision rule would reasonably represent a manufacturer that is applying technologies in a cost-minimizing manner, subject to all the original constraints on technology availability and redesign cycles specified in the As-Received CAFE model input files. As with the As-Received CAFE model logic, our revised code prioritizes technology packages with more negative efficiency values.

(Equation 6)

$$\text{efficiency} = (\text{TechCost} - \text{FuelSavings}) / (\text{newCO2Credit}_{total} - \text{curCO2Credit}_{total})$$

The second change in the EPA-Revised code involves the lack of credit transfers between regulatory classes. As shown in Equation 7, we now set each manufacturer's 'in compliance' flag based on the

[14] For the reasons described earlier, the value of a CO_2 credit to any given manufacture will be dependent on their current compliance status, stringency of the standards, available technology and cost, etc.

sum of the credits for car and truck regulatory classes, instead of required positive credits for both classes individually, as in Equation 5.

(Equation 7)

$$mfrInCompliance = curCO2Credit_{total} >= 0;$$

Graphical summary of the various effects of EPA code revisions

Effect of EPA-Revisions on Issue #1 (Unrealistic growth in overall fleet size)

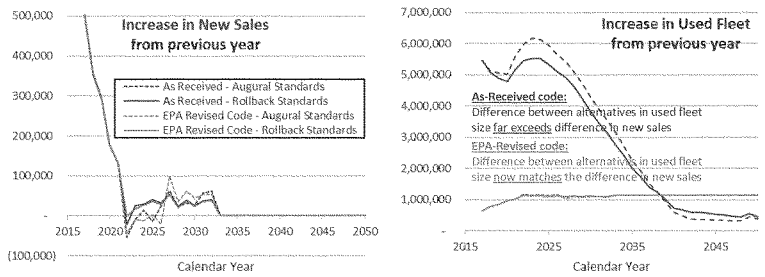


Figure 12 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 2: "Year-over-year increase in new vehicle sales (left) and increase in used fleet size (right) using As-Received CAFE model (note the difference in y-axis scale)"

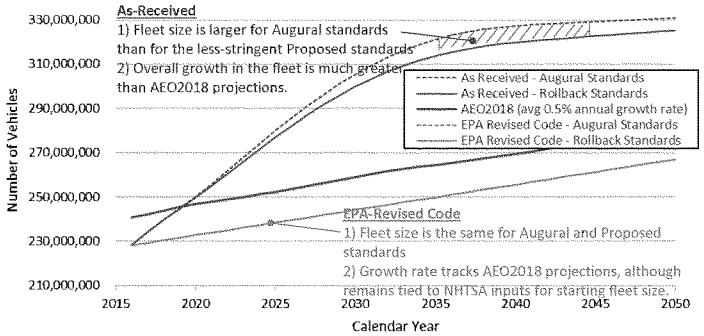


Figure 13 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 3: "Total fleet size in As-Received CAFE model"

Effect of EPA-Revisions on Issue #2 (Inconsistency between total VMT estimates and specified value of the Rebouud Effect)

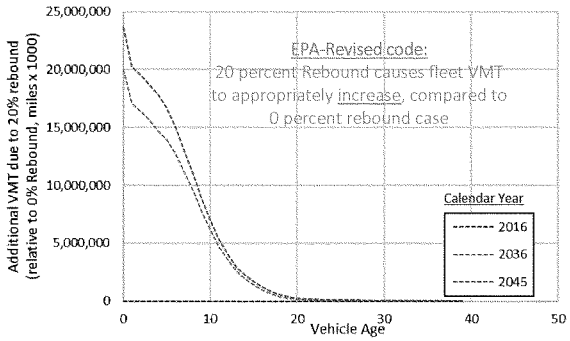


Figure 14 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 4: "Change in VMT due to 20 percent rebound, Proposed standards case (relative to 0 percent rebound)"

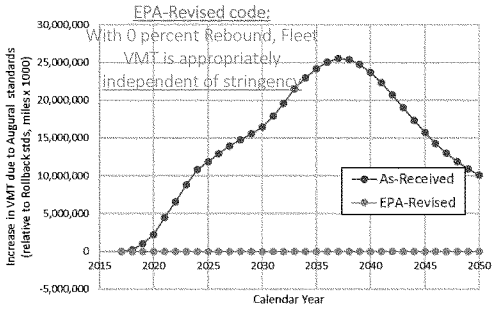


Figure 15 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 6: "Change in VMT due Augural standards, with 0 percent rebound (relative to Proposed standards)"

Effect of EPA-Revisions on Issues #3 and #4 (Cost-inefficient application of technology packages)

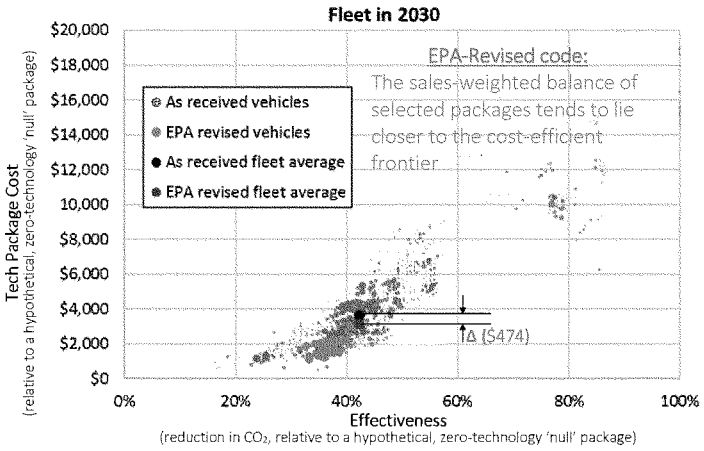


Figure 16 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 8 "Cost and Effectiveness of MY2030 vehicles relative to a 'null' tech package"

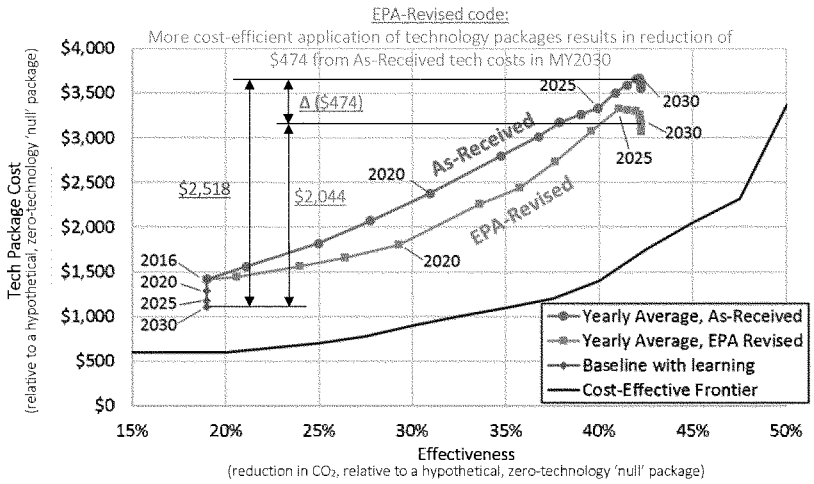


Figure 17 EPA Revised Code Effects:
Cost and Effectiveness of each MY relative to the MY2016 baseline tech package

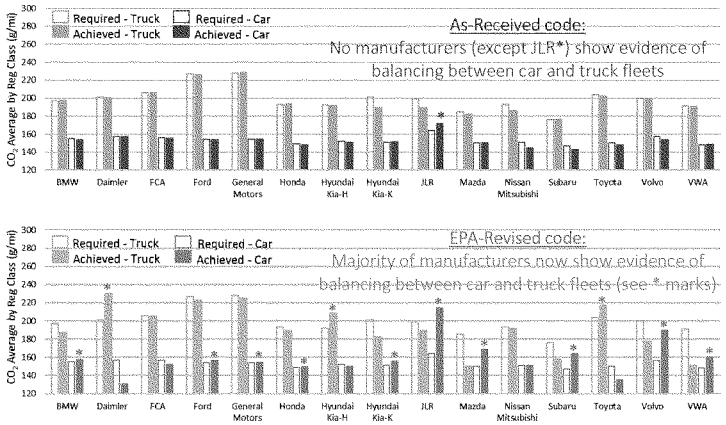


Figure 18 EPA Revised Code Effects, Compare to As-Received CAFE model results in Figure 11 "MY2030 Required and Achieved CO_2 levels for Each manufacturers regulatory car and truck fleets"

Tabular summary of the combined effect of EPA code revisions

Table 3 Technology Costs, Fuel Savings, Payback

Source	As Received		EPA Revised Code	
Scenario	Augural	Proposed	Augural	Proposed
MYs	2017-2025	2021-2026	2017-2025	2021-2026
Annual Rate of Stringency Increase	No Action	0%/yr PC 0%/yr LT	No Action	0%/yr PC 0%/yr LT
Total Tech Costs, $/veh, MY2030 relative to MY2016 packages	$2,518	$639	$2,044	$474
Incremental Tech Costs, $/veh, MY2030	Baseline	-$1,879	Baseline	-$1,570
Fuel Savings, $/veh, MY2030 (3% discounting) *	Baseline	-$1,519	Baseline	-$1,734
Payback based on Total Cost of Ownership 20% Rebound (years, 3% discounting)	11.6	4.1	3.5	1.0

*Negative fuel savings indicate an increase on consumer spending on fuel.

Table 4 Changes in Fatality Metrics and Net Social Benefits

Source	As Received		EPA Revised Code	
Scenario	Augural	Proposed	Augural	Proposed
MYs	2017-2025	2021-2026	2017-2025	2021-2026
Annual Rate of Stringency Increase	No Action	0%/yr PC 0%/yr LT	No Action	0%/yr PC 0%/yr LT
Change in Average Annual Fatalities, Calendar Years 2036-2045, No Rebound *	Baseline	-150	Baseline	+17
Change in Average Annual Fatalities per Trillion Miles, Calendar Years 2036-2045, No Rebound	Baseline	+4.5	Baseline	+6.9
Average Annual Employment, Lifetimes of MY2016-2032 vehicles	Baseline	-35,020	Baseline	-27,269
Change in Net Social Benefits, 20% Rebound, excluding rebound-related fatality and non-fatal crash costs and 'value-loss' associated with electrified vehicles, ($Billions, 3% discounting) **	Baseline	+$49	Baseline	-$83

*The change in average annual fatalities during CYs 2036-2045 including the additional miles driven voluntarily due to rebound are projected by the model as -863 (As-Received) and -321 (EPA-Revised).

**The change in net social benefits inclusive of rebound-related fatality and non-fatal crash costs and NHTSA's 'value-loss' associated with electrified vehicles would be +$202 billion for the As-Received code and +$103 billion for the EPA-Revised code. Social benefits sum Technology, Maintenance/Repair, Value Loss, Pretax Fuel, Drive and Refuel Value, Fatality, Crashes/Congestion/Noise and all Emission Damage costs changes for the lifetimes of MY2016 through 2032 vehicles; a negative Net Social Benefit represents a net social cost.

Table 5 Technology Penetration Rates

Source	As Received			EPA Revised Code[15]		
Scenario	Augural	Proposed	Delta	Augural	Proposed	Delta
MYs	2017-2025	2021-2026		2017-2025	2021-2026	
Annual Rate of Stringency Increase	No Action	0%/yr PC 0%/yr LT		No Action	0%/yr PC 0%/yr LT	
Tech Costs, $/veh, MY2030	$2,518	$639	-$1,879	$2.044	$474	-$1,570
Technology penetrations						
Weight Reduction (not including powertrain)	19%	12%	-7%	14%	11%	-3%
High Compression Ratio (aka ATK2)	26%	12%	-14%	26%	12%	-13%
Turbo-downsized	62%	46%	-16%	57%	42%	-16%
Dynamic Deac	7%	0%	-7%	0%	0%	0%
Diesel	1%	1%	0%	1%	1%	0%
Advanced transmissions (non-hybrid)	82%	88%	+6%	77%	86%	+9%
Stop-Start (12V)	10%	13%	+3%	9%	12%	+3%
Mild HEV (48V)	41%	2%	-39%	3%	0%	-3%
Strong HEV	14%	2%	-11%	10%	2%	-8%
Sum of Mild and Strong HEV	55%	5%	-50%	13%	2%	-11%
Plug-in HEV	1%	0%	0%	7%	0%	-6%
Battery Electric (BEV)	0%	1%	0%	2%	1%	-2%
Sum of PEVs	1%	1%	0%	9%	1%	-8%

Note that the three tables presented above, comparing the As-Received and EPA-Revised results, maintain NHTSA's costs and effectiveness values from Autonomie large-scale full-vehicle simulation, platform sharing, redesign cycles and technology application constraints. In other words, the input files applied in this analysis are identical to the as-received files from NHTSA.

Unresolved Issues

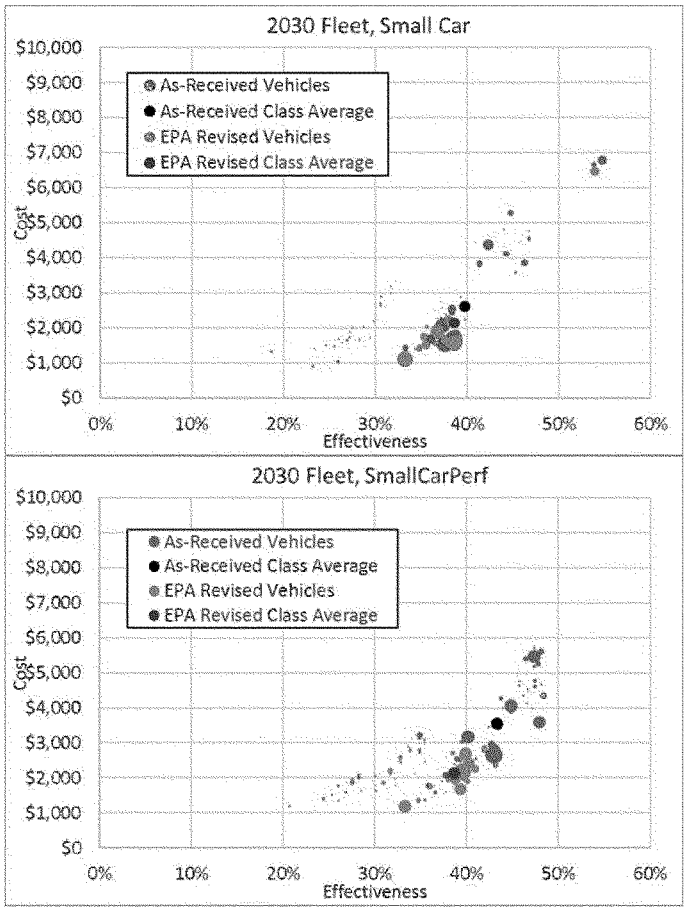
The effects of our minor code revisions on the CAFE model outputs are clearly substantial, and resolve some of the most significant issues with the CAFE model's representation of the GHG program. However, although the "EPA Revised" version of the CAFE model has corrected some issues, there are still outstanding issues with this model. Thus we cannot endorse the use of our modified version of the CAFE model for use in policy setting for the GHG program.

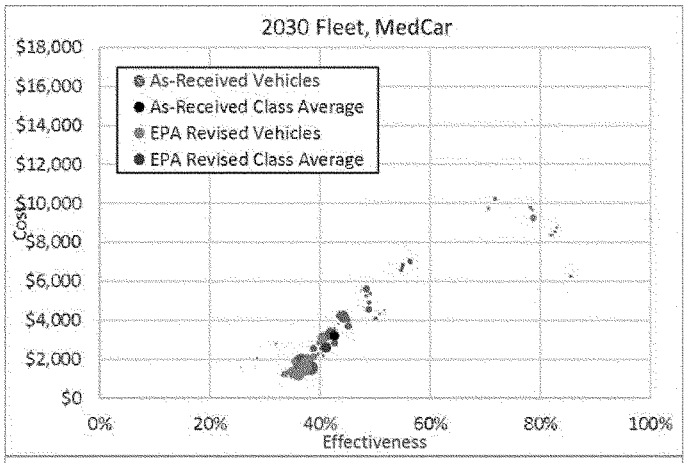
In part, this is because of the range of issues we have previously identified with the modeling inputs and assumptions—such as unduly high battery costs, production-ready but unconsidered and/or overly constrained technologies and technology application processes, etc.—that are outside of the scope of this memo and are not addressed by the EPA-revised version of the CAFE model.

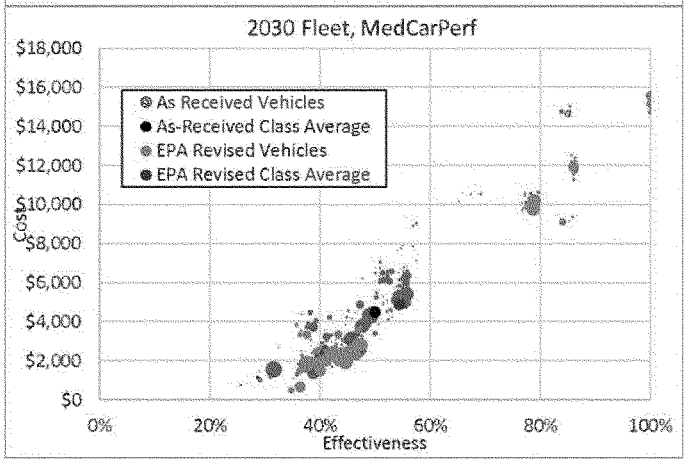
[15] This analysis maintains NHTSA's costs, effectiveness values from Autonomie large-scale full-vehicle simulation, platform sharing, redesign cycles and technology application constraints. In other words, the input files applied in this analysis are identical to the as-received files from NHTSA. Had we applied EPA inputs we would expect a significant change in technology penetration projections.

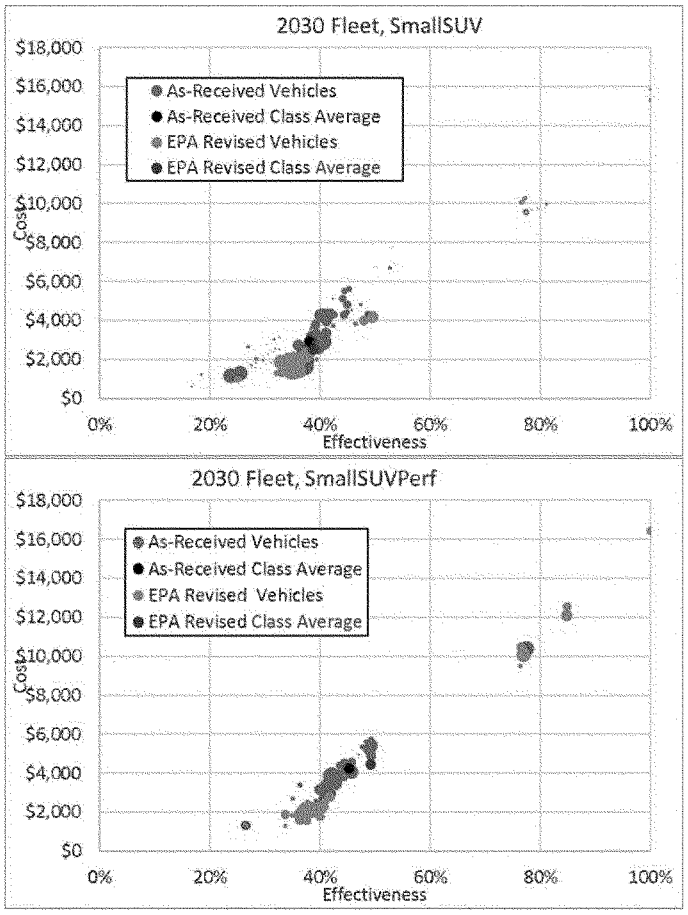
There are also additional issues with the CAFE model that have been uncovered during the current investigation, but we have not had the time and resources to fully evaluate and/or correct. For example, the model appears to favor credit generation for possible future use over transfer of credits across a given manufacturer's car and truck fleets (a major cost savings element of the GHG program); further, the model does not appear to use credits efficiently once generated; the model uses fuel share in many places but does not maintain a careful accounting of that fuel share to ensure a total of 100% each year; the model continues to make use of what we consider to be strange mileage accumulation rate schedules (as we discussed with NTHSA/Volpe during development of the DTAR); the model still has a general tendency towards overcompliance across the range of years analyzed; and potentially other issues.

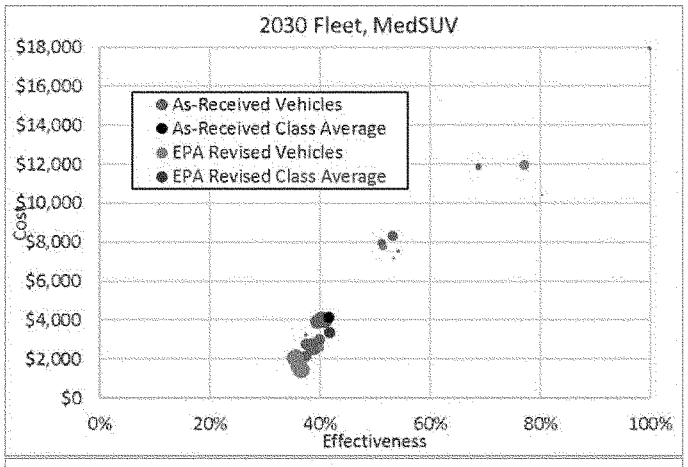
Appendix A: Comparison of the cost-effectiveness of applied technology packages in As-Received and EPA-Revised versions, by Vehicle Type

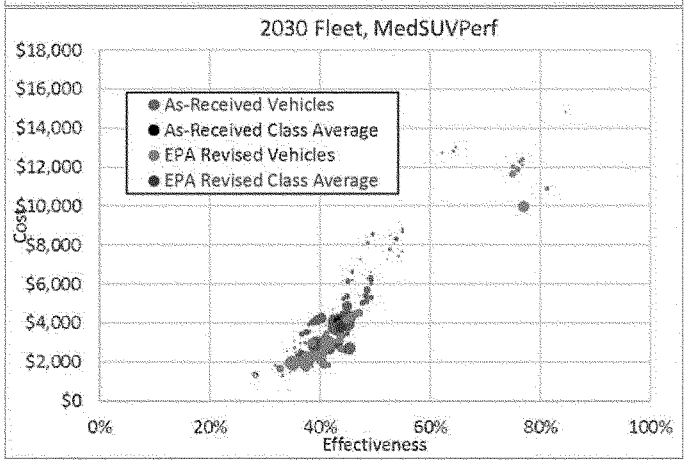

2030 Fleet, Small Car
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
0%
10%
20%
30%
40%
50%
60%
Effectiveness
2030 Fleet, SmallCarPerf
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
0%
10%
20%
30%
40%
50%
60%
Effectiveness

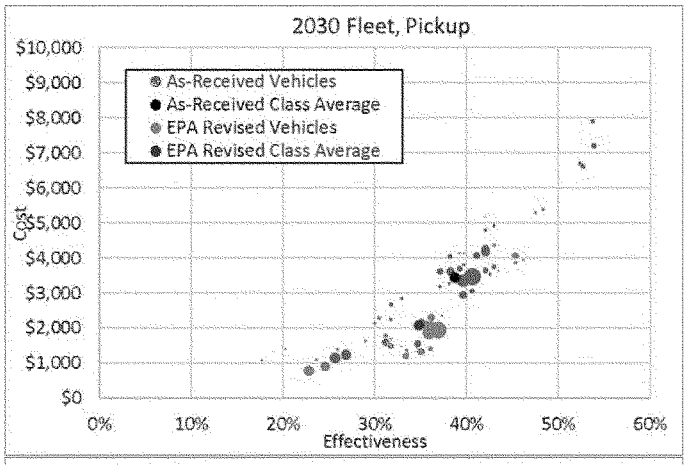

2030 Fleet, MedCar
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
0%
20%
40%
60%
80%
100%
Effectiveness

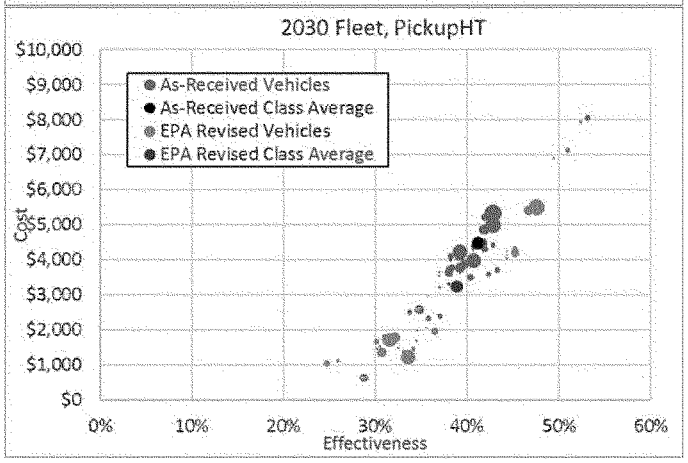

2030 Fleet, MedCarPerf
As Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
0%
20%
40%
60%
80%
100%
Effectiveness


2030 Fleet, SmallSUV
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
0%
20%
40%
60%
80%
100%
Effectiveness
2030 Fleet, SmallSUVPerf
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
0%
20%
40%
60%
80%
100%
Effectiveness


2030 Fleet, MedSUV
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
0%
20%
40%
60%
80%
100%
Effectiveness


2030 Fleet, MedSUVPerf
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
0%
20%
40%
60%
80%
100%
Effectiveness


2030 Fleet, Pickup
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
0%
10%
20%
30%
40%
50%
60%
Effectiveness


2030 Fleet, PickupHT
As-Received Vehicles
As-Received Class Average
EPA Revised Vehicles
EPA Revised Class Average
Cost
$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
0%
10%
20%
30%
40%
50%
60%
Effectiveness

EPA Initial Review of CAFE Model & Inputs, February 9, 2018

Overview

This document summarizes EPA's initial findings from a review of the CAFE model and inputs, based on the materials provided on January 24th and February 1st by NHTSA. This is not intended to be a compressive assessment of the model, or the inputs and associated assumptions, but is instead meant to serve as the first step in an iterative review where the process of making observations and asking clarifying questions will lead to further exchanges of information. The following sections cover the four topic areas reviewed: the CAFE model in general, the representation of technologies, economic factors, and safety. Each section contains EPA's observations, along with supporting information where it may help to explain EPA's rationale for identifying a particular modeling element.

CAFE model: Overall observations and questions

Between January 24th and February 1st EPA received several files from NHTSA representing NHTSA's "January 22, 2018" runs. These files included four Excel files: 'analysis fleet', 'technologies', 'parameters', and 'scenarios'. In addition, NHTSA subsequently provided instructions for accessing tech package effectiveness and battery cost values embedded in the model. The overall observations and questions presented below are based on the information provided to-date.

In reviewing NHTSA's analysis, EPA has noted that many aspects of the CAFE analysis are similar to previously reviewed analyses and identified portions of the analysis that are new to the model's operation, these include the Fleet Scrappage Model, Dynamic Fleet Share, and Fleet Safety Fixed Model.

Observation 1: *When EPA utilizes the Jan 22 input files and executes the CAFE model with the default settings as provided by NHTSA, the resulting outputs do not match the values in the NHTSA-generated summary table. (see comparisons in Table 1 and Table 3)*

The EPA-generated "Price increase due to new CAFE standard" for a MY2030 vehicle shown in Table 3 is -$1,599 compared to the value of -$1,769 provided by NHTSA. The EPA-generated "Average Annual Fatalities CY's 2036-2045" value shown in Table 1 is -703 (relative to the no action alternative) compared to a NHTSA-provided value of -1,186. Overall, nearly every output variable summarized in Table 1 and Table 3 shows a difference of some degree between the EPA- and NHTSA-generated results. There are multiple possible explanations, including EPA's misinterpretation of the meaning of a particular row label, or potential differences in the selection of which output fields to include in a particular total cost or total benefit summation. Without additional information, EPA can not further evaluate the underlying reason for the difference in values seen. At the same time, an effective review of the CAFE model and inputs by EPA will depend on EPA's ability to correctly replicate and interpret the model outputs.

Question/Information Request 1. Please provide the output files (contents of the 'reports-csv' directory) from the NHTSA-generated run that was used to populate the values shown in Table 1 and Table 3, along with the associated 'Summary.txt' run configuration description file.

Table 1 Results of Standard Setting Run from 22-Jan-18 as summarized by NHTSA, and values produced by EPA's run of NHTSA-provided model with default settings

Source	As summarized by NHTSA		EPA-generated values	
Model Years	2022-2025	2021-2026	2022-2025	2021-2026
Annual Rate of Increase in Stringency	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT
AC/Off-Cycle Procedures	No Change	No Change	No Change	No Change
Fuel Economy				
Average Required Fuel Economy – MY 2026+ (mpg)	46.6	38.2	46.8	38.1
Average Achieved Fuel Economy – MY 2030 (mpg)	47.6	40.6	46.5	40.7
Change in Physical Quantities Attributable to CAFE Alternative				
Fuel Consumption (b. gal)	baseline	76.4	baseline	74.8
Fuel Consumption (b. barrels)	baseline	1.8	baseline	1.8
CO_2 Emissions (mmt)	baseline	847	baseline	827
CH_4 Emissions (metric tons)	baseline	1,482,533	baseline	1,453,288
N_2O Emissions (metric tons)	baseline	12,214	baseline	16,761
Average Annual Fatalities CY's 2036-2045	baseline	(1,186)	baseline	(703)
Average Annual Fatalities CY's 2036-2045 without rebound	baseline	(395)	baseline	
Sales (millions)	baseline	1.0	baseline	0.9
Technology Use Under CAFE Alternative in MY2030 (total fleet penetration)				
Weight Reduction (not including powertrain)	17%	12%	16.4%	12.7%
High Compression Ratio Non-Turbo Engines	26%	13%	26.2%	20.9%
Turbocharged Gasoline Engines	60%	47%	61.9%	52.8%
Dynamic Cylinder Deactivation	6%	0%	5.0%	1.9%
Diesel Engines	1%	1%	0.6%	0.5%
Advanced Transmissions (Non-Hybrid)	72%	87%	68.0%	87.2%
Stop-Start 12V (Non-Hybrid)	15%	13%	14.2%	15.6%
Mild Hybrid Electric Systems (48v)	35%	1%	29.3%	4.7%
Strong Hybrid Electric Systems	20%	5%	26.9%	3.6%
Sum of Strong Hybrid and Mild Hybrid	**56%**	**5%**	**56.2%**	**8.3%**
Plug-In Hybrid Electric Vehicles (PHEVs)	5%	4%	1.4%	0.7%
Dedicated Electric Vehicles (EVs)	1%	1%	0.5%	0.5%
Sum of Plug-In Vehicles	**5%**	**4%**	**1.9%**	**1.2%**
Total of All Electrified Vehicles	***61%***	***10%***	***58.1%***	***9.5%***

Table 2 EPA's grouping assumptions for technology penetration summary in the table above, based on 'technology_utilization_report.csv' output file

Tech	Assumed Calculation
Weight Reduction (not including powertrain)	MR1*5%+MR2*7.5%+MR3*10%+MR4*15%+MR5*20%
High Compression Ratio Non-Turbo Engines	HCR1
Turbocharged Gasoline Engines	TURBO1+TURBO2+CEGR1
Dynamic Cylinder Deactivation	ADEAC
Diesel Engines	DSLI
Advanced Transmissions (Non-Hybrid)	All but AT5, AT6, DCT6, CVT
Stop-Start 12V (Non-Hybrid)	SS12V
Mild Hybrid Electric Systems (48v)	BISG
Strong Hybrid Electric Systems	SHEVP2+SHEVP5
Plug-In Hybrid Electric Vehicles (PHEVs)	PHEV30+PHEV50
Dedicated Electric Vehicles (EVs)	BEV200

Table 3 Results of Standard Setting Run from 22-Jan-18 as summarized by NHTSA, and values produced by EPA's run of NHTSA-provided model with default settings

Source	As summarized by NHTSA		EPA-generated values	
Model Years	2022-2025	2021-2026	2022-2025	2021-2026
Annual Rate of Increase in Stringency	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT
AC/Off-Cycle Procedures	No Change	No Change	No Change	No Change
Consumer Costs and Savings for Average MY 2030 Vehicle				
Price Increase due to New CAFE Standards ($)	baseline	(1,769)	baseline	(1,599)
Increase in Other Ownership Costs ($)	baseline	(722)	baseline	(381)
Total Consumer Costs ($)	baseline	(2,492)	baseline	(1,980)
Discounted Fuel Savings to Owner ($)	baseline	(1,200)	baseline	(1,033)
Other Consumer Benefits ($)	baseline	(487)	baseline	(389)
Total Consumer Savings ($)	baseline	(1,687)	baseline	(1,422)
Discounted Net Savings to Owner ($)	baseline	805	baseline	558
Payback Period Relative to Baseline (years)	baseline		baseline	
Payback Period Relative to MY2016 (years)		13.0		5.6
Social Costs and Benefits (Total Through MY 2029)				
Technology Cost ($b)	baseline	(246)	baseline	(211)
Other Private Costs ($b)	baseline	(158)	baseline	(152)
Crashes, Noise and Congestion ($b)	baseline	(76)	baseline	(42)
Total Costs of New CAFE Standards ($b)	baseline	**(480)**	baseline	**(403)**
Fuel Savings ($b)	baseline	(138)	baseline	(132)
Other Private Benefits ($b)	baseline	(117)	baseline	(101)
Social Cost of Carbon ($b)	baseline	(4)	baseline	(4)
Other Environmental Damages ($b)	baseline	(2)	baseline	(4)
Petroleum Market Externalities ($b)	baseline	(22)	baseline	(21)
Total Benefits of New CAFE Standards ($b)	baseline	**(283)**	baseline	**(262)**
Net Benefits of New CAFE Standards ($b)	***baseline***	***197***	***baseline***	***141***
Additional Measures (Total Through MY 2029)				
Additional Fine Payments ($b)	baseline	0.0		

A full understanding of the model will require a review of the inputs and assumptions that are embedded within the executable file that EPA requested for this initial review. For example, details about the technology application decision trees are encoded within the CAFE model, and determine whether or not individual technologies (and associated costs) are included along a technology pathway. There are a number of examples of this type of embedded inputs and assumptions that EPA is aware of, and potentially others that EPA is not aware of.

Question/Information Request 2. Please provide the uncompiled CAFE model in the native code is (e.g. C#, Java, etc.)

Representation of technologies in the CAFE model and inputs

Technology effectiveness

The technology inputs provided by NHTSA on February 1 define effectiveness values for approximately 150,000 packages across ten vehicle classes. In addition, the 'technologies' input file contains the individual technology effectiveness values which are not modeled in full vehicle simulation sucb as electric power steering, improved accessories, low drag brakes, and low friction lubricants. A full evaluation of the assumed effectiveness values for individual technologies and their various combinations will require more time than the approximately one week that EPA has spent to-date and will require additional follow-up. The following summary of an effectiveness review conducted over the course of approximately one week is intended to highlight specific areas for further discussion and begin to identify additional information tbat is needed for a complete review.

Observation 2: *The incremental effectiveness of the more advanced turbocharged engine (TURBO2) compared to the less advanced version (TURBO1) engines is often negative.*

Tbe technology inputs include two levels of turbocharged engines, TURBO1 and TURBO2. The incremental cost of TURBO2 hardware over TURBO1 hardware is about $350 to $700 in 2030; although it is unclear what specific technologies are represented by this cost, one would expect a generally higher effectiveness. However, depending on the package and car class, the actual incremental effectiveness values from the NHTSA technology inputs for the TURBO2 technology is often negative. The "Medium SUV" class, shown in Figure 1 has the most pronounced **effect, with the addition of the TURBO2 technology, on average, having a negative effectiveness.**

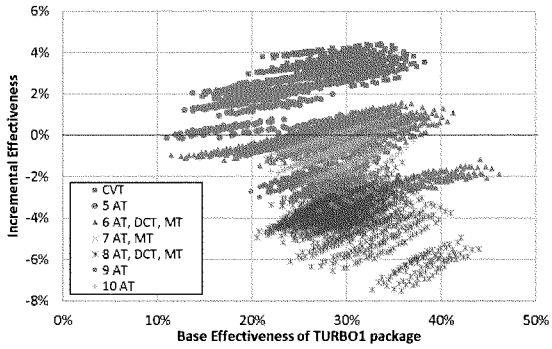


Figure 1 Incremental Effectiveness of TURBO1 to TURBO2 (MedSUV class)

Observation 3: *The addition of cooled exhaust gas recirculation (CEGR1) onto turbocharged engines (TURBO2) provides no relative benefit, despite the additional cost of the technology. Given this input assumption, the CAFE model outputs, as expected, do not show application of CEGR1.*

A cooled EGR package when added to the advanced turbocharged engine (TURBO2) has a cost of $334 in 2030. Cooled EGR is a technology that has been used in the market, and has a significant effect on CO_2 reduction. However, as illustrated in Figure 2, the incremental effectiveness is at or near zero for

nearly all packages (and averaging zero for all packages). The "Medium Car Performance" class shown in the figure is representative of the near-zero effect of the technology for all classes.

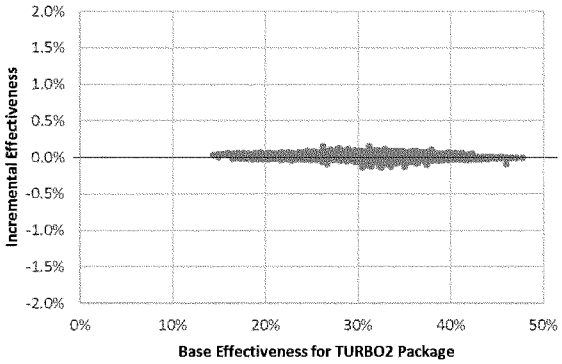


Figure 2 Incremental Effectiveness of TURBO2 to CEGR1 (MedCarPerf class)

Observation 4: *The effectiveness the most advanced eight-speed transmission (AT8L3) is only moderately more than the most advanced six-speed transmission (AT6L2).*

The modeled automatic transmissions include one "improved" level of a six-speed automatic (AT6L2) and two improved levels of eight-speed automatics (AT8L2 and AT8L3). The cost of the AT6L2 package (additional to an AT6) is $362 in 2030. The cost of the AT8L3 package (additional to an AT8) in 2030 is nearly the same ($358). Incremental to the AT6, the best eight-speed package is $485 (i.e.,$123 more than the AT6L2). However, on average, the technology inputs provided show that the AT8L3 is only 1% more effective than the AT6L2, and in some cases is worse (as shown by the Small SUV plot).

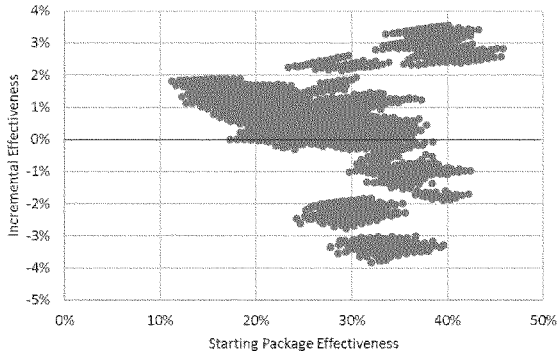


Figure 3 Incremental Effectiveness of the best six-speed (AT6L2) v. the best eight-speed (AT8L3) (Small SUV)

Observation 5: *The effectiveness improvement from a basic six-speed transmission (6AT) to a basic eight-speed (8AT) transmissions is unexpectedly low for trucks.*

The technology inputs provided seem to show that the incremental effectiveness associated with moving from a six-speed transmission (AT6) to an eight-speed transmissions (AT8) is noticeably different depending on class. The figure shows effectiveness for a medium car and a pickup; on average, the eight-speed effectiveness for the car is about twice that for the truck. This trend seems to hold for the small and medium car classes, which have AT8 effectiveness about twice that of the medium SUVs and trucks (with the small SUVs in between). This may be due to assumptions about front-and rear-wheel drive systems; however, comments from stakeholders have indicated that RWD systems should have greater potential for transmission effectiveness improvements, as packaging more gears in the space provided is less of a concern.

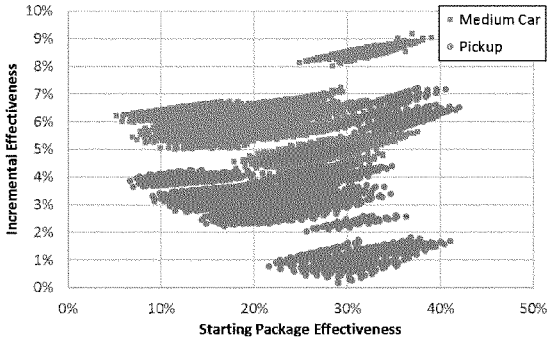


Figure 4 Incremental Effectiveness of six-speed (6AT) to eight-speed (8AT) for Pickup and Medium Car

Observation 6: *On average, 48V Mild Hybrid with a crank-integrated starter-generator (CISG) is the same, or slightly worse than with a belt-integrated starter-generator (BISG) despite having a higher cost.*

The cost of a crank-integrated starter-generator (CISG) system in 2030 is given as either $178 (for smaller vehicles) or $767 (for larger vehicles) in 2030, incremental to a belt-integrated starter-generator (BISG). Additional battery costs in 2030 are about $617 for the BISG and $805 for the CISG, making the incremental CISG battery cost an additional $187. The CISG is expected to provide additional effectiveness over the BISG because of the direct couple to the crank.

However, on average, the CISG is slightly less effective tan the BISG, although with a wide spread of effectiveness. The small car example shown in Figure 5 is typical, with the incremental effectiveness of most packages between about +1% and -1%.

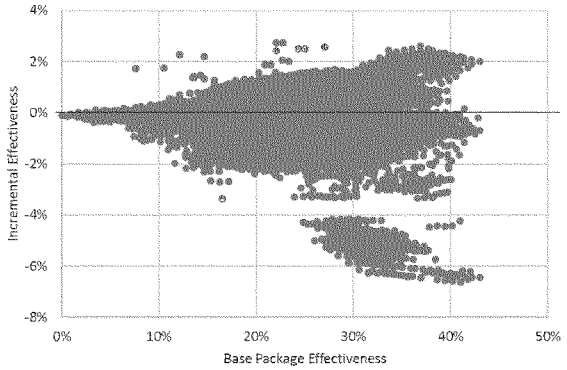


Figure 5 Incremental Effectiveness of 48V Mild Hybrid with belt-integrated starter-generator (BISG) to crank-integrated starter-generator (CISG) (Small Car class)

Observation 7: *Some 12V Stop-Start applications have negative effectiveness values.*

The cost of stop-start technology is either $466 or $521 in 2030, depending on vehicle class, plus about $582 in battery costs. However, there are some packages where the provided technology inputs indicate a negative effectiveness, as shown in Figure 6 for the small car class below. Moreover, there are a few packages in some classes that are clear outliers (see the medium SUV performance class), **either high or low.**

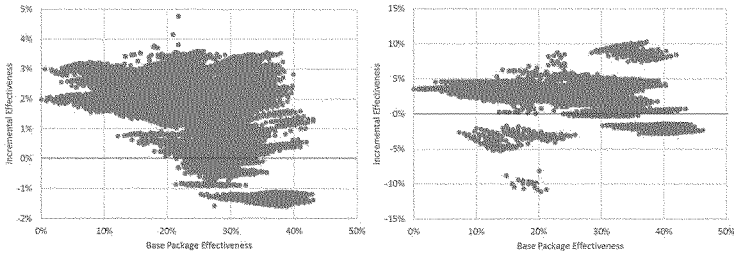


Figure 6 Incremental Effectiveness of CONV to SS12V for Small Car class (left) and Medium SUV Perf class (right)

<u>Question/Information Request 3.</u> Please provide a description of the hardware that is assumed to be included in the technology packages highlighted in the observations above: TURBO2 (relative to

TURBO1), CEGR1 (relative to TURBO2), AT8L3 (relative to AT8L), AT6L2 (relative to AT6), CISG (relative to BISG), and SS12V (relative to CONV)

Question/Information Request 4. Please provide a table of the vehicle characteristics used simulate each of the 10 vehicle classes represented in this analysis (with MR0,ROLL0, AERO0). In particular test, weight, road load coefficients, power/acceleration/towing metrics, drive layout (RWD, FWD, AWD, 4WD), and any other specifications used when generating the 'FC1_Improvements.csv' file.

Technology application constraints

In the CAFE model, the application of a technology may be constrained in order to reflect the lead-time required to achieve large-scale production and wide-spread penetration into the fleet. The broad application can be excluded from consideration by the specification of a year in which the technology is initially available, by setting a phase-in cap, or by the use of a 'FALSE' application flag value. Technologies can also be excluded from application to a specific vehicle by the platform, engine, and transmission sharing constraints, by the technology pathways encoded into the model, and by the explicit definition a "SKIP" flag to an individual vehicle-technology combination.

Observation 8: *Application of HCR1 is restricted for large portion of the fleet.*

Atkinson cycle engines with high geometric compression ratios (HCR) have proven to be a cost-effective pathway for reducing fuel consumption, with Mazda applying the technology to the majority their current vehicles, and Toyota announcing its plan for at least 60 percent application (by volume) by 2021. The 'analysis_fleet' file contains the 'SKIP' application flag for over 70 percent (by volume) of the fleet, while most other powertrain technologies are not similarly constrained (see Table 4.)

Table 4 Proportion of fleet volume with vehicle-specific technology application constraints ('SKIP' flag) with examples of high-compression ratio Atkinson cycle engines (HCR1) and strong hybrids

Application Flag in 'analysis_fleet' file	HCR1	Strong Hybrid (SHEVP2 +SHVEPS)	notes
USED	6.3%	1.8%	Assumed to be applied in MY2016
SKIP	70.6%	0%	Application not allowed in future
blank	23.0%	98.2%	Application allowed in future

Question/Information Request 5. Why is the HCR1 technology highly constrained in the 'analysis-fleet' file relative to other technologies that are more complex and less cost-effective?

Observation 9: *The packages available for consideration as inputs to the CAFE model do not include some significant technologies that are available in production vehicles today.*

For example, the 2018 Mazda CX-5 CUV and Mazda 6 sedan both are examples of non-hybrid electric vehicles that use Atkinson Cycle engines with cylinder deactivation. NHTSA's package designation for Atkinson Cycle is HCR1 and for cylinder deactivation is DEAC. In the 2016 Draft TAR analysis, NHTSA had a package designation of HCR2 for a combination of Atkinson Cycle, cooled EGR, and cylinder deactivation. The input files used in the most recent analysis do not allow any combination of DEAC and HCR1 and the HCR2 package is restricted from application through the use of a "FALSE" flag in the 'technologies' input file (also, no packages are built using HCR2.) In other

words, a high-efficiency technology combination currently in production by Mazda for the 2018 model year will not be available for consideration in the CAFE model using the current input files.

Technology costs

Observation 10: *The cost of Dynamic Cylinder Deactivation (ADEAC) is 2-4 times higher than industry quoted costs for the version of the technology which is going into production in MY2019.*

General Motors recently announced their implementation of ADEAC on two V8 OHV engines for the Silverado for MY2019 and EPA test drove and benchmarked an ADEAC-equipped GMC Yukon V8 OHV at NVFEL in 2017, verifying the effectiveness of the ADEAC system in drive cycle tests and the system's transparency to the driver. The supplier of the ADEAC system on the GMC Yukon (Tula/Delphi) quoted the 2017 cost for this system (manufacturing cost plus licensing fee), to which EPA applied a learning factor of 13.5% (from 2017 to 2025) and a manufacturer mark-up cost multiplier of 1.5, and this is shown on the far right in Figure 7. For this application (V8 OHV), the CAFE model marked-up cost is 4 times higher than the industry quoted manufacturer marked-up cost.

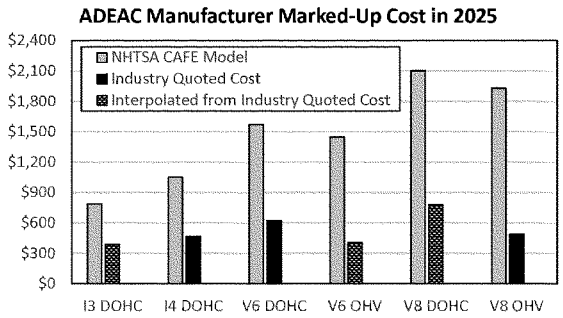


Figure 7 Comparison of Dynamic Cylinder Deactivation Costs

NHTSA's 2-4 times higher cost of ADEAC impacts the CAFE model's application of the technology. NHTSA's summary of CAFE model output (Table 1) shows a 6% market penetration of ADEAC in 2030 if current standards are kept in place and 0% if "alternative 1" standards are selected. (note that as shown in Table 1, EPA was unable to reproduce these results using provided input files and default CAFE model settings.)

The CAFE model's 0% penetration of "alternative 1" is unrealistic considering General Motors will be offering two engines for the Silverado with ADEAC in MY2019, and the sales of these engines (prior to ADEAC) was 767,000 in MY2016, or about 4.4% of the entire LDV fleet. Other manufacturers likely have similar plans, which will likely increase ADEAC market penetration well past 4.4% in the MY2019-2022 timeframe.

The CAFE model's 6% penetration in MY2030 using current standards may also be low, considering that it is much easier to apply a technology to subsequent engines after several examples have been developed and entered production. EPA believes the low penetration of ADEAC in the CAFE model may be due to the high ADEAC cost assumed by the CAFE model.

Question/Information Request 6. Please provide details for how the costs for dynamic cylinder deactivation were estimated, particularly the $1,931 cost for V8 OHV engines.

Economic factors in the CAFE model and inputs

Consumer choice modeling ('dynamic fleet share' and 'scrappage' models)

The effects of the standards on vehicle sales and market shares has been a recurrent question. On the one hand, the standards reduce operating costs; all else equal, that change should make new vehicles more attractive and increase sales. On the other hand, the standards increase technology costs; all else equal, that change should discourage new vehicle sales. Which effect dominates has been subject of a great deal of controversy. A key variable is the role of fuel economy in consumer purchases, measured either in payback period (the number of years of fuel savings that people consider when buying a new vehicle) or discount rate (how people discount the lifetime of future fuel savings). EPA has reviewed this literature, as has the National Academy of Sciences; in both cases, the finding was a very wide range, and no consensus, in the literature.

Academic and other researchers have developed a number of vehicle demand (consumer choice) models for the new and/or used vehicle markets to look at effects on sales and fleet mix. Rarely has there been any effort to validate these models, either for consistency across models, or for ability to predict out of sample. Recent academic research (Haaf et al. 2014, 2016), as well as work by EPA, has found that these models commonly perform worse, especially in the short run, than simply holding market shares constant. For these reasons – an absence of solid science supporting the use of vehicle demand models for predicting the effects of the standards on vehicle sales – neither EPA nor NHTSA has used consumer choice modeling in either the 2010 or 2012 rulemakings, or in the 2016 Draft TAR, or in previous CAFE rulemakings. The agencies have occasionally estimated the effects of the standards on new vehicle sales using a Total Cost of Ownership model, where the key parameter, as mentioned above, is the role of fuel savings in consumer purchase decisions. This approach was recently recommended by Dr. John Graham and others from Indiana University in their February 2016 report, "Rethinking Auto Fuel Economy Policy".

The CAFE model appears now to include a "Dynamic Fleet Share" model (which we think is a consumer choice model for new vehicles) and a "Scrappage" model (scrappage models estimate the effect of new vehicles on the used vehicle market). These have not previously appeared in the CAFE model.

Observation 11: *From a review of the model outputs, the use of the 'Dynamic Fleet Share' and 'Scrappage' models appear to significantly impact overall sales, fleet volumes, and model mix, and therefore are important factors in the CAFE model's resulting net benefits, costs, and safety results.*

Sales increase for both the augural standards and the alternative standards, though they appear to increase slightly more for the alternative standards. In addition to total sales, sales mix changes between the augural and alternative standards (that is, sales for individual vehicles increase at different rates, though all increase). Price increases at least as much as technology costs for individual vehicles; in a number of cases, vehicle price increases more than technology costs, though we have not been able to figure out how those price increases are calculated (see below). These changes are likely to affect emissions and other model outputs.

Observation 12: *However, the inputs for these new modelling elements are not clear and the operation of the elements is also not clear to the model user.*

The "Dynamic Fleet Share" model coefficients for FP, HP, and MPG, seem to indicate that the sales response to changes in these variables for cars is opposite of the sales response for trucks. This table is the documentation presented for the DFS. It is our guess that these are regression coefficients used to predict vehicle sales for cars (LDV) and light trucks (LDT1/2a). It is further our guess that FP is footprint, HP is horsepower, CW is curbweight, MPG is miles per gallon. We do not have guesses what Rho and Dummy are associated with.

Coefficients	LDV	LDT1/2a
Constant	3.4468	7.8932
Rho	0.8903	0.3482
FP	0.1441	-0.4690
HP	-0.4436	1.3607
CW	-0.0994	-1.5664
MPG	-0.5452	0.0813
Dummy	-0.1174	0.6192

We observe that HP and MPG have negative signs for cars (i.e., more HP and more MPG reduce sales), while those coefficients are positive for trucks (i.e., more HP and more MPG increase sales). In contrast, FP increases car sales but reduces truck sales. These results are not what we would expect.

As discussed above, the role of fuel savings in vehicle demand modeling is critically important; it essentially determines the direction of new vehicle sales effects. As noted, it appears that more fuel economy is bad for cars but good for light trucks, with unexplained magnitudes.

Observation 13: *The scrappage model coefficients do not have consistent signs for cars, Vans/SUVs, Pickups*

It is not known exactly what the Scrappage model predicts: how many vehicles of which vintages are scrapped each year? The scrappage model appears to include 34 parameters, including new vehicle prices, vehicle age, CPM (cost per mile?), GDP growth rate, and interactions among these in polynomial forms. It is thus hard to evaluate. Below is a partial representation. Signs of the coefficients are again not consistent (see, e.g., Age, Age^2, Age^3, New Price, New Price*Age, New Price*Age^2), though how these affect predictions is not easy to determine.

Parameter	Cars	Vans/SUVs	Pickups
Estimate Scrappage	TRUE	TRUE	TRUE
Beta Coefs			
Age	0.616047051	-0.473441117	-1.119398279
Age^2	-0.057406753	0.032324147	0.037890057
Age^3	0.001582126	-0.000301894	0

ln(MY-1959)	-1.608885894	-3.946616362	-3.364968508
ln(MY-1959)*Age	0.213582275	0.504803381	0.34204715
ln(MY-1959)*Age^2	-0.006715995	-0.015159639	-0.008384946
ln(MY-1959)*Age^3	0	0	0
New Price	-0.000161276	0.000371589	-0.000303124
New Price*Age	7.84025E-06	-2.88675E-05	2.83304E-05
New Price*Age^2	1.00488E-07	5.91183E-07	-9.62014E-07
New Price*Age^3	-1.212E-08	0	0

Question/Information Request 7. Please describe any previous rulemakings where these or similar models were used to examine impacts on sales and fleet mix.

Observation 14: *The CAFE model vehicles_report output file provides vehicle price increases, which in some cases is the same as the tech cost increase, and other cases significantly higher.*

Question/Information Request 8. Please provide an explanation of the methodology for individual determining price increases, and the relationship between the technology costs, fines, and price increases.

Discount rates

In rulemakings, EPA and NHTSA have calculated and reported net benefits with a 3% discount rate for both benefits and costs, and separately with a 7% discount rate for both benefits and costs. These are intended to represent expectations of impacts of the standards.

Observation 15: *The summary tables provided by NHTSA includes a footnote for "Consumer Costs and Savings for Average MY 2030 Vehicle" stating, "Consumer Costs and Savings are discounted to net present value using a 7% discount rate." On the other hand, "Societal Costs and Benefits are discounted to net present value using a 3% discount rate."*

OMB Circular A-4 observes that the real discount rate of 7 percent "is an estimate of the average before-tax rate of return to private capital in the U.S. economy," that is, for private-sector business activity. On the other hand, according to Circular A-4, "When regulation primarily and directly affects private consumption (e.g., through higher consumer prices for goods and services), a lower discount rate is appropriate." On that basis, it seems inappropriate to use a 7 percent discount rate for "Consumer costs and savings."

As discussed above for consumer choice modeling, it may be reasonable to choose a different discount rate for fuel savings when analyzing sales impacts, as an alternative to using a limited number of years of future fuel savings (payback period). Such alternative rates are used to estimate how consumers behave when buying vehicles; they do not necessarily represent what consumers will experience once they have bought their vehicles. "Consumer Costs and Savings" should reflect what consumers are expected to experience; the Dynamic Fleet Share and Scrappage models already serve the function of estimating sales impacts.

Question/Information Request 9. Please explain the basis for using a 7 percent discount rate for Consumer costs and savings, and how that satisfies the instructions of OMB Circular A-4. Also, the parameters input sheet includes "Consumer Discount Rates" of 0.03, 0.07, 0.12, and 0.15. Are 12 and 15 percent discount rates used? If so, where are they used, and what is the explanation for their use?

VMT schedules

The assumptions made about how much the average vehicle is driven in each year over a vehicle lifespan is an important factor in the calculation of greenhouse gas emissions, fuel savings, and discounted net benefits. The accumulation of vehicle mileage earlier in a vehicle's lifetime will tend to result in fuel savings and emissions benefits that are pulled ahead to earlier calendar years, and therefore discounted less in terms of net present value compared to a vehicle that accumulates more mileage later in its lifespan.

Observation 16: *The form of the mileage accumulation schedule provided in the 'parameters' input file is unexpected, and not consistent with mileage accumulation schedules in other data sources.*

The table of vehicle miles traveled (VMT) by vehicle age described in the 'parameters' input file shows a steep drop-off in annual VMT after age 6. NHTSA had first utilized a curve with that shape in the 2016 Draft TAR, and EPA understands the underlying data source is an IHS/Polk product based on odometer readings from individual vehicles. The drop-off in annual VMT in the NHTSA schedule shown in Figure 8 is not seen in other data sources, including the 2001 National Household Travel Survey (NHTS), and a DOE LBNL analysis based on odometer readings from DMV records of the Texas inspection an maintenance program. The 2009 NHTS data shows a decline that coincides with the NHTSA schedule, but of a much smaller magnitude.

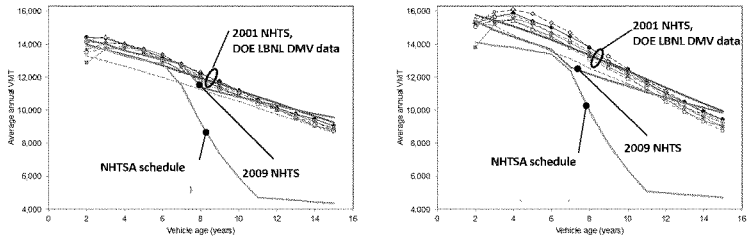


Figure 8 Comparison of NHTSA mileage accumulation schedule with data from other sources for cars (left) and trucks (right)

Question/Information Request 10. Can NHTSA provide an explanation for why such a dramatic decline in annual VMT occurs after age 6, and considering that large decline why does NHTSA believe that the IHS/Polk data is more defensible than multiple other sources which are based on population-weighted samples of odometer readings of individual vehicles.

Employment Analysis

In past rulemakings, NHTSA has based its employment analysis solely on sales volumes (the "output effect"): if sales are projected to change, employment would change in a constant ratio. Because EPA has not quantitatively estimated sales impacts in recent rulemakings, for reasons discussed above for "Consumer Choice Modeling," it has not quantified the effects of sales changes on employment. It has, however, estimated the proportion of technology costs that are labor costs – that is, the labor involved in the new technologies, known as the "cost effect" or "substitution effect" – and included estimates of those effects in its analysis. NHTSA has not included those effects in its employment analysis, even though labor costs are a significant fraction of technology costs. This initial review is based on an inspection of input files.

In the "parameters" spreadsheet, "Employment Values" includes information for revenue per employee for OEMs and suppliers. These parameters are not consistent with NHTSA's approach to the output effect in recent rules of using workers per vehicle, nor is it consistent with EPA's method of estimating the substitution effect.

The spreadsheet also includes multiplier values, which seek to measure the ripple effects of employment in the auto sector to other sectors in the economy. Multiplier effects are most suitable for situations, such as small regions, where it is reasonable to expect people to enter (or move into) and leave jobs in the area in response to changes in one sector. At the level of the U.S., multiplier effects depend on assumptions about the state of the macroeconomy at the time of impacts. If unemployment is high, as in 2009, then multiplier effects can happen, as people enter or leave the workforce. On the other hand, if unemployment is low, then it is unlikely that new jobs are created in response to changes in the auto sector; rather, workers will switch among sectors. The use of multipliers for auto sector job impacts thus requires assumptions about unemployment at the time of the changes.

Question/Information Request 11. Please provide documentation for how NHTSA is calculating employment impacts. Is it based on revenue? If so, what is the method for doing so?

Question/Information Request 12. What do the employment numbers in the output sheets measure -- Auto sector? Multiplier effects? If multiplier effects are used in NHTSA's employement estimates, what assumptions are being made about the state of the macroeconomy at the time of impacts? What is the source of those assumptions?

Question/Information Request 13. Is NHTSA including in its analysis the employment effects associated with technology costs? If not, what is the explanation for this omission?

VMT Rebound

In past LDV rulemakings in 2010 and 2012, and the Draft TAR published in July 2016, EPA, NHTSA and CARB jointly determined that an LDV VMT rebound estimate of 10% was the most appropriate value for assessing standards out to the 2025 timeframe. In the Summary Tables provided by NHTSA (the parameters spreadsheet, Economic Values for Benefits Calculations (2016$), Rebound Effect: VMT elasticity wrt fuel cost per mile), NHTSA doubled its estimate of VMT rebound to 20% for passenger cars, light trucks and light trucks 2b3.

Question/Information Request 14. What is the basis that NHTSA used to double its estimate of the VMT rebound effect for this rulemaking? Are there new recent published studies on LDV VMT rebound

effects since the 2016 Draft TAR that NHTSA used to update its estimate of the LDV VMT rebound effect? Please provide documentation for the updated methodology/rationale.

Emissions impacts and costs

Effects of the standards on both CO_2 and other pollutants depend on not only the changes in technologies to vehicles, but also changes in the amount driven (rebound effect), changes in the number of vehicles and fleet mix (Dynamic Fleet Share and Scrappage models), and changes in fuels produced (upstream effects).

Observation 17: *In the "societal_effects_report," it appears, at least for 2025 and 2030, that, in going from the augural standards to the alternative standards, emissions of some pollutants (VOC, NOx, SO_2, PM, CO_2, CH_4, N_2O, DPM) increase, while emissions of others (CO, Acetaldehyde, Acrolein, Benzene, Butadiene, Formaldehyde) decrease.*

It seems peculiar that some increase while others decrease; it's especially counter-intuitive that toxics go down while VOC goes up.

Question/Information Request 15. Can NHTSA explain what contributes to this effect?

Observation 18: *It is unclear where NHTSA selected the unit values to monetize changes in PM-related criteria pollutant emissions (aka, benefit per ton values - BPT).*

NHTSA provides the following table for Emission Damage Costs:

Emission Damage Costs ($/metric-ton)	
Carbon Monoxide	0
Volatile Organic Compounds	2,000
Nitrogen Oxides	8,200
Particulate Matter	371,100
Sulfur Dioxide	48,000
Methane	0.0000
Nitrous Oxide	0.0000

They appear to be outdated (e.g., they include a unit value for VOCs, which EPA no longer monetizes due to uncertainty in the underlying air quality modeling); and they don't appear to account for how BPT values increase over time.

Question/Information Request 16. What is the source for these emissions damage costs, and does the CAFE model change the values over time?

Safety assessment

Question/Information Request 17. How are the "fixed effects", as presented in the safety values sheet of the parameters input file estimated? Why are values flat from 2014 through 2021? Why do they decrease beyond 2021? Why the large step change reduction in 2026 with a flattening beyond 2026?

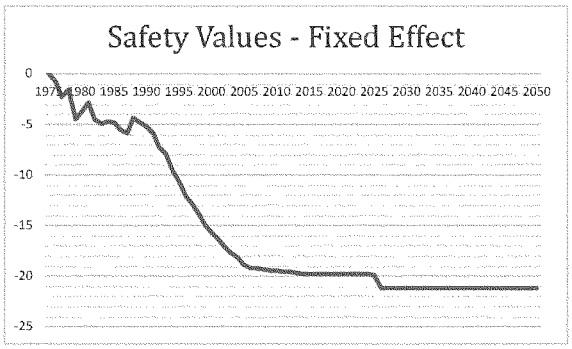


Figure 9 Fixed Effect Values used in the Safety Analysis

Question/Information Request 18. Running the CAFE model with the DFS model turned OFF (and all other inputs as received by EPA) results in fewer fatalities in both the Augural and Alternative scenarios while simultaneously reducing sales in MYs 2017 through 2029 by ~18 million vehicles (see table below). Is there an explanation for why this would happen?

Model inputs	All inputs as received by EPA			DFS Model turned OFF		
Scenario	Augural	Alternative	Delta	Augural	Alternative	Delta
Fatalities (avg/CY 2036-2045)	18,055	17,352	-703	16,259	15,556	-703
Sales (MY2017-2029, millions)	223.7	224.6	0.9	205.8	205.8	0.0

EPA Further Review of CAFE Model & Inputs, February 28, 2018

Overview

This document summarizes EPA's findings to-date from a review of the CAFE model and inputs, based on the materials provided on January 24th, and follow-up materials and discussions with NHTSA. EPA chose to use the available timeframe to focus on the modeling inputs and assumptions that are likely to have the most significant influence on the results, with particular attention to the effects on technology costs, net benefits, penetration of strong electrification technologies, and fatalities.

At this point, EPA cannot endorse the use of the CAFE model for an EPA NPRM. Given the application of new, unreviewed models, errors and anomalies in technology effectiveness, higher than expected costs for batteries and some conventional technologies, and dated nature of some of the inputs and indefensible technology application constraints, it is not possible for EPA to conclude that the current NHTSA analysis reflects the conclusions of the research performed by EPA over the last five years. We also note that EPA's review of the CAFE model is limited by our ability to review the CAFE model code, and we renew our request for the uncompiled CAFE model code to enable EPA to complete our review.

EPA's observations are grouped into four topic areas: the CAFE model in general, the representation of technologies, economic factors, and safety. The first four sections of this document cover the most significant observations and supporting information for each topic area. Additional observations are included four subsequent sections.

Executive Summary

While a significant amount of information has been shared between the two agencies, EPA feels that these results represent a limited understanding of the CAFE model. Some priority requests have been left unfulfilled and other information was received very late in the review process and has not been fully considered in the preparation of this summary. Under the category of unfulfilled requests, EPA feels that obtaining the CAFE model source code would provide the detailed level of understanding required to support a joint NPRM. With respect to critical analysis information, details on the scrappage model, safety factors, and engine maps were provided on the same day that EPA's analysis was scheduled to be completed. It is difficult to assess the significance that any individual concern we've raised would have on the outputs from NHTSA's modeling, given the limited amount we know. However, based on what we do know, EPA has two concerns that we believe have a highly significant impact on modeling results. First is NHTSA's reliance on new, untested models (i.e., fleet sales and scrappage): the outputs of these models can have a large effect on the policy choices the Administration makes, and we don't believe these models have received sufficient scrutiny to be used in such a significant policy process. And the second is the outdated, questionable quality of some of the tech inputs: relying on old technology, or preventing new technology from being used, has a material impact on the modeling outcomes, and therefore the policy options that will be presented to decision makers and the public.

In considering the NHTSA analysis results provided to EPA in late January it is important to keep in mind that there is approximately a $700 difference in estimated average vehicle cost between EPA's analysis and NHTSA's for existing GHG/augural CAFE standards, with NHTSA's being higher. A cost difference of this magnitude could be attributed to a number of significant differences in the modeling

inputs and assumptions, and has a dominant effect on the range of projected effects presented by NHTSA for the existing/augural standards and for each alternative standard scenario modeled by NHTSA, including the projected CO_2 reductions, projected fuel savings, net benefits, vehicle sales, vehicle scrappage, employment, VMT and safety impact. EPA believes that if NHTSA were to limit the application of consumer effects models to sensitivities and not the primary analysis, correct errors in their assessment of technology effectiveness and to update key inputs with the latest available data, the per-vehicle costs projected by NHTSA's models would be substantially lower and the overall conclusions regarding the stringency of the standards would be significantly different.

There are aspects of NHTSA's analysis that are new and we have never seen before. These include a fleet model and a scrappage model. EPA is not aware of any previous NHTSA rulemaking for which these models have been applied. EPA did receive a short briefing on some aspects of the consumer effects on February 28th, however, there was no underlying documentation provided to justify NHTSA's conclusions. In addition, the tone of the briefing implied that there is considerable discretion being exercised by Volpe staff in the calibration and application of these critical models. At this time, we do not recommend using these elements of the CAFE model for setting policy.

EPA has observed and presented to NHTSA that several of their inputs regarding technology effectiveness are incorrect. These technologies include some applications of advanced transmissions, 12V stop/start, cooled EGR (CEGR), crank integrated starter generator (CISG), turbo-charged GDI engines, strong hybrids and the application of high compression ratio engines (HCR1). For each of these technologies EPA has identified either errors in the input data or incorrect assumptions regarding the application of the technology which are inconsistent with trends seen in the current vehicle market. Each incorrect technology input contributes to a higher estimate of average vehicle cost to meet future standards.

EPA has also noted that more recent and representative data are available. In their Draft TAR analysis, NHTSA applied engine maps developed by IAV in 2013 from a DOE-funded project unrelated to the assessment of CAFE standards. During the course of EPA's evaluation of the NHTSA analysis, NHTSA informed EPA that they were using the same IAV engine maps for their NPRM analysis. These maps were out of date at the time of the 2016 Draft TAR and we have additional, and newer data, further strengthening our conclusions that the engine maps used in the CAFE analysis are not representative of what the industry is currently producing and will be producing in the 2020~2030 time frame assessed in the CAFE model. This out-of-date characterization of modern engines also contributes to the higher estimated vehicle cost.

The "siloing" of technologies is also contributing to the higher projected compliance costs. NHTSA has adopted a modeling methodology that limits a manufacturer's ability to transition to an alternative technology, even if that technology is a more cost effective solution. For example, NHTSA assumes that a vehicle that is currently equipped with a turbo charged engine must remain turbo charged, even in the case of electrification to a hybrid electric vehicle. In the current and past light-duty fleet, only one turbo charged hybrid has ever been manufactured, with the majority of the hybrids being powered by a more cost effective Atkinson Cycle engine. This approach would not be appropriate for modeling through 2025, and is certainly not appropriate given that NHTSA projects technology and fuel economy performance out to 2032 MY. These assumptions regarding the application technology are overly constrictive and unrealistic.

EPA has also observed some volatility in the model results. EPA has noted in this document observations of projected results and impacts that do not appear to make sense, and EPA is concerned

that sufficient quality assurance checks of the CAFE model have not occurred and the current version of the CAFE model may not be ready for use for rulemaking.

Finally, EPA's observations regarding the Safety Values – Fixed Effects curve continue to be a concern. EPA noted that the original January 22nd NHTSA analysis included a safety effects curve with a distinct kink in the curve in 2025 MY. NHTSA revised the curve to reflect a more gradual improvement in safety. On February 28th, NHTSA further explained that this curve represented an internal NHTSA estimate of improved vehicle safety based on anticipated safety regulations and safety improvements implemented by vehicle manufacturers of their own volition. Given the impact that this curve has on the projection of future fatalities and policy implications, EPA believes further review is required.

CAFE model: Primary observations and questions

Between January 24th and February 1st EPA received several files from NHTSA representing NHTSA's "January 22, 2018" runs. These files included four Excel files: 'analysis fleet', 'technologies', 'parameters', and 'scenarios'. In addition, NHTSA subsequently provided instructions for accessing tech package effectiveness and battery cost values embedded in the model, and a description of the runtime settings. The overall observations and questions presented below are based on the information provided to-date.

> *Observation 1: When EPA utilizes the Jan 22 input files and executes the CAFE model with the runtime settings as provided by NHTSA, many of the resulting outputs exactly match the values in the NHTSA-generated summary table. While this indicates that EPA is generating the same output files that were reference by NHTSA, EPA is not at this time able to replicate the net benefits value and several of the sub-items. EPA is not able to make a full judgment of the Jan 22 model and inputs before receiving some further description of which model outputs are used in generating the net benefits value (see comparisons in Table 1 and Table 3.)*

The EPA-generated values for the "Physical Quantities Attributable to the CAFE standards" in Table 1, the Consumer Costs in Table 3, and many of the Social Cost, Total Cost, and Net Benefit values in Table 4 are different than the numbers provided by NHTSA. There are multiple possible explanations, including EPA's misinterpretation of the meaning of a particular row label, or potential differences in the selection of which output fields to include in a particular total cost or total benefit summation. Without additional information, EPA cannot further evaluate the underlying reason for the difference in values seen. At the same time, an effective review of the CAFE model and inputs by EPA will depend on EPA's ability to correctly replicate and interpret the model outputs.

> *Question/Information Request 1. Please provide the calculations that NHTSA believes should be used to generate the change in physical quantities, the consumer costs and benefits and, importantly, the social cost and benefits results.*

Table 1 Results of Standard Setting Run from 22-Jan-18 as summarized by NHTSA, and values produced by EPA's run of NHTSA-provided model and runtime settings

Source	As summarized by NHTSA	EPA-generated values

Model Years	2022-2025	2021-2026	2022-2025	2021-2026
Annual Rate of Increase in Stringency	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT
AC/Off-Cycle Procedures	No Change	No Change	No Change	No Change
Fuel Economy				
Average Required Fuel Economy – MY 2026+ (mpg)	46.6	38.2	46.6	38.2
Average Achieved Fuel Economy – MY 2030 (mpg)	47.6	40.6	47.6	40.6
Change in Physical Quantities Attributable to CAFE Alternative				
Fuel Consumption (b. gal)	baseline	76.4	baseline	122 (1)
Fuel Consumption (b. barrels)	baseline	1.8	baseline	2.9 (1)
CO_2 Emissions (mmt)	baseline	847	baseline	1,355 (1)
CH_4 Emissions (metric tons)	baseline	1,482,533	baseline	2,382,315 (1)
N_2O Emissions (metric tons)	baseline	12,214	baseline	26,857 (1)
Average Annual Fatalities CY's 2036-2045	baseline	(1,186)	baseline	(1,186)
Average Annual Fatalities CY's 2036-2045 without rebound	baseline	(395)	baseline	(395)
Sales (millions)	baseline	1.0	baseline	1.3 (1)
Technology Use Under CAFE Alternative in MY2030 (total fleet penetration)				
Weight Reduction (not including powertrain)	17%	12%	17%	12%
High Compression Ratio Non-Turbo Engines	26%	13%	26%	13%
Turbocharged Gasoline Engines	60%	47%	60%	47%
Dynamic Cylinder Deactivation	6%	0%	6.0%	0%
Diesel Engines	1%	1%	1%	1%
Advanced Transmissions (Non-Hybrid)	72%	87%	71%	83%
Stop-Start 12V (Non-Hybrid)	15%	13%	15%	13%
Mild Hybrid Electric Systems (48v)	35%	1%	35%	1%
Strong Hybrid Electric Systems	20%	5%	20%	5%
Sum of Strong Hybrid and Mild Hybrid	**56%**	**5%**	**56%**	**5%**
Plug-In Hybrid Electric Vehicles (PHEVs)	5%	4%	5%	4%
Dedicated Electric Vehicles (EVs)	1%	1%	1%	1%
Sum of Plug-In Vehicles	**5%**	**4%**	**5%**	**4%**
Total of All Electrified Vehicles	***61%***	***10%***	***61%***	***10%***

(1) Lifetime sum of MY2016 thru 2032 vehicles

Table 2 EPA's grouping assumptions for technology penetration summary in the table above, based on 'technology_utilization_report.csv' output file

Tech	Assumed Calculation
Weight Reduction (not including powertrain)	MR1*5%+MR2*7.5%+MR3*10%+MR4*15%+MR5*20%
High Compression Ratio Non-Turbo Engines	HCR1
Turbocharged Gasoline Engines	TURBO1+TURBO2+CEGR1
Dynamic Cylinder Deactivation	ADEAC
Diesel Engines	DSLI
Advanced Transmissions (Non-Hybrid)	All but AT5, AT6, DCT6, CVT
Stop-Start 12V (Non-Hybrid)	SS12V
Mild Hybrid Electric Systems (48v)	BISG
Strong Hybrid Electric Systems	SHEVP2+SHEVPS
Plug-In Hybrid Electric Vehicles (PHEVs)	PHEV30+PHEV50
Dedicated Electric Vehicles (EVs)	BEV200

Table 3 Results of Standard Setting Run from 22-Jan-18 as summarized by NHTSA, and values produced by EPA's run of NHTSA-provided model and Runtime Settings – Consumer costs & benefits

Source	As summarized by NHTSA		EPA-generated values	
Model Years	2022-2025	2021-2026	2022-2025	2021-2026
Annual Rate of Increase in Stringency	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT
AC/Off-Cycle Procedures	No Change	No Change	No Change	No Change
Consumer Costs and Savings for Average MY 2030 Vehicle				
Price Increase due to New CAFE Standards ($)	baseline	(1,769)	baseline	(1,769)
Increase in Other Ownership Costs ($)	baseline	(722)	baseline	(722)
Total Consumer Costs ($)	baseline	(2,492)	baseline	(2,492)
Discounted Fuel Savings to Owner ($)	baseline	(1,200)	baseline	(1,200)
Other Consumer Benefits ($)	baseline	(487)	baseline	(203) (1)
Total Consumer Savings ($)	baseline	(1,687)	baseline	(1,403)
Discounted Net Savings to Owner ($)	baseline	805	baseline	1,089
Payback Period Relative to Baseline (years)	baseline		baseline	
Payback Period Relative to MY2016 (years)		13.0		13

(1) Drive value & Refuel value for scenario 1 (from societal_costs_report.csv) divided by sales for scenario 1 (from societal_effects_report.csv) for MY2030.

Table 4 Results of Standard Setting Run from 22-Jan-18 as summarized by NHTSA, and values produced by EPA's run using recently provided Runtime Settings – Social Costs & Benefits

Social Costs and Benefits (Total Through MY 2029)				
Technology Cost ($b)	baseline	(246)	baseline	(246)
Other Private Costs ($b)	baseline	(158)	baseline	(107) (1)
Crashes, Noise and Congestion ($b)	baseline	(76)	baseline	(54) (1)
Total Costs of New CAFE Standards ($b)	baseline	**(480)**	baseline	**(407)**
Fuel Savings ($b)	baseline	(138)	baseline	(167) (1)
Other Private Benefits ($b)	baseline	(117)	baseline	71 (1)
Social Cost of Carbon ($b)	baseline	(4)	baseline	(5) (1)
Other Environmental Damages ($b)	baseline	(2)	baseline	(5) (1)
Petroleum Market Externalities ($b)	baseline	(22)	baseline	(26) (1)
Total Benefits of New CAFE Standards ($b)	**baseline**	**(283)**	**baseline**	**(133)**
Net Benefits of New CAFE Standards ($b)	***baseline***	***197***	***baseline***	***275***
Additional Measures (Total Through MY 2029)				
Additional Fine Payments ($b)	baseline	0.0		

(1) Regarding certain calculations in the social costs and benefits analysis, we cannot line up our results with those from NHTSA. This makes impossible our ability to measure impacts on net benefits that result from changes to model inputs. For the values shown in this table where we do not line up, we have summed lifetime results through MY2029 as indicated in the NHTSA table. However, for fuel savings, we show a total of $167 billion foregone

savings under the alternative while NHTSA shows just $138 billion (see below, note that fuel savings are in thousands).

Scenario	Scenario Name	Model Ye	Reg Class	Fuel Type	Disc Rate	Pre-Tax Fuel Cost
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2016	TOTAL	TOTAL	0.03	(2,836,290)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2017	TOTAL	TOTAL	0.03	(1,872,290)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2018	TOTAL	TOTAL	0.03	912,336
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2019	TOTAL	TOTAL	0.03	4,078,395
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2020	TOTAL	TOTAL	0.03	7,574,019
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2021	TOTAL	TOTAL	0.03	13,447,238
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2022	TOTAL	TOTAL	0.03	16,181,839
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2023	TOTAL	TOTAL	0.03	17,688,676
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2024	TOTAL	TOTAL	0.03	18,964,115
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2025	TOTAL	TOTAL	0.03	19,886,488
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2026	TOTAL	TOTAL	0.03	19,771,700
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2027	TOTAL	TOTAL	0.03	18,582,377
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2028	TOTAL	TOTAL	0.03	17,850,026
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2029	TOTAL	TOTAL	0.03	17,154,436
						167,383,063

For "Other Private Costs," which we take to include the Value Loss and Fatality metrics, we get a reduction in costs of $107 billion under the alternative standards (see below, again in thousands) while NHTSA shows a reduction of $158 billion.

Scenario	Scenario Name	Model Year	Reg Class	Fuel Type	Disc Rate	Value Loss	Fatality Costs
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2016	TOTAL	TOTAL	0.03	-	(5,579,037)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2017	TOTAL	TOTAL	0.03	(85,982)	(5,661,031)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2018	TOTAL	TOTAL	0.03	(226,894)	(5,777,711)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2019	TOTAL	TOTAL	0.03	(519,234)	(6,012,709)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2020	TOTAL	TOTAL	0.03	(921,765)	(6,154,718)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2021	TOTAL	TOTAL	0.03	(1,538,953)	(6,726,540)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2022	TOTAL	TOTAL	0.03	(2,206,332)	(6,617,918)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2023	TOTAL	TOTAL	0.03	(2,992,146)	(6,223,186)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2024	TOTAL	TOTAL	0.03	(3,476,281)	(5,495,693)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2025	TOTAL	TOTAL	0.03	(3,995,487)	(4,845,146)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2026	TOTAL	TOTAL	0.03	(3,873,721)	(3,740,354)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2027	TOTAL	TOTAL	0.03	(3,808,261)	(4,333,430)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2028	TOTAL	TOTAL	0.03	(3,717,691)	(4,531,423)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2029	TOTAL	TOTAL	0.03	(3,635,122)	(4,762,389)
						(30,997,870)	(76,461,285)
							(107,459,155)

The "Other Private Benefits" metric, which we take to include the Drive Value and Refuel Value, NHTSA shows a reduced benefit of $117 billion under the alternative standards while we calculate an increased benefit of $71 billion (see

below, again in thousands) which is, obviously, directionally incorrect since the benefits of both drive value and refuel value should be greater under the Augural standards.

Scenario	Scenario Name	Model Ye	Reg Class	Fuel Type	Disc Rate	Drive Value	Refuel Value
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2016	TOTAL	TOTAL	0.03	(67,640)	(147,492)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2017	TOTAL	TOTAL	0.03	166,432	(86,926)
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2018	TOTAL	TOTAL	0.03	917,760	64,921
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2019	TOTAL	TOTAL	0.03	1,903,584	220,240
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2020	TOTAL	TOTAL	0.03	2,905,072	412,011
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2021	TOTAL	TOTAL	0.03	4,893,307	710,993
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2022	TOTAL	TOTAL	0.03	5,754,881	861,510
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2023	TOTAL	TOTAL	0.03	6,206,744	940,341
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2024	TOTAL	TOTAL	0.03	6,510,542	1,007,954
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2025	TOTAL	TOTAL	0.03	6,763,880	1,053,943
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2026	TOTAL	TOTAL	0.03	6,714,204	1,044,039
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2027	TOTAL	TOTAL	0.03	6,645,349	977,869
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2028	TOTAL	TOTAL	0.03	6,588,414	934,162
1	0.50%/Y Pc And 0.50%/Y Lt During 2021-2026	2029	TOTAL	TOTAL	0.03	6,547,399	892,377
						62,449,928	8,885,942
							71,335,870

There is the possibility that EPA is misinterpreting the output files and how to pull together some of the results. We have requested guidance but have not yet received it. Without knowing how to calculate the net benefits, we are hindered in our ability to properly assess how different inputs to the model impact net benefits.

In reviewing NHTSA's analysis, EPA has noted that many aspects of the CAFE analysis are similar to the Draft TAR analysis. EPA has previously reviewed the Draft TAR analyses and the associated documentation and in this current review has reviewed the Draft TAR source code available on the NHTSA's website and identified portions of NHTSA's NPRM analysis that are new to the model's operation or significantly revised; primary among these changes and additions are the Fleet Scrappage Model, Dynamic Fleet Share Model, and Fleet Safety Fixed Effects Model. Observations on these new model elements are presented in the section on Economic Factors. A full understanding of the model will require a review of the inputs and assumptions that are embedded within the executable file that EPA requested for this initial review. For example, details about the technology application decision trees, assumptions for fleet scrappage model, and programmatic assumptions for GHG regulatory analysis are encoded within the CAFE model. These are a few examples of embedded inputs and assumptions that EPA is aware of, but there are potentially more that EPA is not aware of.

Question/Information Request 2. Please provide the uncompiled CAFE model in the native code (e.g. C#, Java, etc.)

In the CAFE Modeling Update presentation dated February 2, 2018, NHTSA noted that among the changes to the CAFE model since the 2012 Final Rule is the capability for "Full Simulation of EPA GHG program requirements and provisions." In order to evaluate the CAFE model for application in setting GHG standards, EPA needs to understand how the CAFE model has been updated to reflect the CAA statutory requirements and programmatic provisions for other GHGs, in addition to an understanding of the CAFE model and its basic operation. These provisions include one-time carry forward for credits, unlimited car/truck credit trading, treatment of other greenhouse gases such as hydrofluorocarbons (HFC), methane, and N_2O, credit multipliers for advanced technologies, off-cycle

technologies, zero g/mi upstream emissions for xEVs and treatment of FFVs and diesel vehicles consistent with the GHG program.

Question/Information Request 3. Please provide the uncompiled model and executable file which is configured to perform the GHG programmatic analysis

Primary observations: Representation of technologies in the CAFE model and inputs

Technology cost, effectiveness and baseline

Observation 2: The use of EPA input values in the CAFE model which update and/or correct the anomalous inputs used in the NTHSA-reported runs from January 22 has a significant impact on several key output results: Relative to the Augural Standards, technology cost savings of Alternative standards are reduced and fatalities increase. Furthermore, the technology penetration of strong electrification is significantly reduced in the Augural standards with the use of updated input values.

EPA has identified a number of anomalies in the CAFE model effectiveness inputs, including negative effectiveness numbers for more advanced technology packages, duplicated effectiveness numbers for unrelated technology packages, and incremental effectiveness values in unexpected directions, both higher and lower. Additionally, EPA has identified technology cost values in the January 22 version of the CAFE model inputs that are higher than expected when considering data from DOE for battery costs, and teardown data for other conventional technologies. EPA has performed an iteration of the CAFE model in which the following updates and corrections were made to the input files: 1) corrected anomalous effectiveness input values in the FC1_Improvements.csv file, 2) allowed HCR1 technology to be available to all manufacturers in MY2030, 3) updated cost inputs for battery and conventional technologies, and 4) updated baseline fleet to use final MY2016 volumes and IHS projected volumes. Using these updated inputs, EPA also evaluated the effect of enabling the DFS and Scrappage models. The results shown in Table 5 indicate that the CAFE model results are heavily influenced by the use of updated input values.

Table 5 Key CAFE model outputs using updated and corrected input values (including corrected effectiveness values, final baseline volumes, and updated battery costs)

Source	As summarized by NHTSA		EPA-updated inputs w/ DFS and Scrappage models (44)		EPA-updated inputs w/o DFS and Scrappage models (44)	
Model Years	2022-2025	2021-2026	2022-2025	2021-2026	2022-2025	2021-2026
Annual Rate of Increase in Stringency	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT	No Action	0.5%/Year PC 0.5%/Year LT
Price Increase due to New CAFE Standards ($/veh) MY2030	baseline	-$1,769	baseline	-$996	baseline	-$861
Weight reduction	17%	12%	16%	10%	15%	10%
HCR	26%	13%	50%	16%	44%	16%
Turbo-downsized	60%	47%	32%	28%	35%	29%
Dynamic Deac (DeacFC)	6%	0%	0%	0%	0%	0%
Diesel	1%	1%	1%	0%	1%	1%
Advanced transmissions	72%	87%	96%	93%	95%	93%
Stop-Start (12V)	15%	13%	1%	9%	4%	12%
MHEV48V	35%	1%	37%	2%	33%	4%
Strong HEV	20%	5%	2%	2%	2%	2%
Sum of mild and strong HEV	**56%**	**5%**	**38%**	**3%**	**34%**	**5%**
Sum of PEVs	**5%**		1%	1%	2%	2%
Average Annual Fatalities CY 2036-2045 without rebound	baseline	-395	baseline	-449	baseline	128
Net Benefits of New CAFE Standards ($b)	baseline	197	baseline	130	baseline	-149

Technology application constraints

In the CAFE model, the application of a technology may be constrained in order to reflect the lead-time required to achieve large-scale production and wide-spread penetration into the fleet. The broad application can be excluded from consideration by the specification of a year in which the technology is initially available, by setting a phase-in cap, or by the use of a 'FALSE' application flag value. Technologies can also be excluded from application to a specific vehicle by the platform, engine, and transmission sharing constraints, by the technology pathways encoded into the model, and by the explicit definition a "SKIP" flag to an individual vehicle-technology combination.

> *Observation 3: Even when modeling manufacturer decisions as far as 15 years in the future, the CAFE model severely limits the technologies considered for application based on the technologies present on the vehicle in MY2016.*

The technology pathways defined in the CAFE model code have the effect of reducing the number of technologies available for consideration in the subsequent model year. While in some cases this might be a realistic representation of a firm's actions for near term decision making, it is almost certainly not representative of the long term strategic planning approach that automaker's apply when making product decisions for new vehicle platforms and powertrains. A manufacturer's investment decisions for new

engine, transmission, and electrification families 10 or more years into the future would account for, among other things, the availability for more cost effective technology packages that lie outside of the NTHSA-defined pathways. For example, a manufacturer of a turbocharged engine today would consider the opportunity for more potentially more cost-effective normally aspirated mild hybridization, or high compression ratio (HCR) engines – decisions which are not allowed in the CAFE model structure.

The only point at which choices can be made between turbocharging and HCR is for those vehicles equipped currently with naturally aspirated, non-HCR engines. This is not realistic between today and 2025, and is indefensible when modeling is carried out through Model Year 2032. Furthermore, should a vehicle need to hybridize in an effort to achieve compliance, the technology pathway constriction appears to apply hybrid technologies to the vehicles as they exist prior to the hybridization. In other words, even a TURBO2 with cooled EGR engine will add the hybrid system and not remove any of the very costly turbocharging technology. Again, this is unrealistic since any vehicle that moves to hybridization would reasonably remove any costly and unnecessary turbocharging technology and still achieve over 40 percent effectiveness as do hybrids on the road today.

Observation 4: Application of HCR1 is restricted for large portion of the fleet.

Atkinson cycle engines with high geometric compression ratios (HCR) have proven to be a cost-effective pathway for reducing fuel consumption, with Mazda applying the technology to the majority their current vehicles, and Toyota announcing its plan for at least 60 percent application (by volume) by 2021. The 'analysis_fleet' file contains the 'SKIP' application flag for over 70 percent (by volume) of the fleet, while most other powertrain technologies are not similarly constrained (see Table 7.) For example, the strong hybrid technology, which is far more complex and requires more investment to implement on a vehicle, is allowed on all future vehicles with no restriction.

Table 6 Proportion of fleet volume with vehicle-specific technology application constraints ('SKIP' flag) with examples of high-compression ratio Atkinson cycle engines (HCR1) and strong hybrids

Application Flag in 'analysis_fleet' file	HCR1	Strong Hybrid (SHEVP2 +SHVEPS)	notes
USED	6.3%	1.8%	Assumed to be applied in MY2016
SKIP	70.6%	0%	Application not allowed in future
blank	23.0%	98.2%	Application allowed in future

Question/Information Request 4. Why is the HCR1 technology highly constrained in the 'analysis-fleet' file relative to other technologies that are more complex and less cost-effective?

Observation 5: The packages available for consideration as inputs to the CAFE model do not include some significant technologies that are available in production vehicles today.

For example, the 2018 Mazda CX-5 CUV and Mazda 6 sedan both are examples of non-hybrid electric vehicles that use Atkinson Cycle engines with cylinder deactivation. NHTSA's package designation for Atkinson Cycle is HCR1 and for cylinder deactivation is DEAC. In the 2016 Draft TAR analysis, NHTSA had a package designation of HCR2 for a combination of Atkinson Cycle, cooled EGR, and cylinder deactivation. The input files used in the most recent analysis do not allow any combination of DEAC and HCR1 and the HCR2 package is restricted from application through the use

of a "FALSE" flag in the 'technologies' input file (also, no packages are built using HCR2.) In other words, a high-efficiency technology combination currently in production by Mazda for the 2018 model year will not be available for consideration in the CAFE model using the current input files.

Battery Costs

Observation 6: The cost of batteries for hybrid and plug-in vehicles is in most cases significantly higher than expected based on the most recent projections derived from DOE's BatPaC model.

EPA examined the NHTSA battery cost inputs listed in the file "Battery_Costs.csv" of the CAFE modeling package. The costs in this file represent total cost (direct manufacturing cost marked up by an RPE of 1.5) in a future base year. To compute costs for a specific year, the CAFE model multiplies these figures by a corresponding learning factor, found in the Battery Cost Learning Rates Table in the file "technologies.xlsx." The learning factor approaches 1.0 in MY2029, indicating that the listed costs represent a base year of approximately MY2029. For comparison, EPA developed an alternate set of battery costs using the latest DOE BatPaC-derived direct manufacturing costs as a basis, which BatPaC attributes to MY2021.

On average, the projected MY2029 NHTSA total cost for BISG batteries is almost 40% higher than BatPaC projects for MY2021. Total cost for SHEVP2 batteries is about 20% higher when compared on the same basis. Given the potential importance of these technologies, these differences could have a significant impact on projected technology penetrations and costs across the analysis.

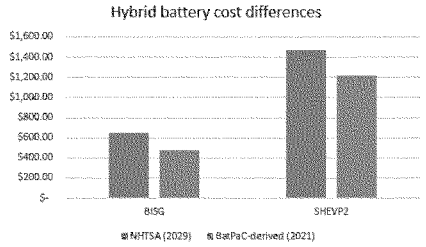


Figure 1. Comparison of HEV battery costs

Similarly, the average projected total cost for BEV200 batteries in MY2029 is almost 40% higher than BatPaC-derived figures for MY2021. This is particularly concerning given that NHTSA defines the 200 mile range as a 2-cycle laboratory range, which could be achieved with a smaller battery than the 200-mile real-world ("label") range modeled by EPA.

The base year battery cost for the NHTSA PHEV30 (2 cycle range) is similar to that of EPA's PHEV20 (which would have a comparable 2-cycle range of about 28.5 miles). However, the NHTSA

PHEV50 (with a 50-mile 2-cycle range) shows a 23% higher average battery cost than the EPA PHEV40 (which would have an approximately 57-mile 2-cycle range).

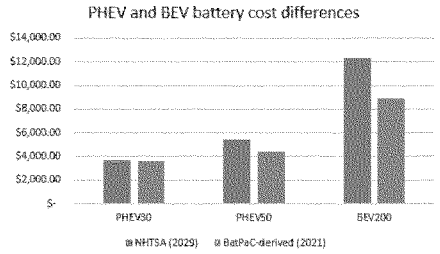


Figure 2 Comparison of PHEV and BEV battery costs

As previously noted, the NHTSA cost figures represent a MY2029 base year while the EPA figures represent a MY2021 base year. If the NHTSA costs are adjusted to MY2021 by applying the learning factor of 1.43 (from the Battery Cost Learning Rates Table), the differences for HEVs, PHEVs, and BEVs are larger, as seen in the following figures.

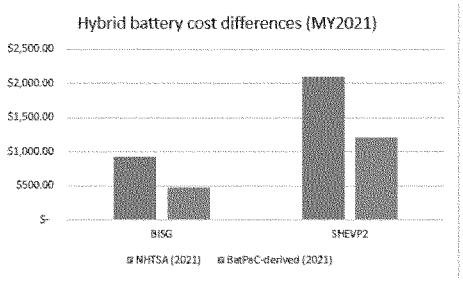


Figure 3 HEV battery cost differences for MY2021

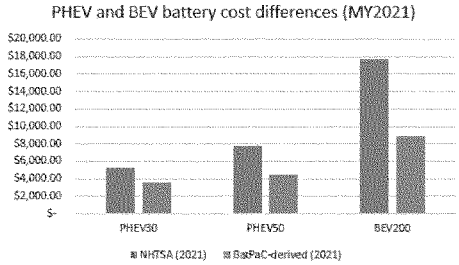


Figure 4 PHEV and BEV battery cost differences for MY2021

Although there are differences in the exact power requirements and curb weights of the vehicle classes as respectively defined by EPA and NHTSA, they do not seem sufficient to account for these differences. In order to fully understand the source of these differences it would be necessary to know the capacity, power, and battery design assumptions employed by NHTSA in developing these estimates.

Primary observations: Economic factors in the CAFE model and inputs

Consumer choice modeling ('dynamic fleet share' and 'scrappage' models)

The effects of the standards on vehicle sales and market shares has been a recurrent question for many years. On the one hand, the standards reduce operating costs; all else equal, that change should make new vehicles more attractive and increase sales. On the other hand, the standards increase technology costs; all else equal, that change should discourage new vehicle sales. Which effect dominates has been subject of a great deal of controversy. A key variable is the role of fuel economy in consumer purchases, measured either in payback period (the number of years of fuel savings that people consider when buying a new vehicle) or discount rate (how people discount the lifetime of future fuel savings). EPA has reviewed this literature, as has the National Academy of Sciences; in both cases, the finding was a very wide range, and no consensus, in the literature.[1]

[1] National Academy of Sciences, Finding 9.3: "The results of recent studies find that consumers' responses vary from requiring payback in only 2 to 3 years to almost full lifetime valuation of fuel savings" (p. 9-36). For interim results of EPA's ongoing work on willingness to pay for vehicle characteristics, see: https://www.epa.gov/sites/production/files/2017-03/documents/sbca-mtg-will-to-pay-2017-03-16.pdf (presentation at Society for Benefit-Cost Analysis, 2017); http://te3conference.com/wp-content/uploads/2017/11/TE3WTPVEhicleAttributes17Oct2017.pdf (presentation at University of Michigan Transportation Economics, Energy, and Environment conference, 2017).

Academic and other researchers have developed a number of vehicle demand (consumer choice) models for the new and/or used vehicle markets to look at effects on sales and fleet mix. Rarely has there been any effort to validate these models, either for consistency across models, or for ability to predict out of sample. Recent academic research,[2] as well as work by EPA,[3] has found that these models commonly perform worse, especially in the short run, than simply holding market shares constant. These models are also highly inconsistent in their estimates of the role of various vehicle attributes in the vehicle purchasing process, as the citations in Footnote 1 indicate. Due to an absence of solid science supporting the use of vehicle demand models for predicting the effects of the standards on vehicle sales, neither EPA nor NHTSA has used consumer choice modeling in either the 2010 or 2012 rulemakings, or in the 2016 Draft TAR, or in previous CAFE rulemakings. The agencies have occasionally estimated the effects of the standards on new vehicle sales using a Total Cost of Ownership model, where the key parameter, as mentioned above, is the role of fuel savings in consumer purchase decisions. This approach was recently used by Dr. John Graham and others from Indiana University in their February 2016 report, "Rethinking Auto Fuel Economy Policy."

The CAFE model now includes a "Dynamic Fleet Share" model and a "Scrappage" model. These have not previously appeared in the CAFE model.

Observation 7: From a review of the model outputs, the use of the "Dynamic Fleet Share" (DFS) and "Scrappage" (S) models appear to significantly impact overall sales, fleet volumes, model mix, and vehicle miles traveled, and therefore are important factors in the CAFE model's resulting net benefits, costs, and safety results.

- The DFS model forecasts future new vehicle sales and changes the fleet mix.
  - The Alternative standards have higher new vehicle sales and a higher share of cars relative to light trucks.
- Using the S model leads to a larger overall fleet and to higher vehicle miles traveled (VMT) relative to not using it, and to a larger overall fleet with the Augural standards than with the Alternative standards.
  - The S model does not affect new vehicle sales.

Observation 8: However, the inputs for these new modelling elements are not clear and the operation of the elements is also not clear to the model user.

The "Dynamic Fleet Share" model coefficients for FP, HP, and MPG, seem to indicate that the sales response to changes in these variables for cars is opposite of the sales response for trucks. This table is the documentation presented for the DFS. It is our guess that these are regression coefficients used to predict vehicle sales for cars (LDV) and light trucks (LDT1/2a). It is further our guess that FP is footprint, HP is horsepower, CW is curb weight, MPG is miles per gallon. We do not have guesses what "Rho" and "Dummy" are associated with.

Coefficients	LDV	LDT1/2a

[2] Haaf, C.G., J.J. Michalek, W.R. Morrow, and Y. Liu (2014). "Sensitivity of Vehicle Market Share Predictions to Discrete Choice Model Specification." Journal of Mechanical Design 136: 121402-121402-9; Haaf, C.G., W.R. Morrow, I.M.S. Azevedo, E.M. Feit, and J.J. Michalek (2016). "Forecasting light-duty vehicle demand using alternative-specific constants for endogeneity correction versus calibration." Transportation Research Part B 84: 182-210.

[3] Helfand, Gloria, Changzheng Liu, Marie Donahue, Jacqueline Doremus, Ari Kahan, and Michael Shelby (2015). "Testing a Model of Consumer Vehicle Purchases." EPA-420-D-15-011, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100NNOZ.PDF?Dockey=P100NNOZ.PDF.

Constant	3.4468	7.8932
Rho	0.8903	0.3482
FP	0.1441	-0.4690
HP	-0.4436	1.3607
CW	-0.0994	-1.5664
MPG	-0.5452	0.0813
Dummy	-0.1174	0.6192

We observe that HP and MPG have negative signs for cars (i.e., more HP and more MPG reduce sales), while those coefficients are positive for trucks (i.e., more HP and more MPG increase sales). In contrast, FP increases car sales but reduces truck sales. These results are not what we would expect.

As discussed above, the role of consumer valuation of fuel savings in vehicle demand modeling is critically important; it essentially determines the direction of new vehicle sales effects. As noted, it appears that more fuel economy is bad for cars but good for light trucks, with unexplained magnitudes.

Observation 9: The scrappage model coefficients do not have consistent signs for cars, Vans/SUVs, Pickups

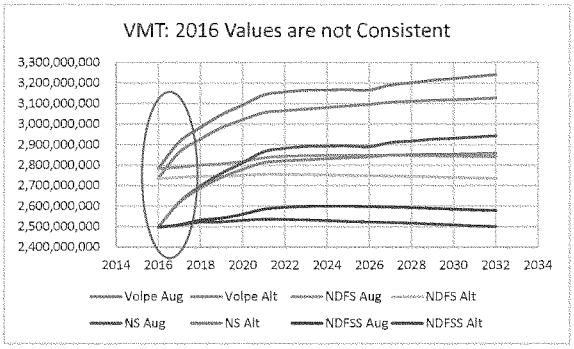
It is not known exactly what the Scrappage model predicts: how many vehicles of which vintages are scrapped each year? The S model appears to include 34 parameters, including new vehicle prices, vehicle age, CPM (cost per mile?), GDP growth rate, and interactions among these in polynomial forms. It is thus hard to evaluate. Below is a partial representation. Signs of the coefficients are again not consistent (see, e.g., Age, Age^2, Age^3, New Price, New Price*Age, New Price*Age^2), though how these affect predictions is not easy to determine.

Parameter	Cars	Vans/SUVs	Pickups
Estimate Scrappage	TRUE	TRUE	TRUE
Beta Coefs			
Age	0.616047051	-0.473441117	-1.119398279
Age^2	-0.057406753	0.032324147	0.037890057
Age^3	0.001582126	-0.000301894	0
ln(MY-1959)	-1.608885894	-3.946616362	-3.364968508
ln(MY-1959)*Age	0.213582275	0.504803381	0.34204715
ln(MY-1959)*Age^2	-0.006715995	-0.015159639	-0.008384946
ln(MY-1959)*Age^3	0	0	0
New Price	-0.000161276	0.000371589	-0.000303124
New Price*Age	7.84025E-06	-2.88675E-05	2.83304E-05
New Price*Age^2	1.00488E-07	5.91183E-07	-9.62014E-07
New Price*Age^3	-1.212E-08	0	0

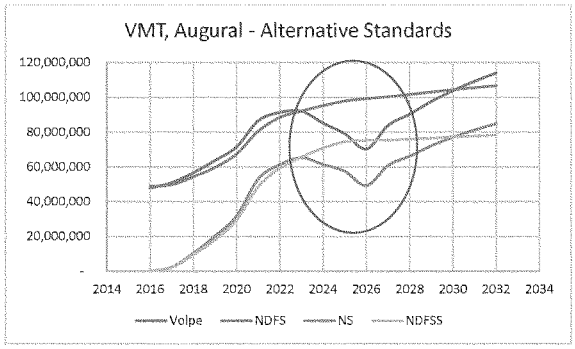
Some observations related to the DFS and S models suggest questionable findings:

- The smaller overall fleet with the Alternative standards relative to the Augural standards implies that more people give up used vehicles than are buying new vehicles – that is, relative to the Augural standards, lower new vehicle prices shrink the overall fleet. Why does the overall fleet shrink when switching to the Alternative standards from the Augural standards?

- In 2016, which has already passed, initial VMT levels change depending on the use of the DFS and S models, and the scenarios modeled. The graph below shows VMT from the Societal Effects Reports under various scenarios: The Jan. 22 Volpe results (Volpe), which uses both the DFS and the S models; turning off the DFS (NDFS); turning off the S (NS); and turning off both DFS and S (NDFSS), for both the Augural (Aug) and Alternative (Alt) standards. Note the different baseline levels of VMT for these different scenarios.



- The graph below shows differences in VMT between the Augural and Alternative standards. It finds that the change in the new vehicle fleet modeled by the DFS leads to a smaller difference in VMT during the period of the Augural or Alternative standards than before or after, although the Augural standards have a larger overall fleet, more rebound driving, and, using the DFS, a higher proportion of light trucks.



EPA does not support the use of the CAFE consumer choice and scrappage model for a primary analysis for the NPRM standard setting. Academia, EPA, NHTSA, vehicle manufacturers and others have for many years worked on developing these tools. The literature is clear that there is no consensus on consumer willingness to pay (WTP) for fuel economy and other attributes, a primary symptom indicating that the quality and robustness of the models vary widely. In addition, the new CAFE models, to the best of our knowledge, have never been publicly reviewed and/or applied to create policy, and may suffer from the same limitations as the many similar models available in the public domain. Our review to date of the scrappage model identifies counter-intuitive results that raise questions about its suitability for policy modeling. Therefore, it is our recommendation that the DFS and S models be used in sensitivity analyses and not to inform the primary analysis.

Question/Information Request 5. Please describe any previous rulemakings where these (DFS and S) or similar models were used to examine impacts on sales and fleet mix.

Primary observations: Safety assessment

Question/Information Request 6. How are the "fixed effects", as presented in the safety values sheet of the parameters input file estimated? Why are values flat from 2014 through 2021? Why do they decrease beyond 2021? Why the large step change reduction in 2026 with a flattening beyond 2026?

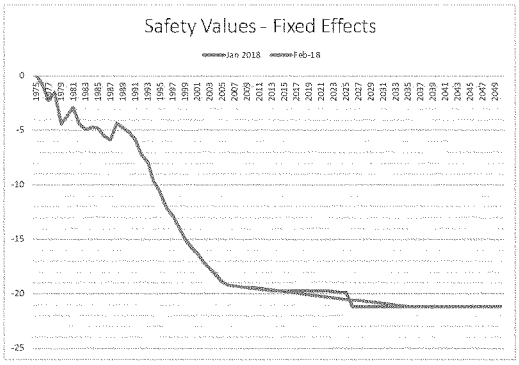


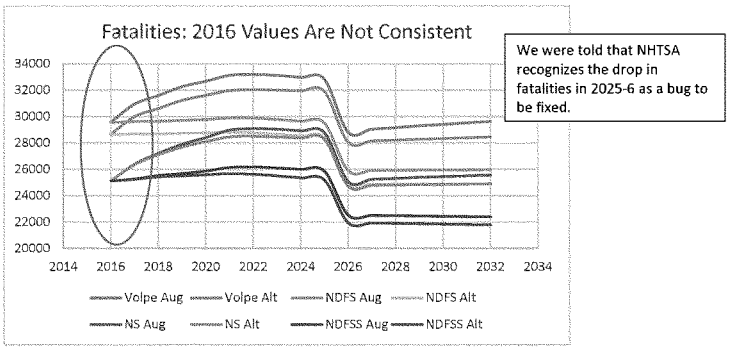
Figure 5 Fixed Effect Values used in the Safety Analysis

EPA's initial observation with regard to the safety values in Figure 7 are noted above. Since that time NHTSA has modified the data and provided a brief description of how the revised curve was created. NHTSA explained that the curve was developed in consideration of future NHTSA safety regulations and the belief that manufacturers would improve the safety of their vehicles of their own volition. In addition, NHTSA explained that the majority of the increased fatalities associated with older vehicles is the result of driver demographics and use. For example, older vehicles which are involved in fatalities also tend to be operated under the influence of alcohol. EPA has requested a full explanation of how this curve was developed, including both the quantitative estimates of safety improvements due to regulation and the subjective estimates of safety improvements.

Question/Information Request 7. Running the CAFE model with the DFS model turned OFF (and all other inputs as received by EPA) results in fewer fatalities in both the Augural and Alternative scenarios while simultaneously reducing sales in MYs 2017 through 2029 by ~18 million vehicles (see table below). Is there an explanation for why this would happen?

Model inputs	All inputs as received by EPA			DFS Model turned OFF		
Scenario	Augural	Alternative	Delta	Augural	Alternative	Delta
Fatalities (avg/CY 2036-2045)	18,055	17,352	-703	16,259	15,556	-703
Sales (MY2017-2029, millions)	223.7	224.6	0.9	205.8	205.8	0.0

As with VMT, the number of fatalities *in 2016* depends on the use of the DFS and S models and on the scenario being studied.



Here are a couple of charts showing fatality and CO_2 impacts of running with DFS/S=True; DFS/S=False; Rebound=20%; Rebound=0%. Notice that the No DFS/S with 0% rebound run actually *increases* fatalities under the alternative standards. Also, 0% rebound shows *higher* CO_2 under the alternative standards relative to augural, regardless of DFS/S setting. These charts used all of the default runtime settings with the exception of toggling DFS/S and rebound. The fatalities are annual averages during the CYs 2036 thru 2045. The CO_2 values are lifetime sums of MY2016-2032 vehicles.

Additional observations: CAFE model

Additional observations: Representation of technologies in the CAFE model and inputs

Technology effectiveness

The technology inputs provided by NHTSA on February 1 define effectiveness values for approximately 150,000 packages across ten vehicle classes. In addition, the 'technologies' input file contains the individual technology effectiveness values which are not modeled in full vehicle simulation such as electric power steering, improved accessories, low drag brakes, and low friction lubricants. A full evaluation of the assumed effectiveness values for individual technologies and their various combinations will require more time than the approximately one week that EPA has spent to-date and will require additional follow-up. The following summary of an effectiveness review conducted over the course of approximately one week is intended to highlight specific areas for further discussion and begin to identify additional information that is needed for a complete review.

Observation 1: The incremental effectiveness of the more advanced turbocharged engine (TURBO2) compared to the less advanced version (TURBO1) engines is often negative.

The technology inputs include two levels of turbocharged engines, TURBO1 and TURBO2. The incremental cost of TURBO2 hardware over TURBO1 hardware is about $350 to $700 in 2030; although it is unclear what specific technologies are represented by this cost, one would expect a generally higher effectiveness. However, depending on the package and car class, the actual incremental effectiveness values from the NHTSA technology inputs for the TURBO2 technology is often negative. The "Medium SUV" class, shown in Figure 8 has the most pronounced effect, with the addition of the TURBO2 technology, on average, having a negative effectiveness.

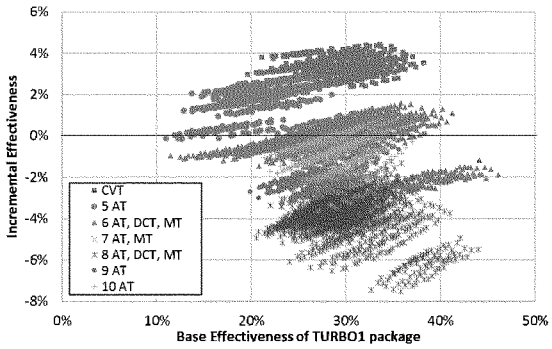


Figure 6 Incremental Effectiveness of TURBO1 to TURBO2 (MedSUV class)

Observation 1: The addition of cooled exhaust gas recirculation (CEGR1) onto turbocharged engines (TURBO2) provides no relative benefit, despite the additional cost of the technology. Given this input assumption, the CAFE model outputs, as expected, do not show application of CEGR1.

A cooled EGR package when added to the advanced turbocharged engine (TURBO2) has a cost of $334 in 2030. Cooled EGR is a technology that has been used in the market, and has a significant effect on CO_2 reduction. However, as illustrated in Figure 9, the incremental effectiveness is at or near zero for nearly all packages (and averaging zero for all packages). The "Medium Car Performance" class shown in the figure is representative of the near-zero effect of the technology for all classes.

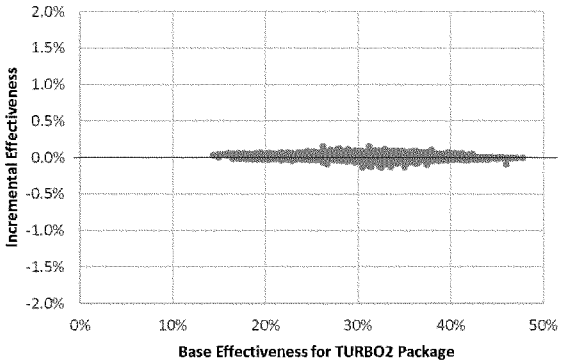


Figure 7 Incremental Effectiveness of TURBO2 to CEGR1 (MedCarPerf class)

When this original observation was communicated to NHTSA staff, NHTSA replied that "there was little/no opportunity to add Cooled (external) EGR in the two-cycle operating region, because operation was at/near combustion stability limits," and therefore the effectiveness of CEGR was limited because "Cooled EGR improves efficiency under higher speed and load (off-cycle) conditions."

However, cooled EGR has been used in production engines at lower speeds and loads to significantly lower fuel consumption. As an example, the Mazda 2.5L turbocharged engine in the 2016 CX-9 incorporates cooled EGR, both for high speed/load combustion stability (off-cycle) and for low and mid-range speed/load fuel efficiency (on cycle). Restricting the use of cooled EGR to only high speed/load combustion stability effectively ignores this feasible technology.

An external cooled EGR control strategy that favors internal EGR as was used in NHTSA's modeling is completely different than what is used in current production applications (for example Toyota and Hyundai offerings), differs from EGR strategies described in the peer-reviewed literature, and differs from what was used in EPA's peer-reviewed developmental programs that applied cooled EGR systems to both naturally aspirated and turbocharged engine applications. Cooled EGR can be used as part of knock mitigation and to reduce pumping losses. Internal (hot) EGR can also reduce pumping losses but

can exacerbate knocking combustion and require additional spark retard. Hot EGR also requires intake and exhaust cam timing with significant overlap. The use of overlap for internal EGR limits the available range of intake cam phasing. The strategies used during EPA's engine development program all favored cooled external EGR except at very light load conditions (e.g., below 2 bar BMEP) where the increased combustion speed from use of hot, internal EGR can improve combustion stability. As a result, there was significant opportunity to add cooled (external) EGR over the two-cycle operation region while maintaining measured COV of IMEP to acceptable levels (<3% in the case of the turbocharged cooled-EGR engine development).

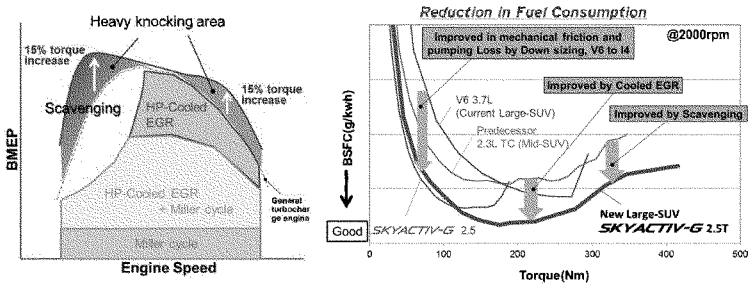


Figure X: Areas of cooled EGR usage for the Mazda CX-9 (left) and characterization of fuel consumption improvements at mid-range loads doe to cooled EGR (right). Both figures from Mazda.

Observation 2: Observation 2: The effectiveness the most advanced eight-speed transmission (AT8L3) is only moderately more than the most advanced six-speed transmission (AT6L2).

The modeled automatic transmissions include one "improved" level of a six-speed automatic (AT6L2) and two improved levels of eight-speed automatics (AT8L2 and AT8L3). The cost of the AT6L2 package (additional to an AT6) is $362 in 2030. The cost of the AT8L3 package (additional to an AT8) in 2030 is nearly the same ($358). Incremental to the AT6, the best eight-speed package is $485 (i.e.,$123 more than the AT6L2). However, on average, the technology inputs provided show that the AT8L3 is only 1% more effective than the AT6L2, and in some cases is worse (as shown by the Small SUV plot).

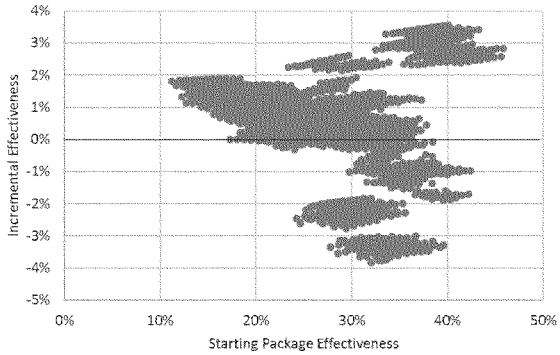


Figure 8 Incremental Effectiveness of the best six-speed (AT6L2) v. the best eight-speed (AT8L3) (Small SUV)

Observation 3: The effectiveness improvement from a basic six-speed transmission (6AT) to a basic eight-speed (8AT) transmissions is unexpectedly low for trucks.

The technology inputs provided seem to show that the incremental effectiveness associated with moving from a six-speed transmission (AT6) to an eight-speed transmissions (AT8) is noticeably different depending on class. The figure shows effectiveness for a medium car and a pickup; on average, the eight-speed effectiveness for the car is about twice that for the truck. This trend seems to hold for the small and medium car classes, which have AT8 effectiveness about twice that of the medium SUVs and trucks (with the small SUVs in between). This may be due to assumptions about front-and rear-wheel drive systems; however, comments from stakeholders have indicated that RWD systems should have greater potential for transmission effectiveness improvements, as packaging more gears in the space provided is less of a concern.

As part of the review process with NHTSA, NHTSA requested additional information and specific examples of vehicle technologies that did not follow the logical progression of transmission technology and commensurate effectiveness. In response EPA provided Figure 9: EPA observations of transmission effectiveness below. This figure shows that as advanced transmission technologies are applied to several powertrain types, there are instances where the more advanced transmission demonstrates lower effectiveness than the less advanced transmission. In addition, to this chart EPA also provided the exact technology package references from the CAFE model inputs. As of this summary, NHTSA has not yet responded to this observation.

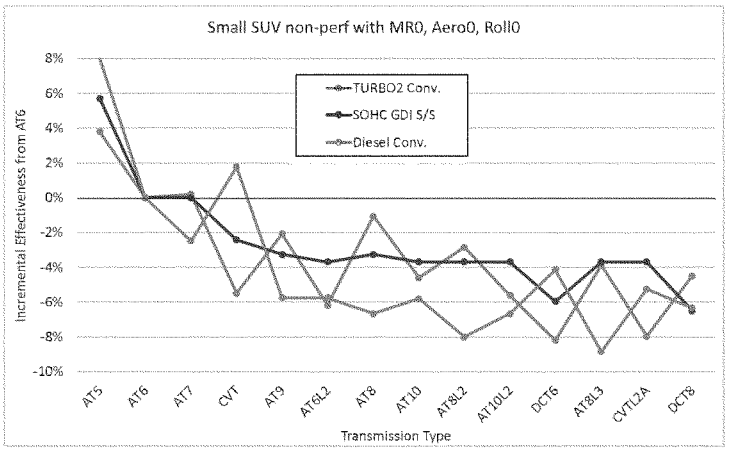


Figure 9: EPA Observations of Transmission Effectiveness

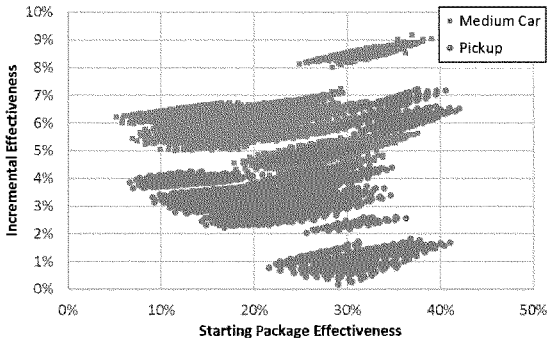


Figure 10 Incremental Effectiveness of six-speed (6AT) to eight-speed (8AT) for Pickup and Medium Car

Observation 4: On average, 48V Mild Hybrid with a crank-integrated starter-generator (CISG) is the same, or slightly worse than with a belt-integrated starter-generator (BISG) despite having a higher cost.

The cost of a crank-integrated starter-generator (CISG) system in 2030 is given as either $178 (for smaller vehicles) or $767 (for larger vehicles) in 2030, incremental to a belt-integrated starter-generator (BISG). Additional battery costs in 2030 are about $617 for the BISG and $805 for the CISG, making the incremental CISG battery cost an additional $187. The CISG is expected to provide additional effectiveness over the BISG because of the direct couple to the crank.

However, on average, the CISG is slightly less effective than the BISG, although with a wide spread of effectiveness. The small car example shown in Figure 12 is typical, with the incremental effectiveness of most packages between about +1% and -1%.

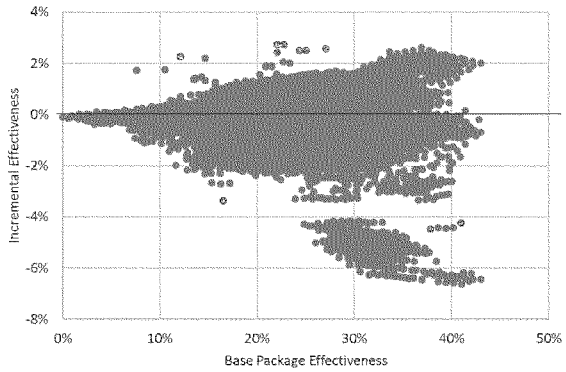


Figure 11 Incremental Effectiveness of 48V Mild Hybrid with belt-integrated starter-generator (BISG) to crank-integrated starter-generator (CISG) (Small Car class)

Observation 5: Some 12V Stop-Start applications have negative effectiveness values.

The cost of stop-start technology is either $466 or $521 in 2030, depending on vehicle class, plus about $582 in battery costs. However, there are some packages where the provided technology inputs indicate a negative effectiveness, as shown in Figure 13 for the small car class below. Moreover, there are a few packages in some classes that are clear outliers (see the medium SUV performance class), either high or low.

In addition to examples of unexpected transmission effectiveness estimates, NHTSA also requested examples of observed negative 12V start-stop effectiveness. In Figure 12: EPA's Observations of Negative Effectiveness for Start/Stop Packages, below, EPA has identified 12V start/stop packages that demonstrate negative effectiveness. These results are not rational. There are not situations under which turning off the engine instead of allowing the engine to idle would result in increased fuel consumption. In addition, for those packages with the same engine and positive effectiveness, it is also unexpected to observe such large variation in start/stop effectiveness. A SOHC GDI S/S should consume the same amount of fuel at idle independent of being mated to an AT8 transmission or an AT8L2 transmission.

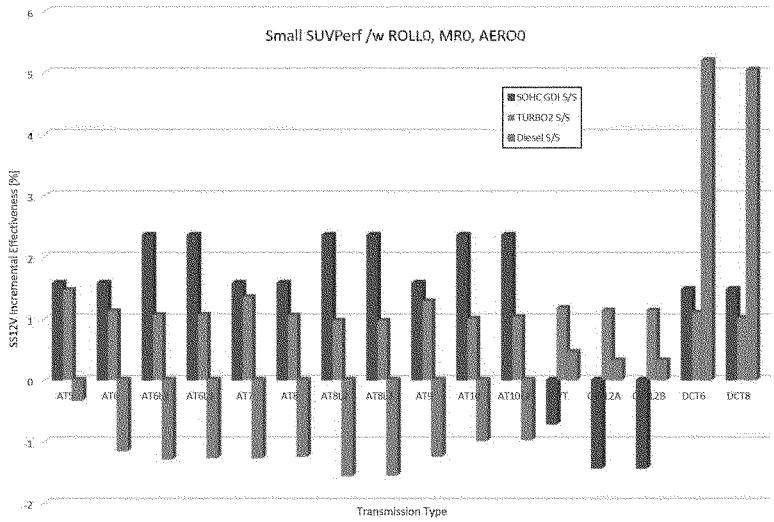


Figure 12: EPA's Observations of Negative Effectiveness for Start/Stop Packages

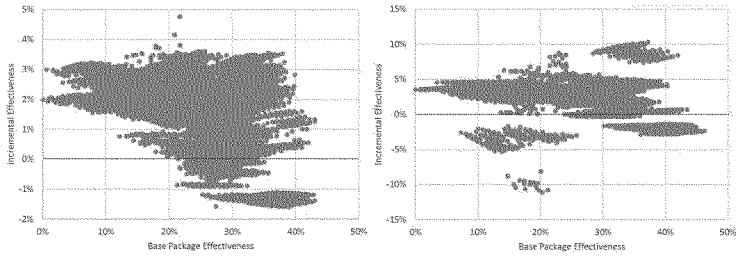


Figure 13 Incremental Effectiveness of CONV to SS12V for Small Car class (left) and Medium SUV Perf class (right)

Observation 6: Incremental effectiveness improving GDI powertrains to Atkinson powertrains is significantly greater than benchmarked engines.

Shown in Table 5 and Table 6, improving a GDI powertrain to an Atkinson powertrain is significantly different for the EPA analysis using benchmarked inputs and the CAFE analysis. The following observations have more detail on this subject.

Table 7 Effectiveness comparison improving GDI 6-speed powertrain to Atkinson 6-speed powertrain

CAFÉ Package Code (Medium Car)	EPA Benchmarked CO_2	CAFE CO_2	EPA Effectiveness	CAFE Effectiveness
DOHC;VVT;;SGDI;;;AT6;CONV;ROLL0;MR0;AERO0	241.87	222.40	0%	0%
;;;;;HCR1;AT6;CONV;ROLL0;MR0;AERO0	231.32	197.14	4.4%	11.4%

Table 8 Effectiveness comparison improving GDI 8-speed powertrain to Atkinson 8-speed powertrain

CAFÉ Package Code (Medium Car)	EPA Benchmarked CO_2	CAFE CO_2	EPA Effectiveness	CAFE Effectiveness
DOHC;VVT;;SGDI;;;AT8;CONV;ROLL0;MR0;AERO0	226.49	209.12	0%	0%
;;;;;HCR1;AT8;CONV;ROLL0;MR0;AERO0	212.61	184.53	6.1%	11.8%

Based on typical GDI maps and the Mazda Atkinson map, an expected effectiveness for an Atkinson engine incremental to a GDI engine is near 5% (but varying depending on the associated transmission, which determines where the engine operates).

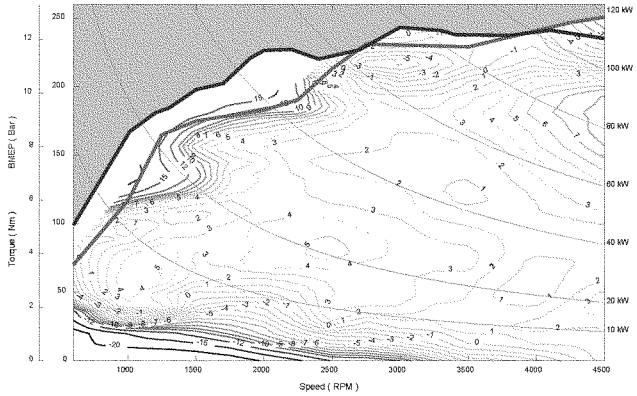


Figure 14 Percent fuel consumption difference between a typical GDI engine (from a 2013 Chevrolet Malibu) and an Atkinson engine (from a 2014 Mazda 3). Engine maps have been scaled to match peak power and adjusted to match heating values. The percentage difference in fuel consumption tends to be around 5% in the heart of the "on-cycle" portion of the map (50-100 Nm and 1000-2000 rpm).

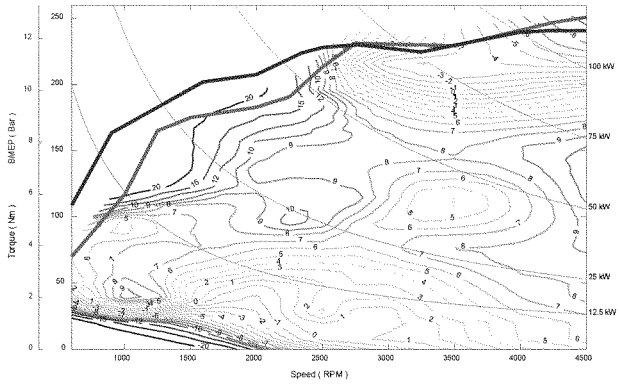


Figure 15 Percent fuel consumption difference between a typical GDI engine (from a 2013 Chevrolet Malibu) and an Atkinson engine (from a 2018 Toyota Camry). Engine maps have been scaled to match peak power and adjusted to match heating values. The percentage difference in fuel consumption tends to be around 7-8% in the heart of the "on-cycle" portion of the map (50-100 Nm and 1000-2000 rpm).

<u>Question/Information Request 8.</u> Please provide a description of the hardware that is assumed to be included in the technology packages highlighted in the observations above: TURBO2 (relative to TURBO1), CEGR1 (relative to TURBO2), AT8L3 (relative to AT8L), AT6L2 (relative to AT6), CISG (relative to BISG), and SS12V (relative to CONV)

<u>Question/Information Request 9.</u> Please provide a table of the vehicle characteristics used to simulate each of the 10 vehicle classes represented in this analysis (with MR0, ROLL0, AERO0). In particular test, weight, road load coefficients, power/acceleration/towing metrics, drive layout (RWD, FWD, AWD, 4WD), and any other specifications used when generating the 'FC1_Improvements.csv' file.

Technology costs

Observation 7: The cost of Dynamic Cylinder Deactivation (ADEAC) is more than double the cost publicly quoted to EPA by industry (Delphi/Tula, the suppliers of ADEAC to 2019 GM Silverado).

General Motors recently announced their implementation of ADEAC on two V8 OHV engines on the MY2019 Silverado and EPA test drove and benchmarked an ADEAC-equipped GMC Yukon V8 OHV at NVFEL in 2017, verifying the effectiveness of the ADEAC system in drive cycle tests and the system's transparency to the driver. The supplier of the ADEAC system on the GMC Yukon (Delphi/Tula) quoted the 2017 cost for this system (manufacturing cost plus licensing fee), to which EPA applied a learning factor of 4% (from 2017 to 2019) and a manufacturer mark-up cost multiplier of 1.5, and this is shown on the far right in Figure 14. For this application (V8 OHV), the CAFE model's

output file shows a marked-up cost of $1101, while the supplier quoted cost (with learning factor and manufacturer mark-up factors applied) is $541.

Alongside the V8 OHV engine, the V6 OHV engine is an attractive candidate for near-term adoption of ADEAC technology. The CAFE model's output file also shows a significantly higher cost of ADEAC on V6 OHV engines as compared to costs calculated from supplier data ($815 versus $449). CAFE model cost and supplier quoted cost are better aligned for other engine types, e.g., I4 DOHC, but it is surprising that the CAFE model's cost is higher for a V8 OHV engine than a I4 DOHC engine when each engine requires the same number of deactivatable components: 16 solenoids + 16 deactivatable roller finger followers for a I4 DOHC and 16 solenoids + 16 deactivatable hydraulic lash adjusters for a V8 OHV.

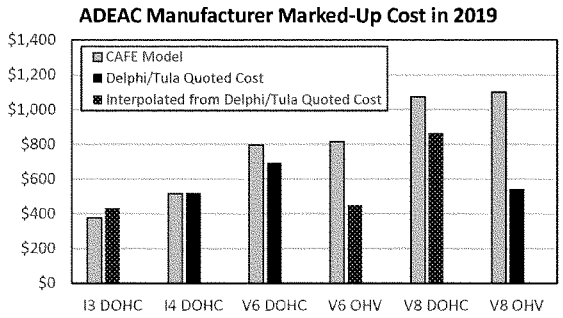


Figure 16 Comparison of Dynamic Cylinder Deactivation Costs

NHTSA's high cost of ADEAC suppresses the CAFE model's application of the technology. NHTSA's summary of CAFE model outputs (Table 1) shows 6% market penetration of ADEAC in 2030 if current standards are kept in place and 0% for "alternative 1" standards.

The CAFE model's 0% penetration for "alternative 1" is unrealistic considering General Motors will be offering two engines for the Silverado with ADEAC in MY2019, and the sales of these engines (prior to ADEAC) was 767,000 in MY2016, or about 4.4% of the entire LDV fleet. Other manufacturers have similar plans, which will likely increase ADEAC market penetration well past 4.4% in the MY2019-2022 timeframe.

The CAFE model's 6% penetration in MY2030 if current standards are maintained is likely also low, considering that it is much easier to apply a technology to subsequent engines after several examples have entered production. EPA believes the low penetration of ADEAC in the CAFE model is due to the high ADEAC cost assumed by the CAFE model.

Furthermore, the cost of ADEAC for V8 OHV engines shown in the CAFE model output ($1101) does not agree with the cost of ADEAC for V8 OHV provided by NHTSA in their "NHTSA Feedback on NPRM Analysis – February 22, 2018" letter ($1008).

Question/Information Request 10. Please provide details for how the costs for dynamic cylinder deactivation were estimated, particularly the $1101 cost for V8 OHV engines.

Additional observations: Economic factors in the CAFE model and inputs

Employment Analysis

In past rulemakings, NHTSA has based its employment analysis solely on sales volumes (the "output effect"): if sales are projected to change, employment would change in a constant ratio. Because EPA has not quantitatively estimated sales impacts in recent rulemakings, for reasons discussed above for "Consumer Choice Modeling," it has not quantified the effects of sales changes on employment. It has, however, estimated the proportion of technology costs that are labor costs – that is, the labor involved in the new technologies, known as the "cost effect" or "substitution effect"[4] – and included estimates of those effects in its analysis, based on data from the Bureau of Labor Statistics (BLS) and the Census Bureau. NHTSA has not included those effects in its employment analysis, even though labor costs are a significant fraction of technology costs. This review is based on an inspection of input files.

Our understanding, based on our 2/28/18 discussion, is that NHTSA now includes employment impacts due to technology costs via a calculation of revenues per worker in the manufacturing and parts supplier sectors, as well as estimates of dealership employment based on new vehicle sales.

In EPA's observations of the NHTSA modeling, employment values in the model start at about 1.1 million in 2016, and increase to about 1.3 million under the Augural standards in 2025, and about 1.25 million under the Alternative standards in 2025, a difference of about 50,000 jobs. The Dynamic Fleet Share (DFS) model affects employment values, as shown below; the Scrappage model appears not to affect employment.

[4] Berman, E. and L. T. M. Bui (2001). "Environmental Regulation and Labor Demand: Evidence from the South Coast Air Basin." Journal of Public Economics 79(2): 265-295; Morgenstern, Richard D., William A. Pizer, and Jhih-Shyang Shih (2002). "Jobs Versus the Environment: An Industry-Level Perspective." Journal of Environmental Economics and Management 43: 412-436.

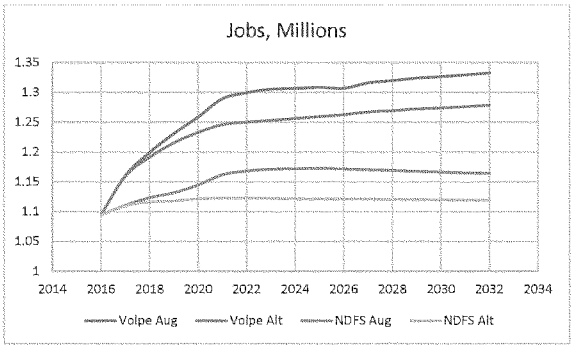


Figure 17: Jobs (Millions) using Volpe settings (including DFS) and No DFS (NDFS, or DFS off)

Question/Information Request 11. According to BLS data for 2016, total employment in the Motor Vehicles and Parts sector (NAICS 3361, 2, 3) was about 950,000; Automobile Dealers (NAICS 4411) had about 1.3 million; and Motor Vehicle and Parts Dealers (NAICS 441) about 2.0 million. The NHTSA jobs values do not correspond to these values; to what do they correspond?

Discount rates

In previous rulemakings, EPA and NHTSA have calculated and reported net benefits with a 3% discount rate for both benefits and costs, and separately with a 7% discount rate for both benefits and costs. These are intended to represent expectations of impacts of the standards.

Observation 8: The summary tables provided by NHTSA includes a footnote for "Consumer Costs and Savings for Average MY 2030 Vehicle" stating, "Consumer Costs and Savings are discounted to net present value using a 7% discount rate."

OMB Circular A-4 observes that the real discount rate of 7 percent "is an estimate of the average before-tax rate of return to private capital in the U.S. economy," that is, for private-sector business activity. On the other hand, according to Circular A-4, "When regulation primarily and directly affects private consumption (e.g., through higher consumer prices for goods and services), a lower discount rate is appropriate." On that basis, it seems inappropriate to use a 7 percent discount rate for "Consumer costs and savings."

As discussed above for consumer choice modeling, it may be reasonable to choose a different discount rate for fuel savings when analyzing sales impacts, as an alternative to using a limited number of years of future fuel savings (payback period). Such alternative rates are used to estimate how consumers behave when buying vehicles; they do not necessarily represent what consumers will experience once they have bought their vehicles. "Consumer Costs and Savings" should reflect what consumers are expected to experience; the Dynamic Fleet Share and Scrappage models already serve the function of estimating sales impacts.

Question/Information Request 12. Please explain the basis for using a 7 percent discount rate for Consumer costs and savings, and how that satisfies the instructions of OMB Circular A-4.

VMT schedules

The assumptions made about how much the average vehicle is driven in each year over a vehicle lifespan is an important factor in the calculation of greenhouse gas emissions, fuel savings, and discounted net benefits. The accumulation of vehicle mileage earlier in a vehicle's lifetime will tend to result in fuel savings and emissions benefits that are pulled ahead to earlier calendar years, and therefore discounted less in terms of net present value compared to a vehicle that accumulates more mileage later in its lifespan.

Observation 9: The form of the mileage accumulation schedule provided in the 'parameters' input file is unexpected, and not consistent with mileage accumulation schedules in other data sources.

The table of vehicle miles traveled (VMT) by vehicle age described in the 'parameters' input file shows a steep drop-off in annual VMT after age 6. NHTSA had first utilized a curve with that shape in the 2016 Draft TAR, and EPA understands the underlying data source is an IHS/Polk product based on odometer readings from individual vehicles. The drop-off in annual VMT in the NHTSA schedule shown in Figure 16 is not seen in other data sources, including the 2001 National Household Travel Survey (NHTS), and a DOE LBNL analysis based on odometer readings from DMV records of the Texas inspection and maintenance program. The 2009 NHTS data shows a decline that coincides with the NHTSA schedule, but of a much smaller magnitude.

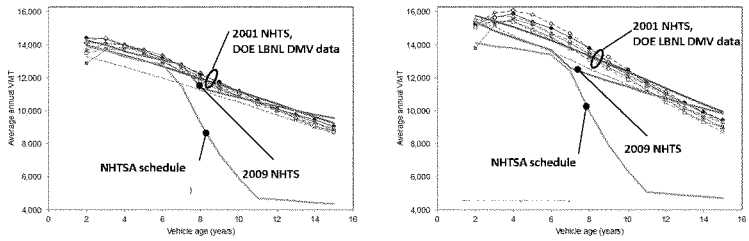


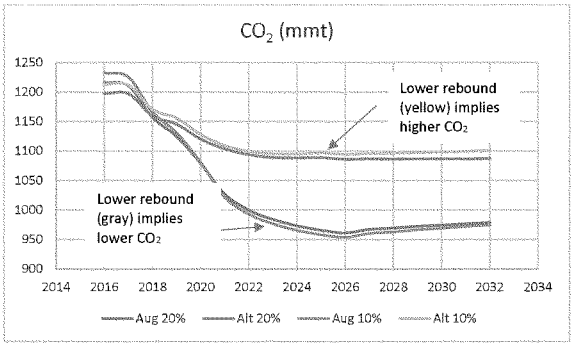
Figure 18 Comparison of NHTSA mileage accumulation schedule with data from other sources for cars (left) and trucks (right)

Question/Information Request 13. Can NHTSA provide an explanation for why such a dramatic decline in annual VMT occurs after age 6, and considering that large decline why does NHTSA believe that the IHS/Polk data is more defensible than multiple other sources which are based on population-weighted samples of odometer readings of individual vehicles.

VMT Rebound

Changing the rebound value from 20% to 10% has the expected effect, for the Augural standards, of reducing CO_2 emissions, because of reduced rebound driving. However, the same change for the

Alternative standards leads to *greater* CO_2 emissions, although, as noted previously in the discussion of the DFS and S models, new vehicle sales are higher, and the overall fleet is smaller, under the Alternative standards. The same pattern exists for fuel use.



Emissions impacts and costs

Effects of the standards on both CO_2 and other pollutants depend on not only the changes in technologies to vehicles, but also changes in the amount driven (rebound effect), changes in the number of vehicles and fleet mix (Dynamic Fleet Share and Scrappage models), and changes in fuels produced (upstream effects).

> *Observation 10: In the "societal_effects_report," it appears, at least for 2025 and 2030, that, in going from the augural standards to the alternative standards, emissions of some pollutants (VOC, NOx, SO_2, PM, CO_2, CH_4, N_2O, DPM) increase, while emissions of others (CO, Acetaldehyde, Acrolein, Benzene, Butadiene, Formaldehyde) decrease.*

It seems peculiar that some increase while others decrease; it's especially counter-intuitive that toxics go down while VOC goes up.

Question/Information Request 14. Can NHTSA explain what contributes to this effect?

> *Observation 11: It is unclear where NHTSA selected the unit values to monetize changes in PM-related criteria pollutant emissions (aka, benefit per ton values - BPT).*

NHTSA provides the following table for Emission Damage Costs:

Emission Damage Costs ($/metric-ton)	
Carbon Monoxide	0
Volatile Organic Compounds	2,000
Nitrogen Oxides	8,200
Particulate Matter	371,100
Sulfur Dioxide	48,000

Methane	0.0000
Nitrous Oxide	0.0000

They appear to be outdated (e.g., they include a unit value for VOCs, which EPA no longer monetizes due to uncertainty in the underlying air quality modeling); and they don't appear to account for how BPT values increase over time.

Question/Information Request 15. What is the source for these emissions damage costs, and does the CAFE model change the values over time?

EPA review of CAFE model with "GHG" settings (08-Mar ver.)

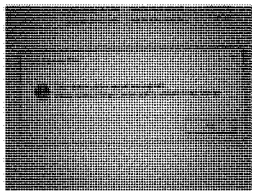
Meeting with Office of Management and Budget/OIRA

4/16/2018

Agenda

- Overview
- Review of CAFE model Safety Analysis
- Review of CAFE model Realism
- Review of CAFE representation of GHG program
- Summary of CAFE model results 'cost walk'
  - Contributions of the identified issues to large overestimation in program costs
- Other observations
  - Performance
  - Effectiveness
  - Battery costs and sizing
- Appendix: Update on LDV Rebound

Overview (slide 1 of 2)



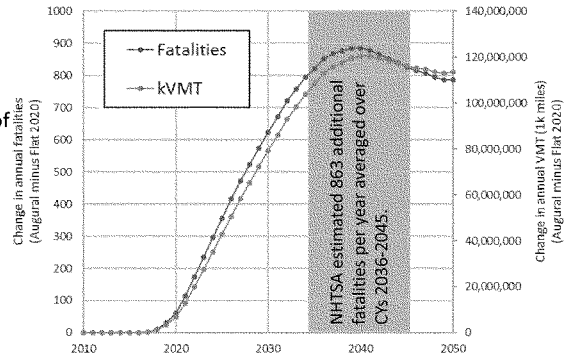
- EPA began reviewing CAFE model in late January
  - Shared very initial observations with OMB on February 9, raising many significant concerns, and requesting:
    (1) technology descriptions for a handful of key technologies
    (2) description of components included in net benefits summary
    (3) model code
  - EPA has received neither of the requested items
- DOT provided a "GHG" version of the CAFE Model March 8
  - Intent is to properly model the EPA CO_2 program provisions
  - EPA discovered on March 31 model had a built-in "expired" date.
  - EPA requested on April 2 a workable version of the model
  - There has been no response to EPA request from DOT

Overview (slide 2 of 2)

- EPA analysis to date shows significant and fundamental flaws in CAFE model (both the CAFE version and the "GHG version")
  - These flaws make the CAFE model unusable in current form for policy analysis and for assessing the appropriate level of the CAFE or GHG standards
- DOT has provided OMB draft preamble and RIA Chapter assessments for the upcoming CAFE and GHG NPRM
  - The underlying technical basis for the policy decisions and the proposed standards is the CAFE model, which has significant and fundamental flaws that must be addressed before being used for informing policy
  - EPA will not be providing comments on the draft material, as the underlying basis (CAFE model) is flawed, and thus comments are of no value until the technical basis is fixed
- DOT has drafted preamble language in which DOT repeatedly speaks for the EPA Administrator
  - DOT speaks for the EPA Administrator's views on the appropriate level of the EPA standard, EPA's interpretation of the Clean Air Act, EPA's views on what factors are relevant in determining EPA's program design and the EPA standards
  - EPA will be drafting the EPA Administrators views for the upcoming rulemaking, and we will not be starting from the DOT draft text

Relationship between miles traveled and total fatalities

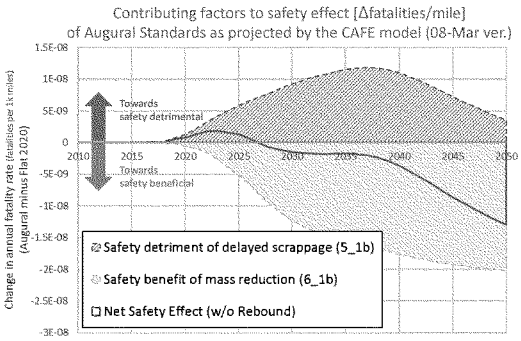
- Total fatalities are highly correlated with total VMT
- CAFE model improperly estimates the VMT impact of the Augural standards (following slides)
- The safety metric of 'fatalities per mile'[1] is unaffected by anomalies in VMT projection, and is therefore a more reliable metric of safety for this review



1 NHTSA has previously used a fatality rate metric when estimating the safety impact of changes in vehicle characteristics. Refer to the June 2016 report cited in the Draft TAR, "Relationships between Fatality Risk, Mass, and Footprint in Model Year 2003-2010 Passenger Cars and LTVs."

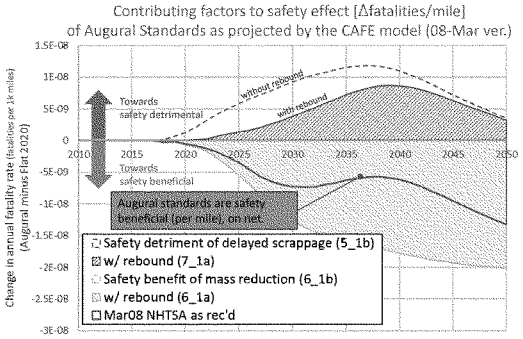
Effects of delayed scrappage and mass reduction (excluding rebound)

- The augural standards provide an overall safety benefit, relative to flat standards
- Mass reduction provides a safety benefit due to the greater amount of weight removed from larger vehicles (relative to smaller vehicles) and the resulting improvement in crash compatibility
- Any detriment due to delayed scrappage is more than offset by the benefit of mass reduction
- The benefit of mass reduction extends perpetually into the future, while the detriment of delayed scrappage becomes smaller over time



Effects of delayed scrappage and mass reduction (including rebound)

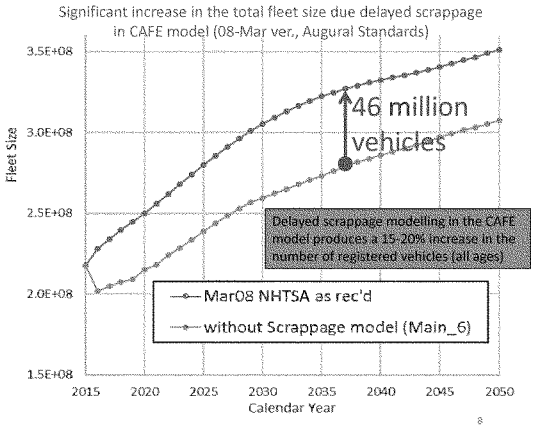
- The use of a 20% rebound value in the CAFE model reduces the safety detriment of delayed scrappage
- As in the case of excluding rebound, the augural standards provide an overall safety benefit, relative to flat standards when rebound is included



Realistic fleet size projections

Real-world : The total number of registered vehicles would not change significantly as a result of consumer decisions to retain used vehicles longer instead of purchasing new vehicles.

CAFE model implementation: The use of the scrappage model produces a 15-20% increase in the total fleet size. The 2016 fleet increases by 26 million vehicles, and the 2030 fleet increases by 46 million



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Realistic travel activity (VMT) projections

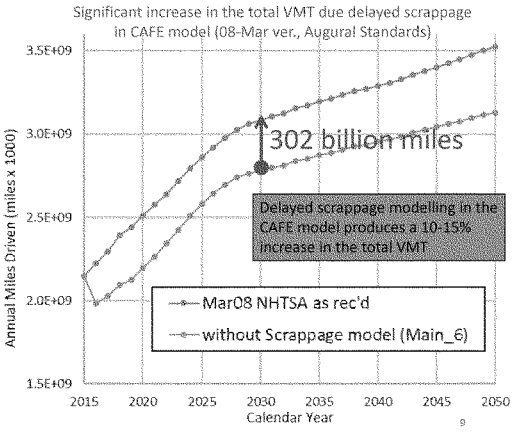
Real-world : The total number of vehicle miles travelled (VMT) would not change significantly as a result of consumer decisions to retain used vehicles longer instead of purchasing new vehicles.

CAFE model implementation: The use of the scrappage model produces a 10-15% increase in total VMT.

The 2016 VMT increases by 239 billion miles, and the 2030 VMT increases by 302 billion miles

Implication of this Error: The unexplained VMT disconnect is clearly wrong, and is driving incorrect fatality estimates[1].

[1]Because of the disconnect with the vehicles sales projections (DFS model), the use of the scrappage model causes an inappropriate increase in the fatalities impact of the Augural standards, and an inappropriate underestimation of the fuel savings and emissions benefits.

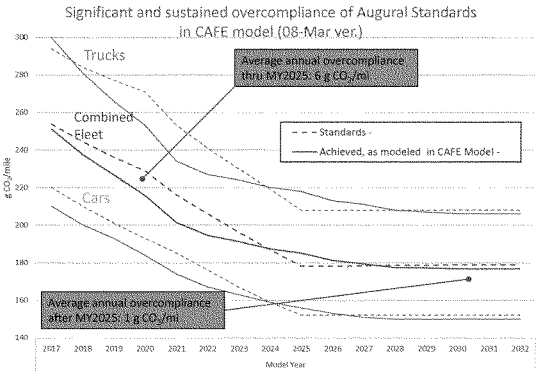


Manufacturer year-by-year compliance strategy projects

Real-world : Manufacturers will consider future vehicle model plans and compliance strategy when introducing technology, transferring credits from year-to-year as needed and avoiding significant over-compliance, on average.

CAFE model implementation: Technology in excess of what is necessary for compliance is applied in nearly every year, particularly prior to MY2024 when lead time is more limited. This sustained and significant overcompliance projected by the CAFE model implies that the industry will not make use of the large quantity of banked credits, or year-to-year credit transfer provisions.

Implication of this overcompliance: Significant overestimation in industry costs. CAFE model is not properly accounting for banked credits in GHG program, which firms clearly do today.



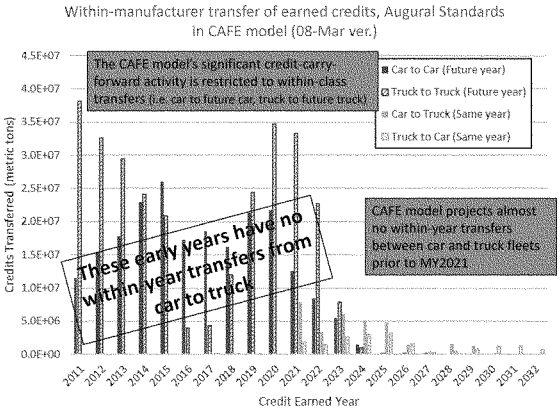
Note: The 'Achieved' emissions represented in the CAFE model include tailpipe CO2, AC efficiency and leakage credits, and off-cycle credits. Banked credits are not included in the 'Achieved' value.

Realistic management of credits by manufacturers

Real-world : Manufacturers will manage their credit banks to even out compliance status given staggered introduction of technology. It is unlikely that manufactures will consistently add excess technology in the earlier years in order to maintain a large credit bank into the future.

CAFE model implementation: Manufacturers are projected to strongly prioritize the carry-forward of credits into future years, relative to within-year transfers between car and truck fleets. The CAFE model projects almost no within-year transfers between car and truck fleets prior to MY2021

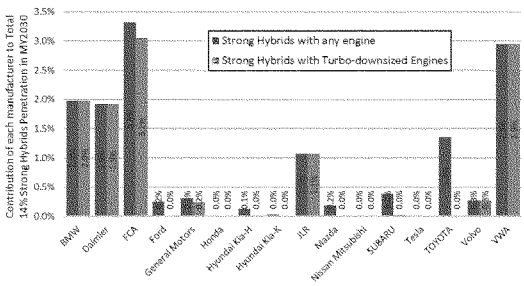
Implication of unrealistic credit carry-forward: Overestimation of GHG standards cost. CAFE model not taking advantage of car-truck credit transfer, which firms are clearly doing today



CAFE Model Does Not Choose Cost-effective Pairing of Engines and Strong Hybridization (1 of 2)

CAFE model implementation: Over 80% of the strong hybrid packages applied in the Augural case include turbo-downsized engines (11.5% of 14% fleet-wide strong-hybrid penetration)

Strong Hybrid Technology Pathway Comparison: Turbo vs. non-Turbo: Augural Standards in CAFE model (08-Mar ver.)



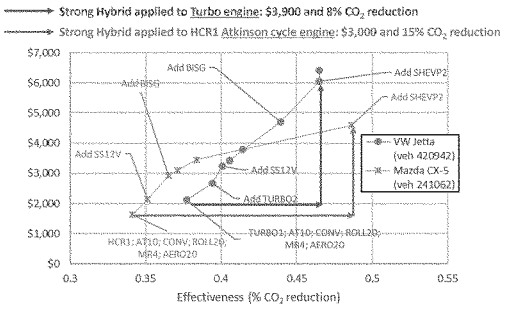
CAFE Model Does Not Choose Cost-effective Pairing of Engines and Strong Hybridization (2 of 2)

Real-world : The effectiveness benefits of strong hybridization (P2HEV and PSHEV) is dependent on the base engine technology to which the technology is applied. In typical applications, manufacturers will pair strong hybridization with efficient, but low cost Atkinson cycle engines.

CAFE model implementation: Due to the CAFE model's pre-defined technology pathways, strong hybridization is applied almost exclusively to turbocharged downsized engines, resulting in strong hybrid packages that are significantly higher costs and less effective than the vast majority of real-world implementations.

Implication of strict technology pathways: Overestimation of GHG standards cost. CAFE model is forcing combinations of technologies that are highly cost-ineffective.

Strong Hybrid Technology Pathway Comparison: Turbo vs. non-Turbo: Augural Standards in CAFE model (08-Mar ver.)

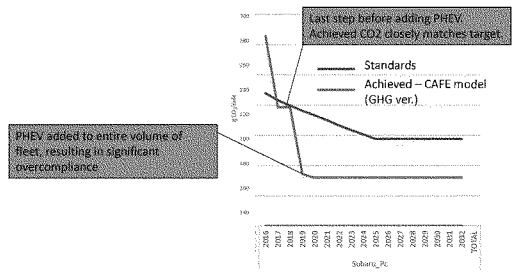


Addition of plug-in electrification in reasonable volumes

Real-world : Plug-in vehicles (PEV's) provide significant compliance benefits due to low or zero emissions and multiplier incentives. Mainstream manufacturers will likely continue adopt PEV's in a strategic fashion, without drastically exceeding the volumes needed for compliance

CAFE model implementation: PEV technology is applied to platforms in 'all-or-nothing' manner, resulting in an inability to track the standards closely, and producing overcompliance levels ranging from moderate to very high.

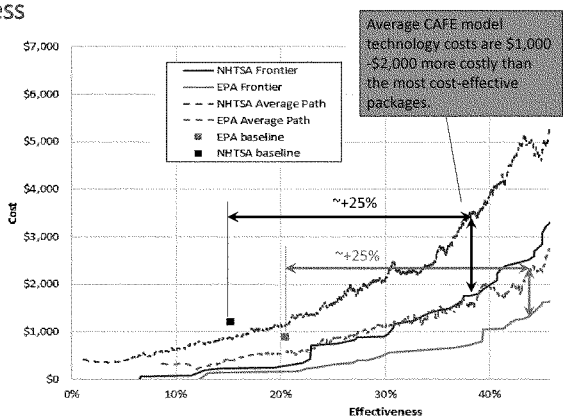
CASE Study: Single vehicle manufacturer



Manufacturer consideration of technology package cost-effectiveness

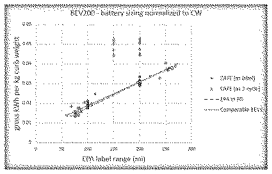
Real-world : Manufactures will apply technology packages that are within a reasonable cost range of the most cost-effective technologies (e.g. well within $2,000)

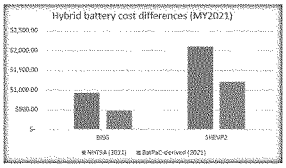
CAFE model implementation: Using the NHTSA inputs, as provided, manufacturers are projected to apply, on average, technology packages that are $1,000-$2,000 more costly than the most cost-effective packages.

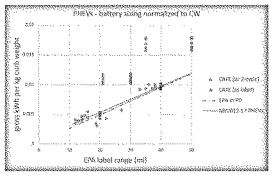


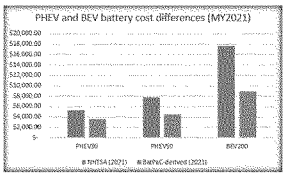
Battery Costs

- *The cost of batteries for hybrid and plug-in vehicles is in most cases significantly higher than expected based on the most recent projections derived from DOE's BatPaC model and battery sizes are substantially larger than observed in the current LD fleet.*









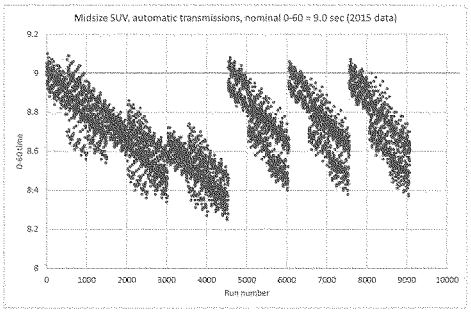
CAFE Model Projects Unquantified and Unmonetized Increase in Vehicle Performance

In the modeling for CAFE, engines are re-sized in two circumstances:

- When constructing an initial conventional or hybrid package.
- When applying over 7.5% mass reduction.

However, applying lower levels of mass reduction, advanced transmissions, or other load reduction will increase acceleration performance.

This additional benefit is not accounted for in the CAFE model.



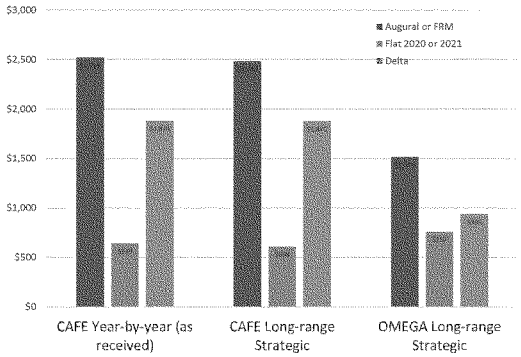
Target 0-60 time for this class is 9.0 seconds. Actual DOT Autonomie simulations show 0-60 accelerations much better than the target for many technology packages.

Summary of the representation of GHG Program elements in the CAFE model

Program element	CAFE model implementation issues
BEV and PHEV Advanced Vehicle Technology Multipliers	CAFE model only adjusts the fleet average emissions to account for the multiplier values. For proper accounting of credits, the multipliers must also be incorporated into the GHG target.
Accounting for plug-in vehicle (PEV) upstream emissions	CAFE model does not have any inputs or apparent mechanism for accounting for the upstream emissions of PEVs, as required by the EPA regulations
A/C credits (efficiency and leakage)	The input files, as received from NHTSA, assume that all manufacturers earn a constant credit from AC efficiency and leakage in all years. However, the inputs for the standard footprint curves are adjusted for AC efficiency and leakage that increases over time. As a result, the standards defined in the CAFE model, as received, are less stringent than the actual standards.
Unlimited transfer is allowed within a manufacturer between car and truck fleets	CAFE model does not realistically account for car-truck credit transfers within a manufacturer (as described in earlier slide.) This likely contributes to the model's overall overcompliance, and the associated increase in costs.
Off-cycle Emission Credit caps	CAFE model inappropriately applies the credit cap (10g/mi) separately to each manufacturer's car and truck fleets. The GHG regulations specify that the cap is applied to a manufacturer's combined fleet.

Year-by-year vs. Long-range Strategic Modelling

- Specification of redesign cycles and year-by-year compliance considerations have a minimal effect on the projected 2025 compliance costs in the CAFE model.
- Differences between NHTSA and EPA cost projections are the result of modeling inputs, constraints and anomalies within the CAFE model (see other EPA slides).

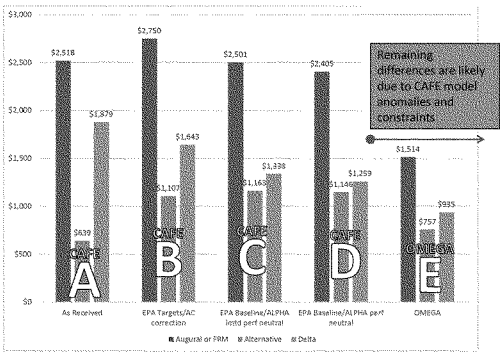


CAFE model runs with EPA settings and inputs

Run A: CAFE (GHG ver.)

"As received" from NTHSA which uses:

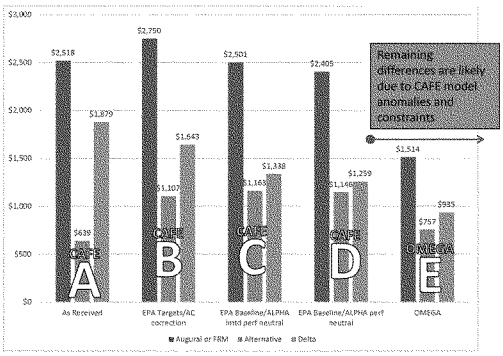
- Augural standards as the reference case
- Flat 2020 forward as the alternative case
- NHTSA/Volpe effort at characterizing the A/C provisions of the GHG standards
- Engine effectiveness estimates are compared against targets incorporating A/C efficiency expectations
- A/C leakage values not properly reflected



CAFE model runs with EPA settings and inputs

Run B: CAFE (GHG ver.)

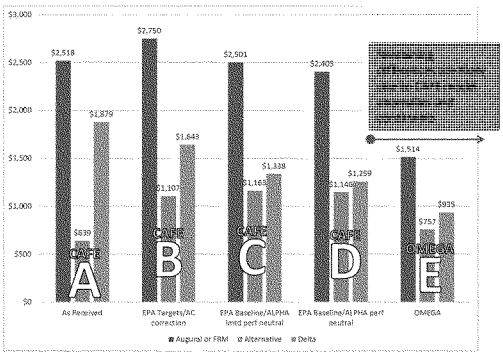
- EPA's 2022-2025 FRM targets as the reference case
- EPA's 2021 and later FRM targets as the alternative case
- EPA characterization of the A/C provisions of the GHG standards
- Engine effectiveness estimates are appropriately applied to 2-cycle targets that ignore influence of A/C efficiency expectations
- A/C leakage values corrected



CAFE model runs with EPA settings and inputs

Run C: CAFE (GHG ver.)

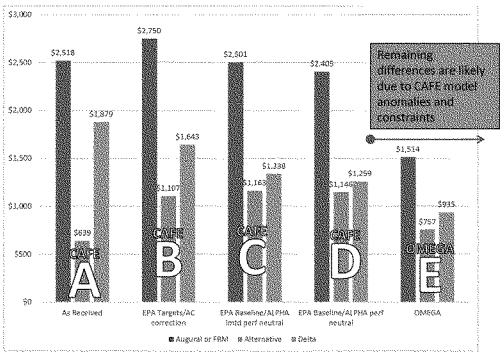
- Use of EPA's baseline fleet which incorporates a higher level of technology
- Use of EPA's cost input estimates including more recent BatPaC results
- Use of EPA's ALPHA modeling of effectiveness, but with NHTSA's engine resizing approach which does not maintain performance neutrality



CAFE model runs with EPA settings and inputs

Run D: CAFE (GHG ver.)

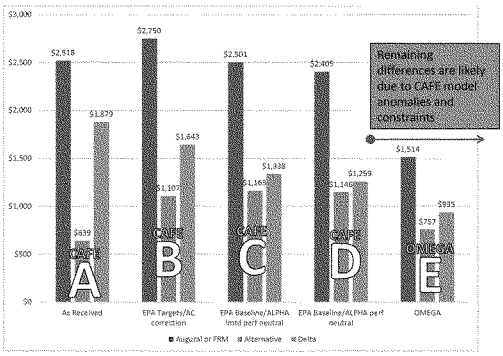
- Use of EPA's baseline fleet as in the "C" set
- Use of EPA's cost inputs as in the "C" set
- Use of EPA's ALPHA modeling of effectiveness, maintaining performance neutrality



CAFE model runs with EPA settings and inputs

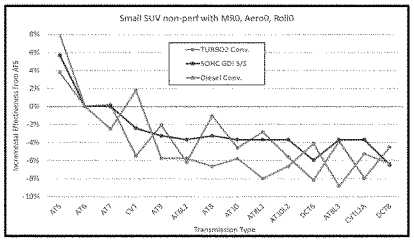
Run E: CAFE (GHG ver.)

- Full use of ALPHA and OMEGA



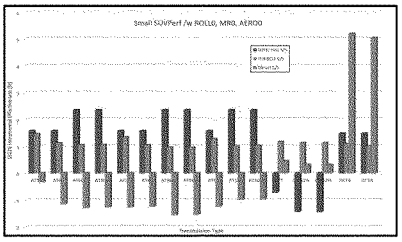
Technology Effectiveness

- *EPA has also identified specific technology effectiveness observations that are inconsistent with expected performance.(examples provided below)*



Observations of Transmission Effectiveness

- Consistent values could indicate lack of resolution in modeling (single values being applied broadly).
- Additional technology does not follow a logical progression of improvement.



Observations of Stop/Start Effectiveness

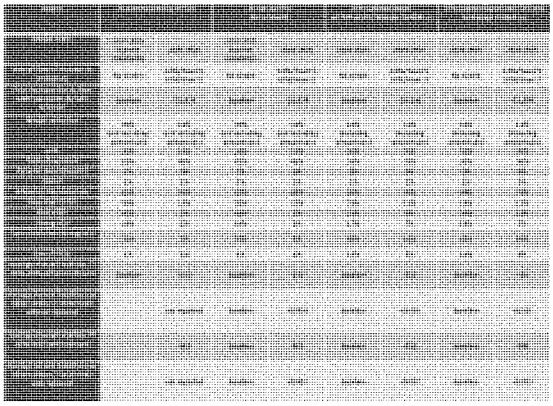
- Effectiveness of stop/start should be consistent independent of the transmission (for a given engine).
- Stop/start can never produce a negative effectiveness.

CAFE Model Observations

From EPA's March 1st summary status report of CAFE model review:

The use of EPA input values in the CAFE model which update and/or correct the anomalous inputs used in the NTHSA-reported runs from January 22 has a significant impact on several key output results:

Relative to the Augural Standards, technology cost savings of Alternative standards are reduced and fatalities increase.



Appendix:
Update on LDV Rebound

4/16/2018

What is LDV Rebound…and Why Care?

- Buy a more fuel-efficient car, drive more because it's cheaper to drive; this is what is typically meant by the LDV rebound effect
- More driving means:
  - Less energy savings/more greenhouse gas emissions
  - Increase in consumer benefits (i.e., you can drive more, since it is cheaper to use your vehicle)
  - More air pollution (NO_x, PM, etc.)/congestion/refueling costs
- Large number of academic papers have attempted to estimate the LDV rebound effect
  - Early studies, starting in 1970s, focused mainly on oil price shocks, gasoline taxes
  - Over the last decade, 12 relevant U.S. studies quantified rebound effect/6 international studies
  - Most studies look at how drivers respond to fuel costs/fuel prices (not actual fuel efficiency of vehicles)

Types of Rebound Studies

- **Aggregate, Time Series Studies**
  - Estimate rebound effect based upon national LDV travel patterns over time; in U.S., data is available at the national/state level
  - Able to account for trends in key variables influencing rebound (e.g., fuel costs/income/congestion etc.) over time
  - Studies that rely on a system of equations (e.g., travel, size of vehicle stock, fuel efficiency, congestion) have some of the best capabilities of controlling for variables causing rebound effect
  - U.S. studies provide "ready-made" national rebound estimates for LDV rulemakings
- **Per Vehicle Studies (single year or time series)**
  - Most studies use odometer readings from smog check data/individual vehicles/state level; most accurate measure of travel
  - Data rich; can address some issues of heterogeneity: how rebound varies with some characteristics of vehicles (e.g., age); households (e.g., income); geography (e.g., residential density)
  - Results from individual states are unlikely to be representative for national, U.S. rebound estimates

Types of Rebound Studies

- **Household Studies (single year or time series)**
- Most studies use cross sectional, single year household survey data
- Like Per Vehicle studies, data rich; can address issues about how characteristics of households/vehicles affect rebound (e.g., heterogeneity)
- Tend to see a wider range/higher rebound estimates than aggregate studies
- Even well executed, single year studies have difficulty in controlling for factors influencing rebound effect (e.g., limited to looking at one year effect)
- Most recent studies based upon National Household Travel Survey (NHTS) (2009)
    - Time Period: unique set of circumstances with the onset of the Great Recession
        - Fuel prices fluctuated dramatically from $3.30/gallon in March 2008 to $4.10 gallon in summer of 2008, followed by a decline to ~$1.70/gallon in the late 2008/early 2009 period
        - U.S. GDP fell 1% growth rate to -7.5% annualized growth rate
        - U.S. unemployment increased from 4% to 10%

EPA Selection Criteria for Rebound Estimates

- There are a wide variety of estimates of the rebound effect, in part due to the many different methodologies/data sources used to try to quantify this impact
- Given the broad range of values, EPA believes it is important to critically evaluate which studies are most likely to be reflective of the rebound effect of future GHG/fuel economy standards
  - In other words, we can't just take the "average" rebound estimates from literature
- **Geographic/Timespan relevance**: Priority given to U.S. vs. state/international studies; studies that can project based upon U.S. demographic/land use patterns in LDV rulemakings timeframe (e.g., 2020-2040)
- **Model relevance**:
  - Priority given to studies that measure driving response to changes in fuel economy, the variable of interest, rather than to changes in fuel price/costs
  - Priority given to studies that measure driving response to increases to fuel economy (i.e. "asymmetry") over studies that assume uniform response to increases/decreases
- **Time period of study**: Priority given to recent rebound studies (in the last decade)
- Priority given to studies with **strong statistical/methodological basis**
- **Data source type**: Priority given to studies based upon time series data vs. single-year studies

Recent Rebound Studies

- Aggregate; U.S.
- Per Vehicle; U.S.
- Household Studies; U.S.
- International

Summary

- There are a wide variety of estimates of the rebound effect, in part due to the many different methodologies/data sources used to try to quantify this impact
- Within the existing literature, aggregate, time series studies of the U.S. provide the most reliable estimates of the rebound effect for use in LDV rulemakings
  - Results from individual states are unlikely to be representative of national, U.S. rebound estimates
  - Even well executed U.S. studies using single year data, particularly from the NHTS 2009 time period with the onset of the Great Recession, have difficulties in providing reliable estimates of the U.S. rebound effect
    - Recent studies using the same data set, NHTS (2009), find rebound estimates that range from 9-40%
  - Even well executed international studies do not provide reliable estimates of the U.S. rebound effect, as the U.S. has different travel patterns from other countries due to a variety of factors
- Recent U.S. aggregate, time series studies find a rebound effect lower than 20%

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ATTACHMENT A: *DETAILS REGARDING THE COMMENTS FROM THE ASSOCIATION OF GLOBAL AUTOMAKERS ON THE PROPOSED SAFE VEHICLES RULE*

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GlobalAutomakers

I. Overview

The following contains details to support the comments submitted by the Association of Global Automakers (Global Automakers) on the joint Notice of Proposed Rulemaking (NPRM) issued by the National Highway Traffic Safety Administration (NHTSA) and the U.S. Environmental Protection Agency (EPA), entitled "Safer Affordable Fuel-Efficient Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" (SAFE Vehicles NPRM) [83 Fed. Reg. 42986, August 24, 2018]. This NPRM is an important step in maintaining, improving, and strengthening the "One National Program" (ONP) for motor vehicle fuel economy and greenhouse gas (GHG) emissions and for providing a public and transparent process for input on the regulations.

The standards as affirmed by the previous Administration in its waning days clearly needed to be revised. The revisions should provide for continuous improvements, flexible mechanisms for compliance in improving fuel economy and reducing GHG emissions, and the maintenance of ONP for regulating fuel efficiency in the most efficient and effective manner possible.

There are a number of factors that the agencies must fully examine in order to determine both the appropriate stringency of the standards out to model year (MY) 2026 and improvements to other elements of the regulatory program. We do not believe that any of the Alternatives set forth in the NPRM, or the current augural standards, offer an acceptable pathway for meaningful fuel economy improvements and GHG emissions reductions in a unified national program. Rather, a final rule that includes the following elements would establish feasible and reasonable standards, consistent with both the Energy Policy and Conservation Act (EPCA) and the Clean Air Act (CAA), and support a continuation of ONP. These items would also encourage ongoing innovation and investment in the auto industry resulting in safer, more fuel-efficient vehicles that meet consumers' needs. We therefore request that the final rule address the following three items:

1. **The regulations should provide for meaningful year-over-year fuel economy improvements and GHG emissions reductions through MY 2026 and provide for a continuation of a unified and coordinated ONP with California.** We do not believe that any of the proposed Alternatives would lead to this result, although we agree that the current EPA and NHTSA augural standards are not appropriate and must be adjusted to account for today's market realities and technology trends. Industry can thrive under a level regulatory playing field that allows for a smart approach to competition and efficiency improvements.

2. **There are a number of ways to address the stringency of the standards. Global Automakers believes that the best policy outcome would provide for a combination of meaningful year-over-year improvements in chassis-based efficiency coupled with a package of programmatic elements. This approach would provide automakers with flexible compliance options to produce a wide range of vehicles meeting their respective customers' needs, ease manufacturer compliance burdens, and support investments in advanced fuel-saving technologies.** This package should consist of the following items (though the specific parameters

of some of these items would need to be determined in conjunction with the appropriate numeric stringency of the standards):

- Multipliers for advanced-technology vehicles—i.e., battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEVs), extended through MY 2026.
    - The values of the multipliers should be fixed at specific levels depending on the stringency of the standard.
    - In order to prevent a dilution of the benefits of the program and prevent a windfall to certain automakers, the impact of these multipliers should be subject to a manufacturer's fleetwide cap on a model year by model year basis; the appropriate level of the cap would depend on the stringency level of the standards.
- Upstream emissions for BEVs, FCEVs, and the electric portion of use from PHEVs should be permanently set to zero grams per mile (0 g/mi).
- Strong HEVs should receive credit amounting to 20 g/mi credit for light-duty trucks (LDT), with no sales threshold minimum and no performance requirement. Agencies should consider a smaller incentive for passenger cars as well.
- A one-time expiration date extension through MY 2026 for GHG credits earned in previous years; the agencies should determine the applicable model years eligible for the extended carry-forward.
- The off-cycle credit cap should be raised to 15 g/mi, in recognition that these important, innovative fuel-saving technologies have an important compliance role, result in real-world GHG emission benefits, and should be encouraged to expand in coming years.
- The off-cycle "pick list" should be updated with the most recent data concerning the values of efficiency benefits from these fuel-saving technologies. Technologies that should be added to the list include, but are not limited, to: advanced A/C compressor, high efficiency alternator, and variable crankcase suction valve compressor.
- There should be no GHG curve adjustments or GHG test procedure adjustments based on any changes to E10 test fuel.
- Improvements should be made to the off-cycle program, including:
    - Blanket approval for applications using specific technologies and calculation and measurement procedures;
    - Allow suppliers to apply for provisional credit at the system or "pre-vehicle" level;
    - Accept the European Union's. eco-innovations process;
    - Pre-approve calculations and measurements prior to demonstration; and
    - Provide general regulatory fixes that are critical to improving the efficacy of this program.

- Air conditioning refrigerant leakage and nitrous oxide and methane emissions standards should be included for compliance with the EPA standards for all MYs, even if it means a divergence from the NHTSA standards. This is important to maintaining regulatory flexibility through real GHG emission reductions and would prevent the potential for additional bifurcated, separate programs at the state level.

Global Automakers believes this package of compliance flexibilities is critical to the national program, because it promotes technology investment in the industry (and represents a large portion of industry investment that would otherwise be stranded without these provisions), provides real fuel savings benefits for the consumer and the vehicles, and can also encourage innovation in the industry. Further, it provides manufacturers with a diverse range of compliance options to select the best, most cost effective technology approach for each company's vehicles, thereby also providing support for a diverse range of technologies.

3. **The industry needs a coordinated set of standards between the NHTSA, EPA and California Air Resources Board (CARB) so manufacturers can allocate resources to investment in new and innovative technologies and jobs, instead of efforts to comply with inconsistent standards.** This important policy goal can be achieved without resorting to costly and uncertain litigation to either assert preemption under EPCA or to revoke California's waiver under the CAA. Therefore, Global Automakers emphasizes that maintaining ONP will require CARB's participation, along with EPA and NHTSA, and compromise. Any action that maintains ONP obviates the need to address California's authority under EPCA preemption or the CAA waiver but achieves the same goal of providing regulatory certainty and reducing regulatory overlap.

Global Automakers recommends that the agencies remain committed to the fundamental goal of the ONP – a harmonized set of regulations that improve fuel economy and reduce GHG emissions, that are aligned (but not necessarily 100% equivalent in terms of miles per gallon (mpg) target), are cost-effective, and account for the needs of customers. Fundamental to this goal is a data-driven and objective rulemaking process in which EPA, NHTSA, and CARB are fully engaged.

II. History and Support of One National Program

A. History and Evolution of One National Program

The U.S. Department of Transportation's Corporate Average Fuel Economy (CAFE) program was first enacted by Congress in 1975 in response to the Organization of Petroleum Exporting Countries oil embargo.[1] From 1975 until 2010, motor vehicle fuel economy was regulated solely by NHTSA through the Corporate Average Fuel Economy (CAFE) program. In the early 2000's, CARB took action to regulate GHG emissions – a metric virtually synonymous with fuel economy – leading the way for 11 other states and the District of Columbia to also adopt California's GHG regulations. After the Supreme Court's 2007

[1] Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, 89 Stat. 871 (1975).

decision in *Massachusetts v. EPA*,[2] EPA moved to regulate GHG emissions from vehicles as well.[3] Because California had set its own emissions standards, the auto industry faced potentially conflicting regulations governing the same aspects of fuel efficiency and GHG emissions reduction under three separate regulated programs.

In 2009, the automobile industry and regulators from EPA, NHTSA and CARB reached a historic agreement to establish the ONP to address motor vehicle fuel economy and GHG emissions in a coordinated and harmonized fashion that allowed for continual improvements while preserving investments made by industry. NHTSA, EPA and CARB worked together with manufacturers and other stakeholders to create ONP as a way to address the concern that different standards at the federal and state levels would waste resources, add unnecessary friction in the system, discourage innovation, and diminish the benefits of all of the standards. As one of the Obama Administration's representatives correctly observed when describing the ONP adopted in 2009:

> [T]here was a significant likelihood that the regulators, acting independently, would produce inconsistent standards with different levels of stringency, along with duplicative or confusing compliance programs and incompatible enforcement policies, which could raise the costs to industry, and compromise the potential benefits of the new standards for consumers and the public.[4]

This commitment resulted in joint fuel economy and GHG emission standards promulgated by NHTSA and EPA in 2010, for MY 2012 through 2016.

For its part, CARB amended its GHG emission regulations to include a "deemed-to-comply" provision whereby automakers could be in compliance with its state MY 2012-2016 GHG emission standards by complying with EPA's national GHG regulations.[5] CARB's reason for doing so was premised on a greater level of GHG emission reductions that could be achieved by a national program compared to a state-based program that encompassed only California and 12 other states.

The commitment to the ONP was renewed in 2011 when the agencies proposed standards covering MY 2017 through 2025, which were then finalized in 2012.[6] Again, EPA and NHTSA jointly issued a proposed rule and a final rule, to ensure that their respective standards were aligned with each other. Because NHTSA is statutorily limited to setting standards for no more than five years at a time, it published "augural" standards for MY 2022-2025, targeting what the standards could be if the agencies' technology, cost and market predictions—the basis for setting the standards—proved mostly accurate.

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[2] 549 U.S. 497 (2007).
[3] Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).
[4] J. Freeman, The Obama Administration's National Auto Policy: Lessons from the "Car Deal." 35 Harv. Env. Law Review 343, (2011). p. 358.
[5] 13 C.C.R. § 1961.3(c).
[6] 77 Fed. Reg. 62,624 (Oct. 15, 2012).

EPA's standards through MY 2025 were finalized in the regulations, and CARB once again adopted a "deemed-to-comply" provision to allow federal compliance in place of state-based compliance.[7]

The Final Rule also included a Midterm Evaluation, which was fundamental to all parties' commitment and agreement to the standards through MY 2025; the Midterm Evaluation was designed as a check point in the process to reassess assumptions and predictions made more than ten years in the future, and to determine whether adjustments to the standards would be needed.[8] The timing for the Midterm Evaluation was set so that the agencies could incorporate the latest industry and market data, and align any potential EPA regulatory changes with the necessary NHTSA rulemaking process, keeping the agencies once again in close coordination.

In the Draft Technical Assessment Report (Draft TAR), the agencies summarized the benefits of the ONP as follows:

> Under the National Program, consumers continue to have a full range of vehicle choices that meet their needs, and, through coordination with the California standards, automakers can build a single fleet of vehicles across the U.S. that satisfies all GHG/CAFE requirements.[9]

This description captures the foundation upon which ONP was built; the realization of this goal will enable manufacturers to maximize economies of scale, deliver efficient vehicles at lower cost and provide environmental benefits across the nation.

Based on statements in the preamble to the 2012 rule, those made by EPA personnel, and on the agency's website, a proposed rule and a proposed determination were expected in the summer of 2017,[10] and a final NHTSA rule and EPA determination were expected no later than April 1, 2018.[11] However, shortly after the 2016 election, the outgoing EPA Administrator determined in January 2017 that the standards should be continued without changes.[12] That decision was rushed, issued only a few

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[7] 13 C.C.R. § 1961.3(c).

[8] Critical to the Midterm Evaluation was the recognition that the MY 2025 standards were a best estimate of future capabilities and that the standards could change, rather than must be affirmed.

[9] U.S. EPA OTAQ, NHTSA and CARB, Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025. Executive Summary, (2016). p. ES-1.

[10] *See* https://www.epa.gov/sites/production/files/2016-10/documents/grundler-sae-naipc-2015-09-17-presentation.pdf at 24 (indicating that EPA Proposed Determination and NHTSA notice of proposed rulemaking would be released mid-2017 and the final determination made in April 2018).

[11] *Id. See also* 2012 Final Rule, 77 Fed. Reg. at 62,784.

[12] However, the Administrator acknowledges that while the standards may be feasible at the current levels, that:

> ...several commenters spoke to the need for additional incentives or flexibilities in the out years of the program including incentives that could continue to help promote the market for very advanced technologies, such as electric vehicles. My determination, based on the record before me, is that the 2022-2025 standards...[are] appropriate under section 202 and do not need to be revised. ***This conclusion, however, neither precludes nor prejudices the possibility of a future rulemaking to provide additional incentives for very clean technologies or flexibilities that could***

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weeks after receiving thousands of public comments on the proposed determination, and leaving necessary adjustments based on changing market conditions unaddressed. The April 2018 Revised Determination was based on updated data and information and demonstrated that the current MY 2022-2025 standards are no longer appropriate in light of changed market realities, including:

- Changing sales volumes (peak sales of 18.1 million in 2016 to 17 million in 2017);
- 5maller-than-expected fuel efficiency gains in MY 2016 and MY 2017;
- Changes in the car and truck fleet splits (in 2012, the projected car/truck split was 67%/33% for MY 2025, but the current car/truck split has changed significantly to 48.5% cars/51.5% trucks); and
- Lower than expected gasoline prices (in 2012, EIA reference price forecast of $3.86/gallon for gasoline in 2025 (in 2010 dollars), and now the projected price is $2.92/gallon (in 2016 dollars).

Today's new proposed rulemaking offers the opportunity to work on a transparent next step in a coordinated process that considers safety, the need to conserve oil and reduce GHG emissions, and supporting a strong automotive market.

B. Strong Support for ONP

Global Automakers supports the ONP to regulate vehicle GHG emissions and fuel economy and strongly wants to see it continued.[13] The ONP represents smart and strong federal policy to provide a consistent and certain path for ongoing improvements and reduces regulatory burden, consistent with this Administration's regulatory program goals. While the ONP has not been perfect in its implementation, today's Administration has an opportunity to get it right. Further, the possibility of three separate regulatory programs, resulting in multiple jurisdictions for compliance, raises concerns that automakers might have to manufacture different versions of vehicles and manage fleets in each jurisdiction to meet the differing standards throughout the country.

While the rationale for ONP remains strong, the promise of it has not been fully met. Under the current regulations, it is possible for a manufacturer's fleet to comply with one set of federal standards but not the other. Further, the standards lack proper alignment, unnecessarily increasing complexity and regulatory burden. Efforts to harmonize the programs under ONP would help lower costs and enable greater environmental benefits than separate state-by-state programs.

There are several challenges in the event of a bifurcated program where NHTSA, EPA and CARB are not aligned, including driving up costs to consumers due to the loss of economies of scale, the excess administrative or transactional costs to comply with two programs, and challenges with vehicle sales

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assist manufacturers with longer term planning without compromising the effectiveness of the current program. The EPA is always open to further dialogue.... (***emphasis added***)

This text alone suggests that perhaps the standards alone were insufficient through MY 2025. "EPA Administrator's signed Cover Letter to the Final Determination (January 12, 2017)", https://www.epa.gov/regulations-emissions-vehicles-and-engines/epa-administrators-signed-cover-letter-final.

[13] From Global Automakers comments to the Midterm Evaluation: "NHTSA and California need to work together to maintain the One National Program as all parties committed to at its inception."

distribution networks (interstate vehicle transfers, for instance). There is also the potential for costly and protracted litigation, which results in the highest level of uncertainty and hardship for industry and likely results in automakers having to meet the highest standard in the interim period while any litigation is ongoing.

It is our hope to reach a solution where California and the federal government agree to a program that avoids protracted litigation and uncertainty. A collaborative and open process with all parties is critical to understanding all of the issues and working towards a managed solution that takes into account safety, fuel efficiency, the consumer and market realities.

III. Agencies' Discretion to Set Standards under Their Respective Statutory Criteria

Global Automakers has consistently requested that the standards be harmonized so that a fleet that complies with one standard complies with the other. In previous comments, we have pointed out ways in which the standards can be better harmonized.[14]

Global Automakers, however, has never advocated that the standards be numerically equivalent. While a grams per mile of carbon dioxide (CO_2) standard can be converted to a miles per gallon (mpg) equivalent, differences in the authorizing statues require some adjustments to allow manufacturers to meet both standards simultaneously and efficiently, as well as to allow the agencies to meet the requirements of those statutes.

For example, NHTSA must weigh four EPCA factors to determine the "maximum feasible" fuel economy standards: "technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy."[15] "Other motor vehicle standards" includes safety regulations, and "economic practicability" includes consumer acceptance. As NHTSA has affirmed, the agency has broad discretion concerning how to weigh these factors:

> NHTSA has broad discretion in balancing the above factors in determining the average fuel economy level that the manufacturers can achieve. Congress "specifically delegated the process of setting... fuel economy standards with broad guidelines concerning the factors that the agency must consider." The breadth of those guidelines, the absence of any statutorily prescribed formula for balancing the factors, the fact that the relative weight to be given to the various factors may change from rulemaking to rulemaking as the underlying facts change, and the fact that the factors may often be conflicting with respect to whether they militate toward higher or lower standards give NHTSA discretion to decide what weight to give each of the competing policies and concerns and then determine how to balance them—"as long as NHTSA's balancing does not undermine the

[14] Global Automakers, Comments on the "Request for Comment on Reconsideration of the Final Determination of the Midterm Evaluation of Greenhouse Gas Emissions Standards for Model Years 2022-2025 Light-Duty Vehicles."
[15] See 49 CFR 531 at 34242-3 (June 17, 2008).

> fundamental purpose of the EPCA: Energy conservation," and as long as that balancing reasonably accommodates "conflicting policies that were committed to the agency's care by the statute." Thus, EPCA does not mandate that any particular number be adopted when NHTSA determines the level of CAFE standards.[16]

In contrast, Section 202 of the CAA directs EPA to set standards "applicable to the emission of any air pollutant" from certain motor vehicles "which in [the Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." Section 202 further requires EPA to provide adequate lead-time for manufacturers to develop and apply the requisite technology, with appropriate consideration to costs of compliance within that period. Safety is also a consideration; Section 202(a)(4) of the CAA prohibits the use of any emission control device, system or design that will cause or contribute to an unreasonable risk to public health, welfare, or safety.[17] Like NHTSA, EPA has considerable discretion concerning the appropriate emission standard for a given pollutant. EPA has stated that:

> EPA also has significant discretion in considering a range of stringency. Section 202(a)(2) of the Clean Air Act requires only that the standards "take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period." This language affords EPA considerable discretion in how to weight the critical statutory factors of emission reductions, cost, and lead time.[18]

The U.S. Supreme Court has acknowledged that application of EPCA and the CAA could lead to coordinated but not necessarily identical outcomes. In *Massachusetts v. EPA*, the Court observed that although agencies' statutory obligations overlap, "there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency."[19] The Court also noted that "EPA no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies."[20]

However, because of differences between EPCA and the CAA, there are limitations on the extent to which the CAFE standards can (and should) be aligned with EPA's GHG emission standards. For instance, EPA can regulate emissions of GHG other than CO_2 under the CAA—like A/C leakage, methane and nitrous oxide—while NHTSA effectively cannot, because these emissions do not result in vehicle fuel efficiency improvements. Therefore, a straight numerical conversion from a GHG g/mile standard that includes non-CO_2 emissions to mpg does not actually result in standards of equivalent numerical stringency. As we discuss in greater detail below, Global Automakers supports EPA maintaining these

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[16] *See* 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624, 62,670 (Oct. 15, 2012) (quoting *Center for Auto Safety v. NHTSA*, 793 F.2d 1322, 1341 (D.C. Cir. 1986) and *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1195 (9th Cir. 2008).
[17] See 83 Fed. Reg. 42986, 43231 (Aug. 24, 2018); 42 U.S.C. 7521(a)(4)(A).
[18] *See* Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles -- Phase 2, 81 Fed. Reg. 73,478, 73,910 (Oct. 25, 2016).
[19] *Massachusetts v. EPA*, 127 S.Ct. 1438, 1443 (2007).
[20] *Id.* at 1462.

emissions as part of the ONP even if it results in NHTSA's and EPA's standards diverging numerically. Similarly, while both agencies allow credit trading, there are statutory limits on trading under EPCA, but not under the CAA. This is another area where allowing for differences between the EPA and NHTSA programs could lead to greater efficiencies and ease of compliance for automakers.

The details in our comments below discuss how EPA and NHTSA, in implementing their respective governing statutes, should address the questions of the stringencies of the CAFE and GHG emission regulations and the other programmatic elements that streamline manufacturer compliance and account for emissions benefits of advanced vehicle technologies.

IV. The Final EPA and NHTSA Regulations Should Set Standards that Provide for Meaningful Year-Over-Year Improvements in Fuel Economy and GHG Emissions Reductions

A. Industry Supports Standards that Increase Over Time and that Are Set at a Level that Meets Customer Needs and Technology Capabilities

Maintaining a trajectory of increasing standards that provides investment certainty makes the standards more "durable" over the longterm, because it provides certainty for research and development direction, encourages investment in manufacturing, and provides consumers a full spectrum of options.

The current Preferred Alternative in the proposed rule of a 0% per year increase from MY 2020 standards does not create a clear path nor support competitiveness in a global marketplace. In order for the U.S. auto industry to remain competitive and continue to export vehicles to the rest of the world, industry is better served by a reasonable, steady ramp rate that accounts for investments made and the global nature of the market. Steady increases allow for long-term planning and create an environment of security that fosters ongoing investment in vehicle technology and consumer confidence in purchasing newer vehicles. It also provides a level-playing field upon which automakers can compete.

We also agree with the agencies that the standards as previously codified by EPA and set as augural by NHTSA should be adjusted from their current form. We encourage NHTSA and EPA to look for a new Alternative that provides meaningful year-over-year improvements in fuel economy and GHG emission reductions, is acceptable to the state of California for a national program and provides important and necessary policy support for a broader transition to vehicle electrification. We believe such a solution is not only achievable, but also meets the agencies' statutory requirements for maximum feasible and technical feasibility.

B. Accurate Technical Analysis and Modeling Considerations are Critical to Final Rulemaking

The agencies must consider numerous factors in the standard setting process, including technical feasibility and lead time. In order to create truly durable standards, the final rule should provide for

meaningful year-over-year increases with appropriate flexibilities that encourage investment in new technology, while also ensuring that consumers can afford to purchase newer vehicles with the latest safety innovations. It is also consistent with meeting the goals of maximum feasibility under EPCA. To accomplish these goals, the agencies should continue to focus on establishing a predictable trajectory for improvements to fuel efficiency and GHG emissions, set at equivalent levels of stringency increases for passenger cars and light-duty trucks. A consistent approach to improved fuel efficiency and GHG emissions reductions creates the market stability that industry needs to ensure long-term investments and product planning timelines. In order to accomplish these goals, the agencies have correctly identified that a consistent approach to using the most up-to-date data and a robust technical analysis is needed.

1. Updated Volpe Modeling Using the Most Up-to-Date Data

This NPRM's use of a single model to evaluate alternative scenarios for both programs provides consistency in the technical analysis, and Global Automakers supports the Volpe model's use as it has proven to be a transparent and user-friendly option in this current analysis. The use of the Volpe model has allowed for a broad range of stakeholders, with varying degrees of technical expertise, to review the data inputs to provide feedback on this proposed rule. The Volpe model's accompanying documentation has historically provided a clear explanation of all sources of input and constraints critical to a transparent modeling process. Other inputs have come from modeling that is used widely by other sources, specifically the Autonomie model, allowing for a robust validation, review and reassessment.

One of the foundational underpinnings of the standards is the agencies' technical modeling. There has been a lot of discussion about the modeling since the Draft TAR, including the way the models work and assumptions inputted into each of the models. Upon request, Global Automakers and our members have worked with the Volpe Center to provide updated and revised assumptions and baseline data to support improved outputs from the Volpe model, and we understand that the Volpe Center has used many of these inputs. However, in evaluating the analysis it has become clear that there is still missing data on some technologies deployed from MY 2015 forward that should be added to the input files to ensure that the Volpe model is using the most complete, up-to-date data.

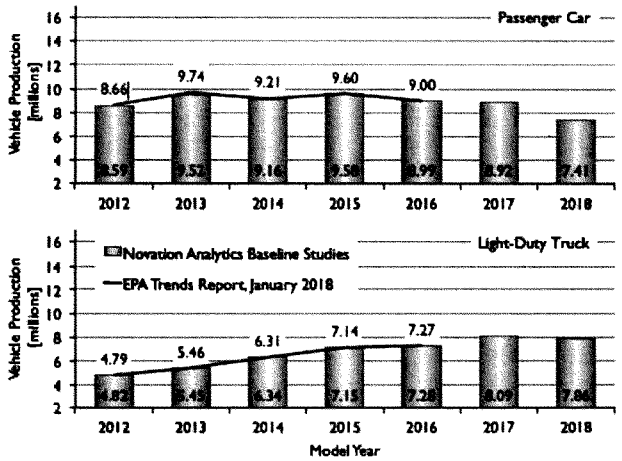
Global Automakers believes that in updating the agencies' modeling, assumptions and data, revised findings would support the conclusion that adjustments to the existing regulations are needed but the question of what those adjustments should be requires a full spectrum of data inputs. This point is supported by our analysis. Adjustments could take numerous forms, including a revision to the stringency levels, the implementation of credit flexibilities or any combination thereof that would continue the path of annual fuel efficiency improvements and GHG emissions reductions.

Global Automakers and the Auto Alliance have received updated study results from a third-party consultant who continues to conduct a longitudinal analysis of fleet performance. This analysis uses data similar to those submitted to the agencies as well as data from publicly available sources. The findings indicate differences from the current considerations in the NPRM regarding passenger car and light-duty

truck production shares and the increasing production shares of various technologies, including advanced technology.

In terms of production share of vehicles, the projected consumer interest in sport utility vehicles (SUVs) has continued in an upward slope. In 2012, the agencies projected a car/truck split of 67%/33% in MY 2025.[21] The split in MY 2015 was 57% cars/43% trucks,[22] and presently this split has moved to 48.5% cars/51.5% trucks.[23] In addition, truck SUV shares continue to increase in popularity, while sales of non-SUV passenger cars are declining. Meanwhile, for MY 2018, light-duty truck volumes are expected to exceed passenger car volumes. This shift may reflect the impact of lower gasoline prices on purchasing decisions and suggests fuel economy may not be an overriding consideration for many buyers.

Figure 1: Vehicle Production Volume



Source: Novation Analytics Model Years 2012-2018 Baseline Studies

Equally important to the share of production are assumptions regarding the implementation of various technologies in vehicles. The closer the model can simulate real-world deployment of the vehicle technologies at the correct volumes the better the agencies are able to suggest the most efficient, cost-effective and safe regulatory frameworks.

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[21] Draft TAR, p. ES-8.

[22] U.S. EPA. *2016 Fuel Economy Trends Report*, (2016). p. 4. Note that the per vehicle fuel economy is better year over year even though the car/truck split is not consistent with EPA's projections. *Id.*

[23] Novation Analytics. *Model Years 2012 to 2018 Baseline Studies prepared for Alliance of Automobile Manufacturers & Association of Global Automakers*. October 8, 2018.

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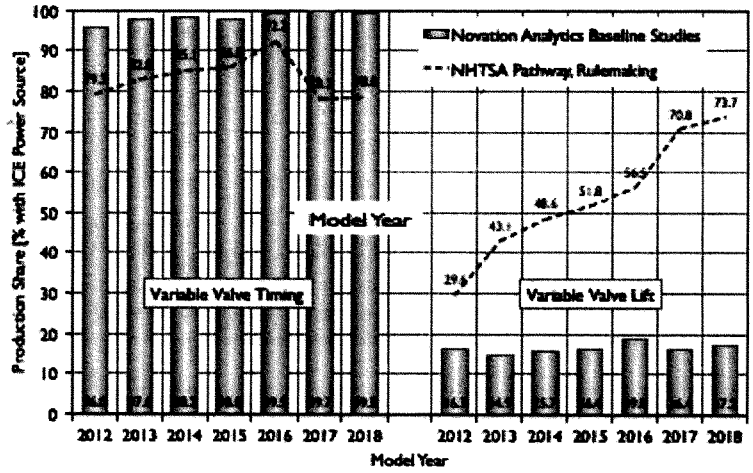
An example of this discrepancy is with the common vehicle technology – variable valve timing & lift – deployment versus projections. Deployment of variable valve timing (VVT) is effectively 100% in the market. This emissions reduction technology implementation continues to outpace the NHTSA projected pathway for technology deployment with implementation occurring more than five years earlier than assumed. On the other hand, variable valve lift (VVL), a performance technology, continues to be deployed at much lower levels from the NHTSA projected pathway. The disparity between actual deployment and implementation assumptions needs to be recalibrated if the most updated data is used in the model. Using the most updated data allows the agencies to address the disparities between projections and actual fleet performance. Eliminating these types of inconsistencies creates an opportunity for the agencies to establish a regulatory path that takes into account those technologies that have proven to provide both fuel efficiency benefits and are accepted by consumers.

Figure 2: Variable Valve Timing Deployment Reol-World vs. NHTSA Assumptions



Source: Novation Analytics Model Years 2012-2018 Baseline Studies

Global Automakers asks that the agencies confirm that the most up-to-date vehicle and fleet information have been fully captured in the input files for the model.

2. Fuel Economy Increases and GHG Emissions Reductions are Feasible

The auto industry has been steadily increasing the fuel economy and GHG emissions performance of passenger cars and light trucks since MY 2012. Industry has continued to contract with Novation Analytics to provide an updated fleet baseline analysis following each model year, to compare to the agencies' assumptions, and to serve as an additional verification for data inputs. The most recent

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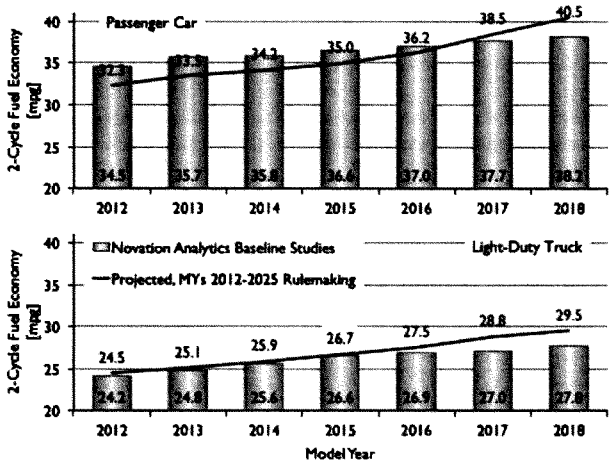
analysis is included in Attachment C(1) of these comments. Novation Analytics' findings show that motor vehicles, both passenger cars and light-duty trucks, are consistently improving year-over-year with the encouragement of government standards.

Figure 3: 2-Cycle Fuel Economy Improvements



Source: Novation Analytics Model Years 2012-2018 Baseline Study

As the figure above indicates, year-over-year improvements in fuel economy and GHG emissions reductions are feasible and achievable, though not at the levels required under the current standards.

In addition, an analysis presented by Greg Pannone of Novation Analytics earlier this year supports the technical feasibility of continuing to increase the stringency of the standards through MY 2026.[24] The presentation, found in Attachment C(2) of these comments, reviews the technical challenges in increasing internal combustion engine (ICE) efficiency and concludes:

> Assuming continued investment and application of high efficiency ICE technologies, achievement of the ZEV [zero emission vehicle] mandate, constant non-ZEV hybrid take rates, and plausible reductions of mass, aerodynamic drag, and tire rolling resistance, a non-hybrid ICE-dominated U.S. fleet could plausibly achieve CAFE values of 49 mpg for PC and 35 mpg for LDT by MY 2025.[25]

[24] G. Pannone, Novation Analytics, "What's the Role of ICE Going Forward?", presented to SAE High Efficiency IC Engine Symposium (Detroit April 2018).
[25] *Id.* at slide 18.

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Further analysis is necessary, but this presentation provides confirmation that further increases in powertrain-related stringency are technically possible.

C. A Steady Increase in Standards is Economically Practicable and Supports U.S. Employment

Throughout the Midterm Evaluation, Global Automakers has supported standards with meaningful increases in year-over-year stringency. To accommodate compliance flexibility, we also have urged the agencies to add a variety of compliance tools to the standards.[26,27,28] Just as the agencies have provided a number of options for stakeholders to evaluate, there are numerous combinations of stringency and compliance tools that can be formulated to find an outcome that meets statutory requirements, provides industry with certainty, continues fuel savings for consumers, and maintains ONP.

Steadily increasing standards support the investments that OEMs and suppliers have already made in fuel economy, are consistent with the long lead-times that apply in the auto industry, support the competitiveness of U.S. automotive manufacturers and suppliers, increase employment in the automotive industry, avoid the uncertainty and cost that will result from the prospect of a bifurcated regulatory scheme, and meet consumer expectations.

1. Increasing Standards Supports Employment in the Auto Industry

The NPRM acknowledges that the Preferred Alternative will *reduce* U.S. auto sector labor relative to more stringent Alternatives.[29] This is consistent with a study by researchers at the Indiana University School of Public and Environmental Affairs, which explored the economic impact of fuel economy standards. The "Macroeconomic Study of Federal and State Automotive Regulations"[30] ("2017 IU Study") looked at vehicle price effects on factors like employment and gross domestic product (GDP); supply chain innovations spurred by the regulations; and consumer fuel savings. The study concluded that "the overall annual impact of the regulatory programs on the national economy is negative in the near-term but positive in the long-term, a pattern that is consistent with theoretical expectations."[31] The 2017 IU Study found that in the long-term, the higher vehicle prices that the standards will drive will be

[26] We recognize that the agencies have different statutory authorities and constraints. If one agency includes a flexibility that the other agency cannot under the latter agency's statutory authority, there may be a difference in numerical stringency of the standards. However, if the agencies then harmonize the standards so that a single fleet can meet both standards, the result will still be a unified national program, preferably with California in agreement with and part of the program.

[27] See Section IV herein, as well as Comments of Global Automakers dated 9/26/16 at D-1; Comments of Global Automakers dated 12/30/2016 at 20; and Comments of Global Automakers dated 10/5/2017 at 3.

[28] Global Automakers and the Auto Alliance. "Petition for Direct Final Rule with Regard to Various Aspects of the Corporate Average Fuel Economy Program and the Greenhouse Gas Program." June 20, 2016. https://www.globalautomakers.org/OldSiteContentAssets/bulletin/Joint-Harmonization-Petition-for-GHG-and-CAFE-assets/2017-06-20-joint-alliance-global-harmonization-petition-for-rulemaking-pdf.

[29] 83 Fed. Reg. at 43436-37.

[30] Carley, S. et al. "Macroeconomic Study of Federal and State Automotive Regulations with Recommendations for Analysts, Regulators, and Legislators." School of Public and Environmental Affairs, Indiana University. March 2017. ("2017 IU Study").

[31] 2017 IU Study at 3.

more than offset by increased innovation and employment in the supply chain and consumer fuel savings. The 2017 IU Study estimated that the current fuel-efficiency standards could increase jobs by between 200,000 and 375,000 in the year 2025 and add between $138 billion to $240 billion in GDP between 2017 and 2025.[32]

Global Automakers acknowledges that some of the literature, as noted above, predicts negative employment impacts from the current standards in the short term. These employment impacts are significant and the need to mitigate them is why Global Automakers has proposed flexibilities in the standards. Global Automakers believes that if the short-term shocks can be mitigated through flexibilities and adjustments in stringency, a steady year-over-year increase in standards will provide national economic benefits in the long run and enhance the ability of U.S. auto manufacturers to compete globally. Such changes must also be accompanied by continuation of a unified national program, including California and the Section 177 States, to provide the optimal economic outcome associated with this rulemaking.

2. Incrementally Increasing Standards Support Existing and Planned Investments

In anticipation of the expected increases in stringency, automakers and their suppliers have invested $76 billion in facilities, and much of this has been driven by the "enhanced investment to meet globally leading fuel economy and greenhouse gas standards."[33] Automakers have developed product plans that call for the deployment of these technologies across their fleets.

An abrupt halt in the gradual increase in fuel economy standards would leave automakers and suppliers with stranded costs. Automakers and suppliers may not be able to recoup investments already made in fuel economy technology.[34] Automakers cannot change their product plans quickly; product development cycles in the auto industry are necessarily long because of the massive investments they require. Average vehicle model development cycles now last for 6.7 years.[35] Powertrain programs cycles are even longer – typically ten years, spanning two or more vehicle cycles.[36] These lengthy product development cycles impose costs:

> One of the greatest risks an OEM faces for any investment, but particularly for powertrain investment since it is so large and specialized, is having an investment become stranded. That is,

[32] https://spea.indiana.edu/doc/research/working-groups/auto-report-032017.pdf (accessed 14 September 2018). While Global Automakers believes that changes are necessary to the current standards, this study is nonetheless useful to show that increases in fuel economy standard stringency can have a long-term positive impact on employment.

[33] Blue Green Alliance. "Driving Investment: How Fuel Efficiency is Rebuilding American Manufacturing." https://www.bluegreenalliance.org/resources/driving-investment-how-fuel-efficiency-is-rebuilding-american-manufacturing/. (January 25, 2018) (accessed 19 October 2018).

[34] "[S]uppliers have already invested to retool facilities and design new products to meet automakers' steadily increasing fuel efficiency demands." https://www.brookings.edu/blog/the-avenue/2018/07/02/why-undermining-fuel-efficiency-standards-would-harm-the-us-auto-industry/ (July 2, 2018) (accessed 14 September 2018).

[35] https://www.cargroup.org/automotive-product-development-cycles-and-the-need-for-balance-with-the-regulatory-environment/ (September 20, 2017) (accessed 12 September 2018).

[36] *Id.*

> if a specific nameplate or vehicle platform fails in the market place or needs to be replaced before its planned life cycle, any engine or transmission program and plant investment that is tied to such a platform is at risk of needing to be absorbed by other vehicle programs or be "stranded" and written off as a loss.[37]

While the agencies' model shows that lower costs are associated with its Preferred Alternative, the model assumes that companies can respond more quickly than is possible. As discussed in Section IV.C. of these comments, the abrupt cessation of increases in fuel economy requirements will require retooling and learning changes for which the model has not fully accounted. The model also does not account for the changes to labor and material requirements that the agencies' Preferred Alternative will require. These factors impose significant costs on industry and greatly detract from the cost savings associated with the Preferred Alternative.

Steadily increased standards also provide the industry with a hedge against sudden shifts in consumer demand caused by abrupt changes in gasoline prices. As described elsewhere in the comments, there is a direct connection between consumer demand for high-fuel efficiency vehicles and gasoline prices. For example, between 2004 and 2008, gasoline prices nearly doubled, from $1.58 per gallon to $3.26 per gallon.[38] That trend coincided with a dramatic drop in demand for trucks and SUVs,[39] which had catastrophic consequences for the U.S. auto industry and led to the bailouts of General Motors and Chrysler. As one publication explained in late 2008:

> The first shot was the dramatic rise in energy prices this past summer. That caused a rapid mix shift in vehicles--and had a major impact on profitability." GM, Ford and Chrysler have relied on SUVs and trucks for the majority of their profits. Those vehicles commanded high sticker prices and by the late nineties made up 50 percent of the U.S. car market. When demand for the big vehicles dropped quickly and customers went for smaller, less expensive, less profitable cars, auto companies had two major issues to deal with: A loss of revenue and a backlog of unwanted trucks.[40]

Given the long lead times in the auto industry, it is impossible to adjust to sudden and unexpected shifts in demand. Steadily increased fuel economy standards can provide a stabilizing hand in the face of yo-yoing gasoline prices and protect manufacturers long-term investments in fuel saving technologies. As

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[37] *Id.*

[38] Samuel R. Avro, "Charting the Dramatic Gas Price Rise of the Last Decade." Energy Trends Insider. March 14, 2012. Available at http://www.energytrendsinsider.com/2012/03/14/charting-the-dramatic-gas-price-rise-of-the-last-decade/; *see also* Energy Information Administration, Annual Gasoline and Diesel Prices (2007 and 2008), https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm (accessed 4 July 2018).

[39] Chuck Squatriglia, "Rising Gas Prices Finally Kill the Once-Mighty SUV." Wired Magazine. June 9, 2008. Available at https://www.wired.com/2008/06/rising-gas-pric/; *see also* B. Vlasic, "As Gas Costs Soar, Buyers Flock to Smaller Cars," New York Times (May 2. 2008); https://www.nytimes.com/2008/05/02/business/02auto.html (accessed 4 July 2018).

[40] Larry Webster, "GM in Crisis—5 Reasons Why America's Largest Car Company Teeters on the Edge." Popular Mechanics. Nov 17, 2008. The article quotes David Cole, then Chairman of the Center for Automotive Research.

one commentator noted, "strong standards insure automakers against future market loss when gas prices inevitably rise again."[41]

3. Manufacturers Compete in a Global Market

The impact of the risks to manufacturer investments are also impacted by the fact that automakers operate in a global market. It is therefore important that U.S.-based auto manufacturing is poised to meet demand throughout the globe, and thereby support exports. The U.S. auto industry—which consists of 14 companies operating facilities throughout the nation—currently produces 10.9 million cars and trucks in the U.S., 17 percent of which (or 1.9 million units) are exported overseas. Expanding exports will help strengthen the auto manufacturing base in the U.S. and increase employment.

No manufacturers sell only in the U.S. Automakers must therefore consider the fuel economy and GHG standards established around the world when developing their product plans. Illustrated in Figures 4a and 4b below, in most of the rest of the world, these standards will increase in stringency between MY 2020 and MY 2025, and therefore manufacturers will have to manufacture vehicles that will meet those stricter standards. Manufacturers can achieve greater economies of scale in production if U.S. standards are relatively aligned with standards elsewhere in the world.

[41] D. Richardson, "Commentary: How Rolling Back Fuel Standards Could Crush America's Auto Industry," Fortune Magazine (3/30/2018); http://fortune.com/2018/03/30/epa-rollback-fuel-emissions-standards-scott-pruitt/

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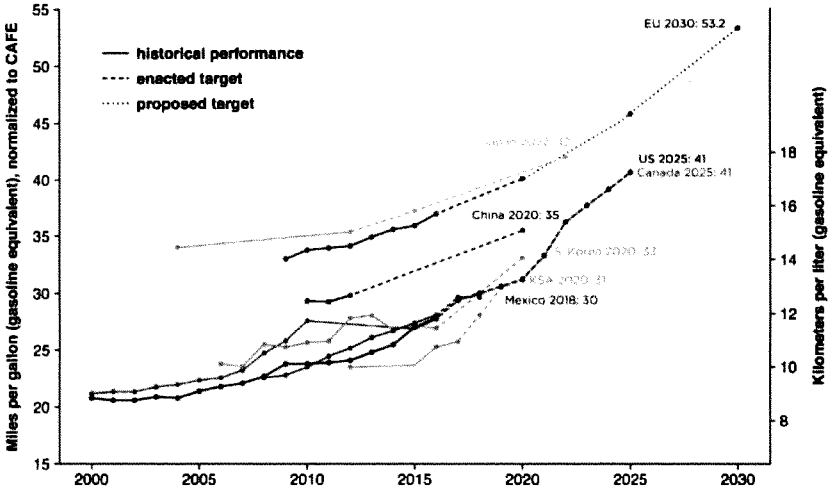
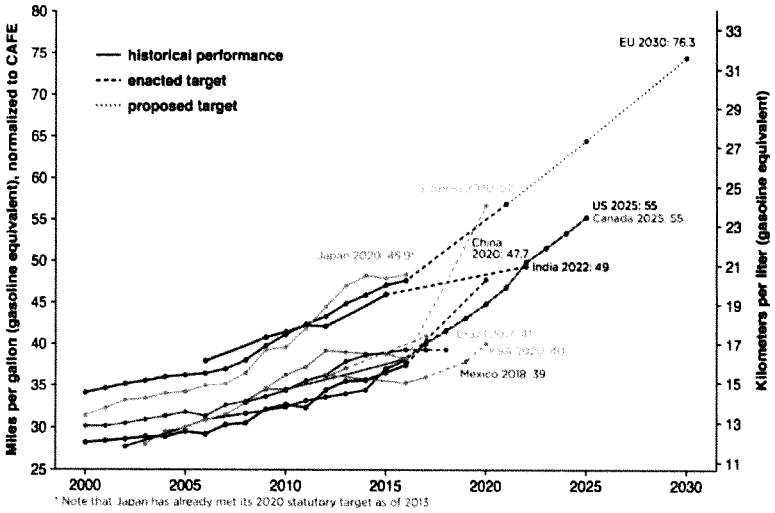
Figure 4a: Light truck miles per gallon, normalized to CAFE



Source: ICCT, www.theicct.org/chart-library-passenger-vehicle-fuel-economy (April 2018)

Figure 4b: Passenger car miles per gallon, normalized to CAFE



Source: ICCT, www.theicct.org/chart-library-passenger-vehicle-fuel-economy (April 2018)

Rough parity between U.S. and foreign fuel economy standards is also needed to maintain and expand the U.S. auto industry's ability to export vehicles. For example, 23 percent of the U.S.'s vehicle exports go to Canada.[42] Canada is currently deciding whether to continue to follow the current standards.[43] If Canada decides to maintain its current standards, automakers that produce vehicles in the U.S. will face the unpalatable choice of losing market share in Canada to more fuel efficient vehicles imported into Canada from Europe or China or incurring extra expense to manufacture to two different standards. In the long term, these trends will make U.S. auto manufacturers less competitive and reduce our vehicle manufacturing capabilities.

The efficiencies flowing from the production of vehicles that can be sold worldwide will enhance the competitiveness of manufacturers producing in this nation. This enhanced competitiveness will create more jobs here and allow manufacturers to produce vehicles for export at their U.S. facilities. Therefore, steadily increasing fuel economy standards will benefit U.S. employees, U.S.-based manufacturing and American consumers.

4. Consumer Acceptance and Economic Practicability Support Increased Standards

Consumer acceptance is an important component of economic practicability. It also has been an important limiting factor in increasing fuel economy, because consumer demand for fuel economy technology has not matched the level of fuel economy that government agencies have required manufacturers to meet. Concerns about consumer acceptance were a major factor in Global Automakers' request for the agencies to reopen the Midterm Evaluation.[44] Global Automakers appreciates that the agencies are investigating the degree of consumer demand for the technology that the current standards will require.

Global Automakers respectfully submits, however, that the agencies' investigation does not justify holding the standards constant from MY 2021 through 2026. Since the ONP came into effect in MY 2009, consumers have become accustomed to year-over-year increases in fuel economy. The agencies' models do not suggest that a radical departure from steady year-over-year increases is warranted based on consumer acceptance concerns. Fuel economy remains a factor in vehicle purchase decisions, though perhaps not a dominant one. Similarly, while we agree that consumers consider a shorter payback period than the agencies' previous analyses have suggested,[45] consumers are willing to pay for improvements that pay off in that time frame; the willingness to pay for better fuel economy is not zero.

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[42] https://www.statista.com/chart/15247/us-imports-exports-cars-canada/ (accessed 9/12/18).
[43] https://www.canada.ca/en/environment-climate-change/news/2018/08/canada-begins-consultations-on-vehicle-emission-standards.html (accessed 9/13/18).
[44] Global Automakers Comments on the Request for Comment on Reconsideration of the Final Determination of the Midterm Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards" [82 FR 39551, August 21, 2017]. Docket ID: NHTSA-2016-0068.
[45] 83 Fed. Reg. at 43217.

And, as discussed above, providing for steady year-over-year increases in fuel economy helps provide a hedge against rapid shifts in consumer demand caused by sudden changes in fuel prices.

It is true, as the agencies have noted, that automakers who wish to provide better fuel economy can do so even if the standards are flat.[46] However, Global Automakers urges the agencies to take a longer and larger view of fuel economy and GHG regulation and their impact on consumers. For example:

- Flat standards will confuse consumers, who have come to expect year-over-year increases in fuel economy standards and will seek more fuel-efficient vehicles as gasoline prices increase;
- The prospect of a bifurcated program will confuse consumers, who may be faced with the possibility that certain vehicles may become available only in certain states;
- A bifurcated program will increase costs for consumers and could lead to less consumer choice in regions with more stringent regulations;
- Consumers have come to expect that the vehicle fleet eventually will become electrified, based in part on previous regulatory actions and the announced plans of manufacturers;
- Steady year-over-year increases will increase consumer confidence in the certainty and durability of these regulatory programs; and
- Consumers are also members of society. As a society we recognize that CO_2 is a pollutant, but as a consumer, there is a reluctance to pay for this improvement. On the other hand, such cost increases are tolerated "for the good of the whole" while not eagerly embraced.

For these reasons, Global Automakers submits that consumers will accept some level of year-over-year fuel economy increases and GHG reductions. At the very least, consumer acceptance does not demand flat standards, and Global Automakers urges the agencies to work with all stakeholders to develop standards that continue to provide a single regulatory scheme and certainty for consumers.

5. Safety Considerations Do Not Support Freezing the Standards

One of the most significant bases for freezing the CAFE and GHG emission standards after MY 2020 is the notion that the more stringent standards could have a detrimental impact on safety. The agencies point to three distinct elements of their safety conclusions: the "rebound" effect, a vehicle "scrappage" effect, and a vehicle weight effect. The rebound effect is an economic-based principle arguing that reducing the cost of driving through improving vehicle fuel efficiency would cause people to drive more, thereby exposing them to increased risk of being involved in a crash. The scrappage effect is an economic-based principle arguing that higher new vehicle prices resulting from more stringent standards would cause some consumers to defer purchasing new vehicles and keep older (ostensibly less safe) vehicles on the road longer. The weight effect has been considered in several NHTSA CAFE proceedings. Safety analysis has shown the weight discrepancies in two-vehicle crashes (heavier vehicle and lighter vehicle collide) results in greater damage to the lighter vehicle, with the adverse safety effect increasing with the magnitude of the weight discrepancy.

[46] 83 Fed. Reg. at 43211.

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The agencies' proposal with regard to the safety issue raises several ironies and conflicting trends relating to the three safety arguments:

- The concerns regarding adverse safety effects are discussed in the context of long-term trends of *improved* safety, with the expectation that advanced driver assistance systems, such as automatic emergency braking, will achieve even greater improvements through their widespread implementation during the 2021-2026 period. Even under the agency's safety analysis, it is extremely likely that vehicle safety will improve during this period.
- The proposal projects adverse safety impacts as a result of both consumer cost savings (reduced fuel consumption) and consumer cost increases (new vehicle price increases) which occur *simultaneously*. Some netting out of these effects would be appropriate.
- The concerns regarding the safety effects of vehicle weight reduction are considered in the context of an underlying trend in which vehicle weight has steadily *increased*. As the Preliminary Regulatory Impact Assessment (PRIA) notes "[v]ehicle mass continued an historical upward trend across the MYs in the newest databases."[47]
- The concern regarding the safety effect associated with new vehicle price increases is made at a time when the Trump Administration has proposed increased tariffs on new vehicles, which would have a price impact many times greater than that which would result from the increased standards.

We urge the agencies to consider whether these existing trends in the light vehicle market may overwhelm the projected safety impacts of the CAFE and GHG standards. Our comments on the three safety arguments are as follows:

a. Rebound

The proposal describes the rebound effect and cites potential safety consequences. Ultimately this factor is not attributed by the agencies to the standards but rather to consumer choice. As stated in the proposal:

> ...although a safety impact from the rebound effect is calculated, these impacts are considered to be freely chosen rather than imposed by CAFE and imply personal benefits at least equal to the sum of their added costs and safety consequences. The impacts of this nonfatal crash adjustment affect costs and benefits equally. When considering safety impacts actually imposed by CAFE standards, only those from mass changes and vehicle purchase delays are considered.[48]

We agree that the rebound effect should not be attributed to the standards and should not serve as a basis for keeping the standards flat.

[47] Preliminary Regulatory Impact Analysis (PRIA) at 1349.
[48] 83 Fed. Reg. 43148.

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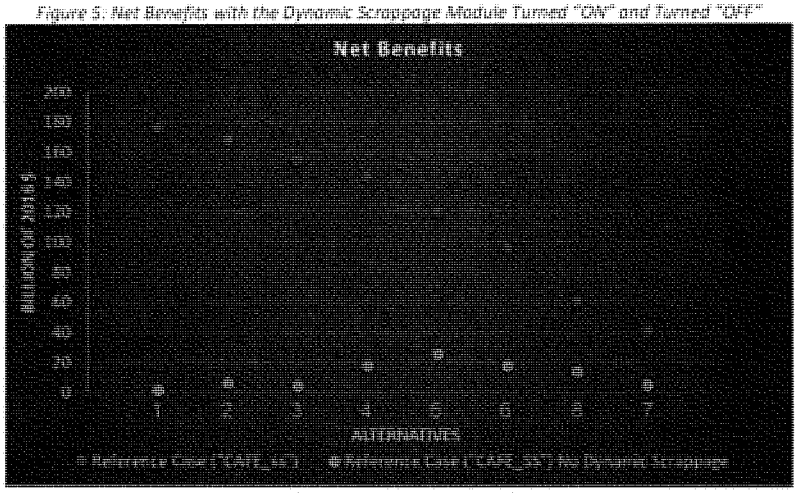
b. Scrappage

The Dynamic Scrappage (DS) module is the newest addition to the Volpe model. It attempts to assess the impact of the various Alternatives on vehicle fatalities and the associated societal cost. In fact, our view of the data shows that the results of the DS module provide the overwhelming majority of the net benefits associated with each of the Alternatives. In assessing the impact of the module, Global Automakers evaluated the net benefits of each of the Alternatives with the DS module turned "ON" and "OFF." Figure 5 below illustrates the outcomes of these model runs.

Figure 5: Net Benefits with the Dynamic Scrappage Module Turned "ON" and Turned "OFF"

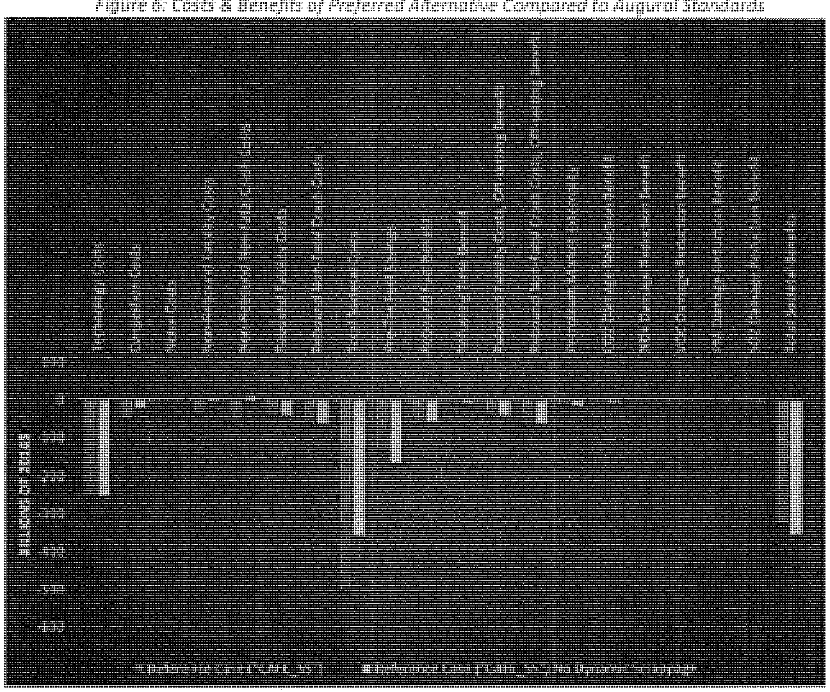


Source: Global Automakers' Modeling Analysis Run

As Figure 5 shows, almost all of the net benefits associated with the various Alternatives result directly from use of the DS module.

Furthermore, Global Automakers assessed the costs and benefits of the Preferred Alternative compared with the augural standards under two scenarios: with the DS module "ON" (blue bar) and with the DS module "OFF" (green bar), as shown in Figure 6 below. (Note all results are shown in the negative because this is a comparison against the augural standards, i.e. a negative cost is a benefit in this figure.) Figure 6 shows that the modeled safety (fatality and non-fatal crash) benefits are only apparent if the DS module is turned "ON." In the case that the DS module is disabled or "OFF," the non-rebound fatality costs and non-fatal crash costs are higher in Preferred Alternative as compared to the augural standards. Thus Figure 6 also demonstrates the importance of the DS module on driving the results of the cost/benefit analysis.

Figure 6: Costs & Benefits of Preferred Alternative Compared to Augural Standards



Source: Global Automakers' Modeling Analysis Run

Given the undeniable significance of the DS module in the agencies' cost benefit analysis, it is critical that the module be thoroughly assessed for accuracy and reliability. NHTSA's own observations suggest that not all of the "details of this new approach will be immediately intuitive for reviewers accustomed to results that do not include a dynamic sales model or dynamic scrappage model, much less, results that combine the two."[49] This statement demonstrates that additional work is needed in order to fully understand how the model offsets the increased sales "by the somewhat accelerated scrappage that accompanies the estimated decrease in vehicle prices" associated with the Preferred Alternative Preferred Alternative , and whether these modeled results are consistent with reality.[50] Global Automakers technical modeling shows that they are not consistent with reality. The DS module should therefore be removed from the Volpe model at this time for purposes of the final rule.

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[49] 83 Fed. Reg. at 43,098.
[50] *Id.*

The theoretical underpinning of the DS module is the notion that as vehicle prices increase, consumers will drop out of the new car market. However, the assessment of vehicle price effects associated with increasing standards is extremely complex. The increase in prices related to the increase in standards is not straight-forward, like a tax (or tariff) increase, without perceived direct benefit to the consumer. Rather, they are investments in improved product. For some consumers, the enhanced features of the new vehicle may more than justify the price increase, such that new vehicle demand actually increases, notwithstanding the price increase. NHTSA has consistently predicted that past standards save consumers money in the long term due to reduced fuel costs that may offset the retail price increase.

Moreover, increasing vehicle prices may not necessarily price consumers entirely out of the new car market. A purchaser may simply decide to save money by buying the same vehicle with a lower trim level. Given that a full range of safety features is migrating throughout the new vehicle market, even lower priced models will have enhanced safety performance. For instance, pursuant to a voluntary agreement entered into by twenty automakers in 2016,[51] automatic emergency braking (AEB) systems are being offered as standard equipment on all substantially new passenger vehicles by 2022.

Setting aside our concerns with the theoretical underpinnings of the DS module, we have also identified some significant concerns with how the module works, including impacts on vehicle miles traveled (VMT) and overall fleet size. For example, Global Automakers' technical analysis found that for the Preferred Alternative, enabling the DS module resulted in a reduction in overall VMT compared to the augural standard, which is not associated with the rebound effect. This unexplained decrease in VMT as compared to the augural standards leads to:

- A large reduction of non-rebound crash costs (fatalities and injuries);
- A large reduction of congestion costs;
- A small increase in pre-tax fuel savings (because less miles are driven) when compared to the DS module being "OFF;" and
- A large increase in net benefits for the Preferred Alternative (attributable to the above reduction in costs and increase in benefits).

We discuss these concerns related to the overall fleet size, VMT, and lack of sensitivity analysis below.

Impact on Fleet Size

One anomaly concerning the DS module we observed is its impact on fleet size. When the DS module is enabled, it causes dramatic changes in the overall on-road fleet size in each of the eight Alternatives compared with the augural standards, as shown in Figures 7 and 8, below.

When the scrappage model is disabled, this isolates the effect of increased sales of new vehicles without accounting for any impact this may have on the fleet of used vehicles. This is shown in Figure 7, below.

[51] https://www.iihs.org/iihs/news/desktopnews/u-s-dot-and-iihs-announce-historic-commitment-of-20-automakers-to-make-automatic-emergency-braking-standard-on-new-vehicles.

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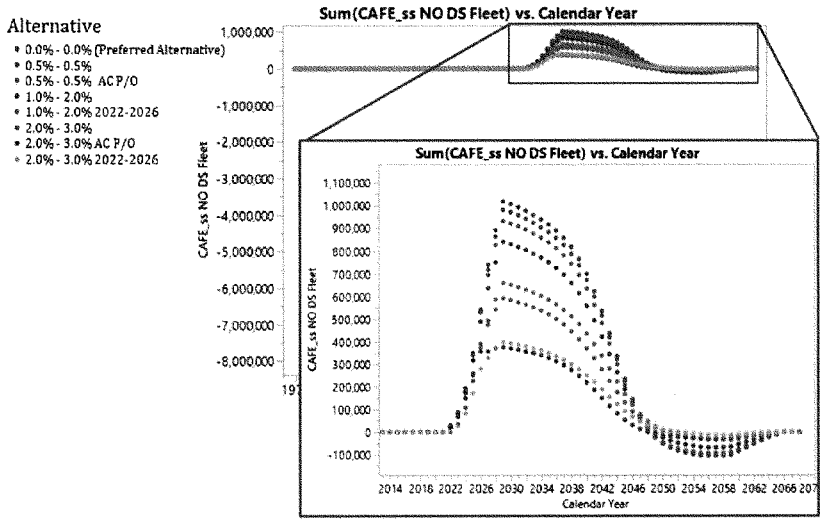
Figure 7: Fleet Difference from Augural Standards by Calendar Year – DS Module OFF



Source: Global Automakers' Modeling Analysis Run

Predictably, the result of running the model with the DS module turned off is that the total on-road fleet increases starting in MY 2022 (the first year impacted by the standards). This is consistent with what one would expect to see in the model to the extent that consumers are more likely to purchase a new vehicle if the price is lower compared to the augural standard, thus increasing the total on-road fleet (again, because we are holding the used car fleet constant).

Figure 8, below, shows that when the DS module is turned "ON," the total on-road fleet contracts significantly for each of the Alternatives when compared to the augural standards, with the most pronounced effect showing for the Preferred Alternatives. This finding is counter-intuitive. While we would expect that the on-road fleet may *shift* from older to newer vehicles as new vehicle prices are decreased under the Preferred Alternative compared to the augural standards, there is no reason to conclude that the total number of vehicles driven by Americans would change to the extent modeled by the DS module.

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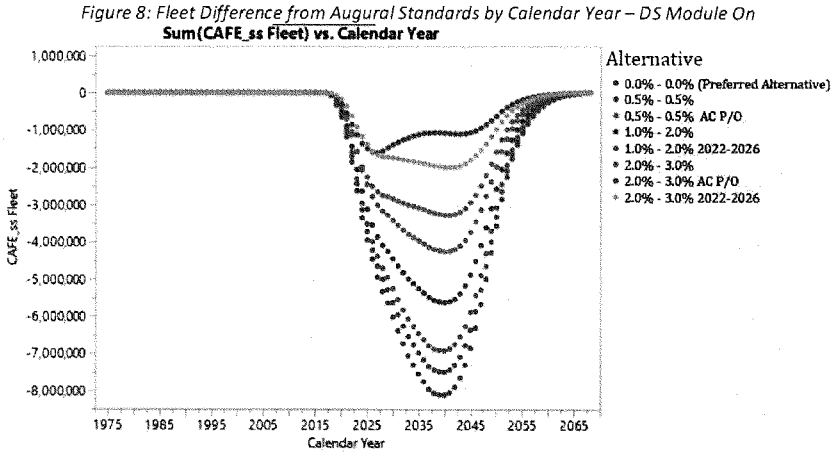
Figure 8: Fleet Difference from Augural Standards by Calendar Year – DS Module On



Source: Global Automakers' Modeling Analysis Run

Impact on Total VMT Resulting from Scrappage

We notice the same incongruity with respect to the impact of the scrappage model on total combined VMT. Simply turning on the DS module results in an increase in VMT in all the scenarios modeled. We do not understand why this would be, since vehicle scrappage should not have any impact on the total number of miles Americans drive. (Note that scrappage effect on VMT is different from increased VMT caused by the rebound effect, discussed above). By way of example, Figure 9 below shows the VMT impact for the augural standards when DS module is turned "ON" compared to when it is turned "OFF."

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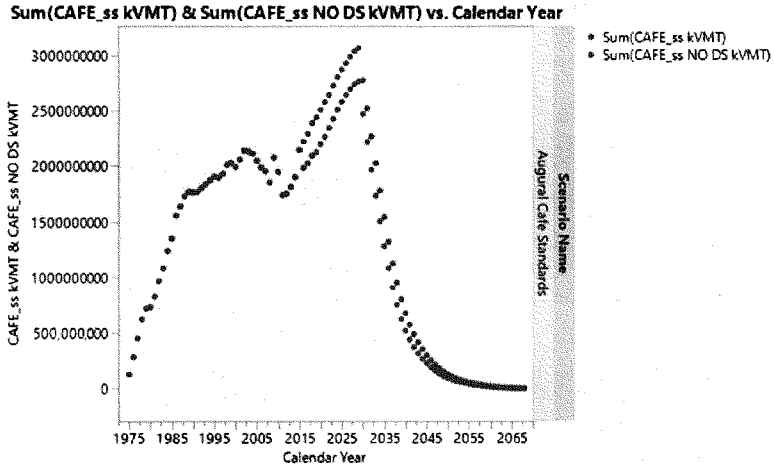
Figure 9: VMT Increases in the Augural Standard with Dynamic Scrappage Module On



Source: Global Automakers' Madeling Analysis Run

Again, we are unaware of any reason why scrappage would have any impact on the total number of miles driven by Americans in a given year. The two variables should be entirely independent from each other.

Global Automakers also ran the Volpe model with the DS module turned "OFF" and "ON" for each of the Alternatives and compared them to the augural standards. This analysis, illustrated in Figure 10 below, shows that as standards decrease from the augural standards, total VMT decreases as well, with the most pronounced impact in the Preferred Alternative.

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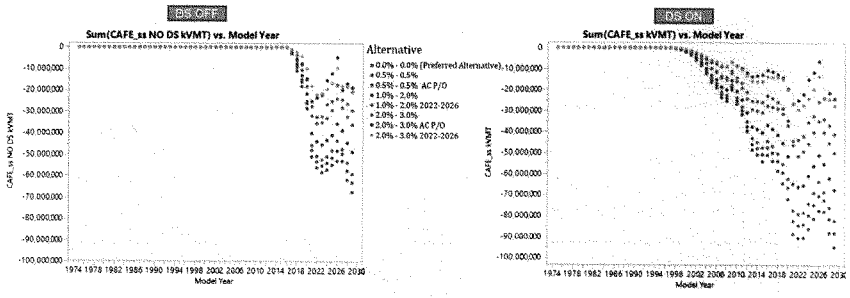
Figure 40: VMT Comparison Between DS Module ON and OFF



Source: Global Automakers' Modeling Analysis Run

When the DSM is disabled, the model shows combined VMT dipping beginning in MY 2016, and then increasing. The magnitude in the VMT decrease is more pronounced as stringency decreases, which is principally the result of the rebound effect discussed above. In 2022, the impact of the VMT decrease under the Preferred Alternative is roughly 60 trillion miles.

When the DSM is turned "ON," VMT starts to decrease in MY 1998, and then spikes back up a bit between MY 2022 to 2026. Again, this effect is more pronounced at lower stringency levels. Significantly, however, turning the scrappage model on results in a much larger drop in VMT for the various Alternatives. In 2022, the impact of the VMT decrease under the Preferred Alternative 1 is roughly 90 trillion miles with the DSM "ON."

Just as there is no reason to think that increased scrappage would cause Americans to drive significantly more (as we explain above), there is also no reason to believe that the impact would be any more pronounced from one Alternative to another. Rather, it appears that this significant change in VMT is merely an artifact of some quirk in the DSM that one would not expect to see in the real world. ***Moreover, this unexplainable drop in VMT appears to be the primary driver of the modeled safety benefits of holding the CAFE and GHG emission standards flat.***

Lack of Sensitivity Analysis

It appears that the agencies did not recognize these problems with the DS module, because they never conducted a full sensitivity analysis with the DS module turned completely "OFF." Based on our review of the DS module, there are up to 25 separate parameters that can be adjusted. In conducting the sensitivity analyses, NHTSA disabled only two of them—the scrappage price effect and the fleet share and sales response, as shown in Table 1, below. NHTSA did not disable any of the other parameters, and

even more significantly, there is no documentation to suggest that it ran a sensitivity case with the DS module turned completely off.

Table 1: List of Sensitivity Cases

	Sensitivity Case	Description
0	Reference Case	Reference Case
1	Consumer Benefit at 50%	Assume 50% loss in consumer surplus – equivalent to the assumption that consumers will only value the calculated benefits they receive at 50% of the analysis estimates
2	Consumer Benefit at 75%	75% loss in consumer surplus
3	Fleet share and Sales Response Disabled	New vehicle sales will remain at levels specified for MY 2016 in the market data input file.
4	Disable Scrappage Price Effect	Keeps average new vehicle prices at MY2016 levels within the scrappage model throughout the model simulation; this disables the effect of slower scrappage when new vehicle prices increase across more stringent scenarios.
5	Scrappage and Fleet Share Disable	Disables both the scrappage price effect and the fleet share and sales response

Source: Global Automakers assessment of NHTSA sensitivity cases

c. Weight Effects

The NPRM also estimates a limited safety impact of between a -0.61 percent for light trucks to 1.2 percent for small cars fatality increase per 100-pound mass reduction attributable to the down-weighting of vehicles in response to more stringent standards.[52] NHTSA's assessment of the weight-safety issue for the proposal appears to be the same as it has been in recent years:

> ...societal effects of mass reduction are small, and mass reduction concentrated in larger vehicles is likely to have a beneficial effect on fatalities, while mass reduction concentrated in smaller vehicles is likely to have a detrimental effect on fatalities.[53]

Footprint-based standards were developed to minimize or eliminate safety concerns associated with weight reduction.[54] As NHTSA has stated, "any reasonable combination of mass reductions that held footprint constant in MY 2017-2021 vehicles – concentrated, at least to some extent, in the heavier LTVs and limited in the lighter cars – would likely be approximately safety-neutral; it would not significantly increase fatalities and might well decrease them."[55] The agency concluded, in its updated analysis for this rulemaking, that "[f]or all light-duty vehicles in the CAFE model, mass changes are estimated to lead

[52] See SAFE Vehicles NPRM Fed. Reg. page 43132.
[53] See PRIA page 1345.
[54] "Footprint-based standards create a disincentive for manufacturers to produce smaller-footprint vehicles." PRIA page 1332.
[55] See PRIA page 1344.

to a decrease in fatalities over the cumulative lifetime of MY 1977-2029 vehicles in all Alternatives evaluated."[56] This conclusion is consistent with previous analyses.[57]

Given the small and uncertain weight effect and the fundamental difficulty in assessing anticipated weight reduction strategies – there are very few vehicles that have implemented lightweight material substitution strategies to an extensive degree, complicating analysis of such strategies – we conclude that there is no clear basis for freezing standards levels due to weight reduction concerns.

Finally, Congress has established a policy of promoting enhancements in *all* regulatory areas (safety, emissions, efficiency). In light of advances automakers have made in all of these areas simultaneously, there is no reason to conclude that increasing fuel economy standards would somehow make vehicles less crashworthy. Automakers are committed to making the safest vehicles on the road. As noted above, vehicle safety, fuel economy, and emissions control are all improving rapidly (and together) in recent years and will likely continue in the future. For the above reasons, we do not believe that safety considerations should prevent increases in stringency of CAFE and GHG emissions standards.

V. Flexible Compliance Pathways Need to be Part of the Rulemaking

In addition to addressing the numeric stringencies of the standards, it is critically important that the final rule provide for flexible compliance pathways to assist automakers in achieving those standards in the most efficient manner and in a way that incentivizes investment in advanced emission-reduction technologies. Two broad types of flexibilities are significant in the administration of the standards. The first is allowances for advanced technology vehicles that incentivize technology investment and industry innovation. The second are credits and adjustments that recognize real-world benefits of either fuel-saving technologies that cannot be measured in the 2-cycle test (i.e., the off-cycle program) or early compliance with the standards (i.e., averaging, banking, and trading of various types of credits). Both credits are important to manufacturers and benefit consumers. Both types of flexibilities should be maintained, and in some cases expanded or extended, to better serve the goals of EPCA and the CAA.

A. Programmatic Elements that Incentivize Investment in Advanced Technologies

The MY 2017-2021 regulations provide important flexibilities that encourage the rollout of advanced technologies. Advanced technologies, such as BEVs, PHEVs, and FCEVs, continue to cost more than gasoline-powered vehicles, but are an important part of industry's shift to lower carbon transportation. Industry recognizes that funding a shift to electrification is important to maintaining competitive automotive manufacturing and export yet doing so independent of a level-playing field and regulatory signals is nearly impossible if industry is to remain competitive. Additional credits are needed to balance tomorrow's goals with today's technology costs. Thus, EPA should: (1) extend the 0 g/mi upstream provision, without limitation, and (2) extend the advanced technology vehicle multipliers through MY 2026. NHTSA should consider including these credits as well to the extent that are not already captured

[56] See PRIA at 1358.

[57] "None of the estimated effects have 95-percent confidence bounds that exclude zero, and thus are not statistically significant at the 95-percent confidence level." See PRIA at 1348.

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under NHTSA's existing alternative fueled vehicle credits and, like the precedent set by adoption of off-cycle credits, consider including an advanced technology multiplier.

NHTSA and EPA raise several potential objections to incentives for advanced technology, including:

- The possibility that advanced technology credits may distort the market by incentivizing manufacturers to build vehicles for which there is no natural market;
- The possibility that overly-complex credit schemes without sufficient transparency may complicate the ability to understand manufacturers' paths to compliance or create unnecessary costs to track, account for and manage the credits;
- The possibility that advanced technology credits will induce manufacturers to invest in certain government-favored technologies and encourage "rent-seeking" to protect those credits;
- The possibility that advanced technology credits may disadvantage manufacturers by encouraging them to become overly reliant on credits instead of improving vehicles to meet market demand.[58]

The agencies seek comment on how credits may be changed to avoid these negative effects, as well as whether to allow all credits (other than those mandated by statute) to expire.[59]

Global Automakers strongly supports continued incentives for advanced technology vehicles in coordination with reasonable and meaningful year-over-year improvements in fleet stringency. Global Automakers also supports extending the sunset date of those policy incentives from MY 2021 to MY 2026. There is little disagreement that advanced technology vehicles will be needed, both here and abroad, to maintain automakers' competitiveness and meet societal goals for reductions in transportation-related GHG emissions. There is also little disagreement over the fact that as these technologies develop, their costs will come down; however, at present, the costs of vehicle electrification still exceed their gasoline-powered counterparts. These vehicles will need to be part of the future of the vehicle market, and thus manufacturers must build a foundation for these vehicles in the market now. But consumers have been slow to accept these vehicles, in part because most states have done little to provide infrastructure for these vehicles. As a result, these vehicles will struggle to establish a foothold in the market without the temporary support that incentives provide. In the interim, providing credits for these vehicles can help manufacturers use an integrated approach to how they manage their fleet and rollout advanced technologies in a smart and cost-effective manner.

Based on these points of view, the potential objections to incentives for advanced technology vehicles are easily addressed. The concerns that credits for advanced technology vehicles will divert resources into vehicles for which there is no natural demand, encourage "rent-seeking," or encourage manufacturers to become reliant on these credits to the detriment of their rest of their fleets, are not borne out by the evidence. First, the market share of these vehicles is currently very small – less than 1.5

[58] 83 Fed. Reg. at 43441-442.
[59] *Id.* at 43442.

percent of new vehicle sales – even though these incentives have been in a place for almost a decade.[60] Because the market for advanced vehicles is so small, it is not likely that incentives will distort the much larger market for conventional vehicles in any material way in the next seven years. Similarly, concerns about the administrative complexity and transparency of these credits have not been raised during the several years that they have already been in place. There is thus no reason that the extension of these credits will result in a lack of transparency or administrative complexity.

The slowly-developing market for electric vehicles justifies the extension of the credits in these regulations. Policy incentives supportive of industry's pursuit of electrified vehicle technologies will help bring them to market in greater numbers, more rapidly and at a more reasonable cost. Regulatory incentives, which do not cost the government anything in terms of dollars, are the best means of smoothing that transition. For these reasons, Global Automakers strongly supports extending advanced technology vehicle multipliers until MY 2026.

Automakers recognize that many models of electric-drive vehicles depend on the use of the nation's electric grid to supply capacity to the vehicles. However, consumers do not choose the manner that the grid uses to generate power. The automotive and the utility generation industries are two distinct industries with different market realities and goals. While electric-drive vehicle charging is dependent on the grid, automakers do not have input into the electricity generation choices and therefore should not be responsible for emissions generated by another industry. The 0 g/mile upstream provision is critical to maintaining the autonomy of each of these industries while also promoting a full-range of vehicle options for consumers.

In addition, hybrid vehicles have been in the market for nearly 20 years, but these vehicles continue to face consumer challenges, particularly when gasoline prices are low. The challenges of transitioning hybridization beyond passenger cars has proven to be more complex than initially projected and modeled. In addition, hybridization helps build the industrial manufacturing base for electrification. To further encourage hybridization, EPA should expand its hybrid truck incentives, which is presently in-place for full-size pickup trucks, to all light-duty trucks, without the minimum sales provision, through 2026. The agencies should consider a smaller incentive for passenger cars as well.

Inclusion of advanced technologies credits is important to the GHG and CAFE standards, because they provide support to market signals and help smooth compliance costs. These incentives are the advanced technology vehicle counterpart to the credits offered for technologies that improve efficiency in conventional vehicles in the powertrain and beyond. Like the credits available for conventional vehicles, incentives for advanced technology vehicles encourage manufacturers to innovate and to bring those innovations to market more quickly.

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[60] Pannone, G.; Betz, B.; Reale, M.; and Thomas, J. "Decomposing Fuel Economy and Greenhouse Gas Regulatory Standards in the Energy Conversion Efficiency and Tractive Energy Domain," *SAE International*. March 28, 2017 (Accessed August 11, 2018).

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B. Credit Averaging, Banking and Trading that Facilitate Early Compliance

Earned and banked credits reflect manufacturer investment in technologies to improve fuel economy and reduce GHG emissions beyond the levels specified by the regulatory targets, providing early environmental benefits and additional fuel savings value for customers. Table X-1 of the NPRM outlines the flexibilities currently provided with respect to the use of credits.[61] Global Automakers supports improving these aspects of the National Program, as outlined below.

1. Extend GHG Credits

EPA has requested comment on whether to allow credits to be carried forward for longer periods, or to allow credits to never expire.[62] Currently, GHG credits earned in MY 2010-2015 may be carried forward until MY 2021, and other GHG credits are subject to the five-year carry-forward provisions. To be clear, the GHG credits may only be used once; but once earned, they should remain viable until used. The environmental rationale is that an avoided ton of GHG emissions is avoided in perpetuity, and thus the credit associated with that avoided ton should not expire. GHG credits represent real and actual environmental benefits that are not undone at five years. In addition, as EPA has noted, "longer credit life would provide manufacturers with additional flexibility to further integrate banked credits into their product plans, potentially reducing costs."[63] Thus, a longer credit life for GHG credits is warranted.

Additionally, Global Automakers requests that EPA allow for a one-time expiration date extension through MY 2026 for GHG credits earned in previous years. How far back this carry-forward should reach should be determined by the agencies, considering program stringency, industry's needs, and impact on programmatic benefits. Unexpired, previously-earned credits represent real and actual fuel savings and GHG reductions and will be important for addressing compliance deficits, as seen in recent MY 2016 and 2017 performance data. Credits provide a rationale for investment and allow automakers an ability to account for the variability of product development cycles inherent in the auto industry. Further, these same credits can help "provide flexibility to account for market conditions that may impact year-over-year compliance."[64]

2. Transfer of EPCA Credits

EPCA caps the amount of credits a manufacturer can transfer each year; for MY 2018 and beyond, that limit is 2.0 mpg per year. Global Automakers has petitioned NHTSA to apply the limit when credits are transferred, not when they are used. In the NPRM, NHTSA proposes the opposite approach, wherein it intends to apply the limit when credits are used rather than when they are transferred.[65] Global Automakers opposes this proposal, because it is inconsistent with EPA's program, is not statutorily

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[61] 83 Fed. Reg. at 43442.
[62] 83 Fed. Reg. at 43464.
[63] 83 Fed. Reg. at 43464. See also 77 Fed. Reg. at 62798 (Oct. 15, 2012) (noting that carry forward credits "provide flexibility to account for market conditions that may impact year-over-year compliance").
[64] ICCT. *Light-Duty Vehicle Greenhouse Gas and Fuel Economy Standards.* 2017. Retrieved from: https://www.theicct.org/sites/default/files/publications/2017-Global-LDV-Standards-Update_ICCT-Report_23062017_vF.pdf.
[65] 83 Fed. Reg. at 43452.

required, and is unnecessarily constraining, with little to no additional fuel savings. Global Automakers incorporates the discussion on this issue from its earlier Petition for Direct Final Rule it filed with the Auto Alliance.[66]

3. Trading of EPCA Credits

Under EPCA, credits may be traded between manufacturers in unlimited quantities, although traded credits may not be used to meet the domestic passenger car standard. NHTSA seeks comment on whether this trading program should be discontinued, noting the "potential for compliance flexibilities to have unintended consequences."[67] NHTSA does not point to any specific unintended consequences, but it does state that when credits are traded, "the public is not made aware of inter-automaker trades, nor are shareholders. And even the agencies are not informed of the price of credits."[68]

For the most part, when a manufacturer uses credits that they have obtained, it is to offset a short-term gap and not as a long-term solution. For some manufacturers, these credits are used during periods when the next steps of research and development are occurring to make gains in fuel efficiency and to create the next generation of vehicles. Without such assistance, it is difficult for companies to remain competitive as they meet today's obligations while also planning to meet future standards.

Global Automakers recommends continuing the option for manufacturers to trade credits. It lowers costs for manufacturers and consumers and results in real fuel savings across the fleet. Through existing processes, manufacturers report on trades that are made to the agencies, which includes the credits in their banks. The agencies may not be informed of the price of the credits at each trade. The fact that the agencies are not informed of the price of credits for each trade and that this highly sensitive information is held for competitiveness reasons is no justification for discontinuing the program. In private markets, trades and prices often are not made public; this privacy does not mean that the markets operate any less effectively, nor that the public at large does not benefit from the transactions that lower costs for all parties. Nonetheless, the agencies do know which companies are trading credits and where and how the credits are being used, which is the most important aspect of the program.

C. The Importance of Off-Cycle and Air Conditioner Efficiency Technologies

Off-cycle technologies spur innovation as manufacturers strive to improve the overall efficiency of vehicles, not just the efficiency of the powertrain, and air conditioner efficiency technologies promote additional fuel savings onboard the vehicle when the vehicle operates with the air conditioner on. The off-cycle technology program is intended to encourage use of additional fuel saving technologies with real-world emissions benefits not captured through laboratory testing. Since they provide efficiency improvements for the vehicles, the off-cycle technology credits were considered as part of the EPA's standards-setting process since MY 2012 and later were recognized by NHTSA as efficiency

[66] Petition for Direct Final Rule by Alliance of Automobile Manufacturers and Global Automakers to NHTSA and EPA (June 20, 2016) at pp. 13-15.
[67] 83 Fed. Reg. at 43452.
[68] 83 Fed. Reg. at 42998.

improvements in the MY 2012 – 2021 CAFE standards.[69] Manufacturer and supplier resources have been dedicated to developing, testing, and implementing these technologies since ONP started; these are real fuel savings, but also real company investments, that would otherwise be stranded should the agencies significantly alter or remove these credits.

As the agencies have recognized, fuel economy and GHG emissions are determined through regulated, standardized testing procedures (the "2-cycle test") that do not recognize the savings in fuel consumption that certain technologies generate.[70] As an example, the NPRM notes that because A/C is turned off during 2-cycle testing, the reduction in energy demand that improved A/C technology yields is not captured in the test.[71] For 2017 and beyond, NHTSA has developed regulations to capture such efficiencies in fuel economy values.[72] For its part, EPA began recognizing off-cycle credits in the 2012-2016 MY standards.[73]

At this juncture, however, we note the overall importance of these technologies in helping the industry comply with the standards. For the 2016 MY, the fleet reduced GHG emissions by an average of three g/mile (or about 0.5 mpg) through off-cycle technologies, not including A/C.[74] A/C efficient technologies provided another four g/mile reduction in GHG emissions in 2016.[75] The recognition of off-cycle technologies gives manufacturers a way to obtain a return on investments in technology and thereby reduces the "first mover" disadvantage in new fuel economy technology. They also lower manufacturer – and therefore consumer – costs by allowing manufacturers to choose the most cost-effective means of complying with the standards, while at the same time providing real and actual fuel savings and reductions in GHG emissions.

The agencies note, however, several potential objections to the off-cycle and A/C efficiency programs, including the difficulty in administering the program and the opposition of certain groups to the program on the grounds that many of the technologies are commonplace and not deserving of incentivization.[76] Global Automakers disagrees. Many of the benefits of off-cycle and A/C efficiency technologies are specified in the regulations and therefore are easy to determine; these values can always be reassessed and adjusted if sufficient data demonstrates a gap in the agency-determined values.

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[69]. "These credits reflect real world emissions reductions, so they do not raise the levels of the Achieved CO2 values, but they do allow manufacturers to meet their compliance targets with 2-cycle test CO2 emissions values higher than otherwise apply." US EPA. *Regulatory Impact Analysis: Final Rulemaking for 2017-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards.* at 4-128.
[70] 83 Fed. Reg. at 43454.
[71] *Id.*
[72] *Id.*
[73] *Id.*
[74] See *Greenhouse Gas Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report for the 2016 Model Year* (EPA Report 420– R18–002), U.S. EPA (Jan. 2018), at p. 41. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGIA.pdf.
[75] 83 Fed. Reg. at 43053.
[76] 83 Fed. Reg. at 43467-469.

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Four of the Alternatives offered in the proposal would phase-out the benefits of off-cycle technologies.[77] Global Automakers opposes the phase-out of these provisions for several reasons. First, these technologies provide real-world environmental benefits that should be recognized and accounted. The incentivization of these technologies is consistent with agencies' mandates to conserve fuel and protect public welfare.

Second, manufacturers and suppliers have invested substantial sums to develop these technologies on the reasonable expectation that they would continue to be recognized. The cost of these technologies must be amortized over the life of the vehicle. If the agencies no longer recognize the benefits of these technologies, they will be imposing a loss upon the manufacturers in the form of stranded investments. Global Automakers notes that the agencies suggest that the proposed phase-out of credits will avoid hardship on manufacturers.[78] No analysis is provided to support this finding. In fact, investments in off-cycle technologies are amortized over the life of the vehicle platforms, which can be five to seven years long.[79] A phase-out that begins in three model years (i.e., the beginning of MY 2022) is not long enough to allow manufacturers to fully amortize their investments in these technologies. In contrast, such a phase-out may have the reverse effect of constraining manufacturers' ability to meet the standards.

Third, phasing out these programs will deprive manufacturers of the freedom to use the lowest-cost technologies to meet the standards. As the agencies themselves note, "the modeling shows that phasing out the A/C efficiency and off-cycle programs decreases fuel consumption over the 'no change' scenario but confirms that manufacturers will have to apply costlier technology to meet the standards."[80] This costlier technology would also have to be procured, integrated and validated in a shorter than expected period of time.

Moreover, the off-cycle program should be streamlined, not discarded. While the off-cycle program has been amended, it continues to be unnecessarily restrictive and time-consuming, which slows product investment and implementation. The program also represents an area where EPA and NHTSA have an opportunity to better align, along with CARB, and fix the current system to account for real-world emissions reductions and fuel economy savings in the same capacity, as well as through a timely and efficient process. This will provide manufacturers with more certainty about benefits of off-cycle technologies under consideration, bring technology into the field more quickly, and encourage additional manufacturer and supplier investment in new, innovative fuel saving technologies.

To the extent that off-cycle technologies are validated based on manufacturer petitions under the alternative approval method, Global Automakers favors adding new technologies to this "menu"

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[77] 83 Fed. Reg. at 42990 (Alternatives 3 and 7).
[78] 83 Fed. Reg. at 43468-369.
[79] "Automotive Product Development Cycles and the Need for Balance with the Regulatory Environment," Center for Automotive Research (Sept. 20, 2017); https://www.cargroup.org/automotive-product-development-cycles-and-the-need-for-balance-with-the-regulatory-environment/.
[80] 83 Fed. Reg. at 43469; see also 83 Fed. Reg. at 43225 fn. 64.

whenever a manufacturer has demonstrated the value of a new technology, which will further ease the administrative burden of the program. The menu does not complicate the administration of the standards. Global Automakers is willing to work with EPA on ways to streamline the program.

The agencies also note that the program may result in double-counting of the benefits of these technologies because of specific features of the 2-cycle test and the 5-cycle test.[81] To the extent that this is an issue, Global Automakers recommends that the agencies fix this specific issue rather than discard these beneficial programs entirely.

Finally, the fact that certain technologies are widely deployed throughout the industry is not a reason to ignore their real-world benefits. While the off-cycle program may spur innovation, it also is designed to recognize the benefits of technologies that actually reduce fuel consumption and decrease GHG emissions that would not otherwise be counted by the standardized test procedure. Many times, these emissions benefits result in the addition of complementary technologies to support powertrain and chassis improvements and can be cost-effective approaches to managing the overall fuel efficiency of a vehicle. Plus, as further noted below, the program does not yet operate at an efficient enough level to promote innovative technologies earlier application in vehicles, so by default, the program requires a certain level of widespread usage before credits are valued and applied.

Our primary requests to NHTSA and EPA regarding off-cycle technologies are to reduce programmatic and process-related burdens, while still encouraging improvements to fuel economy and GHG emissions reduction *and* maintaining the off-cycle technology program, as well as the A/C efficiency program. Our requests to help streamline and improve the program include the following, and a markup of the current regulations identifying the issues to be addressed is attached as Attachment B.

1. Defining a Time Limit to Address Applications

For the vast majority of comments on regulatory processes, the agencies have defined timelines for public comment and response; this is not the case for applications for off-cycle technology grams per mile requests. Certainty through a timelier response to applications would allow automakers to better plan and would incentivize the use of advanced technology helping deliver greater environmental benefits. While often times manufacturers meet with EPA prior to submitting an application, to discuss methodology and data collected, even once an application is submitted, time delays to process the application exist. For example, four months passed between the receipt of the application from Toyota Motor North America and its public notice for comment.[82] Despite recent activity to clear applications, however, several application requests remain outstanding with no EPA response, and these pending

[81] *Id.*

[82] Toyota Motor North America's application was submitted on December 7, 2017 (see note 5, above), but this Notice was not published until February 26, 2018.

applications need to be addressed in a timely manner, preferably before the close of the model year, since the credits will be used to determine overall vehicle compliance.[83]

Going forward, Global Automakers recommends that EPA issue Federal Register notices for submitted off-cycle applications under the alternative method within 30 days and issue a final decision within 90 days. In the event that EPA lacks resources to address all the details in applications, the agency could partner with national laboratories, like the National Renewable Energy Laboratory, to conduct reviews, provide input and even help validate requests, if needed. National laboratories understand both the peer review process and the need for science-based, data-driven scrutiny of technology. Their experience and third party nature make the labs clear allies in the analysis process, while reducing the burden of review by EPA staff, and in coordination with CARB and NHTSA, when needed and appropriate.

2. Expediting Approval for Applications and Adding to the Pick List

Once off-cycle technologies are approved by EPA for use by specific manufacturers, to the extent additional automaker applications will contain the same request, EPA should evaluate a method to add these technologies and/or the process for determining their credit values to the pick list. We suggest that EPA streamline efforts to avoid reduplication of applications in situations where multiple automakers have submitted petitions for same technology. This addition would greatly streamline EPA's process and the influx of requests for the same technology.

The current process for evaluating applications for off-cycle credit under 40 CFR § 86.1869-12(d) can result in excessive time between notice for public comment in the Federal Register and completion of a final application,[84] and several application requests remain outstanding with no EPA response.[85] Global Automakers has previously commented, in the context of each application for the Denso A/C efficiency technologies, that EPA streamline and standardize the off-cycle application process. This particular technology has been requested for credit approval by six automakers (BMW, FCA, Ford, GM, Hyundai and Toyota), and has thus far been approved for five of the six. EPA now has demonstrated experience with applications for this technology, and this particular example demonstrates that process improvements are needed to speed approval of previously-approved technologies.

The pick list has always served as a conservative starting point for off-cycle technology credit values and provides a simple and easy path for achieving credits. Many technologies in recent years have been applied for, and approved, by several manufactures citing robust scientific evidence for these values. Following approval of new credit values for technologies, EPA and NHTSA should add these new credit

[83] EPA. "Compliance Information for Light-Duty Greenhouse Gas (GHG) Standards." Retrieved from https://www.epa.gov/vehicle-and-engine-certification/compliance-information-light-duty-greenhouse-gas-ghg-standards. (Accessed March 22, 2018).

[84] Toyota Motor North America's application was submitted on December 7, 2017 (see note 5, above), but this Notice was not published until February 26, 2018.

[85] EPA. "Compliance Information for Light-Duty Greenhouse Gas (GHG) Standards." Retrieved from https://www.epa.gov/vehicle-and-engine-certification/compliance-information-light-duty-greenhouse-gas-ghg-standards. (Accessed August 22, 2018).

values to the pick list, to encourage additional implementation of the technology by more manufacturers and to allow for an equal playing field across industry. Examples of recent technologies that could be added to the pick list include, for example, but are not limited to: advanced A/C compressor, high efficiency alternator, and variable crankcase suction valve compressor.

This request is not intended to force EPA's and NHTSA's hands to add every technology to the pick list. Indeed, some additional parameters may need to be included, like agreement that the value added to the table may be a conservative estimate, that the equation to determine a credit would likely still require some manufacturer or supplier generated data to substantiate the credit claim, or that some threshold for applications for alternative technology values could be established to signal that a technology is widely used prior to adding it to the pick-list. In the end, however, this process improvement could greatly increase efficiency of the off-cycle technology program and would promote innovation and fuel savings throughout the program. It would also provide additional certainty to manufacturers, who have included off-cycle technologies in vehicles as part of their strategy for improving efficiency, and ideally provide this certainty in advance of a model year.

It may also be appropriate to reevaluate and/or adjust existing credit values in the table, since many automakers have applied for higher values than the table has offered, demonstrating that the original values appear to be overly conservative. In the event that any values are adjusted, they must be done so prospectively only.

3. Establishing a Supplier Process to Apply for Off-Cycle Credits

The fuel economy and GHG emission regulations have not only encouraged significant manufacturer investment in the past years but have also encouraged and supported a renewed investment in technology development by automotive suppliers. Suppliers are innovating at an unprecedented pace and have devoted many resources to the development of more efficient, fuel saving technologies in recent years, including many off-cycle technologies; but a chicken and egg scenario remains.

Suppliers develop technologies and work with manufacturers to incorporate them. The manufacturer then has to take a "bet" on buying the technology, running it through testing, and ultimately submitting, and waiting, for EPA approval before there is any guarantee of receiving credit for use of the technology.

A better way to encourage faster rollout of new and innovative technologies would be to allow suppliers to request, from the outset, a grams per mile values for their off-cycle technologies. Suppliers could submit an initial application for pre-approval by EPA, determining an appropriate and conservative provisional off-cycle technology credit value. The resulting quantification would provide automakers a minimum guarantee of off-cycle credit once the technology is incorporated onto vehicles. This would help reduce process-related uncertainty and encourage earlier adoption of societally beneficial technologies.

Global Automakers is supportive of the proposed concept as developed by the Motor Equipment Manufacturers Association (MEMA). This proposed concept would provide a clear process to analyze the

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benefit of new technologies and how they might best be tested and incorporated into the off-cycle technology program.[86]

4. Streamlining the Data or Testing Requirement Process

Some of the data required to accompany the alternative approach applications for off-cycle technology is extensive, burdensome, and often poorly defined. The agency should explore ways to streamline the data collection and/or testing process. One possible approach would be to provide a defined template of requirements, information to be shared, and a standardized process for data review. In the certification space, this is done on an annual basis with a collaboration between EPA and industry. These process improvements would reduce burden on both industry and EPA.

5. Eliminate the 10 g/mi Fleet Cap

As more technology receives off-cycle credit values, this arbitrary cap will restrict innovation. EPA should lift the cap now in anticipation of increased use of technologies, like start-stop, LED headlamps, and even advanced safety technologies that may provide real-world emission and fuel saving benefits. Global Automakers supports full elimination of the cap but could also support raising the cap to 15 g/mi.

6. Eliminate Regulatory Language that Prevents Off-Cycle Technology Credits for Advanced Safety Technologies

Current EPA regulations prevent the ability to apply for off-cycle technology credits for advanced safety technologies.[87] Many of these technologies have real and measurable emissions benefits, resulting from improved flow of traffic, less idling and reduced congestion resulting from fewer crashes. The current EPA rule prohibits manufacturers from obtaining off-cycle credits for installing such technologies in passenger vehicles.

EPA has the opportunity to revise the regulation to explicitly authorize off-cycle credit petitions for advanced safety technologies, such as connected vehicle technologies, that can demonstrate emission reduction benefits. The process of providing a methodology and data to support emissions benefits and fuel economy savings is well established in the industry and with the agencies. Additionally, these technologies continue to prove wider industry use and increased consumer adoption of the technologies. The agencies can seize the opportunity to assist the market leadership in this country by offering a path forward to gain benefits for investing in technology that has both safety and environmental benefits. At a minimum, the regulatory text needs to be struck, to allow all parties an opportunity to consider whether these technologies are appropriate under the GHG program. Adding such a credit value would encourage manufacturers to implement this technology, accelerating both real-world emission reductions and safer roadways.

[86] Motor Equipment Manufacturer Association Comments to this Notice of Proposed Rulemaking.
[87] 40 CFR 86.1869-12.

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D. The Importance of Maintaining Non-CO_2 Emissions in the EPA Program

EPA has also requested comment on whether to phase out regulation of non-CO_2 greenhouse gases, such as methane, nitrous oxide and A/C leakage and refrigerants.[88] EPA proposes to do so in MY 2021. EPA believes that the inclusion of these compounds in the current standards creates disharmony between the NHTSA and EPA standards.

Global Automakers does not consider the regulation of non-CO_2 GHGs to be a source of disharmony between the regulatory regimes of NHTSA and EPA. As noted earlier, the regulations can be consistent even if they are not identical, and Global Automakers prefers a small numerical divergence in EPA's and NHTSA's standards if it provides for a consistent and certain federal policy, rather than resulting in a separate patchwork of fragmented state regulations.

A/C refrigerant and leakage credits are important, because while they do not directly impact the efficiency of the vehicle, with respect to EPA's program, they provide real and additional GHG reductions by reducing refrigerant leakage and encouraging a transition to lower global warming potential refrigerants. In the context of the GHG program, this approach is smart and cost-effective, because it does not require these changes, but instead works with the overall package of flexibilities to provide an additional compliance path for reducing overall vehicle GHG emissions, according to the best strategy for the vehicles and the customers that buy each vehicle.

We also support continuation of EPA's A/C leakage credits, because they result in real world GHG emissions reductions, are complementary to EPA's program, and are better managed through a timely, coordinated federal policy. Global Automakers does not support the proposal for implementing a separate regulatory program to address A/C leakage for several reasons. First, if EPA separately regulated these aspects of the program, it greatly limits the ability to select the most cost-effective approach for technology improvements and result in a costlier, separate set of regulations that actually relate to the overall GHG standards. A/C leakage and refrigerants are part of the overall vehicle system, and since they result in real GHG emission reductions when controlled, they should be controlled as part of the overall strategy and technology plan specific to each vehicle.

Second, it takes agency resources and time to promulgate separate and new regulations, and this would result in a gap in controlling these elements, while also leaving the floor open for states to take separate action in this area. In the time it takes to promulgate these rules, states may take separate action to regulate, or even ban, refrigerants. This would result in a patchwork approach to regulating GHG emissions, less integration in technologies to achieve separate sets of standards, and a potentially more stringent compliance scenario since trade-offs could not be made for the most cost-effective approaches. Global Automakers much prefers a coordinated, systematic approach to A/C leakage and refrigerant, that allows for a smart, cost-effective approach to technology improvements on a per vehicle basis to having to manage separate state standards, or even refrigerant bans, that attempt to fil the gap in federal policy. Further, there is the potential that EPA's CAA authority may not be as directly

[88] 83 Fed. Reg. at 42988.

applicable if A/C leakage is controlled separately, or even by another branch of the agency. It is unclear to what extent federal CAA authorities would apply if states took separate action in these areas; there are several states that may consider taking action if EPA does not take it, and this would be problematic without the ability for federal oversight. On the other hand, if these provisions remain part of the overall vehicle GHG regulations, EPA maintains clear CAA waiver authority for any separate action to regulate these aspects.

Third, the proposed phase-out could harm manufacturers economically. Our manufacturers have already invested capital and know-how to develop technology to meet the current regulations. The proposed phase-out also creates another risk that manufacturers will have stranded capital in technologies that are not fully amortized. While EPA states that it will impose separate regulations for MY 2021 and beyond, that is less than three years ahead. Phasing out these standards creates uncertainty for manufacturers, who may find themselves subject to different regulatory standards for these compounds in the future depending on the outcome of the rulemaking for the new regulations.

Continuing the availability of A/C leakage credits is critical to enabling EPA to meet its legal mandate to drive more efficient vehicles, while allowing support for market competitiveness in the face of other global actors.

Finally, EPA also asked whether, if it continues to regulate these compounds, the regulatory requirements should be modified. At this point, Global Automakers recommends that they remain in place per the existing program but continues to support that the N_2O testing is not necessary.[89]

E. Treatment of E10 Test Fuel for GHG Testing

In 2013, EPA finalized the Tier 3 light-duty vehicle emissions regulations, which require the use of 10% ethanol ("E10") test fuel for fuel economy testing by MY 2020; however, EPA still has not issued the

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[89] In Global Automakers' May 15, 2017 comments to EPA on the "Evaluation of Existing Regulations" [82 FR 17793, April 13, 2017], we note:

> Over the years, manufacturers have worked with EPA to address concerns with available technology to test for N2O. Manufacturers have also raised concerns with test-to-test variability and the cost of such technologies. At one point in time, EPA did agree to delay the test requirements as a result. These concerns, however, have not been addressed, and testing remains a significant burden with little to no benefit to the environment or impact on meeting the GHG standards.
>
> Therefore, Global Automakers strongly recommends reducing the need for N_2O testing or eliminating these test requirements in their entirety. It should be sufficient to allow manufacturers to attest to compliance with the N2O capped standards based upon good engineering judgement, development testing, and correlation to NOx emissions. EPA could, however, maintain the option to request testing to be performed for new technologies, only, which could have unknown impacts on N2O emissions.
>
> The elimination or significant reduction of these testing requirements for N_2O may exceed $600,000 per year in savings per manufacturer.

regulatory changes necessary to enable such testing. This delay has eroded the expected lead time for this changeover, cast doubt on the feasibility of the MY 2020 deadline, unnecessarily increased testing burdens, and created considerable uncertainty in manufacturers' product development and compliance planning processes. Global Automakers reiterates our previous requests that the agencies use today's rulemaking to issue guidance to continue use of the current E0 test fuel until EPA and industry can finalize the necessary test procedure adjustment regulation.

The provisions of 40 C.F.R. § 600.117 were put in the Tier 3 rule as a stopgap measure until EPA could incorporate the necessary changes to allow E10 testing for fuel economy and GHG via new rulemaking. EPA did not intend for a lack of new updated regulations to create the current situation where the MY 2020 regulations do not permit testing on either fuel (E0 or E10) for fuel economy and GHG reporting.

In recent discussions with EPA, industry has proposed several ways to address the yet-to-be issued regulations, ranging from the issuance of a test procedure adjustment concurrent with the Tier 3 final rule back in 2013 to, more recently, the issuance of a standalone, limited-scope rulemaking to postpone the MY 2020 deadline for the test fuel changeover. Since there are no provisions in the existing regulations to test on E0 or E10 starting in MY 2020, industry requested that EPA issue an extension of the Tier 2 E0 testing provisions in 40 C.F.R. § 600.117 past its current expiration date at the end of MY 2019. Industry has also urged EPA to address test procedure adjustments in coordination with the next rulemaking action – the current SAFE NPRM would provide such a forum to do this. In addition, industry has requested that EPA issue a guidance letter that would have the effect of assuring no adverse action against industry in the absence of updated testing regulations.

Measuring and accounting for CO_2 in a consistent manner is critical for consistency and equity in regulatory treatment regardless of the test fuel used. The measurement methods, which have been used for many years for ethanol containing fuels, have correctly accounted for upstream GHG emissions and have set a precedent for how CO_2 from new ethanol fuels should be measured. EPA should therefore seek to maintain consistency and should strive to avoid adopting arbitrary and inconsistent approaches based solely on the amount of ethanol in the fuel.

The approach that EPA followed in implementing the measurement of CO_2 emissions from E85 flexible fuel vehicles (FFVs) establish a precedent to follow for how CO_2 emissions should be measured from other ethanol fuels. The CO_2 emissions from E85 FFVs tested on E85 are reported as direct measurements from the tailpipe of CO_2 g/mile, without any adjustments.[90] For E85 FFVs, EPA correctly avoided double counting the benefits of ethanol-derived CO_2. Had EPA increased the measured tailpipe CO_2 to debit the fuel for its improved CO_2 performance, this would have constituted a double counting

[90] See EPA Guidance CD-14-18, https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=33581&flag=1: "*...FFV emissions will be based on measured CO2 results from emissions testing on the fuels on which the vehicle operates*." November 12, 2014. And, see GHG and CAFE Final Rule, 75 Fed Reg 25433. "*...EPA believes the appropriate approach is to ensure that FFV emissions are based on demonstrated emissions performance*." May 7, 2010.

of the benefits. EPA would have been then obligated to revise CO_2 credits elsewhere, such as for ethanol producers.

The 2012 GHG Final Rule established procedures for measuring emissions from FFVs that are operated on both E10 and E85. In essence, automakers must measure tailpipe GHG emissions on both gasoline and E85, and weight these two tailpipe results by a "utility" factor that reflects the percentage of time FFVs are fueled with E85; there is no adjustment factor applied to the E85 results for FFVs. The GHG Final Rule cites a methodology to allow for FFVs to receive credits for their real-world emissions 2012 benefits:

> This methodology established a default value where ethanol FFVs are assumed to be operated 100 percent of the time on gasoline, but allows manufacturers to use a relative E85 and gasoline vehicle emissions performance weighting based either on national average E85 and gasoline sales data, or manufacturer-specific data showing the percentage of miles that are driven on E85 vis-a-vis gasoline for that manufacturer's ethanol FFVs. *Since tailpipe GHG emissions from FFVs operated on E85 are typically slightly lower than those from gasoline operation, this methodology provides an opportunity for ethanol FFVs to earn GHG emissions credits, particularly if E85 use grows in the future.* [91] (*Emphasis added*)

Thus, the adoption of a CO_2 adjustment factor for vehicles tested using other ethanol-containing fuels, such as Tier 3 E10 fuel, would therefore be inconsistent with the treatment of CO_2 emissions from FFVs. In contrast, for estimating tailpipe emissions from 2020 and later MY vehicles certified to GHG standards utilizing Tier 3 E10 fuel, EPA may be planning to count the CO_2 from combusting ethanol.

A number of commenters on the 2012 GHG final rule thought that compliance with the tailpipe GHG standards should include upstream or lifecycle benefits of biofuels. EPA's response to these comments is shown below.

> Several commenters pointed out that cellulose-based ethanol and other renewable fuels have the potential to yield large lifecycle GHG emissions benefits due to the CO2 uptake during plant growth, and recommended that such fuels be given credits, or have compliance measured, to reflect the upstream GHG emissions benefits. The use of biofuels with lower lifecycle GHG emissions is already required under the Renewable Fuel Standard (RFS) program, which is designed to achieve GHG emissions benefits through the required use of renewable transportation fuels that have better lifecycle GHG emissions performance than the gasoline or diesel fuel that they displace. EPA has already quantified the GHG emissions benefits associated with the RFS program. Therefore, as noted above, providing an additional incentive in the MYs 2017-2025 GHG program, which is focused on emissions from the vehicle and not lifecycle emissions, would not achieve any greater use of renewable fuels than is already required under the RFS program, and thus would not achieve any greater emissions reductions from the use of such fuel. Thus, providing an additional incentive, or using lifecycle emissions for compliance, would reduce the need to take other actions and thereby reduce the emissions benefits of the MYs 2017-2025 light-duty vehicle

[91] EPA and NHTSA. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule,* 77 Fed. Reg. 199. October 15, 2012.

> GHG emissions program given that renewable fuel use is already required by and accounted for under the RFS program.[92]

The commenters here are generally stating that upstream benefits of biofuels should be incorporated into the tailpipe GHG standards and that ethanol-derived tailpipe CO_2 should be counted as zero to be consistent with the RFS.[93] EPA is aware of this request from industry and appears to agree stating that these upstream "would reduce the need to take other actions and thereby reduce the emissions benefits of the MYs 2017-2025 light duty vehicle GHG emissions program."[94] EPA knew that its GHG standards were based on emission testing of vehicles using E0, and that it was intending to transition to an E10 certification fuel. EPA was therefore concerned that if it counted ethanol CO_2 as zero as in the RFS, that the relative stringency of its regulations would be reduced. Any CO_2 emissions benefit from the use of ethanol in gasoline is included in the RFS, but not passed on to the automotive manufacturers.

To avoid double counting the benefits of ethanol-derived CO_2, and to make its treatment of ethanol derived CO_2 consistent between the RFS and GHG, and also Tier 3, rules, EPA should not count the CO_2 derived from ethanol at all. It should only count the CO_2 derived from gasoline in comparing vehicle emissions to the standards, for both baseline and control cases. Thus, when tailpipe emission standards are reduced, all the benefits will be only from gasoline. This would make the vehicle regulation consistent with the RFS regulation and avoid double-counting reductions in ethanol-derived CO_2.

As EPA and NHTSA evaluate and arrive at a SAFE Final Rule, the agencies should determine if there is a need to explicitly take into account any stringency adjustment for the Tier 3 change to E10 test fuels for fuel economy testing. The agencies should undertake this determination within the SAFE Vehicles Rule, because considerations that could affect stringency should not be considered as separate issues but should be handled together through a comprehensive evaluation. Performing this evaluation within the SAFE Vehicles Rule reduces the need for additional rulemakings in accordance with Presidential Executive Order 13777 and is the most logical and efficient approach to evaluating the necessity for stringency adjustments.

There are other important issues in addition to the R-factor that EPA should address in regulations pertaining to the E10 test adjustments. First, the regulations will need include an adequate phase-in period for the new requirements. A significant testing burden for manufacturers would be created if the new regulations do not adequately provide for reasonable carry-over and sequencing of tests. While industry is appreciative of EPA staff's acknowledgement of the need for a phase-in as it works to promulgate the new test procedures, industry requests that EPA allow for an extended carry-over period because of the delay that has occurred in releasing guidance or regulations for industry.

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[92] *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards: EPA Response to Comments*, EPA-420-R-12-017, August 2012, page 6-135.

[93] There is some precedent for this concept in existing regulations for estimating fuel economy from FFVs. The use of the 0.15 adjustment factor to estimate fuel economy of FFVs operating on E85, (sometimes called the petroleum displacement factor), is analogous to not counting ethanol derived CO_2 for estimating tailpipe CO_2.

[94] EPA. *Response to Comments: Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation*

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Second, industry requested that EPA provide manufacturers with an updated method for calculating the Net Heating Value (NHV) and Carbon Weight Fraction (CWF) of Federal Tier 3 Emissions Gasoline. EPA has recognized in previous guidance letters that corrections to the NHV and CWF methods published in the CFR are required.[95,96] We ask that EPA apply updates to the methods from letter CD-95-09 and adopt the use of modified ASTM International (ASTM) Test Methods D3338 and D3343 for fuels containing ethanol rather than MTBE in the forthcoming NPRM. Again, industry is appreciative of EPA staff's acknowledgement of the need for adopting the use of these modified methods.

VI. Additional Issues for Comment

A. Standardized Template for Reporting

NHTSA is proposing to adopt a standardized template for reporting all required data for pre-model year (PMY), mid-model year (MMY), and supplemental CAFE reports. Standardization of the report template and the process can help provide transparency on what is reported to the agencies and at what time.

Further streamlining the report by making the PMY and MMY reports the same would allow many manufacturers to continue the process of submitting PMY reports and then updating the MMY reports with the same type of information. This would further simplify reporting and reduce burden for the agencies as staff would be able to refer to a single, consistent document template for all reporting requirements. An addition to this procedure would be to add a final model year (FMY) report that could be an update to the MMY report. This would further clarify the reporting and would allow both NHTSA and EPA to use similar end-of-model year reporting metrics.

NHTSA has taken the suggestion of streamlining reporting requirements for end-of-model year one step further, by suggesting that reporting include additional data elements related to credit trading. In theory, Global Automakers and our members agree that a standardized template with credit trading information is appropriate, and there is already a template in use for these types of reporting requirements that could be integrated into the end of model year report.[97] The use of this template is well established and can be implemented across agencies with very little lag time in learning. Industry

[95] EPA recognized that the methods contained in 40 CFR 600.113 are not applicable to Phase II test fuel and other oxygenated fuels. U.S. Environmental Protection Agency. "1994-16: Protocol for MPG Calculations for Vehicles Tested on Phase II Gasoline." August 5, 1994. Retrieved from: https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14096&flag=1.

[96] EPA provided in this guidance revised NHV and CWF calculations based on ASTM D3338 and D3343 for MTBE containing fuels. This provides a precedent for revising the fuel economy equations for Net Heating Value and Carbon Weight of Fuel. U.S. Environmental Protection Agency. "MPG Calculations for Certification Vehicles Tested on California Phase 2 Gasoline." June 1, 1995. Retrieved from: https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14107&flag=1

[97] EPA template for averaging, banking and trading of credits. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-motor-vehicles-tier-3#additional-resources. (accessed September 14, 2018).

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would suggest combining the two templates (EPA's AB&T and the PMY template) to streamline reporting and reduce burden. It is not, however, clear that credit transaction prices should be reported. There is no real value to the agencies knowing this information, and since this is confidential business information (CBI) status, this information could not be shared publicly at any time.

B. Application of Fuel Savings Adjustment Factors to Credits Carried Forward or Back Beginning in MY 2021

Global Automakers stands by the arguments made in its harmonization petition.[98] Global Automakers does not believe that the adjustment will result in a windfall of credits to manufacturers or disadvantage manufacturers. Instead, it ensures that credits have a consistent value over time.

C. Vehicle Miles Traveled Estimate Alignment for Both Agencies

NHTSA has proposed to deny Global Automakers' request for retroactive adjustment of the VMT estimates of fuel savings.[99] We, however, stand by our request made in the June 2016 harmonization petition.[100] Specifically, we request that NHTSA reconsider its position with regards to the VMT estimate used in the adjustment factor. For the previous MYs 2012-2016, NHTSA had estimated VMT separately by MY and added an additional estimate for MY 2011 in 2012. VMT needs to be better estimated, because there is a potential to undervalue fuel savings per credit if estimates of VMT are off from actual usage.

Estimating VMT remains complex – taking into account various factors such as fuel price, consumer use of vehicles and fleet turnover – conditions that are wholly external to vehicle manufacturers. It is for this reason that harmonizing VMT estimates for all model years of ONP is particularly important to maintaining consistency in manufacturers' compliance planning in light of market conditions and for aligning the agencies approaches in modeling the final standards. Credit flexibilities are critical to providing the support that ensures companies can meet the requirements of both programs with the same fleet of vehicles. It is for this reason that industry has requested that NHTSA apply the EPA VMT estimates to MYs 2011-2016.

D. Looking Beyond 2025

Much of the world, California, and automakers are already looking ahead to 2030, 2035 and beyond as part of ongoing efforts to lower carbon in the transportation sector and ultimately increase electrification of the light-duty fleet. Vehicle electrification is not happening in isolation; announcements

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[98] Global Automakers and the Auto Alliance. "Petition for Direct Final Rule with Regard to Various Aspects of the Corporate Average Fuel Economy Program and the Greenhouse Gas Program." June 20, 2016. https://www.globalautomakers.org/OldSiteContentAssets/bulletin/Joint-Harmonization-Petition-for-GHG-and-CAFE-assets/2017-06-20-joint-alliance-global-harmonization-petition-for-rulemaking-pdf.

[99] 83 Fed. Reg. at 43453.

[100] Global Automakers and the Auto Alliance. "Petition for Direct Final Rule with Regard to Various Aspects of the Corporate Average Fuel Economy Program and the Greenhouse Gas Program." June 20, 2016. https://www.globalautomakers.org/OldSiteContentAssets/bulletin/Joint-Harmonization-Petition-for-GHG-and-CAFE-assets/2017-06-20-joint-alliance-global-harmonization-petition-for-rulemaking-pdf.

and implementation of technologies that will lead to connected and automated vehicles continue to come out of traditional and non-traditional industry players as well. In addition, ride sharing models and alternative transportation options will influence the underlying nature of the automotive business. Taken as a whole, these trends will likely provide a more efficient and safer future fleet of vehicles, and the need to invest in these technologies should not be ignored.

Global Automakers believes that this NPRM needs to consider how to support a transition toward decarbonization levels necessary to meet our mid-century climate goals. The "post-2025" regulatory direction is critical, because these efforts require significant changes in customer behavior, infrastructure, and the overall automobile market. These changes will also require billions of dollars of investment, which must come from profitable vehicles, as well as protect against the inevitable possibility of technology obsolescence and stranded investment.

It is critical to begin to adopt a long-range view for where industry trends are headed. The agencies can, and should, weigh these competing priorities and consider how to properly balance all aspects of the regulation through MY 2026. The Midterm Evaluation revealed that the world has greatly changed from 2012 to 2016, and we do not imagine that the rate of change will slow in the coming years. It for this reason that we do not advocate promulgating final standards past MY 2026 unless that framework comes with an opportunity for thoughtful mid-course correction along the way.

Rather, we support developing aspirational goals out to MY 2030, and a future rulemaking consistent with those goals. These aspirational goals would include a clear outline of the responsibilities of different stakeholders to meet those goals. For instance, more stringent fuel economy standards in 2030 would necessarily assume a certain market penetration of electric vehicles (EVs). This, in turn, would depend on federal and state efforts to support the technology, such as infrastructure investment. The later promulgation of the aspirational standards would depend in part on whether states have made the necessary investments in electric charging and hydrogen refueling infrastructure.

VII. Asserting EPCA Preemption is not the Best Way to Preserve One National Program

In the NPRM, NHTSA proposes to find that state regulations of motor vehicle GHG emissions and of Zero Emission Vehicles (ZEVs) are both expressly and impliedly preempted under EPCA in order to ensure that automakers will be required to comply with a single set of nationwide standards for fuel economy and GHG emissions performance.[101] While Global Automakers agrees with this important policy goal to coordinate national standards, we do not believe that federal preemption is the best means for achieving it. Enforcing EPCA's preemption provision or obtaining a court order that California's GHG emission program conflicts with NHTSA's administration of the CAFE program would require years of uncertain litigation. Instead, we support a continuation of ONP with California, which would also result in automakers complying with a single, unified set of fuel economy and GHG emission standards.

[101] 49 U.S.C. § 32901, et seq.

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As NHTSA points out in the NPRM, EPCA includes an express preemption provision stating:

> When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter.[102]

GHG regulations are expressly preempted, NHTSA asserts, because "GHG emissions, and particularly CO_2 emissions, are mathematically linked to fuel economy; therefore, regulations limiting tailpipe CO_2 emissions are directly related to fuel economy."[103] More specifically, NHTSA states: "Standards that control tailpipe CO_2 emissions are de facto fuel economy standards because CO_2 is a direct and inevitable byproduct of the combustion of carbon-based fuels to make energy, and the vast majority of the energy that powers passenger cars and light trucks comes from carbon-based fuels."[104]

NHTSA's position on this question is long-standing and consistent. Back in 2005, NHTSA articulated its position that a "state law that seeks to reduce motor vehicle carbon dioxide emissions is both expressly and impliedly preempted" under EPCA.[105] NHTSA concluded that "[s]ince the way to reduce carbon dioxide emissions is to improve fuel economy, a state regulation seeking to reduce those emissions is a 'regulation related to fuel economy standards or average fuel economy standards.'"[106] NHTSA reaffirmed and expanded on this view in the final light truck standards promulgated the following year:

> In mandating federal fuel economy standards under EPCA, Congress has expressly preempted any state laws or regulations relating to fuel economy standards. A State requirement limiting CO2 emissions is such a law or regulation because it has the direct effect of regulating fuel consumption. CO2 emissions are directly linked to fuel consumption because CO2 is the ultimate end product of burning gasoline... It is therefore NHTSA's conclusion that such regulation is expressly preempted.[107]

Despite this consistent view on the part of NHTSA and the technical discussion to support its conclusion that state GHG regulations are "related to fuel economy standard," asserting EPCA preemption is not without litigation risk. As the agency notes in the NPRM, two district courts have found that California's GHG emission standards are not preempted under EPCA if California obtains a CAA Section 209(b) waiver from EPA.[108] We note, however, that the *Green Mountain* case was on appeal and that the case

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[102] 49 U.S.C. § 32919(a) (quoted at 83 Fed. Reg. at 43,233.
[103] 83 Fed. Reg. at 43,234.
[104] *Id.* at 42.999.
[105] *See* Average Fuel Economy Standards for Light Trucks; Model Years 2008-2011, Notice of Proposed Rulemaking, 70 Fed. Reg. 51,414, 51,457 (Aug. 30, 2005).
[106] *Id.*
[107] *See* Average Fuel Economy Standards for Light Trucks Model Years 2008–2011, 71 Fed. Reg. 17,566, 17,654 (April 6, 2006).
[108] *Green Mountain Chrysler v. Crombie*, 508 F.Supp.2d 295 (D. Vt. 2007); *Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007).

had been fully briefed and argued to the Second Circuit when the agreement for the first National Program was reached. As part of that agreement, the industry dismissed the appeal of that case as well as the appeal of *Central Valley Chrysler-Jeep*. Consequently, no appellate court has passed on the novel theories adopted by the district courts concerning why the California regulations are not preempted under EPCA. Reaching a final legal determination on this question will take years of costly litigation.

Moreover, as NHTSA discussed in the NPRM, California is considering regulatory amendments to its GHG program to revoke its deemed-to-comply provision, which would effectively break the state from the ONP.[109] Should California finalize this rule (and we have explained to the state why it should not) at the same time NHTSA pursues EPCA preemption, that would lead to a prolonged period of uncertainty during which companies may take a conservative approach and assume that they will need to comply with both the federal standards and California's.[110] This would be incredibly inefficient and drive up compliance costs but would be the inevitable result from pursuing this strategy.

Another by-product of preemption, out of NHTSA's control, is that in addition to CO_2, there are other non-CO_2 sources of GHG emissions that left unregulated or separated from a federal policy, could very likely result in separate state action to control, limit, or even ban sources. This type of state-level control would be the worst situation for manufacturers, resulting in a patchwork of requirements and overly stringent control and command regulations.

Instead of going down this path, we urge NHTSA to engage with California and reach an outcome akin to the first and second agreements for ONP, where California agrees to be part of the final national program. We believe this can be accomplished through the promulgation of aggressive but achievable federal fuel economy and GHG emission standards through MY 2026 with California maintaining its deemed-to-comply provision. This would yield that same result as asserting preemption—*i.e.*, a single, unified national program with 50-state compliance. Moreover, it would provide automakers with increased certainty and keep separate state actions at bay.[111] Automakers would not need to comply with separate California standards while litigation is pending.

With respect to EPCA preemption of ZEV regulations, NHTSA is correct that it has never before articulated a view that such regulations are expressly or impliedly preempted under EPCA. In the NPRM, NHTSA states that state ZEV regulations are expressly preempted under EPCA, because they "directly

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[109] *See* 83 Fed. Reg. at 43,233 n.495.

[110] This period of uncertainty may also lead to other states adopting and following California's regulations, a trend that has already started with the state of Colorado looking to finalize its first set of Section 177 California rules in November 2018.

[111] NHTSA states that after the finalization of the national program, the agency "erroneously saw this as obviating consideration of EPCA preemption." 83 Fed. Reg. at 43,233. We disagree. While California's adoption of its deemed-to-comply provision would not impact the express preemption analysis, it does address the issue of conflict preemption. California's agreement to the National Program furthers one of the important policies EPCA is designed to protect—i.e., "a national fuel economy standard." *Id.*

relate to fuel economy,"[112] and are impliedly preempted, because they are "entirely at odds with critical factors that Congress required NHTSA to consider in establishing fuel economy standards."[113] However, for the same reasons we discuss above, we do not believe that asserting EPCA preemption of California's ZEV mandate is the best path forward to achieve ONP. While it is true that the ZEV mandate requires automakers to utilize the most expensive technology to reduce fuel consumption, and address criteria pollutant emissions, there may be other ways to both increase the electrification of the light-duty fleet—a goal which Global Automakers unreservedly supports—and ensure that doing so does not conflict with the policy aims of EPCA.

VIII. Global Automakers Does Not Support the Revocation of California's Waiver for its Existing Regulatory Programs While "Deemed to Comply" Remains in Place

EPA states in the NPRM that it is proposing to withdraw the January 9, 2013 waiver of preemption for California's Advanced Clean Car (ACC) program, ZEV mandate, and GHG standards that are applicable to new model year (MY) 2021 through 2025. EPA is offering three bases for this proposal: (1) under Section 209(b)(1)(B) of the CAA, global climate change is not a "compelling and extraordinary condition" in California so as to justify its own emission standards,[114] (b) even if climate change were a "compelling and extraordinary condition," California does not "need" its regulations to address it, and (3) under 209(b)(1)(C), the standards are inconsistent with Section 202(a) of the CAA.[115] We address the GHG and ZEV waivers separately, below.

A. GHG Waiver

Initially, we view EPA's proposal to withdraw the 2013 waiver as essentially a proposal to reconsider its earlier decision to grant the waiver. While an agency always retains the authority to reconsider its prior decisions, it usually does so in the context of the rulemaking docket in which the underlying decision was made, and not as an ancillary action in a completely separate rulemaking.

In any event, Global Automakers is concerned that EPA taking this action to reconsider the earlier California waiver would lead to years of litigation and uncertainty. And just as with EPCA preemption, as noted above, in the face of this uncertainty, automakers would be faced with the decision as to whether to comply with the separate, more stringent California regulations until this issue is ultimately resolved by the courts. This situation creates additional uncertainty as states, like Colorado that is already in the

[112] According to NHTSA, the ZEV Mandate is related to fuel economy standards because "the only feasible means to eliminate tailpipe CO2 emissions is by eliminating the use of petroleum fuel (i.e., electric or fuel cell propulsion), and because the purpose of the ZEV program is to affect fuel economy." 83 Fed. Reg. at 43,238.

[113] 83 Fed. Reg. at 43,238.

[114] Section 209(b)(1)(B) provides that EPA shall deny the waiver if it finds that California "does not need such State standards to meet compelling and extraordinary conditions." 42 U.S.C. § 7543(b)(1)(B).

[115] Section 209(b)(1)(C) provides that EPA shall deny the waiver if it finds that California's "standards and accompanying enforcement procedures are not consistent with section 202(a) of [the Clean Air Act]." *Id.* § 7543(b)(1)(C).

process of adopting California regulations, look to adopt California's standards, thereby increasing the market share reach of the California GHG program.

For instance, we agree with EPA that California's entitlement to a Section 209(b) waiver for its GHG emission regulations will turn in large part on the agency's interpretation and application of Section 209(b)(1)(B). That provision states that EPA shall deny the waiver if the agency finds that California "does not need such State standards to meet compelling and extraordinary conditions" in the state.[116]

As EPA points out, the agency has articulated differing interpretations of this provision. Historically, EPA has interpreted it to mean that California needs to have its own separate new motor vehicle program in the aggregate to meet compelling and extraordinary conditions in California, and not whether the state needs the specific standards under consideration. In 2008, in contrast, when EPA first considered whether state GHG emission regulations meet the requirements for a Section 209(b) waiver, EPA determined that the better reading of Section 209(b)(1)(B) would be to consider whether California "need[s]" the standards at issue "to meet compelling and extraordinary conditions," and the agency denied the waiver on these grounds. Then, when EPA reconsidered that denial in 2009, the agency reverted back to its traditional interpretation and granted the waiver.

No court has addressed this question, let alone determine whether the language of Section 209(b) is ambiguous or susceptible to either of the competing interpretations.[117] Therefore, should EPA withdraw the California waiver, the automotive industry would be faced with years of uncertainty.

For this reason, Global Automakers does not support the withdrawal of the waiver for the *current* California GHG emission standards, because they include a "deemed-to-comply" provision. Those regulations include a deemed-to-comply provision, which states as follows:

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[116] 42 U.S.C. § 7543(b)(1)(B).

[117] We question whether, under well-settled cannons of statutory interpretation, Section 209(b)(1)B) can be read as referring to California's emission standards in the aggregate. There is a "natural presumption that identical words used in different parts of the same act are intended to have the same meaning." *Envtl. Def. v. Duke Energy Corp.*, 549 U.S. 561, 574 (2007). The term "such state standard" is used in both 209(b)(1)(B) and (C), and it should be read consistently as between the two. Section 209(b)(1)(C) states that EPA shall deny the waiver if it finds that "such State standards and accompanying enforcement procedures are not consistent with section 202(a) of this part [42 USCS § 7521(a)]." It would make no sense to construe the term "such state standards" subsection (C) to mean the California program in the aggregate, and EPA has always construed Section 209(b)(1)(C) as referring to the standards before EPA for the waiver. For example, in EPA's 2009 decision to grant a waiver for California's GHG emission program, the agency assessed "whether CARB's GHG standards are consistent with section 202(a), including lead time." 74 Fed. Reg. at 32,777. In fact, EPA has in the past denied a waiver on the ground that the specific standards before the agency were not consistent with Section 202(a) because they failed to provide sufficient lead-time. See California State Motor Vehicle Pollution Control Standards, 43 Fed. Reg. 998, 1001 (Jan. 5, 1978) (in assessing certain aspects of California's motorcycle emissions program, finding "that section 1958(f), as now drafted, is inconsistent with section 202(a) of the Act" and therefore "deny[ing] California's request for a waiver of preemption for that section"). It follows, then, that the term "such state standards" must also refer to the specific standards before the EPA waiver with respect to the "compelling and extraordinary" prong in subsection (B).

> For the 2017 through 2025 model years, a manufacturer may elect to demonstrate compliance with this section 1961.3 by demonstrating compliance with the 2017 through 2025 MY National greenhouse gas program, [provided certain procedural prerequisites are met].[118]

As long as California maintains this national compliance option, there is no need for EPA to reconsider the waiver. EPA should defer any decision on the waiver until such time as California formally revokes the deemed-to-comply provision. In that case, the amended California GHG regulation would be materially different from the one that EPA waived in 2013, and EPA could either revoke the 2013 waiver (on the basis that California has materially altered its waived-standards) or declare that the amended regulations are not enforceable until California seeks and obtains a waiver. Then, when California seeks an EPA waiver for the amended GHG standards—which the state would need to do[119]—EPA could determine whether the amended regulations meet the standard for a waiver under Section 209(b) of the CAA.

In the interim, Global Automakers reiterates our request that the federal agencies work with California to develop an outcome akin to the existing ONP. A single, unified national program is far preferred to the uncertainty of litigation surrounding California's waiver.

B. ZEV Waiver

EPA is also proposing to withdraw the waiver for California's ZEV mandate on the same grounds as its proposed withdrawal of the GHG waiver. In our view, however, the ZEV waiver should be treated differently from the GHG waiver. California has a long history of addressing criteria pollutants and local smog problem through its ZEV program. Courts have consistently held that California's ZEV mandate is a motor vehicle emission standard that is subject to CAA preemption.[120] California has obtained several

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[118] 13 C.C.R. § 1961.3(c).

[119] We note that an action by California to revoke the deemed-to-comply provision would not qualify for a "within the scope" determination by EPA. Rather, they would be subject to a full analysis under Clean Air Act Section 209(b) because the result would be a much more stringent California program than was otherwise intended. Where a CARB regulatory amendment is "geared toward increasing the underlying stringency of the program," or "add[s] a new pollutant or other emission standard," then that "would require full waiver consideration" under the standard set forth in Section 209(b). *See* In the Matter of California State Motor Vehicle Pollution Control Standards; Amendments to California Zero Emission Vehicle (ZEV) Regulation; 2003-2008 Model Years Within the Scope Request; 2007 and Subsequent Model Years Waiver Request, Decision Document, at 20 (December 21, 2006). Removing or altering the deemed-to-comply provision is "geared toward increasing the underlying stringency of the program" because: (a) having to comply with a California-specific GHG program is more stringent—and would require greater fleet-wide GHG reductions in California—than the California regulation with the "deemed to comply" provision, and (b) California's GHG emissions regulations do not include some of the programmatic elements that the federal program has, which provide manufacturers with alternate compliance pathways and regulatory tools, thus easing the regulatory burden.

[120] *See, e.g., Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246 (2004) (holding that air quality management district requirements that fleet owners purchase a certain number of ZEVs is subject to Clean Air Act preemption); *American Auto. Mfrs. Ass'n v. Massachusetts Dep't of Envtl. Protection*, 163 F.3d 74 (1st Cir. 1998) (finding that state zero emission vehicle mandates are presumptively preempted by the Clean Air Act); *American*

waivers for its ZEV regulations dating back to 1993 before the development of its GHG emission program.[121]

Although the ZEV mandate presents significant compliance challenges in California, Global Automakers does not believe that those challenges are so insurmountable as to invalidate its waiver under Section 209 of the CAA, at least as to the implementation of ZEV in California. California's market is in many respects unique in its adoption of electric-drive vehicles, and in the overall vehicle market that makes it more susceptible to EV adoption. For instance, the car-truck split in California is 47%/53% (as compared to 33%/67% nationwide) and the all-wheel drive (AWD) and two-wheel drive (2WD) split in California is 27%/73% (as compared to 45%/55% nationwide) (See Table 2 on page A-59 below). Moreover, California has made unparalleled investments of hundreds of millions of dollars in consumer incentives, infrastructure and consumer awareness programs. As a result, the percent of new EV sales in California for the first half of 2018 was over six percent, while the nationwide average still hovers at 1.5 percent (with half of those sales attributable to California).[122]

However, for reasons we have articulated in a still-pending motion for reconsideration, which is referenced in the NPRM,[123] EPA needs to assess ZEV feasibility in Section 177 States. EPA has previously taken the position that it is without authority to do so, but we view that as reading Section 209(b) too narrowly. Given the fact that states adopting a California emission standard under CAA Section 177 must take the California standards as they are, EPA can and should determine whether the ZEV mandate is feasible in those states. In the next section of these comments, we discuss how EPA and NHTSA should consider ways of addressing ZEVs in the context of a national program, which would go a long way to alleviating compliance problems in the Northeast states. If that is not possible, and in the event that EPA determines that the ZEV mandate is simply not feasible in the Northeast states, then the agency should take appropriate action on the waiver.

IX. The Federal Agencies Should Maintain One National Program Through a Negotiated Outcome with California

Rather than assert EPCA preemption or reconsider California's Clean Air Act waiver, EPA and NHTSA should maintain One National Program through a negotiated outcome with California. This would provide automakers with the long-term certainty they need to produce vehicles for a single national market. Global Automakers believes that the elements of a final rule discussed above—ensuring meaningful year-over-year improvements to fuel economy and GHG emissions performance combined with flexibilities that encourage investments in fuel-saving technologies—could form the framework for such a negotiated outcome.

Auto. Mfrs. Ass'n v. Cahill, 152 F.3d 196 (2d Cir. 1998) (holding that ZEV mandates adopted by the State of New York were preempted by the Clean Air Act).

[121] *See* California State Motor Vehicle Pollution Control Standards; Waiver of Federal Preemption, 58 Fed. Reg. 4166 (Jan. 13, 1993).

[122] Source: IHS Global Vehicle Registration Data for January through June 2018.

[123] *See* 83 Fed. Reg. at 43,242 n.562.

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A. A Bifurcated System Makes Fleet Management More Difficult

It is critical that the agencies consider the economic impact of a bifurcated system—i.e., having one standard in roughly 60% of the country and a stricter standard in at least 40% of the country.[124] This would mean that automakers would have fewer vehicles in each fleet over which they can amortize fuel economy technology. For example, fewer engine platforms are needed if standards are roughly similar, as this article discusses when considering the effects of a federal standard less stringent that a California standard:

> For example, making the product innovations required to meet increasingly stringent standards in the California-led market may require investing in engineers to redesign products using lighter-weight materials; a bifurcated standard would mean these firms would have many fewer vehicles over which to amortize these fixed costs. Similarly, U.S. firms could compete with suppliers from abroad in the stagnant portion of the market by automating processes, but again would have many fewer vehicles over which to spread costs. Thus, scale economies in fuel-efficient technologies would benefit overseas suppliers, particularly those competing in European and Asian markets with more stringent standards and higher fuel prices.[125]

As discussed above, a unified national program that includes California and that allows for nationwide compliance is the most efficient framework for automakers. EPA and NHTSA should therefore continue their engagement with California and seek a compromise solution that achieves the policy goals of all three agencies.

B. The Federal Agencies Should Consider How to Address ZEV Requirements in the Context of a National Program

In addition to finding a nationwide solution to fuel economy and GHG emission regulations, we encourage EPA and NHTSA to all address electric vehicles in the context of the national program. California's ZEV mandate is a significant obstacle to harmonization, because it forces automakers to use one of the most expensive technologies – electric-drive technology – at a greater rate than would be required to meet the GHG regulations alone.[126] In addition, it has been particularly challenging to ramp up sales of electric vehicles in the northeastern ZEV states, which are far behind California in developing infrastructure, offering incentives, and otherwise developing their electric vehicle markets despite some increased efforts over that past couple of years.

Automakers are now offering over 40 models of electric vehicles, which include plug-in electric and fuel cell electric vehicles, and are estimated, based on automakers' public announcements, to more than

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[124] 83 Fed. Reg. at 43208-209.

[125] https://www.brookings.edu/blog/the-avenue/2018/07/02/why-undermining-fuel-efficiency-standards-would-harm-the-us-auto-industry/. July 2, 2018. (accessed 14 September 2018).

[126] Customer acceptance remains one of the biggest barriers, and studies have shown that incentives, infrastructure and consumer education programs are all needed to address this concern.

double offerings in the next five years.[127] Automaker investment in this technology will continue to increase – estimated on the order of $100 billion by 2025; this investment should be encouraged in the U.S. and not lost to other countries. Automakers' progress related to electrification also represents significant investment in product development, marketing and advertising, dealer and service training, working with states and other stakeholders to build infrastructure, and looking for new and creative ways to increase consumer education. Further, in the past year, automakers jointly launched a consumer awareness campaign with several northeastern states, "Drive Change. Drive Electric.," aimed at increasing customer awareness about the many benefits these vehicles offer to help address overarching concerns with customer acceptance of electric vehicles in the northeastern states.

Automakers are not only offering a wider selection of electric vehicles, but in a wider range of prices as well. Due to manufacturer and federal incentives, and some state incentives, electric vehicles are more affordable than ever. Automakers are discounting electric-drive vehicles in an effort to enhance sales.[128] Leases on electric-drive vehicles can start at just $149/month.[129] Although studies have cited the ability of electric vehicles to reach cost parity with gasoline-fueled vehicles by 2025, there are still many unknowns regarding price, as well as customer acceptance and infrastructure development that can be partially managed through incentives and smart federal policies that promote innovation.[130]

As more electric vehicles come to market, increased efforts are needed to support the market—*e.g.*, offering vehicle incentives and ensuring funding for incentives, growing charging infrastructure, building out hydrogen refueling infrastructure, and addressing ongoing barriers (e.g., restrictions on hydrogen vehicles on bridges and in tunnels). This is especially true in states that mandate sales of electric vehicles and have committed to supporting growth of this market.

States where these vehicles are succeeding the most have a confluence of programs that are building up electric chargers and hydrogen refueling stations, providing vehicle incentives, working to increase customer awareness, devoting state and agency resources to help create the right market conditions, have necessary legislative and gubernatorial support for funding, and more.

For instance, California has taken a significant step in this regard with Governor Brown's Executive Order B-48-18, which increases funding for California's Clean Vehicle Rebate Project and building out the infrastructure for electric charging and hydrogen refueling stations. It is thus no surprise that California

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[127] As of September 2018, three of the electric vehicles offered for sale are fuel cell electric vehicles (FCEVs). FCEVs are reliant on the availability of hydrogen refueling stations in order to meet customers' daily driving needs. As a result, to date, FCEVs have been almost solely available in California, a state that is committing annual funding to growing refueling infrastructure. We encourage all ZEV states to commit funding to building hydrogen refueling stations, and further, we commend states, like Pennsylvania, who are offering potential grants for hydrogen refueling stations using funds from the VW Appendix D settlements.

[128] https://www.bloomberg.com/news/articles/2018-05-14/how-to-lease-a-50-000-bmw-for-less-than-a-subway-pass.

[129] https://www.carsdirect.com/deals-articles/best-green-car-deals.

[130] https://www.bloomberg.com/news/articles/2018-03-22/electric-cars-may-be-cheaper-than-gas-guzzlers-in-seven-years.

has led the market for all electric vehicles, including plug-in hybrid, battery and fuel cell electric vehicles, through hundreds of millions of dollars of state investment in consumer purchase incentives; electric charging and hydrogen refueling infrastructure; state policy development and market-building mechanisms; addressing codes, standards and permitting; agency implementation and planning resources; and tireless efforts to find new ways to encourage consumers to go electric. This investment has paid off, resulting in California's new electric vehicle market share exceeding six percent, when the rest of the nation's new electric vehicles sales barely exceed one percent.

Yet there are significant differences between the California vehicle market and that in other states that impact consumer acceptance of ZEVs. For example, California's new vehicle market remains car dominant, when the rest of the nation is moving to trucks; has a lower amount of AWD vehicles; and has the highest percent of electric vehicles compared to Section 177 States, as shown in Table 2.

Table 2: Comparison of New Vehicle Sales in California, Section 177, and the United States

Jurisdiction	New Electric-Drive Vehicle Market Share[131]	Percent Sales of AWD v. 2WD Vehicles (%)	Percent of New Car v. Truck Sales (%)
California	**10.2%**	**27/73**	**47/53**
Western S177 States	**6.0%**	**68/32**	**30/70**
Colorado	3.7%	75/25	26/74
Oregon	6.3%	65/35	30/70
Washington	8.1%	64/36	34/66
Eastern S177 States	**2.7%**	**67/33**	**31/69**
Connecticut	3.2%	74/26	33/67
District of Columbia	6.3%	49/51	47/53
Delaware	2.9%	55/45	34/66
Massachusetts	3.5%	21/29	31/69
Maryland	3.6%	51/49	37/63
Maine	3.1%	78/22	22/78
New Jersey	2.2%	64/36	36/64
New York	2.6%	71/29	29/71
Pennsylvania	2.3%	68/32	30/70
Rhode Island	2.4%	68/32	22/67
Vermont	3.8%	80/20	23/77
All 50 States	**3.4%**	**45/55**	**33/67**

Source: IHS Global Vehicle Registration Data for January through June 2018.

Thus, since the ZEV mandate is designed for California's market and market conditions, this can be problematic for other states that must adopt the mandate in whole under Section 177 of the CAA, regardless of whether the mandate is appropriate or feasible for that particular state's vehicle market.[132]

[131] "Electric-drive vehicles" includes hybrid electric, plug-in electric, and fuel cell electric vehicles.

[132] Similarly, Global Automakers has concerns about whether California's GHG standards, which are designed for California's conditions are feasible and/or can be implemented without additional amendments to account for a

There are likely better ways to address the mandate and bring some certainty to automakers that the U.S. as a whole wants to be a technology leader. Some ways to do this may include:

- The CAFE and GHG regulations should provide advanced vehicle technology multipliers and 0 g/mile upstream emissions, without limit, for battery electric, plug-in hybrid, and fuel cell electric vehicles. These incentives are important market signals and regulatory mechanisms to encourage investment in this higher cost technology, as we explain in other sections of this document. They also allow manufacturers to earn credits for placing electric vehicles in markets best suited to these vehicles.
- There should be a process whereby California and EPA, along with states, evaluate the feasibility of the ZEV mandate in the other ZEV states, and if challenges are identified, work to implement a California regulation with sufficient flexibility for the mandate's implementation in the other states.
- There may be additional policies, under the construct of a national agreement, that can help temper the constraints of the mandate. This may include finding ways to continue or expand pooling, i.e. creating a single pool of all ZEV states, or ensuring that the impact of the mandate does not grow beyond the approximately 30 percent of the new vehicle market that is currently covered by the ZEV mandate.

It is our hope that there is a robust dialogue between the federal and state agencies about the best ways to address the industry's shift to electrification under the umbrella of a unified national program.

X. Small Volume Manufacturers

The proposal does not address changes to the NHTSA or EPA regulations regarding exemptions from standards for small volume manufacturers (SVMs). However, the current mechanisms for processing SVM exemptions are not effectively functioning, and fundamental revisions are needed. The agencies have numerous pending petitions from SVMs, several of them for multiple years in the past. In the final rule establishing MY 2017-2025 standards, EPA stated that it "expects" that rulemakings on SVM standards would "take about 12 months," but this estimate has proven to be overly optimistic.[133] No new changes in vehicle design or performance are, of course, now possible to meet standards for past model years. However, these open petitions create contingent liabilities in the accounting systems of the SVMs, creating unjustified harm to the companies.

The unique situations facing SVMs under the CAFE and GHG programs are, we believe, well understood by the agencies:

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variety of fleet mixes, product plans, and customer preferences amongst states following California's regulations. See https://www.arb.ca.gov/lists/com-attach/29-leviii18-Wz5RLwRxB3oEXVU2.pdf.

[133] 77 Fed. Reg. 62791, October 15, 2012.

- The ability of SVMs to meet the generally-applicable GHG and CAFE standards is restricted due to their relatively long product redesign cycles, limited resources, and narrow product lines in relation to the larger manufacturers.
- Moreover, the market for the vehicles produced by the SVMs is keyed to luxury and high-performance attributes, which do not generally align well with high levels of fuel efficiency and low carbon emissions.
- Given the small number of vehicles involved and traditionally small number of miles traveled each year by these vehicles, the total energy and emissions effects associated with the SVM fleet are negligibly small.

By contrast, the staff resource and administrative burdens associated with the SVM process, for both the agencies and the SVMs, are disproportionately large. Analytic processes followed by full rulemaking proceedings are potentially required for each exemption petition. We are sympathetic to the situations facing NHTSA and EPA in dealing with SVM standards. When considering the range of responsibilities assigned by Congress to the agencies, it is understandable that processing SVM petitions would be assigned a lower priority. Nevertheless, the backlog of pending petitions creates significant financial burdens for the SVMs, as noted above. A more effective approach for responding to petitions in a timely manner is necessary.

In petitioning for standard exemptions and alternative standards, SVMs must navigate separate administrative processes at NHTSA[134] and EPA.[135] We are now faced with the prospect of a third process in the state of California, as a result of the recent "deemed to comply" rulemaking.[136] Having three separate government agencies undertaking essentially the same regulatory task, with overlapping requirements results in administrative waste, potentially conflicting results, and negligible resulting environmental benefits; three separate processes would be a completely irrational outcome for small businesses.

Shortly after Congress established the CAFE program in 1975, it directed DOT to reduce administrative burdens associated with SVM petitions. The Conference Report on this legislation states:

> In addition, the conferees agreed to require the Secretary to review the exemption and standard setting procedure to further reduce administrative burdens and to notify the Congress of his findings...The conferees emphasize that in establishing alternate fuel economy standards, the Secretary of Transportation may establish a single standard for the duration of the exemption.[137]

Thus, Congress was aware of the burdens associated with small businesses under the SVM process and directed DOT to address the matter. The guidance and authority provided by Congress regarding CAFE should be applicable to GHG standards as well, given the closely related elements of the programs.

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[134] 49 CFR Part 525.
[135] 40 CFR 86.1818-12(g).
[136] See https://www.arb.ca.gov/regact/2018/leviii2018/leviii2018.htm.
[137] House of Representatives report No. 96-1402, 96th Cong. 2d Sess., September 25, 1980.

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Further reduction in burdens for the agencies would be to harmonize the definition for SVMs between EPA and NHTSA. The two agencies define the fleet of vehicles differently based upon sales; however, only the EPA subjects these volumes to the US:

> **(g)** Alternative fleet average standards for manufacturers with limited U.S. sales.
>
> ...the terms "sales" and "sold" as used in this paragraph (g) shall mean vehicles produced for U.S. sale, where "U.S." means the states and territories of the United States. [...] To be eligible for alternative standards established under this paragraph (g), the manufacturer's average sales for the three most recent consecutive model years must remain below 5,000 [...][138]

This definition identifies the sales of the vehicles that are intended for the US market only and not, as NHTSA stipulates, a manufacturing level for the globe.[139] This distinction is critical because vehicles for the US market are specially designed to meet our stringent vehicle safety standards. This means that SVMs must consider the unique nature of the US market when considering selling a vehicle. EPA sets its determination of SVM by a sales figure.

The method of defining a SVM through sales seems justified as vehicle sales translate to actual vehicles on the road. Just because a vehicle is made in a model it does not require that it be sold or used during that same model year. In considering vehicles' impact on the dynamics of the fleet from a safety and environmental perspective it is important to consider the actual vehicles on the road. Using the EPA definition considers these actual vehicles on the road in this country and allows for the definition of SVM to be related to local annual sales. Global Automakers and our members would ask that the agencies use this rulemaking to harmonize the SVM definition using the sales metric.

Global Automakers and its SVM members would like to work with NHTSA and EPA, as well as California, to rationalize the SVM standard-setting process. We recommend that the agencies pursue this rationalization process in two steps. First, the agencies should undertake a "clean-up" proceeding to address past and current model year petitions, for which alternative standards can have no effect on vehicle designs. Second, we urge the agencies to harmonize their processes for the future, to enable a single application by SVMs for both agencies, culminating in the issuance of harmonized standards issued by each agency in advance of the applicable model years (i.e., standards of equivalent stringency, enabling manufacturers to meet both agencies' requirements with a single compliance plan), and ultimately "deemed-to-comply" by California. In other words, we are urging a process similar to the National Program for the larger manufacturers. This undertaking would be consistent with Trump Administration regulatory reform efforts and would provide much needed long-term reductions in administrative burden for the agencies, as well as the SVMs, with no associated impact on fuel efficiency

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[138] U.S. EPA. 40 CFR §86.1818-12 *Greenhouse gas emission standards for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles*.

[139] NHTSA. 49 CFR §525.5. States that any manufacturer that manufactures 10,000 or more passenger vehicles from the second model year affected forward is ineligible for an exemption.

improvements. The harmonized standards should take full advantage of statutory authority allowing a single standard and proceeding to cover multiple SVMs and multiple model years.

XI. Conclusion

In conclusion, we appreciate that the agencies have taken the time to review the regulation and that they are continuing to work, through a transparent rulemaking process, to determine a path to address ongoing fuel efficiency improvements. As we have expressed in these comments, Global Automakers and our members believe that the optimal outcome in a final rulemaking would yield meaningful increases each year and feasible standards that encourage ongoing innovation and investment in the auto industry, result in ongoing environmental benefits, and support a continuation of One National Program with California.

The agencies, through this process should continue the work necessary to engage all stakeholders to achieve these important objectives. Doing so will help keep the U.S. auto industry competitive in a worldwide market that is transitioning to lower-carbon transportation, continue investment in the U.S. auto manufacturing sector, and help the auto industry thrive under a level regulatory playing field that allows for a smart approach to competition and efficiency improvements.

Further, the regulations should provide automakers options for cost-effective compliance management and allow them to determine the best approaches to comply given diverse product mixes. These include credits for early compliance, which help smooth compliance over multiple years and recognize efforts to invest early in fuel-saving technologies; credits for advanced technologies to encourage investment in more expensive technologies now in advance of future regulatory needs; real world emissions recognition of off-cycle technologies and A/C efficiency improvements; and inclusion of non-CO_2 GHG emissions under EPA's program to provide a consistent and flexible national policy for GHG improvements, rather than resulting in separate state actions. The programmatic tools and flexibilities should be retained, improved, and strengthened; this is a chance for the agencies to make policies designed under the previous rulemaking work more efficiently and as intended. These measures provide cost-effective options for achieving the fuel efficiency targets, encouraging the country's leadership when it comes to advanced technologies, and supporting efforts to provide a "common sense" approach to making the most fuel-efficient fleet.

Finally, working with California to ensure the continuation of "One National Program" is a key element that harmonizes separate federal and state regulatory programs and allows manufacturers to comply by producing a single fleet of vehicles. Any situation where there is disharmonization between the programs would create a patchwork of unworkable standards that would skew vehicle sales and production and have a detrimental effect on industry and consumers. It would also result in a high level of uncertainty, during which protracted and costly litigation would occur. The industry needs a coordinated set of standards between the NHTSA, EPA and CARB so manufacturers can allocate their resources to new and innovative technologies, instead of efforts to comply with inconsistent standards with mixed policy signals.

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Global Automakers appreciates being able to provide detailed input on the proposed SAFE Vehicle NPRM in recognition that there are a number of factors the agencies must fully examine to determine the appropriate stringency of the standards out through MY 2026. We remain available to agencies to answer any questions and provide additional information.

Appendix A

October 26, 2018

VIA ELECTRONIC SUBMISSION

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Attn: Docket No. NHTSA-2018-0067

Docket No. EPA-HQ-OAR-2018-0283

Re: Comments of Environmental Defense Fund on National Highway Traffic Safety Administration's and Environmental Protection Agency's Proposed Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986 (Aug. 24, 2018)

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I. Contrary to NHTSA's Claims, the Proposed Roll Back Will Actually Worsen Vehicle Safety

A. Summary

NHTSA[1] claims that rolling back the current Clean Car Standards will reduce fatalities by between 12,700 (for the CAFE standards) and 15,700 (for the GHG standards) under NHTSA's "model year" analyses. The agencies imply that these purported safety benefits are due to safer vehicle designs under the roll back, relative to the current standards, and to faster fleet turnover where there will be more newer, safer cars and fewer older, less safe cars under the roll back. However, nothing could be further from the truth. The agencies have severely mischaracterized the safety impacts of the proposed rule and misled the public by naming the rulemaking "The Safer Affordable Fuel-Efficient Vehicles Rule, or SAFE rule."

NHTSA's safety messaging is deceptive; its projected fatality reductions are demonstrably false; and the agency has utterly failed to explain its departure from years of established practice for fuel efficiency standards and the safety impacts of those standards. Accordingly, NHTSA's reliance on these claims as a basis for the rollback is manifestly arbitrary, capricious, and unlawful.

In fact, 97-99 percent of NHTSA's projected fatality reductions are simply due to assumptions about how people will change their driving habits under the roll back relative to the Clean Car Standards – driving new cars less based on an exaggerated rebound effect and driving used cars less as well due to a new and deeply flawed scrappage model. These assumed changes in vehicle miles traveled ("VMT") have nothing to do with vehicle design or safety. NHTSA's reliance on rebound and scrappage rates and the conclusions it draws with regard to associated fatalities are unsound for at least three independent reasons.

First, because both the rebound and scrappage assumptions involve consumer behavioral changes not directly linked to the standards, their impacts should not be considered attributable to the standards. NHTSA concedes as much with respect to vehicle rebound effects; under the same reasoning, impacts from changes in VMT due to scrappage should not be considered attributable to the standards either.

[1] EDF's comments apply to both NHTSA and EPA and to both proposed rules. However, in this section, EDF will generally refer to NHTSA, rather than the agencies or NHTSA and EPA jointly, both for simplicity and for accuracy, as it is well known that NHTSA unilaterally carried out the NPRM analysis without any EPA staff technical input whatsoever. For example, in an EPA memorandum to the Office of Management and Budget dated July 12, 2018, a top EPA staffer stated that "The Preliminary RIA is based on the independent technical assessment from DOT-NHTSA, and the document should reflect appropriately who has authored the Preliminary RIA. EPA's name and logo should be removed from the DOT-NHTSA Preliminary Regulatory Impact Analysis." A recently retired EPA staffer who worked on the Clean Car Standards has cited: "DOT's refusal to have a single technical working meeting with EPA staff since the 2016 election. https://thehill.com/opinion/energy-environment/400051-ignore-the-facts-only-way-to-justify-rollback-of-epas-greenhouse.

Second, in its analysis of the safety impacts of the roll back, NHTSA now completely ignores (and arbitrarily departs from) the concept of fatality rate, or fatalities per mile, the metric that NHTSA itself has long used to evaluate the safety of its programs. Mobility is a societal good, and we contend that it is not NHTSA's job to try to convince people to drive their cars less. People will choose how much they need to drive, and however much driving they do, NHTSA's job is to decrease the fatality rate per mile, not to decrease the number of miles people drive. If NHTSA had evaluated safety impacts using changes in fatality rate (even under its flawed analysis), the agency would find that the current standards have no meaningful impact on safety.

Finally, the absolute numbers NHTSA presents are the product of deeply flawed and irrational economics and modeling assumptions. NHTSA's own NPRM model[2] runs show that approximately half of its projected reduced fatalities under the roll back's model year analysis (covering the lifetimes of new vehicles sold through MY 2029) are due to the absurd scrappage modeling assumption that owners of used cars, completely unaffected by new car standards, will drive nearly a trillion miles less under the roll back than under the current standards. This erroneous modeling assumption alone completely undermines NHTSA's safety analysis. The other large portion of its projected reduction in fatalities is due to the agency's use of a wildly exaggerated rebound effect, which also assumes that owners of new cars will drive nearly another trillion miles less under the proposal's model year analysis. Indeed, EDF's own modeling, which corrects several key deficiencies in NHTSA's analysis, shows a small net safety *benefit* associated with the current standards, compared to over 10,000 fatalities in NHTSA's flawed analysis.

Since 97-99 percent of the reduced fatalities are due to the purported reductions in VMT we discuss above, only a miniscule 1-3 percent can be due to vehicle design and/or "fleet turnover," illustrating the deception behind NHTSA's safety messaging. Even this tiny 1-3 percent of fatalities is wrong, however, as it is based on several biased and unsupportable assumptions all designed to make the current standards look as unsafe as possible. Notably, the agencies concede that the analysis shows that mass reduction (the only impact they assert that might impact vehicle design) is statistically insignificant. Our modeling, which corrects several of the key errors in NHTSA's analysis, shows that the current standards will have net safety benefits.

Even taking NHTSA's biased modeling assumptions at face value (such as the agency's view that automakers will reduce weight from larger and smaller vehicles without consideration of the safety implications), the remaining 1-3 percent of fatalities accounts for about 5-30 fatalities per year. Given that there are about 37,000 annual highway fatalities in the U.S., 5-30 fatalities per year represents 0.01-0.08 percent of all highway fatalities, meaning over 99.9 percent of fatalities are caused by unrelated factors. Even using NHTSA's own biased analytical assumptions, the

[2] In this section, EDF refers to the NHTSA NPRM model. In the NPRM, NHTSA refers to its CAFE model, but that is confusing since it uses its model for both CAFE and GHG analyses. In the past, NHTSA has called it the Volpe model, since the model was developed, and is maintained, by the Volpe National Transportation Systems Center. While we refer to the NHTSA NPRM model for simplicity, the model is comprised of many individual modules on specific topics, which are sometimes integrated with other modules and sometimes are not integrated with other modules.

resulting reduction in fatalities estimated in the proposed rule are so minimal as to have zero statistical significance.[3]

EDF has carried out a series of modified safety runs with NHTSA's NPRM model for the model year GHG analysis, with a more defensible set of modeling assumptions, and these runs show that the roll back would actually lead to a slightly increased fatality rate. EDF's conclusion here is consistent with what NHTSA itself repeatedly concluded, in multiple rulemakings and technical assessments, over the seven-year period from 2010-2016: that the current standards would either be neutral or positive in terms of vehicle safety. Contrary to NHTSA's deceptive claims, if anything, rolling back the current Clean Car Standards for eight years will slightly worsen vehicle safety.

The justification at the foundation of this roll back is unsound both in premise – the reliance on absolute fatality figures that are dependent on VMT and not attributable to the policy, rather than on a fatality rate associated with the policy – and in execution – the models used to achieve these fatality figures are beset with flaws and biases. Moreover, the agency has utterly failed to reconcile either its methodology or its conclusions with the record supporting the current standards. These flaws render the rollback fundamentally arbitrary, capricious, and unlawful.

Meanwhile, EPA's adoption of the NHTSA analysis and inherent reliance on these safety considerations is wholly unmoored from the agency's Clean Air Act obligations. Section 202 of the Clean Air Act provides that EPA shall consider "if such device, system, or element of design will cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function."[4] The reduced fatalities that the flawed NPRM model projects under the roll back stem entirely from projections of consumer and manufacturer behavior that are far removed from the new vehicle and new engine safety concerns that EPA properly considers under its Clean Air Act obligations.[5]

B. NHTSA's Safety Claims in the NPRM

NHTSA projects that the 8-year preferred alternative roll back of the EPA Clean Car Standards will reduce fatalities by 15,700.[6] Separately, NHTSA projects that the roll back of the CAFE standards would reduce fatalities by 12,700. In fact, the 12,700 reduced fatalities is the single most cited value from NHTSA's technical analysis, featured in the summary paragraph in the

[3] Indeed, NHTSA concedes that these fatalities attributable to vehicle design are statistically insignificant. Preliminary Regulatory Impact Analysis, July 2018, pages 1359-1360.

[4] 42 U.S.C. § 7521(a)(4)(A).

[5] See Joint Coments of Center for Biological Diversity, Conservation Law Foundation, Earthjustice, Environmental Defense Fund, Environmental Law and Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Sierra Club, an Union of Concerned Scientists ("Joint Environmental Comments") for a more detailed discussion of EPA's statutory obligations and constraints with regard to safety considerations.

[6] 83 FR 43352, August 24, 2018. Note that, in other tables, NHTSA shows 15,600 or values between 15,600 and 15,700.

Federal Register notice[7], the only numerical value cited in the safety section of the Overview section of the Federal Register notice[8], and featured in the "by the Numbers" fact sheet released by the Department of Transportation (DOT) and Environmental Protection Agency (EPA) when the Notice of Proposed Rulemaking (NPRM) was released.[9] Similarly, NHTSA and EPA leadership repeatedly claimed that the roll back would lead to safer vehicles.[10] These claims that rolling back the Clean Car Standards will lead to safer vehicle designs or faster and safer fleet turnover are demonstrably false, and, in fact, the opposite is true, as we demonstrate below.

C. Fatality Rate—Not Total Fatalities—is the Longstanding and Appropriate Metric for Evaluating Vehicle Safety

NHTSA typically assesses and reports both total fatalities and fatality rates, i.e., fatalities per mile. But it has always used fatality rate as its metric for evaluating the safety impacts of a regulation. NHTSA stipulates this in its Preliminary Regulatory Impact Analysis when it clearly states: "In this rulemaking document, *'vehicle safety' is defined as societal fatality rates per vehicle mile of travel* (VMT), including fatalities to occupants of all vehicles involved in collisions, plus any pedestrians (emphasis added)."[11] Many NHTSA documents in the literature also focus on fatality rate.[12] There are obvious reasons for doing so.

From a macro-economic perspective, mobility is a societal good as it promotes individual quality-of-life and standard-of-living, as well as national economic development and growth. Accordingly, federal, state, and local governments, and the Department of Transportation (DOT) in particular, encourage mobility through massive public expenditures on roads and other transportation infrastructure. All programs that increase personal mobility while maintaining fatality rates, even when total fatalities increase due to greater vehicle miles traveled, are viewed as positive developments. It is not NHTSA's job to try to convince people to drive their cars less. People will choose how much they need to drive, and however much driving they do, NHTSA's core mission is to decrease the fatality rate per mile. Further, EDF is not aware that DOT has

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[7] 83 FR 42986, August 24, 2018. See also 83 FR 42995, August 24, 2018.
[8] 83 FR 42995, August 24, 2018.
[9] Fact Sheet: MYs 2021-2026 CAFE Proposal – by the Numbers, EPA-420-F-18-901, August 2, 2018, *available at* https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf.
[10] "Trump Administration Unveils Its Plan to Relax Car Pollution Rules," Coral Davenport, New York Times, August 2, 2018.
[11] Preliminary Regulatory Impact Analysis, July 2018, page 1343, footnote 845.
[12] For example, "The Impact of Safety Standards and Behavioral Trends on Motor Vehicle Fatality Rates," DOT HS 810 777, U.S. DOT National Highway Traffic Safety Administration, January 2007" ([following text is in both Abstract and Introduction] "Typically, the metrics the agency uses to set goals are fatality rates based on exposure to risk. This paper describes the process, assumptions, and methods used by the agency to estimate the impact of its safety regulations and behavioral programs on fatality rates, and measures the impact of these programs on those rates."), available at https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/810777v3.pdf. Another of many examples comes from the preamble to the final rule establishing Federal Motor Vehicle Safety Standards for Reduced Stopping Distance Required for Truck Tractors (RIN: 2127-A537) where NHTSA stated "to the extent possible, the agency compares fatal crash involvement rates of vehicle types based upon fatalities per 100 million vehicle miles travelled" (p. 53), posted at https://www.nhtsa.gov/laws-regulations/fmvss.

ever rejected a road construction or maintenance project due to a likely increase in fatalities from greater travel, or that NHTSA has ever projected fatalities associated with DOT funding for such projects, precisely because mobility is a societal good that governments seek to maximize. Indeed, there are many examples of massive governmental expenditures and subsidies related to personal mobility, for example, construction of the trillion-dollar interstate highway system that Americans can access without fees, and similar state and local expenditures to maintain roads.

From a micro-economic perspective, individuals choose how much to drive and they know that, each time they travel, there is a small risk that they will have an accident, and an even smaller risk that they will be killed in an accident. If they choose to drive twice as many miles (e.g., due to a different job location or long family vacation), they understand that the overall probability of a fatality is twice as high as it was when they drove less. Other things being equal, their personal mobility has doubled, their cumulative fatality risk has doubled, but the fatality risk per mile is unchanged. Under a "total fatalities" metric, their safety would be worse. Under a "fatality rate" metric, their safety would be unchanged. Clearly, fatality rate is a more appropriate metric for evaluating safety from an individual perspective.

Finally, from a regulatory perspective, the justification for using fatality rate is also straightforward, as NHTSA recognizes even in places throughout this rulemaking.[13] It would simply make no sense to hold NHTSA responsible if Americans voluntarily choose to drive more (or, alternatively, to credit NHTSA if Americans choose to drive less). No matter how many miles that Americans choose to drive, NHTSA's job is to drive down the fatality rate when feasible and cost effective (we note that this is similar to EPA's vehicle pollution programs, where standards are explicitly expressed in grams per mile rather than total grams or tons). Consider a hypothetical example in which NHTSA successfully reduces the fatality rate by 1% in a given year due to the implementation of a new safety regulation or public education program, but Americans chose to drive 2% more miles in that year. Would the new NHTSA program be considered a safety success because the fatality rate decreased by 1 percent, or would it be considered a safety failure because total fatalities increased by 1 percent? The NHTSA safety program would undoubtedly be considered a success, as otherwise, fatalities would have increased by 2 percent, rather than by just 1 percent.

Incredibly, NHTSA consciously chooses to not provide fatality rate data for the overall safety impacts of the roll back in its Federal Register preamble and Preliminary Regulatory Impact Analysis (yet another instance of the proposal's lack of notice as to critical issues). Doing so would reveal that the proposed roll back would not (as NHTSA has claimed) lead to safer vehicle designs or faster fleet turnover. NHTSA prominently features the fatality rate metric in the Federal Register notice in a background section on safety,[14] but fails to show fatality rate values in any of the scores of tables that purport to summarize safety impacts. For the model year analyses that yield the 12,700 and 15,700 reduced fatalities projections, EDF had to independently run the NHTSA model to generate the absolute fatality and vehicle miles traveled values necessary to calculate fatality rates. NHTSA's failure to include transparent and

[13] See, for example, many references to fatality rate at 83 FR 43137-43143 and in Figures II-5, II-7, II-8, and II-9.
[14] Ibid.

accessible information on fatality rate arbitrarily obscures the true safety impacts of the proposal and reverses the approach the agency has previously taken to assessing safety impacts. This unsupportable reliance on absolute fatalities—as well as the agency's departure from past practice without explanation – as a major justification for the rollback, renders the policy arbitrary and capricious.

D. NHTSA's Own Analysis Refutes Its Deceptive Claim That Rolling Back the Clean Car Standards Will Improve Safety

In order to investigate NHTSA's safety claims in general, and to calculate the impact of the 8-year Clean Car Standards roll back on fatality rates in particular, EDF had to replicate the NHTSA model runs that were featured in the NPRM.[15] The NHTSA analysis projects that fatalities under the roll back's model year analysis will be reduced by 12,700-15,700, and that Americans will drive between 1.5 and 1.8 trillion miles less. EDF has been able to replicate NHTSA's own NPRM model runs for the GHG analysis and has found that 97-99 percent of NHTSA's estimated reduction in fatalities is simply due to NHTSA's projections of reduced VMT and therefore, even using NHTSA's deeply flawed modeling assumptions, the fatality rates under both the current standards and the roll back are essentially unchanged.

[15] See attached report, Richard A. Rykowski, *Review of the Agencies' Technical Analysis Supporting the SAFE Vehicle NPRM* (October 2018) ("Rykowski Report"), for more detailed information about EDF's replication of the NHTSA NPRM model runs and identification of several weaknesses with the NHTSA model. Nevertheless, EDF uses the flawed NHTSA NPRM model as the baseline for both our comments and our recommended model improvements.

Table 1. EDF Replication of NHTSA NPRM Model Runs

Row	NHTSA or EDF Run?	Modeling Scenario	Current Standards			Preferred Alternative			Change—Current Standards to Preferred Alternative		
			Fatalities	VMT (billion miles)	Fatality Rate (per billion miles)	Fatalities	VMT (billion miles)	Fatality Rate (per billion miles)	Fatalities	VMT (billion miles)	Fatality Rate (per billion miles)
1	NHTSA	MY 1977-2029/CAFE[i]	NA	NA	NA	NA	NA	NA	-12,700	-1,471	NA
2	NHTSA	MY 1977-2029/GHG[ii]	NA	NA	NA	NA	NA	NA	-15,680	-1,790	NA
3	EDF	MY 1977-2029/GHG[iii]	492,788	56,836	8.670	477,144	55,048	8.668	-15,644	-1,787	-0.003
4	NHTSA	CY 2017-2050/CAFE[iv]	853,300	104,623	8.156	831,300	101,961	8.153	-22,000	-2,662	-0.003
5	NHTSA	CY 2017-2050/GHG[v]	854,000	104,718	8.155	826,600	101,467	8.146	-27,400	-3,251	-0.009
6	EDF	CY 2017-2050/GHG[vi]	854,188	104,719	8.157	826,665	101,464	8.147	-27,523	-3,255	-0.010

[i] NHTSA reported only changes in fatalities and VMT in Preamble Table VII-88 on page 43,351 and did not report the absolute values necessary to calculate fatality rates. Note that the precise value for reduced fatalities in Table VII-88 is 12,680, this value has been rounded to 12,700 throughout the Preamble and other public documents. EDF has not tried to replicate the NHTSA runs for the CAFE analysis.
[ii] NHTSA reported only changes in fatalities and VMT in Preamble Table VII-89 on page 43352 and did not report the absolute values necessary to calculate fatality rates.
[iii] EDF runs of the NPRM model (for the GHG analysis) released on August 2, 2018 for calendar years 2017 and later. See Rykowski Report for details on EDF runs.
[iv] NHTSA-reported values for individual calendar years in Preliminary Regulatory Impact Analysis Table 11-29 on page 1424, summed by EDF. EDF has not tried to replicate the NHTSA runs for the CAFE analysis.
[v] NHTSA-reported values for individual calendar years in Preliminary Regulatory Impact Analysis Table 11-30 on page 1425, summed by EDF.
[vi] EDF runs of the NPRM model (for the GHG analysis) released on August 2, 2018. See Rykowski Report for details on EDF runs.

Table 1 shows EDF's successful replication of the NHTSA model runs for the GHG analyses. Both in Table 1 and throughout the NHTSA Federal Register preamble and Preliminary Regulatory Impact Analysis (PRIA), there are four base modeling scenarios: the Model Year 1977-2029 CAFE, Model Year 1977-2029 GHG, Calendar Year 2017-2050 CAFE, and Calendar Year 2017-2050 GHG scenarios.[16] EDF has chosen to focus its model replication efforts on the GHG scenarios, but Table 1 also includes data that NHTSA reported for the two CAFE scenarios as well. EDF focused only on the preferred alternative 8-year Clean Car Standards roll back, but the conclusions about the safety impacts associated with the preferred alternative 8-year GHG emissions roll back also apply to the other alternatives that NHTSA considered.

The first three columns in Table 1 simply identify the specific modeling scenario and whether the run was performed by NHTSA or EDF.

The following six columns provide the total values for fatalities, vehicle miles traveled (VMT), and fatality rates, for both the current standards and the agencies' preferred alternative for rolling back the standards.

The final three columns in Table 1 show the changes in the values for the roll back relative to the current standards, i.e., the total value for the preferred alternative minus the total value for the current standards. A negative value means that the total value for the preferred alternative roll back is smaller than the total value for the current standards.

Table 1, Row 1 reflects NHTSA's modeling run for the MY 1977-2029 CAFE analysis. NHTSA only reported the changes in fatalities (-12,700) and VMT (-1,471 billion miles) under the roll back relative to current standards. It is noteworthy that, despite the fact that its NPRM model generates the total values for fatalities and VMT that are necessary to calculate fatality rate, NHTSA chose not to report any of these values. Given the limited time that the agencies were provided for public comment on the proposal, EDF did not have sufficient time to attempt to replicate NHTSA's model runs for the CAFE model year analysis.

Row 2 is NHTSA's run for the MY 1977-2029 GHG analysis. Again, NHTSA only reported the changes in fatalities (-15,680, sometimes rounded to 15,700 elsewhere in this section) and VMT (-1,790 billion miles) and chose not to report the fatality rate or the total values for fatalities and VMT that would allow others to calculate the fatality rate.

Row 3 shows EDF's replication of NHTSA's results for the MY 1977-2029 GHG analysis. EDF's run yields changes in fatalities (-15,644) and VMT (-1,787 billion miles) that are both within 0.2 percent of NHTSA's values. This is excellent agreement and shows that EDF was able to successfully replicate NHTSA's run. EDF then used the total values for both fatalities and

[16] The Model Year analysis accounts for the cumulative impacts over the vehicle lifetimes of all vehicles sold in MY 1977-2029 (while the first year that the standards affect new vehicles is MY 2017, NHTSA includes MY 1977-2016 vehicles to account for its erroneous scrappage module), regardless of the calendar years during which those impacts occur. The Calendar Year analysis simply accounts for impacts in the actual years in which they occur, regardless of the model years of the vehicles involved. Therefore, the results for the two analyses are very different.

VMT to calculate the fatality rate that was not shown in NHTSA's rulemaking documents. Using NHTSA's own biased modeling assumptions, the fatality rate under the current standards is 8.670 fatalities per billion miles, and under the preferred alternative roll back is 8.668 fatalities per billion miles. The change in fatality rate is -0.003 (due to rounding) fatalities per billion miles, which is a 0.03 percent reduction.

Row 4 reflects NHTSA's modeling run for the CY 2017-2050 CAFE analysis. For its calendar year analyses, NHTSA reported (in the PRIA) both the total values and the changes in fatalities and VMT, for each calendar year, which allowed EDF to sum the values for calendar years 2017-2050. The change in fatalities is -22,000, the change in VMT is -2,662 billion miles, and the change in fatality rate is -0.003. This small change in fatality rate represents a -0.04 percent reduction relative to that under the current standards.

Row 5 is NHTSA's run for the CY 2017-2050 GHG analysis. The change in fatalities is -27,400, the change in VMT is -3,251 billion miles, and the change in fatality rate is -0.009. This small change in fatality rate represents a -0.11 percent reduction compared to that under the current standards.

Finally, row 6 shows EDF's replication of NHTSA's results for the CY 2017-2050 GHG analysis. EDF's run yields changes in fatalities (-27,523) and VMT (-3,255 billion miles) that are both within 0.4% of NHTSA's values. This is excellent agreement, particularly since the NHTSA-reported fatality results were rounded to three significant digits. These results show that EDF was able to replicate NHTSA's run. In EDF's run in row 6, the change in fatality rate was -0.010 which represents a -0.12 percent change relative to the current standards.

There are two clear conclusions from Table 1. First, EDF was able to successfully replicate NHTSA's NPRM runs for both the model year and calendar year GHG analyses. Second, the changes in fatality rate between the current standards and preferred alternative roll back for the GHG analysis, even using NHTSA's flawed model and assumptions, are miniscule, ranging from -0.003 fatalities per billion miles (a -0.03 percent reduction) for the model year analysis to -0.010 fatalities per billion miles (a -0.12 percent reduction) for the calendar year analysis. And NHTSA itself has acknowledged that these fatalities are due to mass reduction and are not statistically significant.[17] These negligible changes in fatality rates demonstrate that essentially all the changes in fatalities can be explained by the changes in VMT, which should not be attributed to the standards. In short, NHTSA's own analysis shows that the current standards do not negatively impact vehicle safety.

Table 2 provides additional analysis for the same six runs that were introduced in Table 1 (see Rykowski Report for data for the EDF runs). The first three columns from Table 1 are repeated in Table 2 in order to identify the modeling scenarios and whether the runs were performed by NHTSA or EDF. The fourth ("Fatalities") and sixth ("VMT") columns in Table 2, which show

[17] "None of the estimated effects have 95-percent confidence bounds that exclude zero, and thus are not statistically significant at the 95-percent confidence level. Two [note: out of five] estimated effects are statistically significant at the 85-percent level," Preliminary Regulatory Impact Analysis, July 2018, pages 1359-1360.

the changes in fatalities and VMT going from the current standards to the roll back, are repeated from Table 1. The remaining columns in Table 2 are new and will be explained below.

Table 2. Key Safety Metrics for EDF and NHTSA Runs with NHTSA NPRM Model Assumptions

Row	NHTSA or EDF Run?	Modeling Scenario	Change--Current Standards to Preferred Alternative				Fatalities Due to VMT (%)	Total Non-VMT Fatalities	Total Non-VMT Fatalities Per Year	Fraction of Highway Fatalities (%)
			Fatalities	Fatalities (%)	VMT (billion miles)	VMT (%)				
1	NHTSA	MY 1977-2029/CAFE	-12,700	NA	-1,471	NA	NA	NA	NA	NA
2	NHTSA	MY 1977-2029/GHG	-15,680	NA	-1,790	NA	NA	NA	NA	NA
3	EDF	MY 1977-2029/GHG	-15,644	-3.175%	-1,787	-3.144%	99.0%	-156	-5	-0.01%
4	NHTSA	CY 2017-2050/CAFE	-22,000	-2.578%	-2,662	-2.544%	98.7%	-286	-8	-0.02%
5	NHTSA	CY 2017-2050/GHG	-27,400	-3.208%	-3,251	-3.105%	96.8%	-877	-26	-0.07%
6	EDF	CY 2017-2050/GHG	-27,523	-3.222%	-3,255	-3.108%	96.5%	-963	-28	-0.08%

Table 2, Rows 1 and 2 are shown for consistency, but no new data is presented as NHTSA did not report the total values for fatalities and VMT necessary for additional calculations.

Row 3 shows EDF's model run that replicates NHTSA's results for the MY 1977-2029 GHG analysis. The new fifth column ("Fatalities (%)") shows that the -15,644 fatalities under the roll back reflect a -3.175 percent change in fatalities (based on the total fatalities under both the current standards and preferred alternative roll back shown in Table 1, row 3). The new seventh column ("VMT (%)") shows that the -1,787 billion miles under the roll back represents a -3.144 percent change in VMT (based on the total VMT data shown in Table 1). Dividing the -3.144

percent change in VMT by the -3.175 percent change in fatalities shows that 99.0 percent of the change in fatalities is due to the change in VMT, and this value is shown in the eighth column.[18]

Since 99 percent of the reduced fatalities are explained by the reduced VMT, then only 1 percent of the changed fatalities are due to non-VMT impacts. This value of -156 fatalities[19] is shown in the ninth column ("Total Non-VMT Fatalities Per Year") and the negative value here means that there are fewer projected non-VMT fatalities under the roll back than under the current standards. NHTSA's model year analysis operates over at least 34 calendar years (i.e., calendar years 2017-2050), so the -156 fatalities represents approximately -5 fatalities per year, as shown in the tenth column. NHTSA recently reported that overall motor vehicle fatalities were about 37,000 per year in 2017.[20] Dividing 5 by 37,000 shows that the reduced fatalities represent about -0.01 percent of all annual highway fatalities, or about one out of ten thousand. This is shown in the final column.

Row 4 reflects NHTSA's model run for the CY 2017-2050 CAFE analysis. Here, 98.7 percent of the reduced fatalities under the roll back are due to lower VMT, with about -8 non-VMT-related fatalities under the roll back, representing about -0.02 percent of all annual highway fatalities.

Rows 5 and 6 show that, for the NHTSA and EDF runs for the CY 2017-2050 GHG analysis, about 97 percent of the reduced fatalities are due to the lower VMT under the roll back, and that the remaining non-VMT fatalities are between -25 and -30 per year, representing -0.07 to 0.08 percent of all highway fatalities.

Tables 1 and 2 conclusively show that, even when using NHTSA's biased analytical assumptions, there are essentially no vehicle design or "fleet turnover" safety-related benefits associated with the roll back. Between 97-99 percent of the projected reduced fatalities under the roll back are simply due to lower vehicle miles traveled, and fatality rate is essentially unchanged. The remaining 1-3 percent of the projected reduced fatalities under the roll back, dependent on NHTSA's biased assumptions, represent 5-30 fatalities per year, or 0.01-0.08

[18] EDF confirmed this math with a second, separate approach. Using the data from row 3 of Table 1, multiplying the VMT for the roll back of 55,048 billion miles times the fatality rate under the current standards of 8.670 fatalities per billion miles, yields a value of 477,266 fatalities if the fatality rate had remained unchanged under the preferred alternative. But, as Table 1 shows, the fatality rate decreased very slightly under the preferred alternative, and the total fatalities under the preferred alternative are projected to be 477,144. The change in fatalities due to the change in fatality rate is 477,144 – 477,266 = -122 fatalities, and these -122 additional fatalities represent 0.8 percent of the total change in fatalities of -15,644. Since the change in fatality rate explains 0.8 percent of the change in fatalities, the remaining 99.2 percent would be explained by the change in VMT. EDF believes the slight difference between this 99.2 percent and the 99.0 percent shown in Table 2 is due to rounding. For example, when more significant digits are included in the calculations, the results of this second methodology yield the same 99.0 percent.

[19] We note that this number is smaller than the total number of fatalities that NHTSA attributes to mass reduction for the GHG program (468). NHTSA concedes that the mass reduction analysis is statistically insignificant. That means that, setting the mass reduction numbers aside, the overall fleet fatality rate due to changes in VMT actually improves under the current standards.

[20] 2017 Fatal Motor Vehicle Crashes: Overview, U.S. DOT, National Highway Traffic Safety Administration, DOT HS 812 603, October 2018.

percent of all highway fatalities. This is a drop in the ocean, which NHTSA concedes has zero statistical significance.[21]

Even the remaining tiny 1-3 percent of reduced fatalities is analytically flawed, as this projection is dependent on a series of biased assumptions that make the Clean Car Standards look as unsafe as possible. This topic will be addressed in section G below, in which EDF critiques these assumptions and presents modified runs based on a more defensible, unbiased set of modeling assumptions.

In short, even accepting the soundness of NHTSA's modeling inputs, which we do not, analysis of safety impacts using the appropriate metric – fatality rate – shows that the proposal will not provide any safety benefits and so undermines the agencies' justification for the proposed rollback of the Clean Car standards.

E. NHTSA's Safety Claim is a 180-Degree Reversal of What NHTSA Has Understood and Reported for the Previous Seven Years

For seven years from 2010 through 2016, in multiple rulemakings and technical assessment reports, NHTSA concluded that the impacts of the current standards on vehicle safety were either neutral or beneficial.

The final rulemaking adopting the MY 2012-2016 GHG and fuel economy standards for new passenger vehicles, issued in 2010, provided an extensive analysis and assessment of the potential for fatalities due to the adopted standards. The agencies concluded the safety effects were much lower than previously estimated and "...may be close to zero, or possibly beneficial if mass reduction is carefully undertaken in the future and if mass reduction in the heavier LTVs [light trucks and vans] is greater (in absolute terms) than in passenger cars."[22] The basic assumptions adopted by the agencies were that the footprint standards would discourage compliance by downsizing vehicles, mass reduction would be solely through methods like material substitution that would maintain structural integrity and other aspects of vehicle safety, and that more mass would be reduced in heavier vehicles than lighter ones (specifically by as much as 10 percent for the heaviest light-duty trucks, but only as much as 5 percent for other vehicles). The NHTSA modeling closely matching these assumptions showed a net reduction in fatalities due to the standards.

Analysis supporting the Phase 2 standards in 2012 confirms that automakers do, in fact, apply mass reduction preferentially to heavier vehicles and that this application reduces fatalities. See section F below for further discussion on this point.

In the final rulemaking for the MY 2017-2025 GHG and fuel economy standards for new passenger vehicles, issued two years later in 2012, the agencies updated their crash data set to

[21] Preliminary Regulatory Impact Analysis, July 2018, pages 1359-1360.
[22] 75 FR 25395, May 7, 2010.

reflect newer data (through the 2007 model year). The agencies also evaluated the results of several new third-party assessments of the updated crash data. Some of the findings of the third-party reviewers were that most of the calculated fatality rates attributed to a 100-pound mass reduction were not statistically significant[23], and the impacts were small and "overwhelmed by other known vehicle, driver and crash factors."[24] None the less, NHTSA decided to continue to use an updated statistical analysis of its historical crash data set as its principal basis for determining fatality impacts, rather than concluding that its data were not statistically strong enough to quantify an effect of mass reduction on fatalities. The agencies proceeded with their assessment of feasible GHG and fuel economy standards by applying mass reduction limits to each of the vehicle classes, favoring greater percentage and absolute mass reduction of larger trucks compared to lighter cars. The result was again that when mass reduction is applied to achieve the standards with fleet safety in mind, the result is a small reduction in fatalities.

The National Research Council of the National Academies issued a study in 2015, funded by NHTSA, on fuel economy technologies for light-duty vehicles. With respect to safety and mass reduction that may be used to comply with the adopted standards for MY 2022-2025, the study reported that: "It is the committee's view that mass will be reduced across all vehicle sizes, with proportionately more mass from heavier vehicles. The most current studies that analyze the relationship between vehicle footprint, mass and safety support the argument that removing mass across the fleet in this manner while keeping vehicle footprints constant will have a beneficial effect on societal safety risk."[25]

The next update of the agencies' safety assessment of GHG and fuel economy standards was presented in the draft Technical Assessment Report (TAR) for the EPA Midterm Evaluation, issued in July 2016.[26] Since the previous evaluation of safety, the agencies performed new evaluations of light weighted vehicles, and again updated the statistical evaluation of the most recent crash data to reflect comments received. A quantitative correction to historical crash data was also developed to reflect the safety benefits of future implementation of adopted NHTSA crash safety standards. The agencies adopted a maximum limit of mass reduction in their technology selection models for each vehicle category—20% for light trucks, CUVs and minivans (for example, 1000 pounds maximum allowed reduction for a pickup), 7.5% for small cars (218 pounds), and 10% for medium cars (268 pounds)— following the same principle used in prior analyses that safety is improved when greater mass reduction is applied to heavier vehicles compared to lighter vehicles. The results of NHTSA's modeling found a net reduction of 61 fatalities due to the fuel economy standards over the lifetime of MY 2017-2025 vehicles, whereas EPA calculated a reduction of fatalities of 6-74 over the lifetime of MY 2022-2025

[23] 77 FR 62747, October 15, 2012.
[24] Ibid, page 62750.
[25] Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles, Committee on the Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles, Phase 2, National Research Council of the National Academies, 2015, pages 240-241.
[26] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, Office of Transportation and Air Quality U.S. Environmental Protection Agency, National Highway Traffic Safety Administration U.S. Department of Transportation, and California Air Resources Board, EPA-420-D-16-900, July 2016.

vehicles. This assessment of fatalities was used in the Final Determination issued by EPA in January 2017, in which the EPA "Administrator finds that the existing MY 2022-2025 standards will have no adverse impact on automobile safety."[27]

Two months later, the agencies announced their intent to reconsider the EPA Final Determination, without mentioning safety concerns, and undertook development of a rulemaking to reconsider the adopted GHG standards and augural fuel economy standards.[28]

In this NPRM, even while conceding that their mass reduction findings are not statistically significant, the agencies ignore their previous findings, reached multiple times over the past seven years, that mass reduction can be applied in a manner that has no effect on, or results in a small reduction in, fatalities. Without even acknowledging its past findings, NHTSA rejects its previous findings even after confirming in this proposed rulemaking that NHTSA's newly developed crash simulation modeling of vehicle design concepts for reducing mass revealed similar trends[29] (i.e. fatalities do not increase if mass reduction is preferentially applied to heavier vehicles compared to lighter passenger vehicles). NHTSA and EPA now propose relaxing the adopted and augural standards for 2021 to 2025 based in part on a new finding that mass reduction used to meet the current standards will increase fatalities, rather than decrease or have no net effect on fatalities as they have found many times in the past.[30] This inexplicable departure from a well-established and reasonable modeling assumption with real influence on the chosen policy presents the hallmarks of an arbitrary and capricious action.

Table 3 summarizes the NHTSA/EPA findings, over the past decade, of fleet fatalities due to mass reduction associated with the current standards.

Table 3. Historical NHTSA/EPA Projections of Impact of Mass Reduction per 100 Lbs. on Fatalities

Date	Document	Impact on Fatalities
2010	MY 2012-2016 Standards Final Rule	Unchanged or Decrease
2012	MY 2017-2025 Standards Final Rule	Decrease
2015	NAS Phase 2 Report on Fuel Economy Standards	Decrease
2016	NHTSA/EPA/CARB Draft Technical Assessment Report	Unchanged
2018	MY 2021-2026 NPRM Standards Roll Back	**Increase**

[27] Final Determination of the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards Under the Midterm Evaluation, U.S. Environmental Protection Agency, EPA-420-R-17-001, January 2017.
[28] 82 FR 14671, March 22, 2017.
[29] Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021 – 2026 Passenger Cars and Light Trucks, Chapter 11, page 1340, July 2018.
[30] 83 FR 43117, August 24, 2018, Table II-50.

F. Mass Reduction Does Not Compromise Vehicle Safety

1. Passenger vehicle safety has been improving as fuel economy has increased

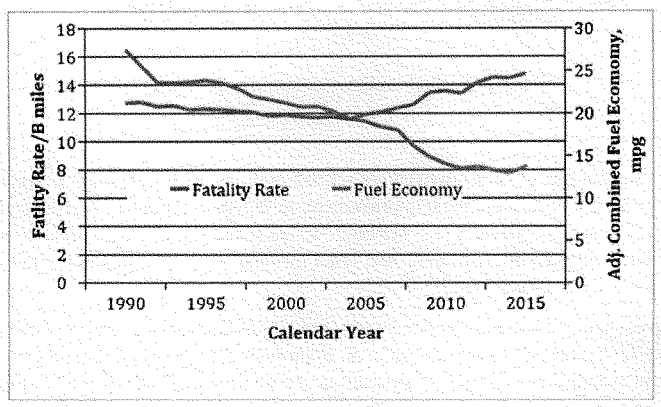
Since 1990, the number of passenger vehicle-related fatalities per billion miles of travel has decreased by almost 50%, a dramatic improvement, as shown in Figure 1. In a 2015 study, NHTSA found that safety devices (e.g. seatbelts, air bags, and stability control) and federal safety standards, reduced drunk driving, and faster medical response following a crash had contributed to a lower fatality rate.[31]

Although passenger vehicle fuel economy remained largely unchanged between 1990 and 2004, it began to rise in 2005 and has continued to do so through 2016, an approximately 17% improvement as indicated in Figure 1. Since 2005, the trend of increasing vehicle weight has stopped, with vehicle weight holding constant, despite increased sales of heavier vehicles such as pickups and CUV/SUVs. Finally, new crash safety tests and standards such as automatic emergency braking, and improved safety information available to consumers, promise additional reductions in fatalities as new safety technologies penetrate the fleet.

These data suggest that fuel economy improvements can be made without increasing fatalities, and while maintaining vehicle weight even in the face of increasing sales of large and more powerful vehicles. We assess this theory in greater detail below.

[31] Kahane, C. J. 2015. "Lives saved by vehicle safety technologies and associated Federal Motor Vehicle Safety Standards, 1960 to 2012 – Passenger cars and LTVs – With reviews of 26 FMVSS and the effectiveness of their associated safety technologies in reducing fatalities, injuries, and crashes." (Report No. DOT HS 812 069). Washington, DC: National Highway Traffic Safety Administration.

Figure 1. Passenger Vehicle Occupant Fatality Rate and Model Year Fuel Economy[32]



2. New, lighter weight vehicles are safe and will continue to improve in safety

New vehicles are required to meet federal vehicle safety standards, which have expanded and become more stringent over the past decades. There are over 60 such standards, the majority of which apply to passenger vehicles.[33] The Insurance Institute for Highway Safety (IIHS) also performs crash tests on new passenger vehicles, and its publicly available rating system and 'Top Safety Picks' influence vehicle manufacturers to improve vehicle safety and may influence vehicle buyers as well.[34] IIHS also analyzes crash data, and periodically reports the driver death rate due to accidents for relatively new vehicles. IIHS' data confirm the improved safety of recent vehicles in protecting the occupants. For example, driver deaths per million vehicle years decreased from 87 for 2002 models to 30 for 2014 models.

Mass reduction of vehicles does not cause an increased risk to the occupants of the lightened vehicle. As reported in a recent Michigan Manufacturing Technology Center (MMTC) review of the safety implications of reducing the mass of passenger vehicles, the crash safety of contemporary automobiles can be assured by use of high-performance materials, energy absorbing vehicle structures and passive occupant protection systems. These elements properly

[32] Fatality rate from https://www.iihs.org/iihs/topics/t/vehicle-size-and-weight/fatalityfacts/passenger-vehicles. Passenger vehicle VMT calculated from https://www.bts.gov/content/us-vehicle-miles. Adjusted combined car and light truck fuel economy from https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGDW.pdf.
[33] https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/fmvss-quickrefguide-hs811439.pdf
[34] See Insurance Institute for Highway Safety, https://www.iihs.org.

applied are weight independent, and a lightweight vehicle can protect its occupants as well as a heavier vehicle[35].

Vehicle manufacturers are actively reducing the mass of their vehicles, and most are using a multi-material approach (lightweight steel, aluminum, reinforced plastics and magnesium) to balance mass reduction, material strength and cost, while maintaining vehicle crash-worthiness. Design efforts have been refined and become more efficient by relying on computer simulation models of vehicle structures and the crash conditions specified in the numerous federal safety standards. These simulation tools have been calibrated and demonstrate approximately 90% correlation between the simulation model and actual vehicle crashes. Important design goals are to provide a deformable crush area in the vehicle that can absorb the collision energy, thus reducing g-forces on the occupants, and protecting the passenger compartment from deformation and intrusions.

Manufacturers do not release their crash simulations to the public. However, Table 4 shows that several government studies have been published that demonstrate that 20% or more mass can be removed from a vehicle without compromising the safety of the occupants. The MMTC study evaluates the crash simulation of reduced mass models of a Toyota Venza CUV, a Honda Accord and a Chevy Silverado pickup truck. All three simulations demonstrate that federal safety standards can be met with properly designed structures that reduce mass by 20% or more.

Table 4. Low Mass Redesigns Including Crash Safety Simulation

MY	Model	Study by	Mass, %	Mass, lbs	Cost, %	Safety Evaluation
2012	Venza	Lotus	31	1162	1	Comparable[1]
2011	Accord	EDAG	21	682	2	Comparable
2011	Silverado	FEV	21	1124	9	Comparable

[1] Comparable to the heavier, production model. In case of the Venza, also comparable to other similar CUVs.

The MMTC study also reports on crash ratings for reduced mass production vehicles. The model coming closest to the mass reduction achieved in the three simulation studies is the 2017 Ford F-150, which was about 700 pounds (14%) lighter (depending on the model) than its previous generation. The aluminum intensive 2017 F-150 achieved a 5 star safety rating. Compared to the 2017 Chevy Silverado, also a 5 star rated truck, the 2017 Ford-150 weighs about 450 pounds less, manufacturer recommended price starts at nearly $700 less, and fuel economy is 2 mpg

[35] Modern Vehicle Lightweighting: A Review on Safety of Reduced Weight Vehicles, Gregory Peterson, Michigan Manufacturing Technology Center (MMTC), October, 2018, available at https://consumersunion.org/research/modern-vehicle-lightweighting-a-review-on-safety-of-reduced-weight-vehicles/.

better (for the entry level model). This is a clear and convincing real-world example that significant mass reduction does not reduce the safety of occupants, can be achieved economically, and will improve fuel economy and reduce GHG emissions.

The MMTC study notes that an overall reduction of mass in the fleet, over time, should result in less severe crashes because of the lower kinetic energy involved, especially in two vehicle crashes. Lower mass also contributes to better vehicle dynamic response in emergency situations, which can increase crash avoidance or reduce damage in a crash. These benefits have not been adequately considered in the NPRM analysis.

The MMTC study points out that more mass will be reduced from heavier vehicles than lighter weight vehicles for several reasons. One reason is heavier vehicles offer more opportunity to reduce mass than lighter vehicles. In other words, it is easier to remove 100 pounds from a 5000 pound LTV than from a 3000 pound compact. Second, heavier vehicles generally are more expensive and have higher profit margins, so it is economically possible to apply more expensive mass reducing technologies to a heavier vehicle than a lighter weight vehicle. For example, a well-equipped Chevy Silverado retails for over $56,000 and weighs almost 5000 pounds. The price per pound of vehicle is $11.40. On the other end of the spectrum, a subcompact Chevy Spark retailing for about $13,000 and weighing a little over 2200 pounds has a price per pound of vehicle of $5.81, about half of the Silverado. Thus, there is more opportunity to apply somewhat more expensive mass reduction technologies to larger vehicles without pricing them out of their market sector. This is the path vehicle manufacturers are pursuing.[36]

Finally, the future suggests vehicle fatalities will continue to decline due to advancing technology. NHTSA has already reached agreement with most vehicle manufacturers to equip 2022 models with automatic emergency braking, which IIHS predicts will reduce front-to-rear crashes with injuries by 56%.[37] Blind-spot monitoring is becoming available, and IHSS predicts this detection technology could reduce lane-change crashes involving injuries by 23%. Lane departure warning could avoid injury crashes with objects, sideswipes and head-on crashes by 21%. Focusing NHTSA's efforts on facilitating vehicle adoption of these safety technologies, including autonomous driving, appears to offer more real public safety benefit than grossly relaxing the fuel economy standards based on the erroneous belief that these relaxed standards will improve vehicle safety.

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[36] Drive Aluminum, Automakers Not Planning to Reduce Weight in Small Cars Under Any Regulatory Scenario, available at http://www.drivealuminum.org/wp-content/uploads/2018/08/Mass-Reduction-Chart.pdf.

[37] IIHS, Real-world benefits of crash avoidance technologies (May 2018), available at https://www.iihs.org/media/3b08af57-8257-4630-ba14-3d92d554c2de/mYL9rg/QAs/Automation%20and%20crash%20avoidance/IIHS-real-world-CA-benefits-0518.pdf.

3. NHTSA's method of assessing safety of mass reduction produces statistically insignificant results and should be identified as such

In this subsection and in subsection 4 below, we specifically address NHTSA's erroneous conclusion in the proposed rulemaking that less mass reduction needed to comply with the preferred alternative will reduce 468 fatalities over the lifetime of 1977 to 2029 vehicles (GHG policy alternative), and reduce 160 fatalities in the CAFE policy alternative, compared to the current GHG and augural CAFE standards.[38] We note that other studies point out that NHTSA's underlying analysis of crash data used to estimate fatalities due to mass reduction is not statistically significant, and the calculated fatality results are relatively small and overwhelmed by other vehicle, driver and crash factors. This suggests the mass-related fatality findings in this proposed rulemaking have no meaningful value in establishing policy.

We further identify that for this proposed rulemaking NHTSA has inappropriately changed a critical assumption regarding how mass reduction is safely applied to vehicles. Throughout the past decade, NHTSA has assumed vehicle manufacturers will remove more mass from heavier vehicles and remove less mass from lighter vehicles. This approach to mass reduction has been shown by NHTSA to have no effect or to slightly reduce fatalities from the fleet as a whole (see Section E). However, unique to this proposed rulemaking, NHTSA has revised its prior modeling assumption to allow unfettered application of mass reduction by vehicle manufacturers across all vehicle sizes without consideration of the safety implications. We present information below that vehicle manufacturers have been and will continue to follow a safe approach of reducing more mass from heavier vehicles, contrary to NHTSA's newly revised and unsupported modeling assumption. We have also modified the NHTSA model by returning to NHTSA's historical assumption of safe application of mass reduction, and find the agency's proposed preferred alternative to flatline the standards increases fatality rate by a small amount, compared to the current standards. This is a finding exactly opposite of NHTSA's finding in this proposed rulemaking.

Reducing the mass of a vehicle is an effective and often cost effective means of improving fuel economy and reducing GHG emissions. The fundamental approach used by NHTSA to assess the safety implications of reducing the mass of vehicles in response to more stringent GHG and fuel economy standards is analysis of FARS crash data collected by NHTSA, which has been updated for this proposed rulemaking to include 2004 to 2011 model year vehicles operating in calendar years 2006 to 2012. The basic approach used by NHTSA in prior regulatory assessments, and in the current NPRM, is statistical analysis of historical crash data to determine the percentage change in fatalities per miles driven for a 100-pound decrease in vehicle mass for five different size classes of vehicles, ranging from smaller passenger cars to heavier truck-based light duty trucks. These percent changes are then used in the CAFE and GHG modeling to assess the change in fatalities due to mass reduction needed to comply with different proposed standards.

[38] 83 FR 43114 and 43117, August 24, 2018, Tables II-47 and II-50.

The approach used by NHTSA has been reviewed by several external parties, and the NPRM summarizes the findings and conclusions of many of their reports. However, it is useful to put the NHTSA approach and results into context, using both statements in NHTSA's PRIA and the most recent report by Lawrence Berkeley National Laboratory (LBNL) assessing NHTSA's safety analyses[39]:

- None of the estimated changes in fatality rate due to a 100-pound reduction in mass for the 5 vehicle classes is statistically significant at the 95% confidence level. Only 2 estimated changes (for small cars and heavier light trucks) are statistically significant at an 85% confidence level. The estimated changes for the remaining 3 vehicle classes are not significant (PRIA, pgs. 1359-1340).

- Mass reductions in lighter cars are estimated to lead to increases in fatalities, and mass reductions in heavier light trucks are estimated to lead to decreases in fatalities. "However, NHTSA does not consider this conclusion to be definitive because of the relatively wide confidence bounds in the estimates." (PRIA, pg. 1360).

- Many of the variables in NHTSA's statistical model used to explain fatalities, such as side air bags and electronic stability control, have much higher estimated effects on fatality risk than mass. "The relatively small estimated effects of mass reduction are overwhelmed by these other vehicle, driver, and crash factors." (LBNL Wenzel, pg. iv).

- To better explain which variables (e.g., mass reduction) explain the range in fatality risk, LBNL analyzed 234 individual vehicle models representing nearly 90% of the fatalities in the crash data base, and found the correlation between fatality risk and mass is very low. "These results indicate that, even after accounting for many vehicle, driver, and crash factors, the variation of risk by vehicle model is quite large and unrelated to vehicle weight". (LBNL Wenzel, p. v).

While NHTSA acknowledges these findings (some of which are theirs), the inputs to their model that produce an estimate of changes in fatalities related to vehicles with reduced mass do not reflect the uncertainties described above. As the citations above demonstrate:

- The results of NHTSA's fatality analysis are not statistically significant at levels commonly used in analyses;

- The fatalities estimated are very small compared to other factors (e.g., driver characteristics) that have a much higher effect; and

- Differences in fatality risk between similar vehicle models of similar mass are much greater than the change in fatality risk NHTSA calculates for that vehicle class (such as

[39] One of the most recent is: Assessment of NHTSA's Report "Relationships Between Fatality Risk, Mass and Footprint in Model Year 2004-2011 Passenger Cars and LTVs" (LBNL Phase 1), LBNL-2001137, Tom Wenzel, Lawrence Berkeley National Laboratory, March 2018.

small passenger cars), suggesting individual vehicle design has a much more important and bigger impact on fatality rate than a hundred-pound reduction in mass.

Because NHTSA itself found that the safety impacts associated with mass reductions are statistically insignificant, it was arbitrary for the agency to attribute *any* change in fatalities to mass changes. Indeed, relying on assumptions consistent with those that NHTSA has previously relied on but from which it has now departed without explanation, the safety effects of retaining the standards are positive. Likewise, NHTSA has arbitrarily failed to explain its decision to apply mass reduction equally across the fleet, despite the extensive evidence outlined below that this assumption does not reflect the reality of how automakers achieve compliance.

4. NHTSA's Mass-Reduction Modeling Approach is Wrong

As discussed above, 97-99 percent of NHTSA's predicted reduction in fatalities from the proposed Clean Car Standards roll back is attributable to a projected reduction in vehicle travel, with only 1-3 percent attributable to all other factors including mass reduction technology to reduce GHG emissions and improve fuel economy. This raises the question: Will the technology of mass reduction used to comply with the current GHG and augural CAFE standards reduce vehicle safety, as NHTSA claims? The answer is no.

The primary reason for NHTSA's claim that mass reduction technology will decrease safety can be traced to a new modeling assumption that differs from all previous NHTSA and EPA safety analyses, as shown in Table 3. As discussed in subsection E, NHTSA has always concluded that applying more mass reduction to heavier vehicles such as pickup trucks, and less to lighter cars, results in either no change or a net reduction in fleetwide fatalities. It has embedded the assumption in previous safety analyses that vehicle manufacturers will apply mass reduction technology safely by favoring reductions from heavier vehicles. However, in this NPRM, NHTSA has adopted a new assumption that vehicle manufacturers may apply mass reduction to any size vehicle without regard to the safety implications of their decision.

NHTSA offers no factual evidence to support its new modeling assumption that removes any limits to how mass reduction is applied by vehicle manufacturers to various sizes and classes of vehicles, an assumption contrary to current and projected industry practice. The explanation offered by NHTSA is "the modeling assumed that mass reduction technology was available to all vehicles regardless of net safety impact".[40] We offer rationale and evidence that NHTSA's new modeling assumption is arbitrary and inconsistent with the underlying record evidence as well as an unexplained departure from its previous analyses. The agencies must therefore return to their original modeling assumption that vehicle manufacturers will apply more mass reduction to heavier vehicles than lighter vehicles. As we show below, this will result in a revised finding

[40] Preliminary Regulatory Impact Analysis, July 2018, page 1341.

that mass reduction technology used to comply with the current adopted and augural standards will be safe, and result in a lower fatality rate than the proposed roll back of the standards.

First, we examine how vehicle manufacturers have applied mass reduction since the GHG and fuel economy standards first went into effect, and how they will apply mass reduction over the upcoming years.

As mentioned in subsection E above, the 2015 report from the National Research Council of the National Academies stated "It is the committee's view that mass will be reduced across all vehicle sizes, with proportionately more mass from heavier vehicles."

A recent study from the Aluminum Association confirms the Academies' finding[41]. Examining the aluminum content of new vehicles, a material used to reduce mass, illustrates how mass is being reduced. For example, the Association's study found that the aluminum content of a 2012 light truck was 18% greater than the aluminum content of a passenger car. However, with progressively more stringent GHG and fuel economy standards going into effect, by 2016, aluminum content of light trucks had increased to 45% greater than the aluminum content of cars, indicating preferential mass reduction has been applied to heavier vehicles. The Aluminum Association's assessment of 2020 models, for which designs were locked in at the time of the referenced study, confirms that greater mass reduction in light trucks compared to cars will continue. This trend is consistent with the agencies' original assumption, relied on for safety analyses over the past seven years, that mass reduction will be focused on heavier vehicles such as pickups and SUVs, and does not support NHTSA's new assumption that mass reduction will be used by vehicle manufacturers without consideration of the safety of the fleet as a whole.

Moreover, as the MMTC report discussed above points out, the heavier weight of light trucks provides more opportunity to reduce a specific amount of mass compared to a lighter passenger car, and the higher price of light trucks provides more opportunity to recoup the cost of lower mass components. This logic also supports the trend that vehicle manufacturers are applying more mass reduction to heavier vehicles.

Finally, vehicle manufacturers are aware of how NHTSA measures the impact on fatalities of mass reduction, so it should be expected that vehicle manufacturers have taken and will continue to take into consideration the safety implications of how they apply mass reduction across different size vehicles they produce. Even if NHTSA believes it cannot assure that vehicle manufacturers will act responsibly regarding the impact of their new vehicles on fleet-wide fatalities, it would be relatively simple for NHTSA to require each manufacturer to demonstrate, using NHTSA's fatality calculation methodology, that it has applied mass reduction to its cumulative sales of a model year's vehicles in a manner that will not contribute to a net increase in fatalities. This approach would be similar to how the manufacturers currently demonstrate compliance with the fleet average GHG and fuel economy standards.

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[41] Drive Aluminum, Aluminum Content in North American Light Vehicles 2016 to 2028, Summary Report (July 2017), available at http://www.drivealuminum.org/research-resources/ducker2017/.

To verify our conclusion (and the agencies' prior conclusion) that mass reduction is safe, EDF has run the current NPRM model for the MY 1977-2029 GHG analysis, using NHTSA's unfounded new assumption of unfettered mass reduction among vehicle classes, and compared it to a run with a single change—the more logical and supportable assumption NHTSA has used consistently since the beginning of the decade, which assumes vehicle manufacturers apply more mass reduction to heavier vehicles in consideration of overall fleet safety.

Table 5. Mass Reduction Impact on Fatality Rate for NHTSA NPRM Model Runs for the MY 1977-2029 GHG Analysis

Modeling done by:	Modeling Assumption of How Mass Reduction is Applied	Fatality rate (per billion miles)	
		Current Stds.	Roll Back Stds.
NHTSA	No limits on mass reduction, as used in the NPRM analysis	8.670	8.668
EDF	Greater mass reduction applied to heavier vehicles (NHTSA 2016 TAR)	8.657	8.663

Table 5 illustrates two important findings. First, favoring the use of greater mass reduction on heavier trucks, and less on lighter cars—consistent with how manufacturers have actually applied these reductions—reduces the fatality rate of the fleet for both the current standards and the proposed rollback standards, as expected. This is shown in Table 5 by comparing the top row to the bottom row in either column. Second, and most importantly, the EDF analysis (bottom row) shows that proper use of mass reduction results in a lower fatality rate for the current standards and a higher fatality rate for the proposed rollback standards, which is the opposite of what NHTSA claims in the NPRM (top row). NHTSA should revise its analyses to properly reflect the safe application of mass reduction technologies, consistent with both the actual practice of manufacturers and past agency assumptions—and acknowledge in its final rulemaking that the rollback of current standards will increase the fatality rate.

G. EDF-Modified Runs of NHTSA's Model, with More Defensible Assumptions, Show That the Roll Back Will Slightly Increase the Fatality Rate and Worsen Safety

We showed above that even when using NHTSA's biased analytical assumptions, there are essentially no safety-related benefits under the 8-year Clean Car Standards roll back associated with either vehicle design or "fleet turnover." Between 97-99% of NHTSA's projected reduced fatalities under the roll back are simply due to lower vehicle miles traveled, and fatality rate is essentially unchanged. This leaves 1-3% of the projected reduced fatalities that could be associated with either vehicle design and/or "fleet turnover." This final section examines the underlying assumptions that drive this tiny remaining portion of NHTSA's projected reduced

fatalities and includes EDF-modified safety runs with better alternatives for some of NHTSA's most indefensible assumptions.

Table 6 provides an overview of six key assumptions in the NHTSA NPRM analysis that affect fatalities and fatality rate, the mechanisms by which these assumptions impact NHTSA's results, a qualitative estimate of the magnitude of the relative impacts on NHTSA's projected fatalities and fatality rates, and EDF's treatment of these key assumptions (retaining in some cases, improving in others) in a series of EDF-modified safety runs using NHTSA's NPRM model.

One important point in Table 6 is that every safety-related assumption has a very small impact on fatality rate; i.e., they are all dwarfed by the much larger impacts of rebound and scrappage VMT on total fatalities.

Table 6. Key Assumptions That Affect Safety Metrics in NHTSA NPRM Analysis (from current standards to roll back)

Factor	Assumptions in NHTSA NPRM			EDF-Modified Safety Runs
	Mechanism	Impact on Fatalities	Impact on Fatality Rate	
Rebound	Higher fuel cost per mile = less new car VMT	Very large decrease as the model shows less VMT when driving costs more	Very small increase due to fewer miles by newer vehicles	Runs for 20% (NHTSA), 10% (EDF), and 0% (EDF)
Scrappage	Reduction of used car VMT unrelated to standards or to increase in new car sales	Very large decrease as the model reduces VMT from the fleet	Very small decrease due to fewer miles by older vehicles	Replace with EDF VMT Neutral Through MY 2029
Sales	Slightly higher sales	Small increase as the model adds vehicles and VMT to the fleet	Very small decrease due to more miles by newer vehicles	Keep NHTSA

Car-Truck Share	Higher car share and lower truck share	Small decrease as cars drive less than trucks per agencies' VMT schedules	Unclear, but extremely small	Keep NHTSA
Mass Reduction	Manufacturers oblivious to fleet safety impacts associated with mass reduction	Small decrease	Very small decrease	Replace with NHTSA 2016 TAR

The following six sub-sections will briefly discuss the issues raised in Table 6 and, most important, describe which NHTSA assumptions that EDF retains, and which we replace, in our modified safety runs.

1. Rebound

The concept of the rebound effect is that some consumers will drive more miles when fuel cost per mile decreases, and fewer miles when the fuel cost per mile increases. With respect to the Clean Car Standards, the theory is that standards will yield more efficient new cars that owners will choose to drive more, while the 8-year roll back will result in less efficient new cars that owners will choose to drive less. NHTSA acknowledges that rebound VMT involves consumer choice (and the benefit of increased mobility) and therefore is not properly attributable to the standards. Therefore, it certainly cannot be a justification for a roll back.

NHTSA uses a 20 percent rebound effect assumption in the NPRM. As Table 6 shows, NHTSA's rebound effect has a very large impact on total fatalities under the 8-year Clean Car Standards roll back. As a threshold matter, NHTSA does not include fatalities attributable to the rebound effect in its cost benefit analysis, a concession that such fatalities are not appropriately valued as direct costs of clean car standards and should be disregarded. Elsewhere, NHTSA projects that the rebound effect accounts for 7,300 of the total 15,600, or just under 50 percent, of the projected reduced fatalities under the MY 1977-2029 GHG analysis of the preferred alternative roll back.[42] On the other hand, because the rebound effect also results in approximately 900 billion miles less travel under the roll back[43], the impact of the rebound effect on the overall fatality rate is small. Under the 8-year Clean Car Standards roll back, the rebound effect decreases the proportion of new car VMT-to-used car VMT, and so it is likely that the rebound effect slightly increases the overall fatality rate under the roll back.

[42] 83 FR 43157, August 24, 2018, Table II-77.
[43] 83 FR 43352, August 24, 2018, Table VII-89.

NHTSA's assumed 20 percent rebound value in the NPRM is twice as high as that used by both NHTSA and EPA throughout multiple rulemakings and technical assessment reports during the seven years from 2010 to 2016.[44] It is also twice as high as the value recommended in a recent report by The Analysis Group, a comprehensive review of the economics literature on the rebound effect.[45] An excessively high rebound effect also illustrates a fundamental internal inconsistency within the NHTSA analysis—in its selection of an extremely high rebound effect, NHTSA inherently presumes that consumers base their decisions on how much to drive only on fuel costs/savings and completely ignore the impact of vehicle prices, while in its new vehicle sales module, NHTSA presumes that consumers only consider vehicle prices and completely ignore fuel costs/savings. These irrational assumptions render the agencies' rebound analysis arbitrary and capricious, and an erroneous justification for rolling back the standards. EDF has separately submitted comments jointly with Union of Concerned Scientists addressing NHTSA's errors with regard to the rebound effect.[46] EDF also supports comments submitted by Professor Kenneth Gillingham, critiquing NHTSA's extraordinarily high rebound-effect assumption.

In our EDF-modified runs that will be discussed below, we use three rebound assumptions: 1) the 20% rebound effect that NHTSA uses in the NPRM, 2) the 10% rebound effect that NHTSA and EPA had long used, and which EDF recommends for the final rule, and 3) a 0% rebound to show the impacts on fatalities and fatality rate when both scrappage VMT and rebound VMT are excluded.

2. Scrappage

In a spectacular modeling error, NHTSA assumes that American drivers who own older vehicles, unaffected by the standards, by changes in new sales, or by a new vehicle rebound effect, will voluntarily choose to "stay home" and drive about 900 billion fewer miles under the roll back than they would under the current Clean Car Standards.[47] A small amount of used car VMT would be expected to be displaced by the extra new car VMT due to a slight increase in sales that NHTSA assumes under the roll back, but the agencies have not modeled this connection. The

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[44] 75 FR 25379, May 7, 2010; 77 FR 62716, October 15, 2012; Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, EPA, NHTSA, and CARB, July 2016, page 10-9, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF; Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA, November 2016, page 3-8, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3L4.pdf

[45] Vehicle Fuel-Economy and Air-Pollution Standards: A Literature Review of the Rebound Effect, Analysis Group (June 28, 2018), available at http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/ag_fuel_economy_rebound_effect_june_2018.pdf.

[46] See Comment of Environmental Defense Fund and Union of Concerned Scientists, *Re: Rebound Effect in NHTSA & EPA's Proposed Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks*, 83 Fed. Reg. 42,986, submitted to Docket Nos. NHTSA-2018-0067, EPA-HQ-OAR-2018-0283 (Oct. 26, 2018).

[47] 83 Federal Register 43352, August 24, 2018, Table VII-89.

sales and scrappage models are completely separate. EDF modeling shows that approximately 90 percent of the 900 billion miles lower VMT projected by NHTSA for the used car fleet is "above and beyond" the small reduction in used car VMT needed to offset the higher new car VMT under the roll back compared to the current standards due to slightly higher sales projections.

NHTSA provides no rationale (and there is none) for why overall used car VMT would decrease well beyond the small reduction that might offset the increase in new car VMT due to a slight increase in sales, or why aggregate nationwide VMT would decrease above and beyond the reduction in new car VMT due to the rebound effect. In decades of rulemakings on emissions, fuel economy, and safety, EDF is not aware of any analyst, economist, or public commenter who has even suggested such a possibility, let alone tried to provide a credible rationale. NHTSA admits that the new scrappage module is not linked with the new sales module,[48] and that this lack of integration is almost certainly at the core of this substantial modeling error. It does not appear that there has been any peer review of the results of the NHTSA scrappage module. EDF provides a much more comprehensive critique of NHTSA's scrappage module in subsection I below. EDF also supports the comments submitted by New York University's Institute for Policy Integrity, addressing the fundamental flaws in the agency's scrappage model.

Table 6 shows, as with rebound, that the large decrease in VMT due to NHTSA's scrappage error directly accounts for a large portion of the projected fatalities under the roll back.

NHTSA chose not to explicitly identify the impact of its scrappage assumptions on total fatalities. For example, in one of its key tables, NHTSA groups scrappage with other impacts such as sales and car-truck share under the misleading heading "Sales Impacts" and states that this category accounts for 7,880 of the 15,600 projected reduced fatalities under the MY 1977-2029 GHG analysis.[49] As discussed above, EDF has replicated NHTSA's NPRM runs, and found that nearly all of these 7,880 reduced fatalities are due to the scrappage error. Accordingly, of the total 15,600 reduced fatalities projected by NHTSA, about half are due to rebound VMT reduction and about half are due to scrappage VMT reduction.

Again, as with rebound, the scrappage error only has a small impact on fatality *rate*, and the lower fatalities under the roll back are due to the lower VMT under the roll back. But, this small impact on fatality rate is in the other direction as rebound, and thus the scrappage error, by reducing used car VMT, increases the proportion of new car VMT-to-used (and less safe) car VMT, so the scrappage error slightly decreases the fatality rate under the roll back.

Though the scrappage model is fundamentally flawed, we wanted to make the minimum changes necessary to the NHTSA model and therefore made only incremental adjustments to the model to simply eliminate the large and inexplicable decreases in used-car VMT that the model produces (which we refer to as the "VMT-neutral approach") in an attempt to isolate the impacts this clear error has on NHTSA's safety analysis.

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[48] 83 FR 43099, August 24, 2018.
[49] 83 Federal Register 43157, August 24, 2018, Table II-77.

EDF also made one other adjustment with respect to NHTSA's scrappage assumptions. Even though NHTSA refers to its model-year analysis as covering only model years 2017-2029, NHTSA actually allows its scrappage model to reflect the impact of MY 2030+ vehicles as well, which is inconsistent with its stated intention. EDF corrects this by only accounting for scrappage through MY 2029 vehicles to be consistent with NHTSA's stated intention of analyzing the impacts of standards through MY 2029.

Accordingly, as shown in Table 6, we use the VMT Neutral Through MY 2029 scrappage approach in all the EDF-modified safety runs.

It is important to emphasize that, as shown in Table 2 above, the combination of lower rebound VMT and lower scrappage VMT accounts for 97-99 percent of the reduced fatalities in NHTSA's NPRM model, using NHTSA's own assumptions, and these VMT-related reduced fatalities are not attributable to the roll back. Accordingly, all the remaining safety-related assumptions, combined, only affect the remaining 1-3 percent of fatalities.

3. Sales

Throughout multiple rulemakings and technical assessment reports over the previous seven years, NHTSA and EPA never tried to project the impact of the Clean Car Standards on new vehicle sales. There were two reasons for this: 1) no one has ever developed a consumer choice model for the car market that has been validated, and 2) the impact could go either way, given that the standards would result in higher new vehicle costs, but also higher vehicle fuel economy and therefore lower fuel costs, which would be attractive to vehicle purchasers (especially those financing their vehicle purchase, who would see savings from day one). In fact, in the 2016 TAR, the agencies stated that: "It is difficult, if not impossible, to separate the effects of the standards on vehicle sales and other characteristics from the impacts of macroeconomic or other forces in the auto market."[50] Despite these obvious and fundamental barriers, NHTSA has now included a sales module in its analysis.

NHTSA projects sales impacts based exclusively on changes in new vehicle technology costs. In the case of the roll back, because new vehicle technology costs will be lower, new vehicle sales are projected to rise. This is an incredibly simplistic approach, and ignores the many other factors that affect new vehicle sales. In particular, vehicles will be less efficient under the roll back, resulting in higher consumer fuel costs, and this important effect is totally ignored in NHTSA's analysis. In addition, NHTSA's approach is entirely inconsistent with (and does not account for) recent market trends—the Clean Car Standards have become increasingly stringent every year since 2012, and yet sales have been booming. U.S. auto sales have increased in all but one year since 2012, and the last three years (2015-2017) have been three of the four highest

[50] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, Office of Transportation and Air Quality U.S. Environmental Protection Agency, National Highway Traffic Safety Administration, and California Air Resources Board, EPA-420-D-16-900, July 2016,page 6-1.

selling years in U.S. automotive market history.[51] And press reports suggest that 2018 is on pace to also be one of the highest sales years in history.[52] See Rykowski Report for more detail on the sales module.

NHTSA's NPRM model projects that new vehicle sales will increase slightly under the roll back relative to the Clean Car Standards. Because NHTSA's NPRM model does not integrate the sales and scrappage modules, the increase in sales under the roll back would slightly increase fatalities by increasing the vehicle stock and VMT. In the real world, however, an increase in new vehicle sales would slightly reduce fatalities as higher new-vehicle sales accelerate fleet turnover, meaning that there are more newer, safer vehicles entering the fleet and displacing older, less safe vehicles. Still, because the sales increase is relatively small, this sales effect only has a very small impact both on increasing fatalities and decreasing fatality rate under the rollback as shown in Table 6.

While there is no convincing rationale for why the Clean Car Standards rollback would increase new vehicle sales—in fact, recent empirical evidence suggests the opposite—in order to be conservative and minimize the changes in assumptions to only those that truly matter, EDF retains NHTSA's sales module in the safety runs that will be discussed below.

4. Car-Truck Share

NHTSA's NPRM sales module also includes a dynamic fleet share equation that projects changes in new car/new truck market shares compared to prior years. The agency appears to base these changes exclusively on the different fuel cost per mile values for new cars and new trucks. This leads to yet another major internal consistency within NHTSA's model, as changes in total car plus truck sales depend solely on vehicle price, ignoring fuel economy, while changes in new car and new truck shares depend only on vehicle fuel economy, ignoring vehicle price. In other words, NHTSA predicts that consumers will buy more light-duty trucks rather than cars under the current standards because the fuel economy improvement in the light-duty trucks is superior to that of the cars, even though the increase in cost of the light-duty trucks is higher than that of cars under NHTSA's analysis. NHTSA does not even stipulate this major internal inconsistency, let alone provide any rationale for it.

In its NPRM run, NHTSA projects that new car share will increase slightly and that new truck share will decrease slightly under the roll back. Since cars are assumed to drive fewer miles than trucks, this yields a small decrease in fatalities under the roll back. The impact on fatality rate is extremely small. Since car-truck share is part of the broader sales module that EDF is retaining

[51] Alliance of Automobile Manufacturers, Facts About Auto Sales, available at https://autoalliance.org/economy/facts-about-auto-sales/.
[52] Associated Press, US auto sales fell by 4 percent in the third quarter (October 4, 2018), available at https://www.boston.com/cars/car-news/2018/10/04/us-auto-sales-fell-by-4-percent-in-the-third-quarter.

in our modified safety runs to minimize changes to the NHTSA model, the car-truck fleet share is retained as well.[53]

5. Mass Reduction

As discussed above, NHTSA assumes that manufacturers will not take fleetwide safety considerations into account when they make their choices about the application of mass reduction technology. EDF believes that manufacturers will take safety considerations into account, and as discussed above, there is practical evidence that manufacturers have in fact done so with respect to the use of lightweight materials such as aluminum.

As shown in Table 6, EDF recommends that NHTSA reject its assumption that manufacturers will refuse to take fleetwide safety considerations into account in the application of mass reduction technologies and instead return to its own assumptions from the 2016 TAR.

The NHTSA 2016 TAR mass reduction approach is based on the agencies' safety assessment of GHG and fuel economy standards in the draft Technical Assessment Report (TAR) for the EPA Midterm Evaluation[54], issued in July 2016. In the TAR, the agencies adopted a maximum limit of mass reduction in their technology selection models for each vehicle category—20% for light trucks, CUVs and minivans (for example, 1000 pounds reduction for a pickup), 7.5% for small cars (218 pounds), and 10% for medium cars (268 pounds)—following the same principle used in prior analyses that safety is improved when greater mass reduction is applied to heavier vehicles compared to lighter vehicles. EDF uses these same limits in our modified safety runs below.

6. EDF-Modified Safety Runs with NPRM Model

As summarized in Table 6, for EDF's modified safety runs with NHTSA's NPRM model, we retain NHTSA's assumptions for three of the six safety-related assumptions (sales, technology cost, and car-truck share), add two additional rebound scenarios (adding 10% and 0% rebound, in addition to NHTSA's 20% rebound), and replace two of NHTSA's assumptions (scrappage and mass reduction). The general principle was to make changes to those assumptions and modules that are clearly in error and which have large impacts on the model safety outputs, and to retain other assumptions and modules that do have large impacts on safety outputs, even if we

[53] By retaining these assumptions, we do not endorse NHTSA's presumed car-truck fleet share. We retained the assumptions to minimize changes to the model that do not have first-order effects on the fatality numbers and rates.
[54] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, Office of Transportation and Air Quality U.S. Environmental Protection Agency, National Highway Traffic Safety Administration U.S. Department of Transportation, and California Air Resources Board, EPA-420-D-16-900, July 2016.

consider them to be flawed, to minimize the number of changes. In other words, we did not try to make the model as good as it could be.

Table 7 identifies the specific EDF-modified safety runs using NHTSA's NPRM model for the MY 2017-2029 GHG analysis.

Table 7. Definition of EDF-Modified MY 1977-2029/GHG Runs with NHTSA NPRM Model

Row	NHTSA or EDF?	Model Input Assumptions		
		Rebound	Scrappage	Mass
A	NHTSA	20%	NHTSA NPRM	NHTSA NPRM
B	EDF	20%	NHTSA NPRM	NHTSA NPRM
C	EDF	20%	VMT Neutral Through MY 2029	NHTSA 2016 TAR
D	EDF	10%	VMT Neutral Through MY 2029	NHTSA 2016 TAR
E	EDF	0%	VMT Neutral Through MY 2029	NHTSA 2016 TAR

Rows A and B are included in Table 7 to facilitate comparison with previous tables in this section. Row A is NHTSA's NPRM model run for the MY 1977-2029 GHG analysis, which is also shown as row 2 in Tables 1 and 2 above. Table 7, row B is EDF's replication of NHTSA's NPRM model run and is also shown as row 3 in Tables 1 and 2. By definition, rows A and B both used all of NHTSA's safety-related assumptions.

EDF's modified safety runs are defined in rows C through E. The three EDF-modified safety runs replace NHTSA's horribly flawed scrappage module with EDF's VMT Neutral Through MY 2029 scrappage approach and replace NHTSA's unfettered mass reduction assumption with NHTSA's 2016 TAR approach. The three EDF-modified runs differ only by the rebound assumption—row C uses NHTSA's 20 percent rebound, row D uses EDF's 10 percent rebound, and row E uses a 0% rebound assumption.

Table 8 has the same rows as Table 7. Table 8, rows C through E, provide the quantitative results from the three EDF-modified safety runs for the MY 1977-2029 GHG analysis.

Table 8. EDF-Modified Runs with NPRM Model for MY 1977-2029 GHG Analysis Show Fatality Rates and Vehicle Safety Will Worsen Under the Roll Back

(negative = lower and positive = higher under the roll back)

Row	NHTSA or EDF Run?	Change--Current Standards to Preferred Alternative						Total Non-VMT Fatalities	Total Non-VMT Fatalities Per Year	Fraction of Highway Fatalities (%)
		Fatalities	Fatalities (%)	VMT (billion miles)	VMT (%)	Fatality Rate (per billion miles)	Fatality Rate (%)			
A	NHTSA	-15,680	NA	-1,790	NA	NA	NA	NA	NA	NA
B	EDF*	-15,644	-3.175%	-1,787	-3.144%	-0.003	-0.03%	-156	-5	-0.01%
C	EDF	-5,932	-1.400%	-731	-1.484%	+0.007	+0.08%	+356	+10	+0.03%
D	EDF	-2,606	-0.615%	-323	-0.656%	+0.004	+0.05%	+174	+5	+0.01%
E	EDF	+701	+0.159%	+83	+0.162%	+0.000	0	0	0	0

*NHTSA NPRM analysis replicated by EDF with additional output data not included in NPRM.

The first six columns of data in Table 8 show the change in absolute values and on a percentage basis for fatalities, VMT, and fatality rate going from the current standards to the rollback. The final three columns of data are provided to help the reader place the results in context. A negative value means that the value for the roll back is less than the value under the current standards.

For example, Table 8, row C retains NHTSA's 20 percent rebound assumption, but uses the much more realistic VMT-Neutral Through MY 2029 scrappage estimate and the NHTSA 2016 TAR mass reduction assumptions. As with NHTSA's NPRM run, there are fewer fatalities and lower VMT under the roll back, driven by the 20% rebound assumption. Both fatalities and VMT decrease by about 60%, relative to the NHTSA NPRM results in rows A and B, due to the use of the much more realistic scrappage approach. Most important, however, is that the decrease in VMT under the roll back is slightly higher than the decrease in fatalities, as reflected in the percentage reductions, so the overall fatality rate is higher under the roll back. The absolute increase in the fatality rate under the 8-year Clean Car Standards roll back is +0.007 fatalities per billion miles, for a +0.08 percent increase. This means that there would be a total of 356 additional non-VMT related fatalities under the roll back. NHTSA's model year analysis

operates over at least 34 calendar years (i.e., calendar years 2017-2050), so the +356 fatalities represents approximately +10 non-VMT related fatalities per year. Given that there were 37,000 motor vehicle fatalities in 2017, dividing 10 by 37,000 shows that the increased non-VMT related fatalities would represent about +0.03% of all annual highway fatalities, or about three out of ten thousand. This is shown in the final column.

Row D reflects the 10 percent rebound assumption. The fatality rate increases by 0.004 fatalities per billion miles, or +174 total non-VMT related fatalities, or about +5 non-VMT related fatalities per year.

Rows C and D show that fatalities and VMT are lower under the 8-year preferred alternative rollback, relative to the current Clean Car Standards, for both EDF-modified safety runs. This is to be expected, of course, as long as there is a non-zero rebound effect assumption. EDF agrees with NHTSA's stipulation that rebound-related fatalities should not be attributed to the CAFE and GHG standards: "Increased driving associated with rebound is a consumer choice…If consumers choose to do so, they are making a decision that the utility of more driving exceeds the marginal operating costs as well as the added crash risk it entails…Only those safety impacts associated with mass reduction and those resulting from higher vehicle prices are directly attributed to CAFE standards."[55] Of course, the true safety metric, whichNHTSA has long used, is fatality rate.

Row E uses a 0 percent rebound, in order to isolate the safety-related impacts when both the scrappage and rebound VMT impacts are excluded. Both total fatalities and total VMT rise slightly, but the overall fatality rate is unchanged.

The most important conclusion from Table 8 is that under much more realistic and defensible assumptions for scrappage and mass reduction, the 8-year Clean Car Standards roll back will actually increase fatality rate and worsen vehicle safety under non-zero rebound assumptions, and will have no impact whatsoever under a 0 percent rebound assumption.

The negative impacts on vehicle safety for the EDF-modified safety runs in Table 8 are very small, with the fatality rate increases ranging from 0 to +0.007 fatalities per billion miles and the extra non-VMT related fatalities ranging from 0 to +356. These values are similar in magnitude, but opposite in direction, to the -0.003 fatalities per billion miles and -156 non-VMT related fatalities reductions in NHTSA's NPRM model run.

All of the data from this section, including both the NHTSA NPRM runs and the EDF-modified safety runs for the MY 1977-2029 GHG analyses, show that the overall impacts on fatality rate and non-VMT fatalities are extremely small, on the order of at most a few hundred over a 34-year period, or at most 10 per year. Whether a tiny decrease (as in the NHTSA NPRM runs), or a slightly higher but still very small increase (as in the EDF-modified runs), the bottom line is that both the Clean Car Standards and the 8-year roll back will affect total highway fatalities by less than 0.05 percent, which means that over 99.95 percent of highway fatalities will be unaffected.

[55] 83 FR 43107, August 24, 2018.

Another important contextual point is that there are statistical uncertainties in the crash data and methodology that underlie the NHTSA safety calculations. These uncertainties are far greater that the tiny fatality rate impacts shown in Table 8.

Any vehicle related fatality is a tragedy, of course, but it is clear that any safety impacts from the Clean Car Standards are truly needle-in-a-haystack, without any meaningful significance.

NHTSA's safety analysis is arbitrary and illegal for the following reasons:

1) NHTSA has used total fatalities, rather than fatality rate, which would provide a true measure of vehicle safety and to be consistent with NHTSA and DOT past practice. Fatality rate increases under the proposed roll back when the biggest flaws in the NHTSA model are corrected.

2) NHTSA relies on an absurd and totally indefensible scrappage model, which alone accounts for much of the ascribed safety impacts, and has several other important analytical flaws.

3) NHTSA assumes that the industry will ignore fleetwide safety in its application of mass reduction technology, abandoning without explanation its approach in the 2016 TAR.

H. NHTSA Ignores Increased Fatalities Under the Proposed Roll Back Due to Increased PM, NOx and SO_2 Emissions

In the NPRM, NHTSA inexplicably failed to include estimates of premature mortality under the roll back due to changes in emissions of criteria pollutants such as particulate matter (PM), nitrogen oxides (NO_x) and sulfur dioxide (SO_2).

EDF performed an analysis projecting premature mortality (or, in NHTSA's phraseology, fatalities) due to greater emissions of PM, NOx, and SO_2 associated with the proposed GHG standards roll back. This analysis was based on a modified NHTSA NPRM model run for the MY 1977-2029 GHG analysis. EDF's modified run corrected flaws concerning NHTSA's 1) use of an inflated rebound effect, 2) assumption that Americans will drive their used cars nearly a trillion miles less under the rollback, 3) assumption that automakers will voluntarily over-comply with the rollback standards, and 4) assumption that the additional gasoline needed to fuel the rollback's less efficient vehicles will be imported or refined from imported crude oil.

While the 10 percent rebound effect that EDF used in its modeling reduces estimated vehicle tailpipe emissions due to the lower new car VMT under the roll back, these tailpipe emissions reductions would be overwhelmed by much larger emissions increases under the roll back due to much higher levels of "upstream" emissions (oil exploration, drilling, production, and distribution, and gasoline refining and distribution), with the most significant factor being refinery emissions. Even though U.S. oil imports have been steadily decreasing and U.S.

gasoline imports are essentially zero[56], NHTSA assumed that only 50 percent of the extra oil under the roll back would be refined at domestic refineries[57], and of that domestic gasoline, 90 percent of that would be from imported oil. In short, NHTSA assumed that 95 percent of the extra gasoline would eome from imported oil and 5% would come from domestic oil. To correct this obvious error, EDF assumes that all the extra oil and gasoline under the roll back would be provided from domestic sources based on recent market trends.

The net result is that while NHTSA projected that criteria emissions impacts would be mixed, with increases for some individual pollutants and decreases for others, EDF shows that there would be increases for every major criteria pollutant. For more detail on this analysis, see Rykowski Report.

Finally, EDF used an EPA assessment tool to project that there would be 4,800 to 10,800 cases of premature mortality under the roll back for the MY 1977-2029 GHG analysis.

EDF has shown that 97-99 percent of all NHTSA projected reductions in fatalities under the roll back are simply based on the unjustified assumption that Americans will choose to reduce their mobility and drive less under the roll back. As shown in Table 8 above, the total non-VMT-related fatality reductions under the roll back, even with the biases, flaws, and statistical uncertainty in the base NHTSA NPRM model, is 156 for theMY 1977-2029 GHG analysis. When EDF corrected for NHTSA's errors with respect to rebound, scrappage, and mass reduction, non-VMT fatalities ranged from zero to an increase of 356 under the roll back.

Accordingly, the 4,800-10,800 cases of increased mortality due to greater criteria emissions under the roll back dwarf any non-VMT related fatalities impacts. NHTSA's choice to ignore this adverse impact of its proposed roll back is clearly arbitrary and capricious.

I. NHTSA's Scrappage Model is Fundamentally Flawed and Yields Flawed Outputs

In the proposed rule, NHTSA develops and uses a scrappage model to determine the impacts of the current vehicle standards on the existing used vehicle fleet. According to NHTSA, the current vehicle standards increase new vehicle prices, thereby increasing the value of existing vehicles, which are substitute goods, which then leads to people holding onto their existing vehicles longer – in other words less vehicles scrapped. This leads to older, less safe vehicles staying on the road longer and increased fatalities.

We find NHTSA's scrappage model to be fundamentally flawed in many respects. First and foremost, NHTSA's scrappage model is completely disconnected from its sales model which makes no economic sense. New and used vehicles are substitute goods and the decision to buy a new vehicle is related to the decision to scrap an existing used vehicle. Yet NHTSA develops

[56] 2018 Annual Energy Outlook 2018, Department of Energy, Energy Information Administration, February 6, 2018, available at https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.
[57] NHTSA/Volpe Model "Parameters File"

separate and unconnected models to estimate new vehicle sales and existing used vehicles remaining. NHTSA's failure to connect these models leads to nonsensical results such as the significant increase in overall fleet size and vehicle miles traveled (VMT) under the current vehicle standards. NHTSA's scrappage model also omits key input variables or factors that influence scrappage. In fact, when developing its model, NHTSA finds that the model over-predicts the final remaining share of a vehicle model year fleet and has to force its model projections to match observed historic data. NHTSA's validation of its model is also flawed and the input assumptions NHTSA uses are flawed as well, thereby yielding flawed outputs.

1. NHTSA's scrappage model is completely divorced from its sales model

The most fundamental flaw in NHTSA's vehicle scrappage model is its complete disconnection from the vehicle sales model – this means that the results of NHTSA's scrappage model make no economic sense whatsoever. Under NHTSA's logic, the number of new vehicles sold has no relationship to the number of existing vehicles scrapped. However, according to NHTSA's own logic, new and used vehicles are substitute goods so there must be a relationship between new vehicles sold and existing vehicles scrapped. Individuals who need to purchase a vehicle and decide not to buy a new vehicle because of higher new vehicle costs will instead buy an existing vehicle or hold onto their current used vehicle. In other words, the extent to which vehicles are scrapped will influence and be influenced by new vehicle sales.

Indeed, when the California Air Resources Board (CARB) examined the impact of increasing new vehicle prices as part of its 2004 proposal to reduce greenhouse gas emissions from motor vehicles, it included both the addition and deletion of vehicles in its CARBITS vehicle transaction choice model.[58] This allowed CARB to look at vehicle scrappage with replacement and the effect of higher new vehicle prices on vehicle replacement rates.[59] By contrast, NHTSA's model looks at vehicle scrappage in isolation of any replacement. This "non-replacement" scrappage is unsupported by any economic theory or literature. Indeed, none of the literature that NHTSA relies on supports the agency's assumption that higher vehicle prices will lead to non-replacement scrappage.[60]

Yet, according to NHTSA, this non-replacement scrappage results in a significant increase in the total number of vehicles on the road under the current vehicle standards.[61] NHTSA then assumes that each additional vehicle is driven a fixed average number of miles per year equivalent to the average VMT rate of a vehicle of the same age and style without adjusting the per-vehicle VMT based on fleet size increases. This inflates the total VMT and since NHTSA's estimates of fatalities under the current standards are a function of fleet VMT, this in turn substantially inflates the agency's estimates of fatalities.[62]

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[58] NHTSA, Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks at 1007.
[59] *Id.*
[60] *See* Comments of New York University's Institute for Policy Integrity submitted to this rulemaking docket ("IPI Comments").
[61] NHTSA, Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks at 1008, 1063.
[62] *Id.* at 1424.

However, there is no reason to believe that the total overall demand for vehicle miles traveled, or driving, will change with or without the current vehicle standards. To the extent the current standards cause a shift from new vehicles to used vehicles or towards older rather than newer used vehicles, the relative amount of total driving by used versus new vehicles may increase. However, without significant changes to the demand for VMT, any non-rebound related increases will be offset by less driving of new vehicles. Indeed, in comments to NHTSA prior to publication of the proposed rule, EPA noted that with or without the vehicle standards, demand for VMT is unchanged other than through potential changes in the marginal cost of driving, which should already be addressed by the rebound effect.[63] In fact, if anything, an increase in the price of new and used vehicles could lead to individuals switching from driving their own vehicles to using public transportation, another substitute good.[64]

NHTSA's results showing a much larger overall vehicle fleet size and vehicle miles traveled under the current vehicle standards, outside of any rebound effect from cheaper driving due to fuel economy improvements, compared to no standards makes no economic sense. Yet, these nonsensical results are the main driver of the increased fatalities that NHTSA attributes to the current vehicle standards and its justification for rolling back those standards.

2. NHTSA's model omits key input variables or factors that influence scrappage

The decision to scrap a vehicle is influenced by the cost of operating and maintaining the vehicle.[65] The cost of operating or driving a vehicle depends on the price of gasoline and the vehicle's fuel economy. The cost of maintaining a vehicle is essentially the cost of repairs. While NHTSA includes the operating cost of a vehicle (a 'cost per 100 miles of travel' variable) in its scrappage model, the agencyfails to include the cost of maintaining or repairing the vehicle – a key variable that influences scrappage. NHTSA considers vehicle maintenance costs when developing its scrappage model but decides not to include maintenance costs in its model due to statistical insignificance or unexpected impacts on scrappage. For instance, according to NHTSA, including maintenance and repair in the model for vans and SUVs leads to a decrease in scrappage when maintenance and repair costs increase – a result that is opposite to what is expected.[66] This in itself is indication that the model is flawed. Excluding from a model a variable that is known to influence the outcome of the model because its inclusion yields counter-intuitive results is evidence that the model itself is flawed and cannot be relied upon. In fact, maintenance and repair costs have been identified in the literature as significant drivers of scrappage and NHTSA cannot simply disregard these costs.[67]

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[63] E.O. 12866 Review Materials, File: "Email 5 - Email from William Charmley to Chandana Achanta - June 18, 2018" (June 18, 2018), https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453.
[64] *See* IPI Comments.
[65] Richard W. Parks, Determinants of Scrapping Rates for Postwar Vintage Automobiles, Econometrica, vol. 45, no. 5 (July 1977), p. 1099-1115. See also Franklin V. Walker, Determinants of Auto Scrappage, The Review of Economics and Statistics, Vol. 50, No. 4 (Nov. 1968), pp. 503-506; Antonio Bento, Kevin Roth, and Yiou Zuo, Vehicle Lifetime Trends and Scrappage Behavior in the U.S. Used Car Market (January 18, 2016); Alan Greenspan and Darrel Cohen, Motor Vehicle Stocks, Scrappage, and Sales (October 30, 1996).
[66] NHTSA, Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks at 1035.
[67] *See* Richard W. Parks, Determinants of Scrapping Rates for Postwar Vintage Automobiles, Econometrica, vol. 45, no. 5 (July 1977), p. 1099-1115.

NHTSA's model also does not include interest rates or the cost of financing a vehicle, another variable which NHTSA acknowledges affects scrappage. NHTSA itself states that "[a]s the real interest rate increases so does the cost of borrowing and the opportunity cost of not investing. For this reason, it is expected that as real interest rates increase that vehicle scrappage should decline. Consumers delay purchasing new vehicles because the cost of financing increases."[68] Conversely, as real interest rates decrease, vehicle scrappage should increase. Yet, NHTSA chooses not to include interest rates in its model since inclusion of interest rates yields results that are opposite to what is expected – "as real interest rates increase, so does the scrappage rate" in NHTSA's model.[69] As discussed above, this is yet another indication that the model is flawed and cannot be relied upon.

In addition to excluding maintenance costs and interest rates, NHTSA's scrappage model does not explicitly use the actual used vehicle price or value of the used vehicle – the price variable that directly influences the decision to scrap a vehicle. Instead, NHTSA assumes that changes in new vehicle prices will ultimately be reflected in those for used vehicles and relies on a new vehicle price variable as a proxy for used vehicle price without ever evaluating the effect of new vehicle prices on the value or price of used vehicles.[70] In fact, Gruenspecht explained that the disadvantage of modeling scrappage as a function of new vehicle price and not the theoretically correct used vehicle price is that it may produce inaccurate results.[71]

Finally, NHTSA's 'cost per 100 miles of travel' variable for used vehicles that is used in the model to represent the operating cost of a used vehicle is based on initial average fuel economy values and does not account for any changes in average fuel economy of a model year cohort as it ages. NHTSA itself acknowledges that its model does not take changes in average fuel economy of a model year fleet into consideration. According to NHTSA, "[w]ork by Jacobsen & van Bentham suggests that these initial average fuel economy values may not represent the average fuel economy of a model year cohort as it ages."[72] Jacobsen & van Bentham find that the most fuel-efficient vehicles scrap earlier than the least fuel efficient models in a given cohort.[73] This means that the average fuel economy of a model year fleet will become less efficient as the vintage ages, which means it would become more costly to operate. In other words, NHTSA's model underestimates the relative 'cost per 100 miles of travel' for used vehicles, which in turn underestimates scrappage.

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[68] NHTSA, Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks at 1015.
[69] *Id.* at 1033, 1035, 1037.
[70] *Id.* at 1009.
[71] Howard K. Gruenspecht, Differentiated Regulation: A Theory With Applications to Automobile Emissions Control, Yale University (1982) at 93; *See also* IPI Comments.
[72] NHTSA, Preliminary Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks at 1014, 1033.
[73] *Id.*

3. NHTSA's model over-predicts the final remaining share of a vehicle model year fleet and NHTSA has to force its model projections to match observed historic data

When developing its scrappage model, NHTSA finds that its model's projections over-estimate the final share of a vehicle model year fleet that remains at the end of the fleet's lifetime. NHTSA finds that while its model fits the historical data of car and truck scrappage well, when used to project the scrappage of future model years, the model over-predicts the point of convergence for the final remaining share of the model year fleet.[74] For cars, NHTSA's model predicts the final share of a model year fleet remaining by age 40 to be around 8%, while the observed historical final fleet share is around 1%.[75] For vans and SUVs, the model predicts that the fleet converges to a final fleet share of approximately 11% when the observed final fleet share is around 2.5%.[76] And for trucks, the model predicts that the final fleet share converges to approximately 12%, which is significantly higher than the observed 2.5%.[77] For all body styles, the projected and historical trends appear to deviate after age 20.

To correct for this discrepancy between predicted versus observed scrappage, NHTSA has to force its model to converge by imposing an exponential decay function after age 20.[78] In other words, for vehicles beyond age 20, scrappage would depend on the share of the fleet remaining at age 20, as determined by the scrappage model, as well as the decay rate necessary to ensure that the final fleet share matches the final survival rate assumed for that vehicle class. So for example, for cars, NHTSA's model predicted the final fleet share for future model years to be around 8%, while observed historic final fleet share is around 1%. Once the decay function is added, the projections follow a similar pattern as historic observed data such that only 1% of the model year fleet is projected to remain by age 40. The fact that NHTSA has to force its model to converge is further indication that the model itself is flawed.

4. NHTSA's validation of its scrappage model is flawed

To test the validity of its scrappage model, NHTSA uses the model to forecast the total fleet size for years 2005 through 2015 to see how well its model predicts the fleet size for this period.[79] According to NHTSA, "[t]he last true population the scrappage model 'sees' is the 2005 registered vehicle population. It then takes in known production volumes for new model year vehicles, and dynamically estimates instantaneous scrappage rates for all registered vehicles at each age for CYs 2006 – 2015, based only on the observed exogenous values that inform the model (GDP growth rate, observed new vehicle prices, and cost per mile of operation), fleet attributes of the vehicles (body style, age, cost per mile of operation), and estimated scrappage rates at earlier ages."[80] NHTSA concludes that, except for the years of the recession which represent a significant shock to the size of the fleet, its model produces results within one percent of the actual fleet size.[81]

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[74] *Id.* at 1046.
[75] *Id.* at 1047.
[76] *Id.*
[77] *Id.* at 1048.
[78] *Id.* at 1046.
[79] *Id.* at 1060.
[80] *Id.*
[81] *Id.* at 1060-1061.

NHTSA's validation of its model is flawed since it relies on the same data it used to derive the scrappage model as validation of the model's output results. As discussed in the Preliminary Regulatory Impact Analysis, NHTSA develops the scrappage model using historical vehicle and macroeconomic data from the years 1975 through 2015.[82] To validate its model, NHTSA then uses the model it derived using 1975 through 2015 data to predict outcomes for 2005 through 2015. In other words, NHTSA only conducts in-sample testing to validate its model. To properly validate and test the accuracy of the scrappage model, NHTSA should perform out-of-sample testing. In fact, the need for such testing is consistent with agencies' past analysis of scrappage. In its 2016 Proposed Final Determination, EPA rejected the use of a scrappage model because the analysis needed additional examination including out-of-sample validation.[83]

5. The input assumptions NHTSA uses in its model are flawed

Setting aside the development and derivation of the model itself, model output results are also influenced by model input assumptions – using incorrect inputs will yield incorrect outputs. In other words, to the extent that model input assumptions are flawed then the model output results will also be flawed.

This is specifically relevant with regards to the new vehicle price input assumptions that NHTSA uses in its scrappage model. As explained above, NHTSA uses a new vehicle price variable in its model to represent used vehicle prices. As discussed in more detail in Section III of our comments, the new vehicle price values NHTSA uses are artificially inflated due in part to arbitrarily high technology costs. The use of these inflated new vehicle price values in the scrappage model in turn leads to underestimation of scrappage and flawed output results.

II. EPA and NHTSA Must Properly Account for GHG and Non-GHG Emission Reductions and Health Impacts

A. EPA and NHTSA's claim that their preferred alternative would have negligible environmental and health impacts is inconsistent with the extensive existing record

Every recent analysis performed by EPA and NHTSA has consistently shown that the current MY 2025 GHG standards deliver substantial CO2 reductions and important non-GHG emission reduction co-benefits by reducing criteria and air toxic pollutants. The joint EPA/NHTSA Phase 2 Final Rule and supporting Regulatory Impact Analysis, the Draft Technical Assessment Report, California's Midterm Review, and a recent EDF analysis of the impacts of weakening the EPA Phase 2 GHG standards all show that the current GHG standards will reduce GHG

[82] *See Id.* at 1009-1016.
[83] EPA, Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation at A-43 (2016); *See* also IPI Comments.

emissions significantly and provide important non-GHG emission reductions as a co-benefit.[84,85,86,87,88]

Despite this extensive record, EPA and NHTSA have concluded in their August 24, 2018 proposal that their preferred alternative to rollback the current MY 2021–2026 GHG standards to MY2020 levels will result in a "relatively small" increase in CO2 emissions and would not "noticeably impact net emissions of smog-forming or other criteria or toxic air pollutants."[89] The remainder of this section will show that the Agencies' conclusions are based on an analysis that contains numerous errors and biased assumptions. We corrected these flaws and re-ran the VOLPE model. Our results, which we present below, show that EPA and NHTSA have 1) grossly underestimated the impact of their proposed rollback of the standards on GHG emissions and 2) mistakenly concluded that the non-GHG emission and associated health impacts are negligible.

B. Errors and biases in NHTSA's modeling that render the emission impact estimates incorrect and unusable

The underlying analysis that NHTSA used to justify its proposal to roll back the current GHG standards contains numerous biases, questionable assumptions, and outright errors which render the results unusable. EDF and many other stakeholders have highlighted and carefully documented many of these flaws contained in the NHTSA analysis. For purposes of this section on emission impacts, only four fundamental flaws will be discussed. (A more detailed discussion of these flaws can be found in Section I and Section III of these comments and in the appended Rykowski Report.) These flaws are blatant and when corrected substantially alter the conclusions regarding the impact of the rollback on emissions.

First, NHTSA's scrappage model projects that Americans will voluntarily reduce their driving between 1.5 and 1.8 trillion miles under the rollback and puts forth no credible rationale for this effect.[90] EDF is unaware of (and NHTSA has not identified) any outside expert or analysis that would support such an incredible outcome. This erroneous result, of course,

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[84] EPA & NHTSA, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule, 77 Fed. Reg. 62624 (Oct. 15, 2012) ("2012 Final Rule").
[85] EPA, Regulatory Impact Analysis: Final Rulemaking for 2017-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards (Aug. 2012) ("2012 RIA"), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZI1.PDF?Dockey=P100EZI1.PDF.
[86] EPA, CARB, & NHTSA, Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025 (July 2016) ("Draft TAR"), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF.
[87] CARB, California's Advanced Clean Cars Midterm Review (Jan. 18, 2017), https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf.
[88] Impacts of Weakening the Existing EPA Phase 2 GHG Standards, EDF Briefing (Apr. 2018), http://blogs.edf.org/climate411/files/2018/04/MTE-Relaxation-Impacts-Final.pdf.
[89] EPA & NHTSA, Notice of Proposed Rulemaking: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986, 42,996-98 (Aug. 24, 2018) ("NPRM").
[90] NPRM, 83 Fed. Reg. at 43,351, Table VII-88; *id.* at 43,352, Table VII-89.

significantly distorts NHTSA's projection of the rollback's emission impacts. Namely, if cars drive less under the rollback, their emissions will be less. EDF corrected this error in the VOLPE model by replacing NHTSA's scrappage model with one that decreases used car vehicle miles traveled ("VMT") (under the rollback) to the level needed to offset increases in new car VMT due to higher new car sales (under the rollback).[91]

Second, NHTSA assumes in their Volpe model that 50% of the gasoline needed to fuel the less efficient vehicles under the rollback standards will be imported. They went further and assumed that 50% of the remaining fuel that is refined domestically would be produced from 90% imported crude oil. These assumptions are at odds with one of NHTSA's asserted bases justifying the proposal—that the U.S. is becoming self-sufficient in crude oil production.[92] Recent data from EIA's 2018 Annual Energy Outlook) and the latest EIA data for 2017 also show only 0.3% of total national consumption of refined fuel came from imports.[93][94][95] These assumptions effectively ignore the vast majority of domestic upstream emission impacts from crude oil production and refining, and significantly understate the domestic emission impacts of the rollback. In EDF's modeling, these assumptions were deleted and replaced with a more reasonable and defensible assumption that 100% of fuel saved under the current standards be refined from domestically produced crude oil.

Third, NHTSA projects significant and ongoing industry-wide over-compliance under the proposed rollback through MY 2032. In addition, NHTSA predicts about a 1% per year continued improvement in fuel consumption beyond MY2032. There is no basis or historical precedent to support NHTSA's claim that auto companies will over-comply with standards and it is inconsistent with the related Phase 2 final rule assumptions and detailed supporting rationale.[96] (See Section III of these comments and the Rykowski Report for a more detailed discussion of this issue.) In fact, auto companies themselves have been advocating for a relaxation of the program because they claim that the current standards create compliance difficulties. NHTSA cannot both credit these claims (which we believe are deeply flawed) and also assume that these same automakers will voluntarily decide to exceed the requirements under the rollback standards. NHTSA's over-compliance projections have the effect of narrowing the difference in fuel saved over time between the rollback and the current standards. This assumption both reduces and obscures the costs and emissions impact of the rollback when compared to the current standards and, most importantly, the Agencies failed to justify its legitimacy in the context of the current standards. Consequently, we eliminated the over-compliance and assumed that the auto companies would meet the standards.

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[91] We provide a more detailed critique of the scrappage model in Section I and in the Rykowski Report.
[92] We have submitted separate legal comments critiquing this as an impermissible and unfounded rationale that does not support the rollback. See Joint Environmental Comments.
[93] *See* NPRM, 83 Fed. Reg. at 42993 ("[T]he global petroleum market has shifted dramatically with the United States taking advantage of its own oil supplies through technological advances that allow for cost-effective extraction of shale oil. The U.S. is now the world's largest oil producer and expected to become a net petroleum exporter in the next decade.").
[94] Energy Information Administration (EIA), Frequently Asked Questions: How much gasoline does the United States consume? (last updated Aug. 31, 2018), https://www.eia.gov/tools/faqs/faq.php?id=23&t=10.
[95] EIA, Annual Energy Outlook 2018 (Feb. 6, 2018), https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.
[96] *See* 2012 Final Rule, 77 Fed. Reg. at 62,483-44; 2012 RIA at 3-18 to 3-23.

Finally, NHTSA increased the rebound level from 10% to 20% in its NPRM analysis. The rebound effect is intended to capture how consumers respond to fuel economy improvements. That is, consumers of new vehicles will drive more miles when fuel cost per mile decreases, and less when fuel cost per mile increases. NHTSA's doubling of the rebound effect is inconsistent with the rebound effect used in all of the Agencies' analyses over the last seven years and most recently in the Draft TAR.[97] In addition, the use of a 20% effect runs counter to recent literature reviews that conclude that the appropriate rebound effect is 10% or less.[98] NHTSA's use of a 20% rebound effect overstates increases in vehicle VMT and fuel use which in turn overstates vehicle and upstream emissions. To correct this flawed assumption, EDF modeling returns to the use of a 10% rebound effect.

EDF incorporated the four corrections identified above into the VOLPE model and re-ran the model to determine the GHG and non-GHG emission and health impacts of NHTSA's proposed rollback. For purposes of this analysis, only the NHTSA model runs for its GHG analysis were critiqued and revised. The results from these runs are presented below and are more accurate and defensible as compared to NHTSA flawed modeling results. Furthermore, EDF modeling results show that NHTSA's emissions assessment misrepresents the true impacts of the proposed rollback because of its systematic use of biased assumptions and modeling methods identified above. As a consequence, NHTSA has produced arbitrary and fatally flawed estimates of the impacts of the proposed rollback that are unusable.

1. GHG emission impacts of the rollback are significantly higher than NHTSA and EPA claim

Using the four VOLPE model adjustments described above, the projected CO2 emission impacts the proposed rollback of the standards to MY2020 levels relative to the current standards were determined. The results of EDF's analysis are shown below graphically below.[99] For comparison, the CO2 emission impacts of the rollback using NHTSA's published version of the VOLPE model are also presented.[100] The EDF modeling results clearly show that the NHTSA estimates the CO2 impacts of the proposed rollback are significantly underestimated. In fact, EDF results show that the impacts of the rollback are about 50% larger than NHTSA is claiming in their proposal for all of the model years analyzed.

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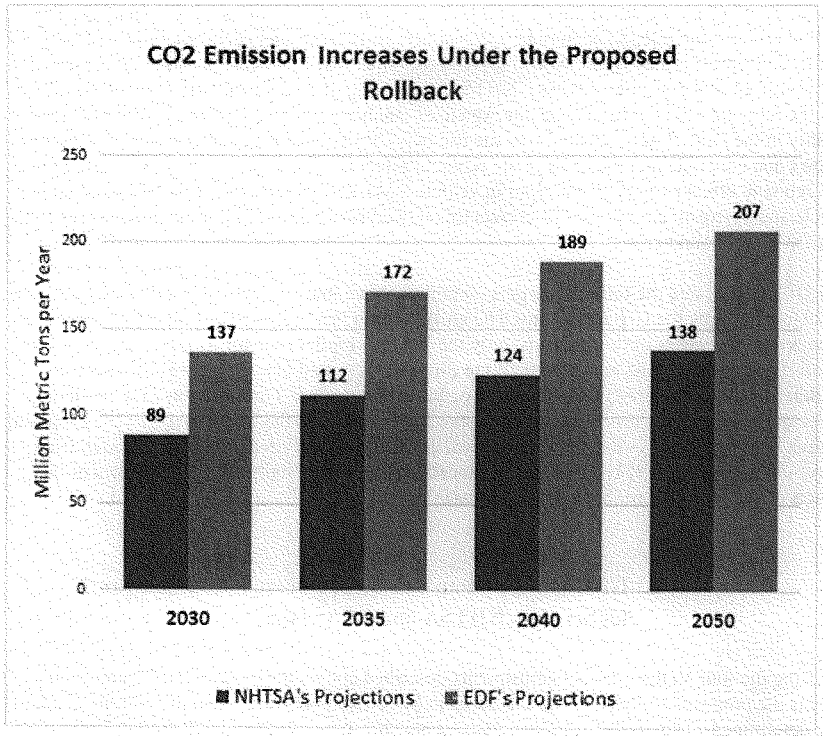
[97] Draft TAR at 10-10 to 10-20.

[98] Greene, D., Rebound 2007: Analysis of U.S. light-duty vehicle travel statistics, Energy Policy (2010), doi:10.1016/j.enpol.2010.03.083; *see* Comment of Environmental Defense Fund and Union of Concerned Scientists, *Re: Rebound Effect in NHTSA & EPA's Proposed Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks*, 83 Fed. Reg. 42,986, submitted to Docket Nos. NHTSA-2018-0067, EPA-HQ-OAR-2018-0283 (Oct. 26, 2018).

[99] Rick Rykowski, Supporting Report for Environmental Defense Fund Comment, *Review of the Agencies' Technical Analysis Supporting the SAFE Vehicle NPRM* (Oct. 2018) ("Technical Analysis Review for EDF").

[100] Compliance and Effects Modeling System, The Volpe Model, NHTSA (2018 version) https://www.nhtsa.gov/corporate-average-fuel-economy/compliance-and-effects-modeling-system.



2. Criteria pollutant impacts of the rollback are significant and not negligible as NHTSA and EPA claim

EDF used the same VOLPE runs to assess the impacts of the proposed rollback on criteria emissions. The impacts for the key criteria pollutants – NOx, PM, VOC, and SOx – are presented below in graphical form for calendar years 2030, 2035, 2040, and 2050. A detailed explanation of the model runs and how the projections were derived can be found in the Rykowski Report Except for NOx emissions in 2025, the NHTSA's modeling results show that the rollback will increase NOx, PM, VOC, and SOx emissions for all of the years presented below. Even the Agencies acknowledged in the preamble that in 2035 "NOx, VOC, SO2, and PM2.5 increase" for their proposed rollback of the current standards.[101]

[101] NPRM, 83 Fed. Reg. at 43,330.

Most noteworthy are EDF's modeling results that show the Agencies have dramatically underestimated the actual impact of the rollback due to their use of flawed and biased assumptions. EDF results clearly illustrate that there will be significant increases in all of the pollutants for 2030 to 2050. These results are also consistent with recent analysis performed by EDF to assess the impact of a rollback. In its comments on EPA's August 21, 2017 request for comment on reconsidering the Final Determination, EDF estimated the impacts of a rollback using a recent version of EPA's Inventory Costs and Benefits Tool (ICBT) model.[102,103] This independent analysis arrived at the same conclusion as the analysis presented below which is based on the use of NHTSA's modeling tools.

The Agencies' underestimation of the impacts is no small matter. The emissions increases under the rollback are underestimated by many orders of magnitude. These increases clearly demonstrate that there are important co-benefits associated with the existing standards and any rollback will be harmful to public health. Many of these important reductions that the current standards achieve will occur in already overburdened communities, therefore helping to address environmental justice concerns. In addition, the criteria pollutant reductions of the final MY2021-2025 standards are substantial and will be relied upon by states to attain the ambient air quality standards and to accommodate future emissions growth.

Compared to the recent light-duty Tier 3 rule, the emission increases attributable to the rollback in the 2030 calendar year will offset 24% of the VOC reductions expected from Tier 3, offset 13% of the NOx reductions that are expected from Tier 3, and offset 38% of the PM2.5 reductions that are expected from Tier 3.[104] These are significant amounts of health-harming criteria emissions that the current light-duty Phase 2 GHG standards will reduce in the form of co-benefits. The agencies' assessment of the emissions impacts of the proposed rollback utterly fails to properly and fully account for the climate pollution impacts and criteria emission health and welfare benefits. Moreover, the allowance of these emissions constitutes a clear and unlawful abdication of EPA's statutory duty to protect human health and welfare from health-harming pollution.

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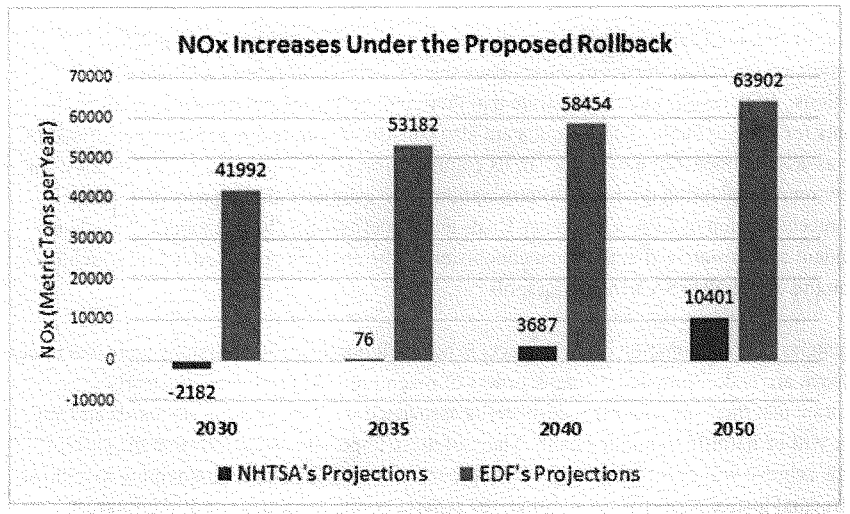
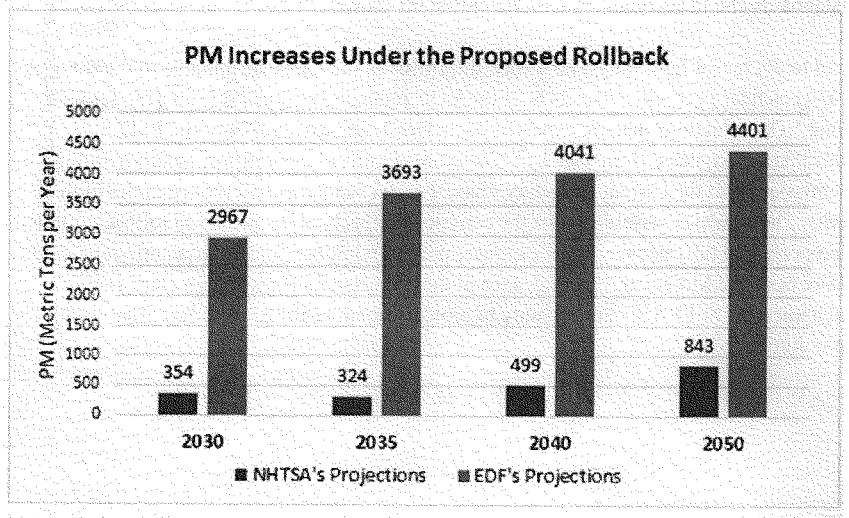
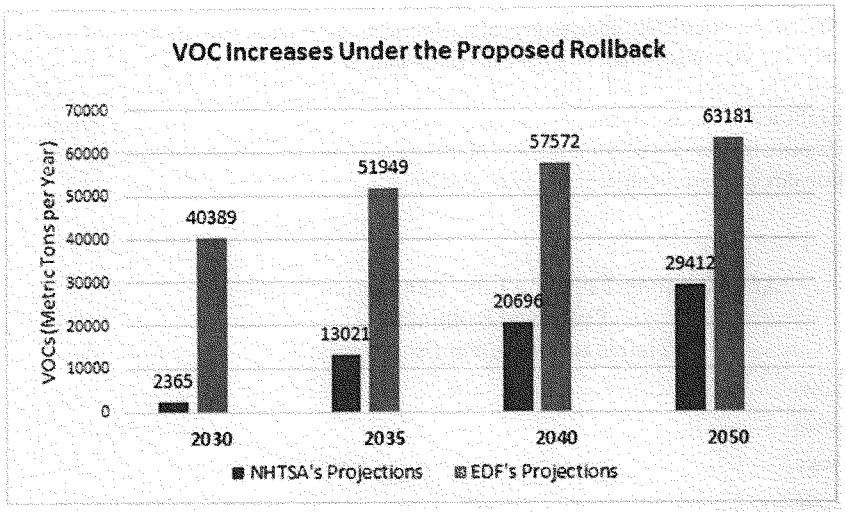
[102] Comment of Environmental Defense Fund, Clean Power Campaign, & Center for Energy Efficiency and Renewable Technologies, Re: Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles, at 52, 97 (Oct. 5, 2017), https://www.edf.org/sites/default/files/content/final_edf_ld_epa_reconsideration_comments_10.5.17.pdf.

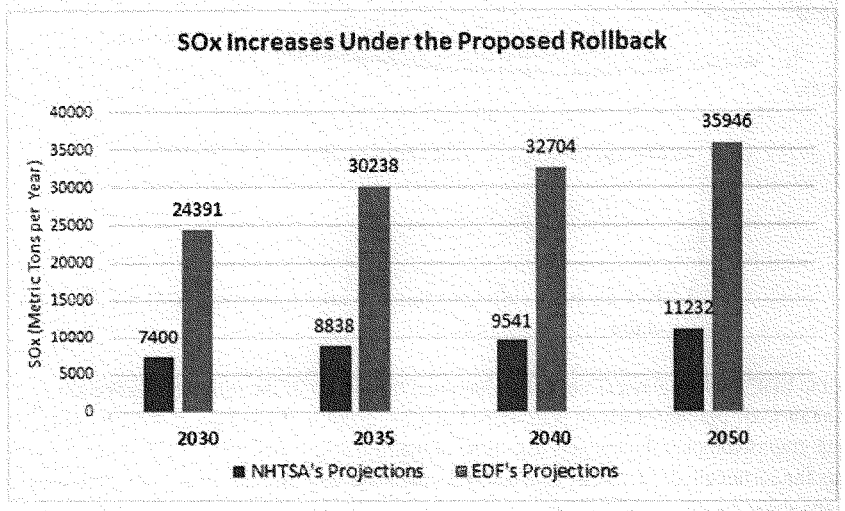
[103] Draft TAR at 12-47.

[104] EPA, Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards; Final Rule, 79 Fed. Reg. 23,414, 23,443 (Apr. 28, 2014).

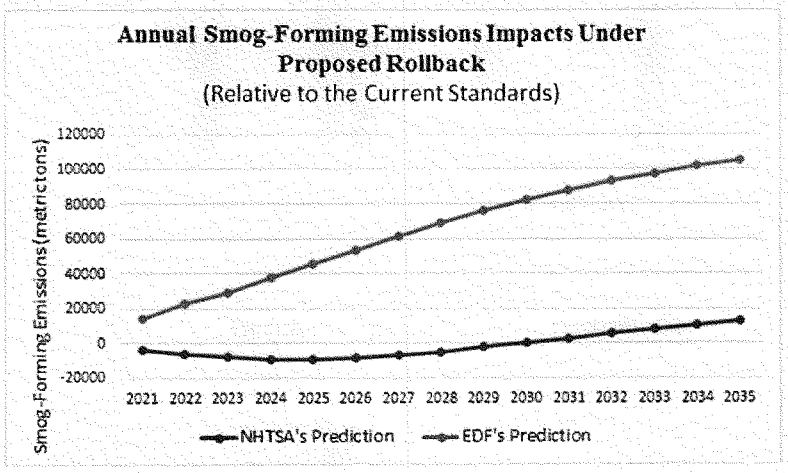

NOx Increases Under the Proposed Rollback
NOx (Metric Tons per Year)
70000
60000
50000
40000
30000
20000
10000
0
-10000
-2182
41992
76
53182
3687
58454
10401
63902
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


PM Increases Under the Proposed Rollback
PM (Metric Tons per Year)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
354
2967
324
3693
499
4041
843
4401
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


VOC Increases Under the Proposed Rollback
VOCs (Metric Tons per Year)
70000
60000
50000
40000
30000
20000
10000
0
2365
40389
13021
51949
20696
57572
29412
63181
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


SOx Increases Under the Proposed Rollback
SOx (Metric Tons per Year)
40000
35000
30000
25000
20000
15000
10000
5000
0
7400
24391
8838
30238
9541
32704
11232
35946
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections

Since NHTSA has drastically underestimated the impact of the proposal on emissions of ozone precursors (i.e. VOC and NOX), they have mischaracterized the impact of the rollback on ozone formation. The graph below is similar to the one the Agencies presented in the preamble to show that the rollback had a "negligible environmental impact."[105] When EDF added the results from its assessment, the graph starkly illustrates that the true impacts, for smog-forming emission impacts in this case, are significant and grow over time.

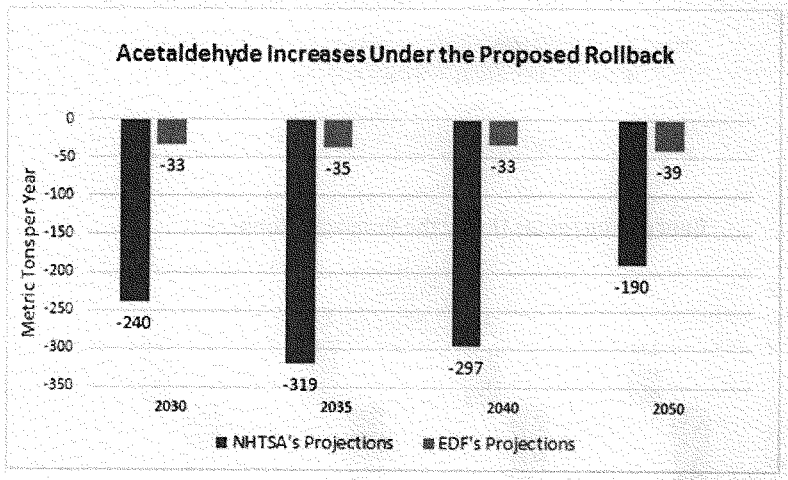


3. Key air toxic emissions impacts are higher than NHTSA and EPA claim

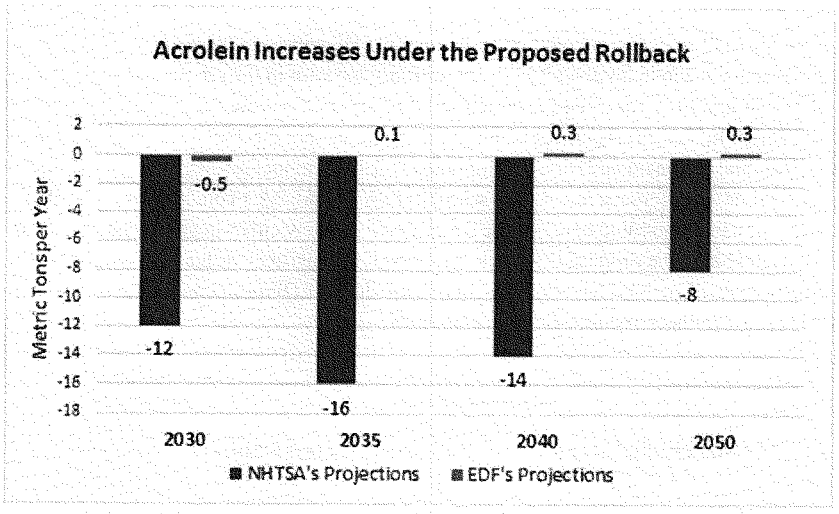
Finally, the EDF modeling assessment also examined the impact of the rollback on several important air toxic pollutants which is described in more detail in the Rykowski Report. The following graphs compare the impacts over time of the rollback compared to the current standards for acetaldehyde, acrolein, benzene, 1,3 butadiene, and formaldehyde. The Agencies' projections show that there are decreases in all of these toxic pollutants which has led them to conclude that the rollback will have a beneficial impact on air toxics.[106] However, this conclusion is wrong because of the flawed modeling runs and their results the Agencies relied upon.

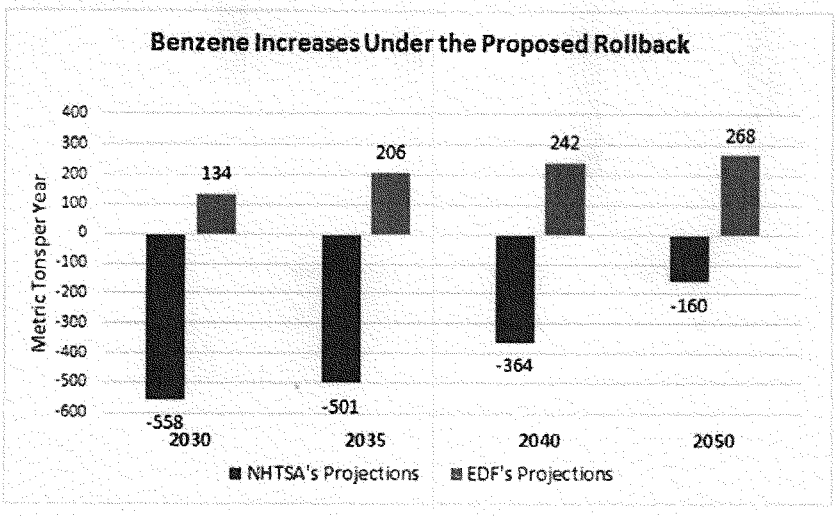
[105] NPRM, 83 Fed. Reg. at 42,996.
[106] NPRM, 83 Fed. Reg. at 43,332-34.

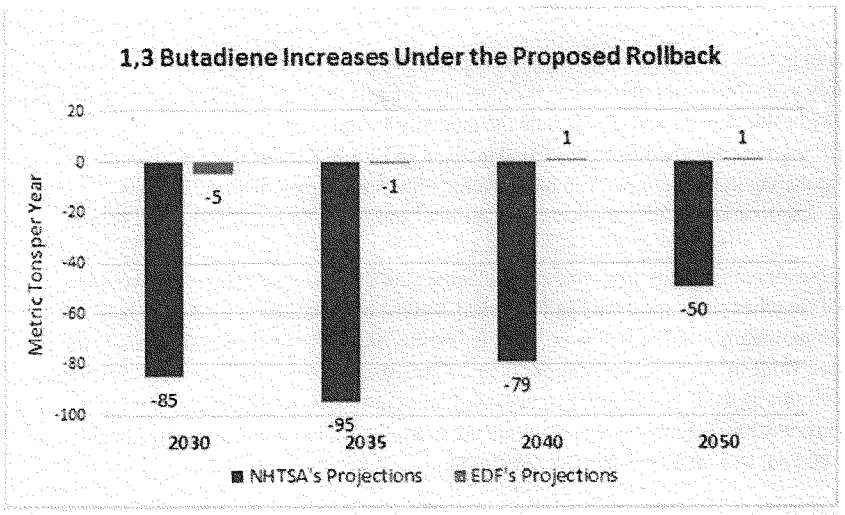
As was done for CO2 and criteria pollutant assessments, EDF corrected these errors. One of these errors discussed above involves NHTSA's arbitrary increase in the rebound effect from 10 to 20%. NHTSA and EPA concluded that their rebound assumptions are the main reason for the air toxics benefits. In fact, the Agencies admit in the preamble that this result was caused by their VMT, rebound, and upstream emission assumptions.[107] EDF's model results, which are based on more defensible assumptions, are at odds with NHTSA's and EPA's conclusions. For all of the air toxic pollutants presented below, the EDF projections show either insignificant effects or increases attributable to the proposed rollback. This result is consistent with all previous assessments performed by NHTSA and EPA. In no case do the EDF projections support a conclusion that the rollback reduces air toxic emissions.

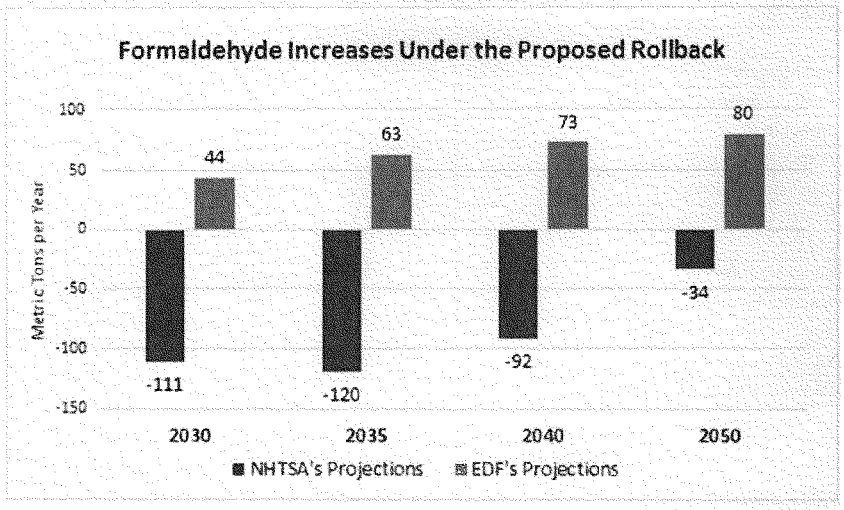


[107] NPRM, 83 Fed. Reg. at 43,332.


Acrolein Increases Under the Proposed Rollback
Metric Tons per Year
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-12
-0.5
-16
0.1
-14
0.3
-8
0.3
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


Benzene Increases Under the Proposed Rollback
Metric Tons per Year
400
300
200
100
0
-100
-200
-300
-400
-500
-600
-558
134
-501
206
-364
242
-160
268
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


1,3 Butadiene Increases Under the Proposed Rollback
Metric Tons per Year
20
0
-20
-40
-60
-80
-100
-85
-5
-95
-1
-79
1
-50
1
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections


Formaldehyde Increases Under the Proposed Rollback
Metric Tons per Year
100
50
0
-50
-100
-150
-111
44
-120
63
-92
73
-34
80
2030
2035
2040
2050
NHTSA's Projections
EDF's Projections

C. Health impacts of rolling back the current GHG standards are consequential

In order to put the adverse criteria emission impacts into perspective, EDF used EPA's regulatory assessment tool to translate the emission impacts due to a rollback into mortality and morbidity health impacts and to calculate the monetized value of those impacts. The assessment tool EDF used for this analysis is described in detail in EPA's Technical Support Document titled Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors."[108] A detailed description of EDF's application of this tool can be found in the Rykowski Report.

EDF's assessment was only performed for calendar year 2030, but similar results would be expected for other years since the health impacts and their monetization is roughly proportional to tons of emissions. Table 1 below presents the results of EDF's analysis and shows 1) the monetized value of mortality and morbidity and 2) the specific mortality and morbidity impacts. Moreover, this analysis is conservative because it does not monetize benefits relating to reductions in ozone-precursors, where premature mortality is among the associated health effects. 80 Fed. Reg. at 65308-09 (Oct. 26, 2015)

Table 1 - Effect of the Proposal on PM2.5-Related Health Impacts in 2030 (Derived using EPA Regulatory Analysis Tool)	
Monetized Value of Health Impacts: Mortality and Morbidity ($2016 million)	
3% discount rate	$4393-$9802
Mortality and Morbidity Impacts	
Premature Mortality	440-982
Respiratory emergency room visits	1,195
Acute bronchitis	3,761
Lower respiratory symptoms	48,467
Upper respiratory symptoms	68,586
Minor Restricted Activity Days	1,832,427
Work loss days	310,022
Asthma exacerbation	68,802
Cardiovascular hospital admissions	908
Respiratory hospital admissions	743
Non-fatal heart attacks (Peters)	2,818
Non-fatal heart attacks (All others)	305

[108] Technical Support Document, "Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors," U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, January 2013.

This summary table above shows that the health impacts and their valuation are important. The two numbers in red are of particular note. First, the premature mortality estimates for calendar year 2030 is 440 to 982 incidences. Second, the monetized value of the mortality and morbidity impacts is $4.4 to 9.8 billion.

In addition to analyzing the health impacts for calendar year 2030, EDF also calculated the cumulative PM-related health impacts from 2017 to 2050 and the results are presented in Table 2 below. It should be noted that the damage functions used to calculate the health impacts were applied conservatively and as a consequence the impacts in the table are likely on the low side. Please see a more detailed description of EDF's methodology in the Rykowski Report.[109] These results show that the cumulative adverse health impacts are stunning. In particular, premature mortality attributed to the rollback is far greater than NHTSA's flawed safety-related fatality projected benefits when expressed on a cumulative basis.[110] The cumulative 14,501-32,362 premature mortality incidences translate into dollar damages of $89 to 197 billion and were totally ignored by the Agencies.

Table 2: Cumulative Effect of the Proposal on PM2.5-Related Health Impacts from 2017-2050 (Derived using EPA Regulatory Analysis Tool)	
Premature Mortality	14,501-32,362
Respiratory emergency room visits	40,089
Acute bronchitis	126,057
Lower respiratory symptoms	1,623,910
Upper respiratory symptoms	2,299,464
Minor Restricted Activity Days	61,424,459
Work loss days	10,395,427
Asthma exacerbation	2,358,166
Cardiovascular hospital admissions	30,418
Respiratory hospital admissions	24,887
Non-fatal heart attacks (Peters)	94,492
Non-fatal heart attacks (All others)	10,222

Finally, EDF also calculated these health impacts over the lifetimes of MY 1977-2029 vehicles which was the same basis NHTSA and EPA used in their NPRM to express cumulative model year impacts for the rollback of the standards.[111] When expressed on this basis, the pollutant-related mortality incidences, which the Agencies did not provide anywhere in the proposal, are estimated at 4,832 to 10,780. To put this in perspective, NHTSA and EPA claim that the rollback would reduce fatalities by 15,700 (a conclusion which we elsewhere show to be

[109] Technical Analysis Review for EDF, at 86.
[110] *Id.*
[111] *Id.*

arbitrary and fundamentally flawed).[112] The monetized value of the health impacts is 43 to 96 billion dollars which would be a cost that is attributable to the rollback. The Agencies' estimate for these same pollutant damages is a cost of $1 billion.[113] By any measure, these impacts are extraordinary and were not properly characterized in the proposal. EDF results show that the proposal is fatally deficit in its attempt to assess the impact of the rollback on emissions and associated health effects.

D. NHTSA's emissions and health impact estimates are grossly underestimated and categorically wrong

In spite of an extensive record demonstrating that the current standards provide significant GHG emission reductions and important non-GHG emission and health benefits, NHTSA and EPA constructed flawed modeling assumptions that systematically distort and dramatically understate the estimated impacts of the proposed rollback of the current standards. EDF corrected these flaws, re-ran the NHTSA Volpe model, and produced a more accurate assessment that shows the Agencies grossly underestimated the GHG, non-GHG, and health impacts of the rollback across the board. In addition, the pollutant-related mortality estimates are staggering and represent many billions of dollars of health damages that are attributable to rolling back the standards.

EDF's revised assessment demonstrates that the Agencies, by erroneously understating the emission impacts of their proposal, are willing to sacrifice the health and welfare of Americans in order to pursue a misguided attempt to gut the current standards. The Agencies got it wrong in their assessment of the emission impact of their proposal and given the significance of these errors they should withdraw their proposal immediately.

III. The NHTSA Model is Systematically Flawed and Projects Dramatically Overstated Vehicle Technology Costs, Understated Fuel Savings, and Erroneous Net Societal Benefits

A. Summary

Over the course of seven years from 2010 through 2016, and in thousands of pages of detailed analyses published in various rulemaking and technical documents, NHTSA and EPA repeatedly used the same core modeling approaches, with incremental refinements, to assess and improve their projections of regulatory costs and benefits associated with the Clean Car Standards.

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[112] *See* NPRM, 83 Fed. Reg. at 43,231, 43,352, Table VII-89.
[113] NPRM, 83 Fed. Reg. at 43,313.

In late 2017 and early 2018, NHTSA reversed course, fundamentally changing its modeling approach to incorporate multiple new, controversial, and unsupported changes. As a result, the experimental NHTSA NPRM model bears very little resemblance to the one that NHTSA used for the previous 15 years of CAFE rulemakings (or to the realities of how the automotive industry operates). Unsurprisingly, nearly all the experimental changes make the current Clean Car Standards look like they will entail greater costs and deliver fewer benefits, and accordingly, obscure the true and full extent of the harmful impacts associated with the agencies' proposal to roll back these standards. In particular:

- For the previous six years, NHTSA and EPA projected that the incremental MY 2025 vehicle technology costs for the current Clean Car Standards would be about $1,000—now NHTSA projects that the vehicle technology costs will be approximately 50 percent higher for the CAFE standards and about twice as high for the GHG standards.
- For the previous six years, NHTSA and EPA projected that MY 2025 lifetime consumer fuel savings would be between $2,200 (current CAFE standards) and $2,800 (current GHG standards)—now NHTSA projects that the fuel savings will be fully one-third lower for both the CAFE and GHG standards
- For the previous six years, NHTSA and EPA projected that the final few years of the current Clean Car Standards would provide net societal benefits of approximately $100 billion—now NHTSA projects that the standards will entail net societal costs of about $200 billion, or a $300 billion reversal

EDF has successfully replicated NHTSA's NPRM model[114] results. Building from these results, we have analyzed a series of EDF-modified runs to demonstrate the fundamental flaws and biases in the NPRM model that lead to unreasonable, nonsensical, and arbitrary results, and certain results that undermine the grounds for the proposed rule.

Technology Costs

- EDF reduced the cost of every individual technology by 50 percent, yet the NHTSA model only projected a 40 percent overall vehicle technology cost reduction
- EDF deleted one technology from the model, and the NHTSA model predicted a lower and nonsensical vehicle technology cost even with fewer technology choices
- EDF adjusted the flawed core technology ranking algorithm to better reflect true cost effectiveness, and vehicle technology costs fell by $350
- EDF corrected a major bias in the NHTSA model that prohibits most manufacturers from using any high compression ratio technology packages, even in MY 2030 and beyond, and overall vehicle technology costs decreased by $600
- EDF cites a Union of Concerned Scientists critique that shows that the NHTSA model assumes that automakers will act irrationally by letting valuable GHG program credits expire, rather than using them to reduce their cost of compliance

[114] In this section, EDF refers to the NHTSA NPRM model. In the NPRM, NHTSA refers to its CAFE model, but that is confusing since it uses its model for both CAFE and GHG analyses. In the past, NHTSA has called it the Volpe model, since the model was developed, and is maintained, by the Volpe National Transportation Systems Center. While we refer to the NHTSA NPRM model for simplicity, the model is comprised of many individual modules on specific topics, which are sometimes integrated with other modules and sometimes are not integrated with other modules.

- EDF documents that the NHTSA model predicts that automakers will over comply with the current Clean Car Standards for several years, most remarkably in MY 2021-2023, years for which the agencies are proposing to completely roll back the standards

Fuel Savings

- EDF documents that the NHTSA model assumes that there will be industry-wide over-compliance under the roll back standards throughout the MY 2021-2032 timeframe as well as beyond MY 2032—there is no historical precedent for such sustained over-compliance, even at much weaker standards
- EDF documents that the NHTSA model "projects" aggregate, nationwide VMT levels for 2016 and 2017 that are about 20 percent lower than formal government estimates by EIA and FHWA

Cost/Benefit

- In EDF-modified runs which retain some NHTSA assumptions and change the most egregious flaws and biases, we show that the roll back would entail net societal costs of up to $300 billion, up to a $500 billion change from the NHTSA NPRM's estimate of $200 billion of net benefits based on a series of indefensible assumptions and model design features

This section clearly shows that the experimental and controversial changes that NHTSA made to its NPRM model exhibit systematic bias and yield a wide array of nonsensical results. Because these changes represent unexplained departures from the agencies' prior approaches and are disconnected from the underlying factual record, they are arbitrary and capricious. In addition, the agencies' reliance on this model to satisfy their statutory obligations under the Clean Air Act and EPCA is manifestly inadequate because the model systematically overstates costs and understates benefits of the current standards in a manner that frustrates the statutory purposes to reduce greenhouse gases and improve fuel economy.

B. Introduction

NHTSA[115] stipulates at the beginning of the Notice of Proposed Rulemaking (NPRM) that "this proposal is entirely de novo, based on an entirely new analysis."[116]

The decision to pursue "an entirely new analysis" is a marked departure from NHTSA's prior approach to assessing the costs and benefits of the Clean Car Standards. NHTSA has used its internal model for many individual CAFE rulemakings since 2001. Most recently, NHTSA used its model for two major rulemakings (the 2010 rule establishing the CAFE standards for MY

[115] EDF's comments apply to both NHTSA and EPA and to both proposed rules. However, in this section, EDF will generally refer to NHTSA, rather than NHTSA and EPA jointly, both for simplicity and for accuracy, as NHTSA unilaterally carried out the NPRM analysis without any EPA staff technical input. For example, in an EPA memorandum to the Office of Management and Budget dated July 12, 2018, a senior EPA staffer stated that "The Preliminary RIA is based on the independent technical assessment from DOT-NHTSA, and the document should reflect appropriately who has authored the Preliminary RIA. EPA's name and logo should be removed from the DOT-NHTSA Preliminary Regulatory Impact Analysis." A recently retired EPA staffer who worked on the Clean Car Standards has likewise cited "DOT's refusal to have a single technical working meeting with EPA staff since the 2016 election." https://thehill.com/opinion/energy-environment/400051-ignore-the-facts-only-way-to-justify-rollback-of-epas-greenhouse

[116] 83 FR 42987, August 24, 2018.

2012-2016,[117] and the 2012 rule setting final CAFE standards for MY 2017-2021 and augural CAFE standards for MY 2022-2025[118]), as well as Technical Assessment Reports (TAR) in 2010[119] and 2016.[120] Throughout the 2010-2016 timeframe, NHTSA made incremental refinements to its model to improve its reliability and reasonableness.

In 2017 and 2018, after 15 years of incremental refinement and improvement, NHTSA reversed course, making a large number of fundamental and controversial changes, purportedly in an effort to address newly-identified "problems" that NHTSA had not considered important over the previous 15 years. Individually, each of these experimental changes have the potential to significantly affect the reasonableness and magnitude of the model results. Acting in concert, these major changes have produced massive fluctuations in model outputs and, in some cases, results that are clearly nonsensical. The one theme that ties all these experimental changes together is that they drastically reduce the projected benefits and increase the projected costs of the current standards compared to the roll back.

Some of these experimental changes are discussed elsewhere in EDF's comments. For example, see Section I for a detailed analysis of the new and deceptive modeling assumptions regarding vehicle safety, Section I.I. for a critique of the indefensible scrappage module, and Section I.G.3.for an analysis of the questionable assumptions inherent in the sales module. More detail on all these flawed model features are in the attached Rykowski Report.

This section focuses on the NPRM model flaws and biases that contribute to three key model outputs: vehicle technology compliance cost, consumer fuel savings, and the cost/benefit analysis. The NPRM model projections for all three of these critical outputs are very different from NHTSA and EPA projections in the recent past, as shown in the tables below.

[117] 75 FR 25324, May 7, 2010.
[118] 77 FR 62624, October 15, 2012.
[119] "Interim Joint Technical Assessment Report: Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2017–2025," issued jointly by EPA, NHTSA and CARB, September 2010, available at https://www.epa.gov/sites/production/files/2016-10/documents/ldv-ghg-tar.pdf.
[120] https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#TAR

Table 1. Comparison of MY 2025 Vehicle Technology Cost Projections for the Current Standards

Analysis	Year of Publication	Source	Model Years	Cost	
				CAFE	GHG
Final Rule[121]	2012	NHTSA	2017-2025	$1,500	
Final Rule[122]	2012	EPA	2017-2025		$1,836
Final Rule/TAR[123]	2012/2016	EPA	2022-2025		$1,070
Draft TAR[124]	2016	NHTSA	2022-2025	$1,245	
Draft TAR[125]	2016	EPA	2022-2025		$894
Final Determination[126]	2017	EPA (Obama)	2022-2025		$875
ICCT Report[127]	2017	ICCT	2022-2025		$551
EPA-to-OMB: modified NHTSA model[128]	2018	EPA	2022-2025		$1,259
EPA-to-OMB: updated OMEGA[129]	2018	EPA	2022-2025		$935
Current NPRM[130]	2018	NHTSA	2021-2025	$1,850	$2,260

Table 1 is a comprehensive comparison of projections of vehicle technology costs to meet the MY 2025 standards. The various analyses are not always perfectly comparable, e.g., while most of the analyses addressed the MY 2022-2025 Midterm Evaluation timeframe, the projections in the first two rows from the 2012 Final Rule addressed a much longer timeframe from MY 2017-2025, and the projections in the final row covered one additional year, MY 2021.

[121] 77 FR 62660, October 15, 2012.
[122] 77 FR 62665, October 15, 2012.
[123] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, EPA, NHTSA, and CARB, July 2016, page 12-35. https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEQ.PDF?Dockey=P100OXEQ.PDF
[124] Ibid, page ES-9.
[125] Ibid, page ES-9.
[126] Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA, January 2017, page 5. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf
[127] Efficiency Technology and Cost Assessment for U.S. 2025-2030 Light-Duty Vehicles, International Council on Clean Transportation, March 2017, https://www.theicct.org/publications/US-2030-technology-cost-assessment
[128] EPA Review of CAFE Model with "GHG" Settings, Meeting with Office of Management and Budget/OIRA, found at PDF page 113 (Apr. 16, 2018), available under the file titled "Email 5" at https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453
[129] Ibid.
[130] 83 FR 43323 and 43324, August 24, 2018.

Considering only the three rows with NHTSA projections for CAFE standards compliance, the NHTSA NPRM cost projection of $1,850 is far higher than previous NHTSA estimates. The NPRM estimate of $1,850 for the five model years 2021-2025[131] is significantly higher than NHTSA's 2012 Final Rule estimate, even though the latter accounted for almost twice as many model years of standards as the NPRM. NHTSA's NPRM estimate of $1,850 is also about 50 percent higher than its Draft TAR estimate of $1,245 just two years ago. The one additional model year covered by the NPRM estimate could explain part of this large difference, of course, but certainly cannot explain the entire 50 percent increase.

The comparison of vehicle technology cost projections for compliance with the GHG standards is even more stark. NHTSA's NPRM projection of $2,260 for MY 2021-2025 is, again, significantly higher than EPA's 2012 Final Rule projection, even though the latter reflects almost twice as many model years of control. There are six additional projections for GHG standards compliance for MY 2022-2025, with a range of $551-$1,259 (the high end of this range comes from an EPA staff analysis in which NHTSA's core NPRM model was used, but with modifications to correct specific errors). Even setting aside the lowest end of the range, a 2017 estimate based on a technology analysis by the International Council on Clean Technology, and accounting for the additional year of control reflected in NHTSA's NPRM estimate, Table 1 shows that the NPRM estimate of $2,260 for GHG compliance is about twice as high as multiple EPA analyses, most of which were performed in the last two years.

[131] The proposed alternative roll back also includes MY 2026, but since the augural CAFE standards for MY 2026 are no higher than for MY 2025, the addition of MY 2026 should have no meaningful impact on the incremental per vehicle technology cost.

Table 2. Comparison of MY 2025 Vehicle Lifetime Consumer Fuel Savings Projections for the Current Standards (3 percent discount rate)

Analysis	Year of Publication	Source	Gasoline Price in 2025-2030	Lifetime Fuel Savings	
				CAFE	GHG
Final Rule[132]	2012	NHTSA	About $4/gal	$6,300	
Final Rule[133]	2012	EPA	About $4/gal		$7,400
Draft TAR[134]	2016	NHTSA	About $3/gal	$2,200	
Draft TAR[135]	2016	EPA	About $3/gal		$2,800
Final Determination[136]	2017	EPA (Obama)	About $3/gal		$2,800
Current NPRM[137]	2018	NHTSA	About $3/gal	$1,470	$1,830

Table 2 shows a comparison of projections (all based on a 3 percent discount rate) of lifetime consumer fuel savings for a MY 2025 vehicle under the current Clean Car Standards. For fuel savings, future gasoline prices are, of course, a key factor. Accordingly, the first two rows, from the 2012 Final Rule, are not comparable with the remaining rows as fuel price projections at the time were around $4 per gallon for the 2025-2030 timeframe. But, setting the first two rows aside, NHTSA's lifetime consumer fuel savings projections for both its CAFE and GHG analyses are considerably lower than other, recent estimates using similar fuel price projections of about $3 per gallon for the 2025-2030 timeframe. NHTSA's NPRM projection for its CAFE standards analysis of $1,470 is 33 percent lower than its own estimate just two years earlier in its TAR analysis. NHTSA's NPRM projection for its GHG analysis of $1,830 is 35 percent lower than EPA estimates in both the TAR and the original Final Determination. The fact that the differences in lifetime consumer fuel savings between the NHTSA NPRM projections and historical projections for both its CAFE and GHG analyses are similar suggests that there were systematic changes in the NHTSA approach for calculating fuel savings in the NPRM.

While it is fairly simple to identify some of the experimental changes made by NHTSA, such as those that led to the major changes in how safety and used vehicle scrappage are treated, and to quantify their impacts on key outputs, the factors underlying the significant changes in NHTSA's vehicle technology cost and lifetime consumer fuel savings projections are harder to identify and quantify. There are three reasons for this. One, it appears that, for both technology cost and fuel savings, the large differences are due not to a major change in one key assumption or model design feature, but rather are due to multiple changes, each of which in isolation probably had a

[132] 77 FR 62661, October 15, 2012.
[133] 77 FR 62926, October 15, 2012.
[134] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, EPA, NHTSA, and CARB, July 2016, page ES-11. https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF
[135] Ibid.
[136] Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA, January 2017, page 7. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf
[137] 83 FR 43323 and 43324, August 24, 2018.

relatively small-to-medium impact, but in combination (nearly always acting in the same "direction") had a very large impact. Two, NHTSA has failed to provide adequate information about the changes it has made with respect to these issues and, when it does identify that it made a change, makes little attempt to quantify the impact of the change on important model outputs. Three, accordingly, stakeholders have had to run the NHTSA model numerous times, investing considerable time and effort in trial-and-error mode to attempt to reverse engineer the key drivers influencing NHTSA's dramatic reversal during the limited 60-day comment period. As we describe elsewhere in our joint legal comments, EPA's failure to transparently set forth this information frustrates meaningful comment and violates the agency's obligations under section 307 of the Clean Air Act, including to ensure the proposal sets forth "the methodology used in obtaining the data and in analyzing the data."

Table 3 provides a similar comparison of projections of net societal benefits (i.e., total societal benefits minus total societal costs) for the MY 2025 standards relative to a no-standards baseline assumed in each study. Again, the various analyses are not always perfectly comparable, e.g., while most of the analyses addressed the MY 2022-2025 Midterm Evaluation timeframe, the projections in the first two rows from the 2012 Final Rule address a much longer timeframe from MY 2017-2025, and the projections in the final row from the NPRM cover one additional year, MY 2021.

In terms of net societal benefits, Table 3 shows that NHTSA projections for the CAFE standards and EPA projections for the GHG standards throughout the 2012-2017 timeframe were extremely similar in projecting large net societal benefits. In the Final Rule establishing the standards for the nine years from MY 2017 through 2025, both NHTSA and EPA projected very large net benefits in the $450 billion to $480 billion range. In the 2016 TAR, both NHTSA and EPA projections were for net societal benefits of approximately $90 billion for the four years of standards from MY 2022-2025. The smaller net benefits projections were to be expected, given that the TAR only addressed four years rather than nine, and gasoline price projections in the TAR were lower than in the 2012 rulemaking. Finally, in the original EPA Final Determination of January 2017, EPA projected net societal benefits of about $100 billion for the MY 2022-2025 GHG standards.

The final row in Table 3 shows that NHTSA is now projecting remarkably different results. After many years of projecting that its CAFE standards would have extremely positive societal impacts (and with EPA projecting very similar positive impacts for the corresponding GHG standards), NHTSA is now projecting that the current MY 2021-2029 standards, if maintained, would have net costs of approximately $200 billion during those five years, or, stated differently, rolling back the standards to MY 2020 levels would have net societal benefits of about $200 billion.

Table 3. Comparison of Net Benefits Projections for the Current Standards (billions of dollars, 3 percent discount rate)

Analysis	Year of Publication	Source	Model Years	Net Benefits	
				CAFE	GHG
Final Rule[138]	2012	NHTSA	2017-2025	+476 to +483	
Final Rule[139]	2012	EPA	2017-2025		+451
Draft TAR[140]	2016	NHTSA	2022-2025	+88	
Draft TAR[141]	2016	EPA	2022-2025		+94
Final Determination[142]	2017	EPA (Obama)	2022-2025		+98
Current NPRM[143]	2018	NHTSA	2021-2029	-176	-201

C. NHTSA's Model Fails at its Core Function—to Accurately Predict the Most Cost-Effective Technology Pathways for Automaker Compliance

The agencies rely on the NPRM model to satisfy their respective obligations to establish "maximum feasible" fuel economy standards under the Energy Policy and Conservation Act and to set emission standards that protect public health under the Clean Air Act. So, consistent with those statutory charges, the NHTSA model must reasonably predict how manufacturers can apply new technology to meet future CAFE and GHG standards. If the model cannot do this successfully, then its vehicle technology cost projections will be wrong. And if the vehicle technology cost estimates are erroneous, then other critical projections which depend on vehicle technology cost—such as the sales and scrappage modules, which are primary determinants of fatality costs and non-fatal crash costs in NHTSA's model—will be wrong as well.

As shown in the NPRM summary tables on societal net benefits for the MY 1977-2029 CAFE and GHG analyses, NHTSA projects that the sum of the costs for just three categories alone—technology costs, non-rebound fatality costs, and non-rebound, non-fatal crash costs—represent about two-thirds of all projected gross benefits under the preferred alternative roll back, and

[138] 77 FR 62629, October 15, 2012.
[139] Ibid.
[140] Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, EPA, NHTSA, and CARB, July 2016, page ES-12. https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF.
[141] Ibid, page ES-12.
[142] Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA, January 2017, page 7. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf
[143] 83 FR 42998, 43310, and 43313, August 24, 2018. Note that the sign for net benefits under the current NPRM is reversed in Table 3, as Table 3 refers to the change from flat (proposed preferred alternative) levels to the current standards, while the NHTSA NPRM tables refers to the change in the opposite direction, from the current standards to flat levels beginning in MY 2021.

approximately double the projected net benefits (i.e., benefits minus costs) associated with the roll back.[144] Simply put, if the NHTSA model cannot reasonably predict how manufacturers will choose new technologies to meet future standards, then the agencies' reliance on the model to establish standards cannot satisfy their statutory mandates.

The automotive industry is a cost-driven business, and the most successful companies are those that can meet consumer demands and regulatory requirements in the most cost-effective manner. NHTSA stipulates this in the NPRM when it states that its model "adds technology, in response to the standards being considered, in a way that minimizes the cost of compliance."[145]

In order to demonstrate how the NHTSA model fails to apply technology in a cost-minimizing manner, EDF ran the NHTSA model in three very different ways, each time changing a single element while maintaining every other aspect of the base NHTSA model. Table 4 shows the NHTSA model projections for fleet wide vehicle compliance costs[146] for meeting the current Clean Car GHG Standards, for the NPRM base run as well as the three EDF runs. We show results for five model years, 2028-2032, when NHTSA suggests that the technology pathways have reached equilibrium. More details on the methodology used for these runs are provided in the Rykowski Report.

Table 4. Vehicle Compliance Cost Projections for Current MY 2025 GHG Standards Under NHTSA Model Base Case and 3 EDF Runs

Model Year	NPRM Base Run	EDF Run 1 50% Cost Reduction	EDF Run 2 Delete Cooled EGR	EDF Run 3 Change from 2.5-Year to 15-Year Fuel Savings
2028	$2,785	$1,682	$2,660	$2,353
2029	$2,815	$1,713	$2,678	$2,380
2030	$2,773	$1,683	$2,627	$2,398
2031	$2,730	$1,649	$2,584	$2,441
2032	$2,707	$1,620	$2,553	$2,486
Average	$2,762	$1,669	$2,620	$2,412

In EDF Run 1, we ran the NHTSA NPRM model with the single change of reducing the cost of each individual technology in the NHTSA model technology input file by 50 percent (columns P through AG of the worksheets for the 10 vehicle subclasses). With all other things being equal, a reasonable cost optimization methodology would continue to select the same technologies and yield an average vehicle compliance cost projection of $1,381, 50 percent lower than NHTSA's projection of $2,762. Instead, the 5-year average compliance cost projection only decreased from $2,762 to $1,669, or by 40 percent, and to a value that is $288 higher than expected. This is a nonsensical result as the NHTSA model picked a much less cost-effective set of technologies

[144] 83 FR 42986, August 24, 2018, Table VII-45 on page 43310 for CAFE and Table VII-51 on page 43313 for GHG.
[145] 43 FR 43002, August 24, 2018.
[146] Note that the cost values in Table 4 are total vehicle compliance costs, which include incremental technology costs plus additional incremental costs such as taxes, insurance, and maintenance, and accordingly the NPRM Base Run values in Table 4 are greater than the $2,260 "technology-only" value shown in Table 1 above.

under the "50 percent cost reduction" constraint, suggesting that there is a fundamental error in its cost optimization algorithm.

EDF Run 2 involved the base NHTSA model with the one change of deleting (or "skipping" in NHTSA's terminology) cooled exhaust gas recirculation 1 (CEGR1) technology. Since this was the only change, there are two plausible outcomes: 1) no change in vehicle compliance cost, if cooled exhaust gas recirculation was so cost-ineffective that it was never chosen in the base NHTSA NPRM run (or if it was chosen in the base run, but there were other technologies with only very slightly worse cost effectiveness that could be used instead), or 2) an increase in vehicle compliance cost, since there is one fewer technology for the model to choose and in some cases CEGR1 may have to be replaced by a less cost-effective technology. Yet, as shown in Table 4, the NHTSA model again produced a nonsensical result as the average vehicle compliance cost decreased by $142 when EDF deleted CEGR1 from the model. In reviewing the NHTSA data in more detail, we found that the base NHTSA model (with CEGR1) predicts that most strong hybrids retain CEGR1, which is irrational and not cost effective as this technology provides little to no additional GHG reduction benefit to a strong hybrid vehicle.

In EDF Run 3, we ran the NHTSA NPRM model with the single change of replacing the model's assumption that automakers will automatically apply any technology that pays for itself in 30-months with a 15-year assumption. This change much more accurately reflects true GHG emissions reduction cost effectiveness, as it more fully reflects the true GHG reduction potential of any given technology over the full vehicle useful life. As Table 4 shows, replacing the 2.5-year fuel savings with 15-year fuel savings forces the NHTSA model to indeed choose more cost-effective technology pathways, with the average vehicle compliance cost projection decreasing from $2,762 to $2,412, or by $350 or 13 percent. This confirms that the base NHTSA NPRM model, with the flawed 30-months fuel savings assumption, fails to truly represent technology and standards compliance cost effectiveness.

The three EDF runs summarized in Table 4 conclusively show, using three very different approaches, that the NHTSA NPRM model produces nonsensical results and fails to accurately predict the most cost-effective technology pathways for meeting future standards. These nonsensical results are indicative of deep and fundamental flaws with the basic design of the NHTSA model. The automotive industry is a highly competitive and cost-driven industry, yet the NHTSA model assumes that automakers will make a series of irrational and inefficient choices and waste money. This fundamental failure to fulfill its single most critical core function demonstrates that it is unreasonable for the agencies to rely on the model to satisfy their statutory obligations under EPCA and the Clean Air Act.

D. Specific Examples of Blatant Flaws and Biases in the NPRM Model That Artificially Inflate its Vehicle Technology Cost Projections

In Table 1 above, we showed that NHTSA's NPRM model yields vehicle technology cost projections for CAFE compliance that are up to 50 percent higher than NHTSA's own estimate from just two years ago, and about twice as high for GHG compliance as a series of EPA estimates in recent years. In subsection C, we showed, by running the base NHTSA NPRM model with individual changes, that the model repeatedly produces nonsensical results and

completely fails to provide reasonable projections for technology adoption and costs. Time constraints prevented an exhaustive exploration of every individual element of the NHTSA model, but this section will highlight some of the most important individual examples of flaws and biases that affect the NHTSA vehicle technology cost projections.

1. Use of Flawed "Effective Cost" Technology Ranking Metric

The NHTSA NPRM model uses a metric that it calls "Effective Cost" to rank technologies for automakers to choose from for future compliance. This is an inherently flawed metric that is a critical contributing factor to NHTSA's inflated vehicle technology cost projections.

NHTSA defines Effective Cost for an individual technology as 1) incremental cost associated with adding the technology to a vehicle, minus, 2) vehicle fuel savings associated with the use of the technology over its first 30 months, and, minus, 3) the reduction in CAFE fines for the vehicle based on the improved fuel economy.

The fundamental flaw in NHTSA's Cost Effective definition is that it does not reflect a technology's overall contribution to GHG (or CAFE) compliance. The inclusion of the 30-month fuel savings assumption does reflect a small portion (approximately 20 or 25 percent) of the overall GHG (or CAFE) compliance contribution over a vehicle's full lifetime, but ignoring the majority of its contribution means that the NHTSA NPRM model does not rank individual technologies based on their true cost effectiveness in meeting future standards.[147] Put another way, the model is hard wired to over select more, relatively lower cost technologies, without full consideration of these technologies' ultimate effectiveness in reducing emissions. An approach along these lines would be expected to result in vehicles with more technology and higher costs than would actually come to pass – which is precisely what the NPRM model produces.

Consider the simple example where a manufacturer has two choices to reduce GHG emissions by 10 percent. One option is to choose 10 different technologies that each reduce GHG emissions by 1 percent and cost $100 apiece. The second option is to adopt a single technology that reduces GHG emissions by 10 percent and costs $600. Both approaches yield a 10 percent GHG reduction, but the single technology will do so at a much lower cost. In the NHTSA model, the "effective cost" technology ranking metric for all the 1 percent/$100 technologies will be slightly less than $100 (accounting for the small fuel savings over the first 2.5 years), while the effective cost metric for the 10 percent/$600 technology will be over $100 (after accounting for the relatively larger fuel savings over the first 2.5 years). Accordingly, the NHTSA model will rank the 10 individual technologies as more "cost effective" than the single technology, even though the latter is truly more cost effective as it will provide the same overall emission reduction at a far lower cost.

[147] EDF notes that EPA's OMEGA model, inexplicably rejected for use in the proposed NPRM roll back, is far superior in this respect. OMEGA's Technology Application Ranking Factor includes a denominator that accounts for the technology's overall contribution to meeting future GHG standards, essentially representing a cost per gram (or per ton) value, that allows a true ranking based on technology cost-effectiveness and so is consistent with rational automaker compliance decisions.

One simple approach to estimate the minimum magnitude of the error in vehicle technology cost associated with NHTSA's flawed Effective Cost metric is the EDF Run 3 in Table 4 above. In this run, EDF replaced the 2.5-year fuel savings factor with 15-year fuel savings, which is a conservative, but much more reasonable, approximation of lifetime fuel and GHG savings. Table 4 shows that this single change reduced the NHTSA NPRM model's vehicle technology cost estimates in the MY 2028-2032 timeframe by an average of $350.

The Union of Concerned Scientists (UCS) has performed a more detailed critique of NHTSA's flawed Effective Cost algorithm and has estimated that this error likely raises NHTSA's average MY 2028 vehicle technology cost projections by nearly $500.[148] This is consistent with the $350 value above being a minimum estimate.

EDF strongly recommends that NHTSA replace its flawed Effective Cost metric with a true cost-effectiveness approach which would simulate rational decision making by automakers.

2. Constraints on Using HCR1 and HCR2

In addition to using a flawed Effective Cost metric for selecting technologies, NHTSA has further imposed artificial and unreasonable constraints on the use of certain technologies that does not match how automakers are applying them in vehicles today. While time constraints have prevented EDF from conducting a comprehensive review of the impacts of the NHTSA model's technology effectiveness, cost, and constraints assumptions on its vehicle technology cost projections, we have evaluated the impact of NHTSA's constraints on the use of high compression ratio (HCR) engines.

HCR1 represents Atkinson Cycle engine, non-turbocharger, technology that has already been in the marketplace for several years. Mazda has been a leader in bringing HCR1 technology to the market, and a majority of its current U.S. vehicles utilize HCR1. Mazda's success had led to several other manufacturers adopting HCR1 technology, including Hyundai and Toyota on non-hybrid vehicles and General Motors, Ford, and Nissan on hybrid vehicles. Yet, even for MY 2030 vehicles and beyond, NHTSA only allows the use of HCR1 by about 30 percent of the U.S. fleet.[149]

In comments submitted to this rulemaking docket, the International Council on Clean Transportation (ICCT) provided a compelling illustration of how wrong NHTSA has been with respect to its projections of HCR use. In the 2016 TAR, the NHTSA model prohibited Toyota from considering HCR through MY 2025. One year later, Toyota began adopting HCR in some of its 2016 vehicles, proving NHTSA wrong in its assumptions about the use of HCR by Toyota for the next nine years.[150]

HCR2 represents a more advanced version, combining HCR1 with additional technologies such as cylinder deactivation and cooled exhaust gas recirculation. The 2018 Mazda CX-5 and Mazda

[148] See comments of the Union of Concerned Scientists (UCS), submitted to this rulemaking docket ("UCS Comment").
[149] See comments of the International Council on Clean Transportation (ICCT), submitted to this rulemaking docket.
[150] Ibid.

6 both use HCR1 with cylinder deactivation, a package that is not permitted in NHTSA's model.[151] The 2018 Toyota Camry base engine, one of the most efficient spark-ignition engines on the market today, is an HCR1 engine with cooled exhaust gas recirculation, another package that is not permitted by the NHTSA model out to MY 2030 and beyond.[152]

NHTSA's self-imposed constraints of extremely limited use of HCR1 and no use whatsoever of HCR2 through the early 2030s are inconsistent with the rapid increase in market penetration of both base HCR1 and more advanced HCR applications (for example, HCR1 combined with either cylinder deactivation or cooled exhaust gas recirculation).

To evaluate the impacts of these unreasonable constraints, EDF ran the base NHTSA NPRM model with a single change of removing the constraints imposed by NHTSA and therefore allowing the use of both HCR1 and HCR2 technology for all manufacturers by MY 2028. The impacts on the NHTSA model's vehicle compliance[153] cost projections are shown in Table 5. See Rykowski Report for more details on the methodology used for these runs.

Table 5. Vehicle Compliance Cost Projections for Current MY 2025 GHG Standards Under NHTSA NPRM Model Base Case and EDF Run with HCR1/HCR2

Model Year	NHTSA NPRM Base Run	EDF Run with HCR1 and HCR2
2028	$2,785	$2,167
2029	$2,815	$2,192
2030	$2,773	$2,174
2031	$2,730	$2,153
2032	$2,707	$2,144
Average	$2,762	$2,166

Table 5 shows that the single change of allowing the use of HCR1 and HCR2 technology by MY 2028 would reduce NHTSA's vehicle compliance cost projections from $2,762 to $2,166, or by nearly $600 and 22 percent. This is an unreasonable and arbitrary decision by NHTSA, to essentially eliminate a popular technology already being used extensively in the marketplace from its analysis for 10 to 15 years into the future.

3. Credit Constraints

Another major flaw in the NHTSA NPRM model that inflates its vehicle technology cost projections is its treatment of GHG emissions compliance credits. Automakers advocated for

[151] Inside Mazda, Mazda CX-5 Adds Numerous Upgrades After Being On Sale Just Nine Months, https://insidemazda.mazdausa.com/press-release/2018-mazda-cx-5-adds-numerous-upgrades/ (last visited Oct. 25, 2018).

[152] James Riswick, Desirable at Last: 2018 Toyota Camry, Camry Hybrid First Drive, https://www.autoblog.com/2017/06/21/2018-toyota-camry-camry-hybrid-first-drive-review/ (last visited Oct. 25, 2018).

[153] Note that the cost values in Table 5 are total vehicle compliance costs, which include incremental technology costs plus additional incremental costs such as taxes, insurance, and maintenance, and accordingly the NPRM Base Run values in Table 5 are greater than the $2,260 "technology-only" value shown in Table 1 above.

various credit mechanisms as a central element of the original Clean Car Standards, and credits remain a very important compliance mechanism for many manufacturers.

The Union of Concerned Scientists (UCS) has performed an in-depth critique of the treatment of GHG credits in the NHTSA NPRM model.[154] It concluded that, in the aggregate, the design of the NHTSA NPRM model incorrectly reflects how manufacturers would use credits by assuming that manufacturers will make two very irrational and economically inefficient decisions—that they will let credits expire instead of using them as a cost-free element of an overall compliance strategy, and then they will have to add additional technology in order to make up for the compliance benefit that the foregone credits would have provided. The automotive industry is a competitive and cost-driven business, and automakers will not make such irrational and wasteful decisions.

UCS identified four specific examples of errors in the NHTSA NPRM model's approach toward credits. One, the model assumes that manufacturers will add certain technologies (those that pass an "Effective Cost" threshold) even if that manufacturer has credits that are about to expire. This is obviously unrealistic. Two, the model does not accurately reflect the one-time exemption from the EPA 5-year credit life for credits earned in the MY 2010-2015 timeframe, and erroneously assumes that these credits will expire after 5 years. This is likewise unreasonable, since the EPA exemption to allow these credits to be used through MY 2021 has been on the books for many years and is common knowledge. Three, NHTSA assumes that there will be absolutely no credit trading between manufacturers. This simplistic and unrealistic assumption is also inconsistent with reality -- there have been over 30 Megagrams of GHG program credit trades already, involving more than 10 different manufacturers. Trading will be even more valuable to manufacturers as standards become more stringent. Finally, the NHTSA NPRM model does not allow the use of credit "carryback" or borrowing from the future. Manufacturers are permitted to carry a compliance deficit for up to three years, and "carryback" credits generated from over-compliance in future years to offset the deficits in past years. While this has not been utilized much or at all yet, it is certainly an option that should be available to manufacturers as standards become more stringent in the future, and NHTSA's decision to constrain it in the model is unreasonable and arbitrary.

Based on runs with the NHTSA NPRM model focused on these credits issues, UCS estimates that the model allowed nearly half of automakers' MY 2011-2015 credits to expire, even though they do not expire until MY 2021. UCS estimated that 141 Megagrams of credits were allowed to expire, with an approximate market value of $6 billion. In terms of the model's MY 1977-2029 analysis, UCS concludes that a more reasonable and realistic use of credits could reduce NHTSA's projections of aggregate technology costs by up to $60 billion and translate to a savings of hundreds of dollars per vehicle.

4. Over-compliance with Current Standards

The final example in this section is the frequency with which the NHTSA NPRM model predicts industry-wide over-compliance with the current Clean Car GHG Standards. The GHG standards

[154] See UCS Comment.

on the books become more stringent each and every year through MY 2025. There is no historical precedent whatsoever for the contention that the industry will over comply with standards that are becoming more stringent each year[155], particularly with gasoline price projections that are relatively stable throughout the entire regulatory timeframe.[156] The over-compliance with the current standards is a particularly egregious consequence of the flawed Effective Cost metric discussed above.

EDF ran the base NHTSA NPRM model for the current Clean Car GHG Standards scenario and calculated NHTSA's projected industry-wide over-compliance with the GHG standards. The results are shown in Table 6. A negative value means that the actual industry-wide GHG compliance value is projected to be less than the industry-wide standard, which means that the industry would be "beating the standard" or over complying. A positive value means that the industry would be under complying with that year's standard.

For the 6-year period from MY 2018-2023, NHTSA projects significant industry over-compliance with the current GHG standards, ranging from 5 grams/mile to 15 grams/mile. The average projected over-compliance during this 6-year period is over 10 grams/mile, which represents an average 5 percent over-compliance relative to the current standards during those years.[157] Meaningful over-compliance persists until MY 2024.

This large and indefensible projected over-compliance in MY 2018-2023 is yet one more example of the unrealistic projections inherent in the NHTSA NPRM model and is another contributing factor to the exaggerated vehicle technology cost projections during that timeframe since over-compliance means that automakers are putting on more technology than required, which increases technology cost. Since this over-compliance ends in MY 2024, it would not affect NHTSA's technology cost projections for MY 2025 and later vehicles.

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[155] Later in this section, EDF presents a detailed rationale for why there is no historical precedent for overcompliance even when standards are not increasing. The likelihood of overcompliance when standards are increasing, as discussed in this section, is even less.

[156] 83 FR 43070, Table II-30, shows 2017 Annual Energy Outlook gasoline price projections remaining below $3.00 per gallon through 2028 and only slightly rising to $3.19 per gallon in 2035.

[157] EDF notes that NHTSA's projection that the industry will over comply with the MY 2021 GHG standard by 15 grams/mile (and by 11 grams/mile in MY 2022 and 6 grams/mile in MY 2023) is particularly bizarre, given that the agencies' preferred alternative roll back would freeze the standards at MY 2020 levels and require no improvement whatsoever in MY 2021 or the following five years, let alone reflect the large improvements that would result from overcompliance. EDF also notes that NHTSA predicts a 3 grams/mile overcompliance for MY 2017, when it is common knowledge that the industry-wide fleet has under complied with the MY 2017 standards.

Table 6. Industry-Wide GHG Over-compliance Projections by the NHTSA NPRM Model for the Current Standards

Model Year	Projected Compliance – Projected Standards (grams/mile)
2017	-3
2018	-8
2019	-11
2020	-14
2021	-15
2022	-11
2023	-5
2024	0
2025	+7
2026	+3
2027	+1
2028	-1
2029	-1
2030	-1
2031	-1
2032	-1

E. Specific Examples of Blatant Flaws and Biases in the NHTSA Model That Artificially Reduce Consumer Fuel Savings Projections

In Table 2 above, we showed that the NHTSA NPRM model yields MY 2025 lifetime consumer fuel-savings projections, under the current Clean Car Standards, that are approximately 35 percent less than recent NHTSA and EPA projections in 2016 and 2017. This section addresses two of the most important examples of flaws and biases that affect the NHTSA consumer fuel savings projections.

1. Overcompliance with Proposed Roll Back Standards

The NHTSA NPRM model not only predicts significant industry-wide overcompliance with the current Clean Car GHG Standards for several years, as discussed above, but also predicts ongoing overcompliance with the proposed preferred alternative 8-year GHG emissions rollback standards. EDF believes that the overcompliance with the current standards is also a consequence of the flawed Effective Cost metric discussed above, where the model assumes that manufacturers will adopt technologies that "pay for themselves" with fuel savings over the first 30 months of a vehicle's life.

Again, there is no historical precedent whatsoever for the contention that the industry, as a whole, will over-comply with standards, particularly when gasoline prices are projected to be

relatively stable throughout the entire regulatory timeframe.[158] Moreover, NHTSA's projections that manufacturers will voluntarily exceed its proposed preferred alternative is entirely inconsistent with the agency's determination that "maximum feasible" fuel economy standards should remain flat between 2021 and 2026.

In the 2012 Final Rule establishing the MY 2017-2025 GHG and CAFE standards, EPA presented a detailed rationale for its assumption that there would be no decrease in fleetwide GHG emissions performance in the reference case fleet for MY 2017-2025 beyond the GHG emissions performance necessary to meet the MY 2016 standards.[159] Key elements of the rationale were: 1) projections that gasoline prices would be relatively stable out to 2025, 2) historical evidence that during periods of stable gasoline prices and fuel economy standards, the only companies that typically over complied with fuel economy standards were those that produced primarily lighter vehicles that inherently over complied with the older, universal (one size fits all, non-footprint based) fuel economy standards that are no longer relevant, 3) that after meeting increasingly stringent footprint-based GHG and fuel economy standards for the five years from MY 2012-2016, it was likely that most major manufacturers would be constrained by the MY 2017-2025 standards and unlikely to voluntarily over comply, and 4) if there were individual manufacturer over-compliance, that manufacturer would likely generate credits that could be sold to other companies, and therefore not lead to fleetwide over-compliance.

EPA's rationale is even more relevant for the MY 2020-2030 timeframe for the following reasons: 1) current gasoline prices are lower than they were in October 2012 when the MY 2017-2025 final rule was published, 2) Annual Energy Outlook 2017 projections for fuel prices in the MY 2020-2030 timeframe are relatively stable and approximately $1 per gallon lower than the Annual Energy Outlook 2012 Early Release projections which were used in the final rulemaking analysis for the MY 2017-2025 standards, 3) there have been several more years of increasingly stringent footprint-based GHG and fuel economy standards, so we have a more stringent "baseline" and manufacturers are even more constrained by future standards, and 4) due to the additional years of increasingly stringent standards, credits generated in the MY 2020-2030 timeframe are likely to be even more valuable, and even more likely to be sold, than previously. For all these reasons, it seems unlikely that there would be any market-driven decrease in fleetwide GHG emissions performance (i.e., over-compliance) whatsoever in the MY 2020-2030 timeframe.

EDF calculated the annual NHTSA NPRM model industry-wide over-compliance under the preferred alternative roll back GHG standards and the values are shown in Table 7. Again, a negative value means that the actual industry-wide GHG compliance value is projected to be less than the industry-wide standard, which means that the industry would be "beating the standard" or over complying. A positive value means that the industry would be under complying with that year's standard.

Table 7 shows that, despite the lack of any historical precedent, the NHTSA NPRM model predicts significant industry-wide over-compliance under the preferred alternative roll back for

[158] 83 FR 43070, Table II-30, shows 2017 Annual Energy Outlook gasoline price projections remaining below $3.00 per gallon through 2028 and only slightly rising to $3.19 per gallon in 2035.
[159] 77 FR 62843-62844, October 15, 2012, and Regulatory Impact Analysis, pages 3-18 to 3-23.

many years. For the 12-year period from MY 2021-2032, NHTSA predicts consistent and widespread over-compliance, ranging from 4 grams/mile to 11 grams/mile. Over this 12-year period, the average overcompliance is 9 grams/mile or about 4 percent of the standards during that timeframe. For the MY 2027-2032 timeframe, this over-compliance accounts for 10-11 grams/mile, or 15-20 percent of the total 65 grams/mile improvement required by the current standards at that time.

This over-compliance under the preferred alternative roll back minimizes fuel consumption, CO2 emissions, and criteria emissions increases under the roll back because the vehicles are assumed to have lower CO2 emissions and higher fuel economy than they would be required to achieve under the roll back standards. This in turn decreases the consumer fuel savings, CO2 emissions, and criteria emissions reductions under the current Clean Car Standards, which are calculated as incremental relative to those applied to the roll back. It also allows the preferred alternative roll back to be credited with some of the lower cost technologies that would otherwise be available under the current standards. This large and indefensible projected over-compliance is yet another example of the unreasonable projections inherent in the NHTSA NPRM model.

The combination of the NHTSA's model's over-compliance with the roll back standards, and the large reductions in aggregate vehicle miles travelled associated with NHTSA's exaggerated rebound and erroneous scrappage modules under the roll back that are addressed elsewhere in our comments, are likely the primary causes of the 35 percent reduction in lifetime consumer fuel savings, for the current standards, from the NHTSA NPRM model compared to recent estimates by both NHTSA and EPA. This large underestimation of consumer fuel savings has a major effect on the overall cost-benefit analysis.

Table 7. Industry-Wide GHG Over-compliance Projections by the NHTSA NPRM Model for the Roll Back

Model Year	Projected Compliance – Projected Standards (grams/mile)
2017	-2
2018	-2
2019	-1
2020	+1
2021	-4
2022	-7
2023	-8
2024	-9
2025	-9
2026	-9
2027	-10
2028	-10
2029	-11
2030	-10
2031	-10
2032	-11

2. Vehicle Miles Traveled Assumptions

Vehicle miles traveled (VMT) assumptions are critical to any model making emissions and fuel consumption projections, of course, as emissions and fuel savings from more stringent standards depend directly on how many miles vehicles are assumed to travel per year and over the typical vehicle's lifetime.

NHTSA made a major change in its VMT assumptions in its NPRM analysis of the current standards as shown in Table 8.[160]

Table 8. Change in NHTSA's Survival-Weighted Lifetime VMT in NPRM vs Previous Analysis

Vehicle Body Style	Previous NHTSA	Current NHTSA NPRM	Change
Car	179,399 miles	142,119 miles	-37,280 miles = -20.8%
Van	196,725 miles	155,115 miles	-41,610 miles = -21.2%
SUV	193,115 miles	155,115 miles	-38,000 miles = -19.7%
Pickup	188,634 miles	157,991 miles	-30,643 miles = -16.2%

Table 8 shows that NHTSA reduced its survival-weighted lifetime VMT by 30,000 to 42,000 miles across various vehicle body types, or by between 16 percent to 21 percent, compared to its assumptions in previous analyses. Previously, NHTSA had relied on owner-reported data from the National Household Travel Survey, which is carried out by the Department of Transportation's Federal Highway Administration, considered to be the authoritative source on the travel behavior of the American public, and whose data is fully transparent and accessible to all researchers. In the NPRM, NHTSA changed from National Household Travel Survey data to proprietary data from Polk. NHTSA did not describe the Polk data or how it processed the data. Accordingly, it is impossible to compare the Polk approach to the transparent data available from the National Household Travel Survey.

The most straightforward way to evaluate the accuracy of NHTSA's approach is to compare the NHTSA model projections for nationwide light-duty VMT under the current standards to those from formal federal government estimates for recent calendar years. NHTSA entirely failed to do this in the NPRM. EDF makes this comparison in Table 9.

Table 9. Comparison of Nationwide Light-Duty VMT Estimates from the NHTSA Model, EIA/AEO, and FHWA (billions of miles)

Calendar Year	NHTSA NPRM Model	2018 EIA/AEO	FHWA
2016	2224	2747	2850
2017	2295	2794	NA

Table 9 shows that the NHTSA NPRM model significantly underestimates total light-duty vehicle VMT relative to the federal government's two primary sources of VMT data. For 2016,

[160] Preliminary Regulatory Impact Analysis, July 2018, Section 8.9.1.1 page 973.

NHTSA's total light-duty VMT projection is over 500 billion miles less than the estimate in the 2018 Energy Information Administration (EIA) Annual Energy Outlook (AEO), or 19 percent low. NHTSA's 2016 projection is over 600 billion miles, or 22 percent, low relative to the Federal Highway Administration's light-duty VMT estimate. For 2017, NHTSA's estimate is 500 billion miles, or 18 percent, below the EIA/AEO estimate. The utter failure of the NHTSA NPRM model to even come close to accurately reflecting past and current nationwide VMT levels demonstrates that it cannot be depended upon for predictions a decade or two into the future.

F. EDF-Modified Cost/Benefit Runs with NHTSA's NPRM Model Show That the Roll Back Yields Net Societal Costs

NHTSA's NPRM model projection that the preferred alternative Clean Car Standards rollback beginning in MY 2021 would yield net benefits of approximately $200 billion was a 180-degree reversal from all previous NHTSA and EPA estimates. Every estimate made by both NHTSA and EPA in various rulemakings and technical assessments from 2012 through 2017 had come to the opposite conclusion—that the Clean Car Standards would produce large net benefits and therefore rolling them back would yield large net costs to society. As shown in Table 3 above, even as recently as 2016 and 2017, the two agencies had performed three separate analyses that projected that the MY 2022-2025 CAFE and GHG standards would yield net benefits (and therefore that rolling them back would yield net costs) of approximately $100 billion.

Accordingly, the current NHTSA projection reflects a stunning $300 billion reversal relative to the NHTSA and EPA analyses in 2016 and 2017. This massive change in NHTSA's bottom-line modeling output is only possible because NHTSA made a large number of fundamental changes in its modeling design and assumptions, and because nearly every change that NHTSA made has had the same directional impact of skewing the results to minimize the benefits and exaggerate the costs of the current standards and to exaggerate the benefits and minimize the costs of the proposed roll back. It is also relevant to note that NHTSA does not claim that the individual technologies that it expects automakers to adopt to meet the current standards are much more expensive or much less effective than it did in its previous analyses. Rather, the massive shift in costs and benefits in NHTSA's NPRM are primarily due to model design features and assumptions that are completely unrelated to individual technology cost and effectiveness assumptions.

Building on the analysis and critique throughout our comments of NHTSA's biased and nonsensical assumptions and model design features, in this section we discuss two modified modeling scenarios that EDF developed and ran with the NHTSA NPRM model for its MY 1977-2029 GHG analysis to generate more defensible costs and benefits projections for the preferred alternative Clean Car Standards roll back.

The two EDF runs retain several key experimental and questionable changes that NHTSA made to the NPRM model[161]:

[161] By retaining several of these experimental features, each of which is of questionable merit, the EDF-modified runs should be considered conservative. See Appendix A for more discussion of these issues.

- The Sales module, which is a major departure from previous NHTSA analyses, and which projects that new vehicle sales will rise under the roll back
- The Fleet Share module, which projects that new car market share will increase, and new truck share will decrease, under the roll back, which is a major departure from previous NHTSA analyses
- Lifetime VMT per vehicle, which yields aggregate national VMT levels in the near term that are well below formal federal government estimates by EIA/AEO and FHWA, which was a major change from previous NHTSA analyses
- Many internal inconsistencies associated with assumptions about the relative importance of changes in vehicle prices and changes in fuel costs/savings in affecting consumer behavior with respect to new vehicle sales, car/truck market share, and rebound VMT
- Gasoline price projections, which are 40-50 cents per gallon low for 2018, do not reach the October 2018 price of $2.85 per gallon until 2023,[162] do not approach $3 per gallon until 2029, and reach a maximum of $3.46 in 2050

The two EDF runs involve the following changes in the NHTSA NPRM model[163]:

- Rebound is reduced from 20 percent to 10 percent
- Scrappage is changed from NHTSA's absurd approach (which assumes that used car drivers significantly reduce VMT under the roll back far beyond the small decrease necessary to offset higher VMT due to slightly higher new vehicle sales) to the EDF VMT Neutral Through MY 2029 approach (which reduces used car VMT under the roll back by the precise amount needed to offset higher VMT due to slightly higher new vehicle sales)
- Overcompliance is eliminated under both the current standards and roll back scenarios
- Mass reduction is changed to the NHTSA 2016 TAR approach
- The monetized per ton values for CO2, methane, and nitrous oxide emissions savings were increased, based on values from the Interagency Working Group of the Social Cost of Carbon[164]; for CO2 we used values of $50 per metric ton (up to 2020) to $71 per metric ton (2040 and later)
- All incremental gasoline/oil consumption is assumed to be from domestic sources consistent with recent trends of decreasing oil imports and negligible gasoline imports

Both EDF runs use the same assumptions and model design features above but differ in one important respect—the first EDF run uses NHTSA's extremely high NPRM vehicle technology costs discussed above, while the second EDF run assumes a 50% reduction in NHTSA's NPRM vehicle technology costs, still a conservatively high value but far more consistent with previous projections by NHTSA and EPA over the previous eight years as shown in Table 1 above.

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[162] AAA, October Is Finally Falling Into Cheaper Gas Prices (October 22, 2018), available at https://gasprices.aaa.com/october-is-finally-falling-into-cheaper-gas-prices/.

[163] See Rykowski Report for more details on the changes that were made for the EDF runs summarized here.

[164] IWG, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (2010), available at https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/foragencies/Social-Cost-of-Carbon-for-RIA.pdf.

Table 10 shows the societal costs and benefits projections from the NHTSA NPRM model for the roll back, relative to the current standards baseline, using the MY 1977-2029 GHG analysis for three runs: the base run that NHTSA summarizes in Preamble Table VII-51 and the two EDF-modified runs described above. For ease of comparison, Table 10 shows the same rows that NHTSA shows in Preamble Table VII-51, though to aid the reader we have reorganized the rows to group the benefit rows at the top of Table 10 and the cost rows at the bottom of the table. All individual costs and benefits are shown as positive values. Net benefits are simply total benefits minus total costs. The bottom row of Table 10 shows net benefits, where a positive value means that the roll back is projected to yield net societal benefits, while a negative value indicates that the roll back is projected to yield net societal costs.

The second column in Table 10 simply reports the values from NHTSA's NPRM model run as shown in Preamble Table VII-51 (and summarized in the Preamble overview as well). NHTSA projects net benefits for the preferred alternative roll back of $201 billion.

The third column in Table 10 reflects the EDF-modified run with the 100% NHTSA vehicle technology costs and the other changes described above. The results are dramatically different and demonstrate the great sensitivity of the NHTSA NPRM model results to the experimental input assumptions and model design features that NHTSA adopted in the NPRM. Even using NHTSA's inflated vehicle technology costs, the preferred alternative roll back yields net societal costs of $139-192 billion, reflecting a change of $300-400 billion relative to NHTSA's base run.

The projected benefits and costs under the roll back for the first EDF run are very different for nearly every row in Table 10. The most important change is that the monetized non-rebound fatality and non-fatal crash rows move from a large benefit in the NHTSA NPRM run ($118 billion) to a small cost in the EDF run ($11 billion), i.e., with a much improved scrappage module and a better mass reduction approach, there are slightly more non-rebound fatalities and crashes under the roll back. Another big change is that the costs associated with higher fuel consumption for the first EDF run are over $100 billion higher. This is due to several factors acting in concert: more realistic VMT assumptions for both rebound and scrappage, and less over-compliance under the roll back scenario. A third major change is that the CO2 damages costs are over $60 billion higher based on better social cost of carbon estimates, better rebound and scrappage assumptions, and the elimination of over-compliance with the roll back standards. Non-GHG emissions costs are also much higher than projected by NHTSA, and based on many factors: better VMT assumptions due to rebound and scrappage, the elimination of over-compliance under the roll back standards, and the assumption that all oil exploration, drilling, and refining would be domestic and therefore the emissions impacts would accrue in the U.S. Finally, the congestion and noise benefits are about $50 billion lower, due to the decreased VMT changes due to more defensible rebound and scrappage approaches.

The final column in Table 10 shows the results of the second EDF-modified run using technology costs equal to 50% percent of the values used by NHTSA. The technology benefits row under the roll back is 50 percent lower than under the first EDF-modified run, of course, but all the other rows are the same as under the first EDF run. Here, the roll back would have net societal costs of $277-330 billion, or a net change of about $500 billion relative to the NHTSA NPRM base run.

Table 10 shows that the NHTSA cost/benefit analysis is extremely sensitive to the experimental model design features and assumptions that NHTSA adopted for the first time in the NPRM, with bottom line values for the NHTSA and EDF runs that differ by as much as $300-500 billion. Simply by correcting the most egregious and systematic errors and biases (most notably scrappage and over-compliance, but also rebound, mass reduction, social cost of carbon, and oil/gasoline sourcing assumptions), Table 10 shows that the preferred alternative roll back would lead to large net societal costs as high as $330 billion, rather than the net societal benefits that NHTSA claims with its indefensible assumptions. This fact demonstrates that NHTSA's model and assumptions are both fundamentally flawed. The agency must fix these flaws, revise the model, re-do its analysis, and re-propose the rule for public comment.

Table 10. The Proposed Roll Back Yields Net Societal Costs with EDF-Modified Assumptions[165]
(billions of dollars, MY 1977-2029 GHG analysis, 3 percent discount rate)

	NHTSA	EDF	
Technology Cost Assumption	100% NHTSA	100% NHTSA	50% NHTSA
Technology Costs (benefits under roll back)	260	275	137
Rebound Fatality	48	22	22
Rebound Non-Fatal Crash	75	35	35
Non-Rebound Fatality	46	--	--
Non-Rebound Non-Fatal Crash	72	--	--
Congestion and Noise	63	12	12
Total Benefits	564	344	206
Pre-Tax Fuel Savings (costs under roll back)	144	258	258
Offsetting Rebound Fatality	48	22	22
Offsetting Rebound Non-Fatal Crash	75	35	35
Non-Rebound Fatality	--	4	4
Non-Rebound Non-Fatal Crash	--	7	7
Mobility	70	32	32
Refueling	9	14	14
Energy Security	12	0.1	0.1
CO2	5	68	68
Other Pollutants (including mortality)	1	43 to 96	43 to 96
Total Costs	364	483-536	483-536
Net Benefits	+201	-139 to -192	-277 to -330

G. EPA's Failure to Use its Own OMEGA Modeling Tool to Inform the NPRM is Arbitrary and Capricious

This section has documented the numerous fundamental flaws and biases in the agencies' NPRM model that lead to unreasonable, nonsensical, and arbitrary results. The EPA OMEGA[166] model was created to allow EPA to properly carry out its statutory obligations under the Clean Air Act and is far superior to the NHTSA model in aiding the development of emission standards that

[165] Note that the values in Table 10 evaluate the proposed preferred alternative roll back relative to the current Clean Car Standards baseline currently on the books. The same values can be used in the "other direction" to evaluate the impact of the current Clean Car Standards relative to a flat GHG baseline, by simply converting Table 10 costs to benefits, and Table 10 benefits to costs, i.e., for the current standards, NHTSA projects net societal costs while the EDF-modified runs project net societal benefits.
[166] Optimization Model for reducing Emissions of Greenhouse gases from Automobiles (OMEGA).

meet EPA's statutory mandate.[167] For example, OMEGA has a much better technology cost optimization algorithm based on true technology cost effectiveness, it places far fewer constraints on the ability of automakers to make rational economic decisions with respect to technology adoption and credit usage, and it uses data and science to inform more realistic assumptions about VMT and mass reduction approaches. EPA used the OMEGA model in the 2010 rulemaking for the MY 2012-2016 standards, the 2012 rulemaking for the MY 2017-2025 standards, and in the Midterm Evaluation. OMEGA has also been extensively peer reviewed, while many elements of NHTSA's NPRM model do not appear to have been peer reviewed. Yet, it is clear from both the NPRM Preamble and the Preliminary Regulatory Impact Analysis that the agencies totally ignored EPA's OMEGA model during the development of the NPRM.

EDF and others have tried to obtain access to the current OMEGA model so that the public could have access to a crucial tool for understanding the feasibility, costs, and benefits associated with the current Clean Car Standards and regulatory proposals. Unfortunately, EDF and our colleagues have been completely rebuffed in our efforts. On March 20, 2018, EDF, the Natural Resources Defense Council (NRDC), the Safe Climate Campaign, and the Union of Concerned Scientists (UCS) submitted a letter to EPA requesting that the agency make publicly available a range of materials relating to the OMEGA model. No response was received. On July 25, 2018, EDF and NRDC submitted a Freedom of Information Act (FOIA) request to EPA for these same OMEGA materials. The statutory deadline passed without any materials being provided. On September 20, 2018, EDF, NRDC, Safe Climate Campaign, and UCS submitted an updated version of their March 2018 letter to EPA, but this letter has also been ignored.

It is known that EPA technical staff have continued to use the OMEGA model for internal technical analyses, as several documents authored by EPA technical staff are in the EPA docket for this rulemaking.[168] In a presentation by EPA technical staff on April 16, 2018 to the Office and Management and Budget, as part of the interagency review of the draft NPRM, EPA staff made several critical points that echo our own criticisms[169]:

- "significant and fundamental flaws in CAFE model (both the CAFE version and the GHG version)"
- "Because of the disconnect with the vehicle sales projections, the use of the scrappage model causes an inappropriate increase in the fatalities impact of the Augural standards, and an inappropriate underestimation of the fuel savings and emissions benefits"
- "This sustained and significant over-compliance projected by the CAFE model implies that the industry will not make use of the larger quantity of banked credits, or year-to-year credit transfer provisions"
- "Overestimation of GHG standards cost. CAFE model is forcing combinations of technologies that are highly cost-ineffective"

[167] See Joint Environmental Comments for a more detailed discussion of the inadequacy of the Volpe model in developing standards consistent with EPA's statutory mandate.
[168] See, e.g., E.O. 12866 Review Materials, File: "Email 5 - Email from William Charmley to Chandana Achanta - June 18, 2018," at 113 (June 18, 2018), https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453.
[169] Ibid.

- EPA ran the NHTSA model for GHG with corrections for some of its most egregious errors, and found that the modified NHTSA model yielded a MY 2025 vehicle technology cost projection of $1,259; EPA also ran its updated OMEGA model which yielded a MY 2025 vehicle technology cost projection of $935

The failure to provide the public with the OMEGA model or any explanation for why the agency has refused to use its own high-quality modeling tool to inform its regulatory proposal is arbitrary and unlawful.

IV. Additional factors further confirm the conclusion that the standards are achievable and appropriate.

A. EPA's existing, well-documented findings on consumer behavior support the appropriateness of MY2022-2025 standards

EPA comprehensively addressed relevant issues relating to consumer acceptance of fuel economy and GHG reduction technologies in the Draft Technical Assessment Report, Proposed Determination, and January 2017 Final Determination. The issues addressed include effects of the standards on vehicle sales, consumer response to the standards, impacts of the standards on vehicle affordability, and evidence — or lack thereof — of adverse effects on consumer welfare.

As EPA recognized, its standards lead to substantial savings for consumers. Just one of the compelling findings with respect to consumer benefits was that families that purchase a new vehicle in 2025 are expected to save a net $1,650 over the lifetime of that vehicle compared to a vehicle just 3 years older—and possibly much more.[170] Families purchasing on credit would expect to see immediate payback: the increased load cost attributable to control technologies would be more than offset in the first year by fuel savings.[171]

Meanwhile, the agency concluded in its Proposed Determination that there is "little, if any, evidence that consumers have experienced adverse effects from the standards."[172] Likewise, the agency did not find "any evidence that the technologies used to meet the standards have imposed 'hidden costs' in the form of adverse effects on other vehicle attributes."[173] Nor did EPA identify "significant effects on vehicle affordability."[174] Given the ten years of lead-time provided to achieve the MY 2022-2025 standards, EPA reasoned in its initial Final Determination "that any effects of the standards on the vehicle market will be small relative to

[170] EPA, Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, at E-6 (Nov. 2016) ("Proposed Determination"), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3DO.pdf.
[171] Proposed Determination at E-6.
[172] Proposed Determination at 27.
[173] Proposed Determination at A-27.
[174] Proposed Determination at 28.

market responses to broader macroeconomic conditions."[175] As with all other aspects of the 2018 NPRM, there is no evidence that there have been any changes in facts or circumstances that would justify such a change of position.

Reasoned decision making requires that EPA acknowledge and comprehensively take into account and discuss its existing, well-documented and reasoned findings regarding consumer acceptance, in which case it should reach the conclusion that there is no evidence on this issue that would justify flat-lining the federal standards at MY 2020 levels.

i. EPA standards save consumers money

Strong fuel economy and GHG standards for passenger cars benefit consumers by saving them money at the pump. David Greene has estimated that fuel economy improvements from 1975 to 2015 have saved 1.5 trillion gallons of gasoline and roughly $3.8 trillion (in 2015 dollars) in fuel costs.[176] Because of the savings, consumers are demanding more efficient models and automakers are delivering them. And more efficient models in the new car market leads to more efficient options in the used car market, helping low-income families save money on fuel as well.

The current light-duty vehicle standards are already saving consumers money at the pump. For example, each F-150 bought in 2015 uses about 180 fewer gallons of gas a year than prior models, and will save its owner eight trips to the gas station and $300 to $700 per year, depending on the price of fuel.[177] The Consumer Federation of America has estimated that in 2018, consumers are saving on average over $200 a year on fuel compared to 2011, the year before the current standards were implemented."[178]

And the current MY 2022-2025 standards will provide even greater savings – allowing families who purchase a new vehicle in 2025 to save a net $1,650 over the lifetime of that vehicle compared to a vehicle just 3 years older.[179] Further, the savings could double depending on future oil prices. The Consumer Federation of America estimates that under the current standards, consumers buying a new vehicle in 2025 would save $295 more in fuel costs than

[175] EPA, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, at 25 (Jan. 2017) ("initial Final Determination"), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf; *see also* Proposed Determination at 51-52.
[176] David Greene, *A Trillion Gallons of Gasoline*, The University of Tennessee Howard H. Baker Jr. Center for Public Policy, (Aug. 2017), at 3, http://bakercenter.utk.edu/wp-content/uploads/2017/08/OnPoint-5-2017.pdf.
[177] BlueGreen Alliance, Combating Climate Change 426,000 Pickup Trucks At a Time, (June 2016), https://www.bluegreenalliance.org/resources/combating-climate-change-426000-pickup-trucks-at-a-time/.
[178] Consumer Federation of America, *At-Risk MPG Standards Could Cost Future Labor Day Travelers* (Aug. 28, 2018), https://consumerfed.org/press_release/at-risk-mpg-standards-could-cost-future-labor-day-travelers/
[179] Proposed Determination at E-6.

consumers buying a vehicle under the proposed rollback.[180]

A recent study by MJ Bradley and Associates found that the MY 2025 standards would save the average U.S. family $85 per year for every 50-cent-per-gallon increase in gas prices.[181] The study indicates that the current MY 2025 standards would increase lifetime savings by $2,800 compared to a flatline at MY 2020 levels if oil prices stayed at their current level.[182] It also suggests that if prices increase, the lifetime savings for a car meeting the existing MY 2025 standards could be up to $5,000 compared to the MY 2020 standards.

These savings are particularly significant for families living in states where the state median income is below the national median, but the average miles driven are above the national average. The MJ Bradley report highlights eight states with below median incomes where families can expect higher than average savings; families in Mississippi can expect to save nearly twice as much as the average U.S. family from the 2025 standards.[183]

And the nearly 86 percent of Americans who finance their vehicles with a 5-year loan are expected to realize cost savings within the first year.[184] Over the life of the entire Clean Car program, the fuel cost savings to American families and businesses will add up to over a trillion dollars,[185] which is more than double the funds injected into the economy by the American Recovery and Reinvestment Act (aka, the stimulus package).[186] With the benefit of reduced fuel costs, businesses can invest more money and create jobs in local communities.

Because of these fuel cost savings, consumers continue to rate fuel economy as one of their top criteria when shopping for a new car[187] – 81 percent said they support the Clean Car standards.[188] And consumers have more choices in fuel-efficient models across the fleet today (see Figure 1 below). There are more than twice as many SUV models that achieve 25 mpg or more in MY 2016 than there were in MY 2011. The number of car models where at least one variant has a

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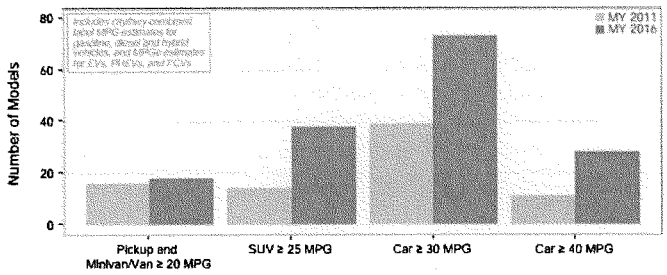
[180] Consumer Federation of America, *At-Risk MPG Standards Could Cost Future Labor Day Travelers* (Aug. 28, 2018), https://consumerfed.org/press_release/at-risk-mpg-standards-could-cost-future-labor-day-travelers.
[181] MJ Bradley and Associates, *Clean Car Roll-back: Estimated Costs for American Families if U.S. Climate Pollution and Fuel Economy Standards Are Relaxed*, at 4 (July 20, 2018), https://www.edf.org/sites/default/files/MJ_Bradley_Clean_Cars_rollback_report.pdf.
[182] *Id.* at 2.
[183] *Id.* at 8.
[184] Proposed Determination at E-6.
[185] EPA Regulatory Announcement.
[186] Congressional Budget Office, Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2011 Through December 2011 (Feb. 2012), http://www.cbo.gov/sites/default/files/cbofiles/attachments/02-22-ARRA.pdf.
[187] Despite Cheap Gas, Fuel Efficiency Still a Primary Concern, JD Power (Jan. 14, 2015) *available at* http://www.jdpower.com/press-releases/2015-us-avoider-study.
[188] Jack Gillis et al., Automakers Are on the Road to Meeting Fuel Efficiency Standards: An Analysis of Automaker Progress in Meeting 2025 Fuel Efficiency Requirements and A Look At Consumer Attitudes Towards Fuel Efficiency, Consumer Federation of America (April 25, 2016), http://consumerfed.org/wp-content/uploads/2016/04/2016-Fuel-Economy-Report-April-25-2016.pdf.

combined city/highway label fuel economy of at least 30 mpg has grown from 39 models in MY 2011 to more than 70 models in MY 2016. There are 18 MY 2016 pickup and minivan/van models for which at least one variant of the model has a combined city/highway label fuel economy rating of 20 mpg or more.[189]

Figure 1

Vehicle Models Meeting Fuel Economy Thresholds in MY 2011 and MY 2016



Source: EPA's Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 – 2015

ii. No reliable evidence demonstrates a negative impact on consumer choice

In its initial Midterm Evaluation, EPA convincingly showed that there is at present no reliable way to quantify the effect of the standards on vehicle sales. EPA engaged in a comprehensive literature search of all existing efforts to develop reliable consumer choice models that could yield quantitative predictions with adequate validity for use in policy making and found that there were no such models.[190] This finding is consistent with the NAS (2015) finding that the role of fuel economy on consumer purchasing decisions is "unresolved."[191]

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[189] EPA, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975–2015 (Dec. 2015) ("EPA 2015 Trends Report"), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OEOE.PDF?Dockey=P100OEOE.PDF.

[190] Automakers have been trying to develop such reliable predictive tools without success. *See* Proposed Determination at A-47 (summarizing comments of the Alliance that industry had tried and failed for a century to develop reliable quantitative consumer choice models). EPA's own efforts to develop such a model were likewise unsuccessful. Draft TAR at 6-4 to 6-5.

[191] EPA, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation: Response to Comments, at 126 (Jan. 2017) ("Final Determination RTC"), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ9Y.pdf (citing National Research Council, *Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles*, National Academy of Sciences (2015)).

EPA also comprehensively analyzed the willingness-to-pay literature and found that estimates of willingness-to-pay for both fuel economy and performance are so varied (by over five orders of magnitude in the literature) as to preclude the drawing of reliable, quantifiable conclusions.[192] EPA's March 2017 presentation of this analysis continued to conclude that the results vary widely even within studies — raising the issue of robustness of the stated willingness-to-pay values, and further suggesting a lack of robustness in the models used to generate the values.[193]

EPA previously found no evidence of consumer acceptance issues for conventional, non-electrified technologies, which form the overwhelming majority of the compliance path posited convincingly by EPA for the MY 2022-2025 standards.[194] There also is evidence of increased consumer acceptance of electrification based strategies (strong hybrid, PHEV, and BEV vehicles).[195] Moreover, the flood of announcements from major manufacturers — including Ford and GM — of plans to electrify either some or all of their light-duty fleets strongly suggests that manufacturers believe there will be broad consumer acceptance of the technology, and do not view the technology as generating consumer resistance.[196]

EPA concluded that there is no evidence that the current standards have had a negative impact on light-duty vehicle sales.[197] This is consistent with market trends—where industry has experienced strong sales since 2009.[198] In addition, new vehicle prices have remained flat in recent years after adjusting for inflation and quality.[199] Because the record shows no evidence of any impediment to sales, EPA reasonably concluded in its initial Final Determination that there was no reliable way to make reasoned quantitative estimates of the effect of the standards on fleet turnover.[200]

Previous commenters during the Mid-Term Evaluation suggested that the "energy paradox" or "efficiency gap"— consumers' failure to adopt efficiency technologies notwithstanding these technologies' net financial benefits—must mean that there are some hidden costs preventing

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[192] *See* Proposed Determination App. A at A-51; EPA, Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation: Technical Support Document, at 4-16 (Nov. 2016) ("Proposed Determination TSD"), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3L4.pdf.
[193] David Greene et al., Presentation: Consumer Willingness to Pay for Vehicle Characteristics: What Do We Know? (Mar. 16, 2017), https://benefitcostanalysis.org/sites/default/files/public/C3.1%20Helfand%20et%20al%20WTP%20for%20veh%20char%2020170323.pdf.
[194] Draft TAR at 6-13; Proposed Determination at A-56.
[195] Proposed Determination, App. A at A-63 to A-65.
[196] For example *see* GM, Ford Pledge 33 new models, Electric Vehicles, GREENWIRE (Oct. 3, 2017), https://www.eenews.net/greenwire/stories/1060062413/feed.
[197] Proposed Determination App. A at A-27.
[198] Ahiza Garcia, *Car sales set another U.S. record*, CNN (Jan. 4, 2017), https://money.cnn.com/2017/01/04/news/companies/car-sales-2016/index.html.
[199] Final Determination RTC at 136.
[200] Final Determination RTC at 137.

adoption that EPA failed to account for. But there are multiple potential reasons for the energy paradox that do not require hypothesizing an unidentified hidden, countervailing cost, as EPA has reasonably noted. These reasons include, on the consumer side: lack of adequate information necessary to estimate the value of future fuel savings; mistaken valuation or uncertainty in calculating future fuel savings; a focus on attributes conveying visible status rather than invisible efficiency; and (pre-standards), a lack of available fuel efficient options among vehicles (like SUVs) having other desirable attributes.[201] On the producer side, reasons for the efficiency gap include hesitation to be a first mover in investing in a new technology; the related desire of manufacturers to wait until a technology is further along the learning curve; and another related desire of manufacturers to work on the same technologies at the same time to benefit from arising research synergies.[202]

The record again reflects the copious, reasoned consideration EPA has already given the issue of consumer welfare. The agency previously concluded that it had found no evidence of a so-called hidden cost to the standards.[203] It is clear that consumers value fuel economy, although estimates of how much vary widely.[204] The NAS reached the same conclusion that the range of potential values for consumer willingness to pay for fuel economy is so varied as to preclude easy generalizations as to how much.[205] EPA previously included in its cost estimates the cost of holding all vehicle attributes, including performance, constant in the presence of the added GHG reduction technologies.[206] Beyond this already accounted for cost, there is no credible evidence that the current standards have had, or will have, an adverse effect on other vehicle attributes.[207]

Recent research by the Consumer Federation of America indicates that buyers of SUVs, crossovers, and pickup trucks may prefer more fuel-efficient vehicles.[208] From 2011 to 2017 there was a 70% increase in sales of SUVs, pickups, and crossovers that had a 15% or more increase in MPG. During that same time period there was only a 50% increase in sales of the same vehicles with a less than 15% increase in MPG.[209] A particularly strong example is the Nissan Pathfinder, which saw a 224% annual sales increase when it increased its efficiency by 4

[201] Draft TAR at 6-6; 77 Fed. Reg. at 62,914.
[202] Draft TAR at 6-7. As noted below, one benefit of the standards is to eliminate these producer-side issues.
[203] Final Determination RTC at 127.
[204] Final Determination RTC at 124.
[205] *See* Final Determination RTC at 126; NAS (2015) at 318.
[206] Final Determination RTC at 129; Proposed Determination App. A at A-49 and A-50.
[207] Proposed Determination App. A section B.1.4.
[208] Press Release: *SUVs, Crossovers and Pickups with High MPG Percent Increases Sell Better*, Consumer Federation of America (Aug. 15, 2018), https://consumerfed.org/press_release/suvs-crossovers-and-pickups-with-high-mpg-percent-increases-sell-better.
[209] *Id.*

MPG from 2011 to 2017.[210] This correlation suggests that improvements in efficiency will lead to increased sales.[211]

Most importantly—as discussed above—fuel savings far exceed increased expenditures for the emission control technology, so there is a direct, positive welfare benefit to consumers of new light duty vehicles.

iii. The vehicle standards have no discernable negative effect on vehicle affordability

In the original Midterm Evaluation, EPA closely examined the impacts of the standards on vehicle affordability. EPA found, with ample record support, that the standards did not have discernible negative impacts on lower-income households or on the used vehicle market, did not limit access to credit, and had not decreased availability of low-priced vehicles.[212] In particular, lower-income households are more affected by prices of used rather than new vehicles, and, although any effect of the standards on used vehicle prices is swamped by macro-economic factors, the payback period for price increases reflecting GHG emission reduction technology is less than for new vehicles given the depreciated price of a used vehicle but the constant performance of the emission reduction technology.[213] In addition, used car market prices have remained flat.[214] Consumer loans for new vehicles remain widely available, and importantly, if consumers were to buy a new vehicle with standard five-year financing, the payback period would be less than one year.[215]

Strong fuel economy and GHG standards indeed provide a strong co-benefit to used-vehicle purchasers by providing them with more efficient choices. When fuel prices become suppressed, new vehicle purchases can skew towards less efficient vehicles, and when fuel prices are high they tend to purchase relatively more fuel-efficient vehicles. This pattern has important consequences for the used vehicle market, where the supply of each model and vintage is largely determined by the past choices of new-vehicle purchasers, and the supply of a particular used vehicle model is essentially inelastic. That is, the choices of today's new-vehicle purchasers will determine which vehicles are available to tomorrow's used vehicle purchasers, and determine the fuel economy of the fleet for many years after the original purchase date. Strong fuel economy and GHG standards lead automakers to offer more diverse sets of products, including more

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[210] *Id.*
[211] *See, e.g., id.* (quoting Jack Gillis, Executive Director for the Consumer Federation of America "Clearly, the more improvement in MPG, the better the sales.").
[212] *See generally* Proposed Determination TSD at sec. 4.3.3.
[213] Proposed Determination TSD at 4-49 and 4-47; Proposed Determination, App. A at A-79.
[214] Proposed Determination TSD at Fig. 4-26.
[215] Proposed Determination TSD at 4-50.

efficient models,[216] which will have the co-benefit of increasing the supply of fuel-efficient used vehicles available for purchase. To the extent that low-income consumers are more likely to purchase a used vehicle, more efficient used vehicle choices will help save low-income families more money at the pump.

iv. EPA fully accounted for vehicle performance

Previous commenters on the Clean Car standards argued that there was a specific hidden consumer welfare cost to the standards in the form of decreased performance. Notwithstanding that EPA already estimated the cost of holding performance in its cost estimates for the current MY 2022-2025 standards,[217] this argument contends that there would be still more performance added but for the standards, and that this lost performance is a consumer welfare loss not accounted for in the agency's cost estimates. The asserted engineering basis for this argument is that there is a necessary tradeoff between fuel economy/GHG emission reduction and performance (acceleration in particular). Some commenters supported their arguments by pointing to consumer willingness to pay studies, maintaining that these studies show a greater willingness of consumers to pay for increased performance than for fuel economy, confirming a hidden cost to the standards not reflected in EPA's cost estimates.

The record convincingly refutes these arguments. Most particularly, the historic tradeoff between performance and fuel economy is far less likely to hold for advanced technology engines.[218] EPA concluded in its Proposed Determination that "the assumption in the previous research that the tradeoffs among acceleration, fuel economy, and weight are constant does not appear to accurately represent the new technologies, and in fact may substantially overestimate the magnitude of the performance-fuel economy tradeoff."[219] Thus, "fuel economy and other vehicle attributes are not mutually exclusive, so there is no necessary tradeoff between fuel economy and other vehicle attributes."[220] And EPA previously included the cost of preserving both.[221] The studies previously submitted to the record purporting to show a hidden cost of foregone increased performance reflected older engine technologies, and so failed to account for these highly relevant technology distinctions.[222]

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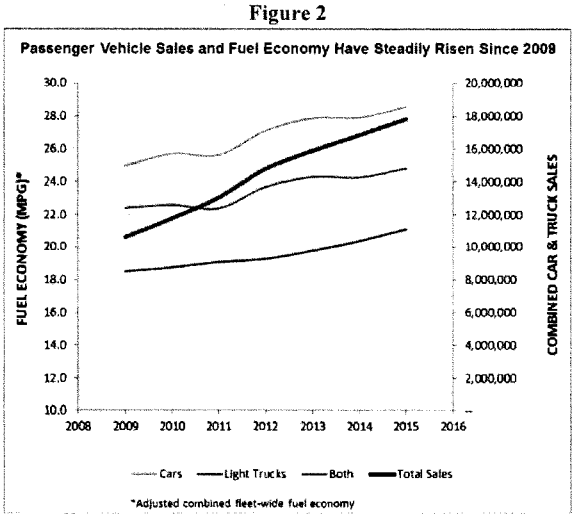
[216] Meghan R. Busse et. al., Who is Exposed to Gas Prices? How Gasoline Prices Affect Automobile Manufacturers and Dealerships, 14 QUANTITATIVE MARKETING & ECONOMICS 41-96 (Mar. 2016), https://dspace.mit.edu/handle/1721.1/103416.
[217] *See* Proposed Determination App. A at A-58.
[218] *See* Proposed Determination TSD at 2-248 and 2-249 showing that gasoline direct-injection engines and turbo downsized engines have much flatter trade off curves than the older, port-fueled engines.
[219] Proposed Determination, App. A, at 4-6.
[220] Final Determination RTC at 127.
[221] *Id.*
[222] A recent paper addressing this issue, Leard, Linn, and Zhou, "How Much Do Consumers Value Fuel Economy and Performance" (2017) likewise assumes that there is a necessary tradeoff between fuel economy improvement and performance, basing this conclusion on Knittel (2011) and Klier and Linn (2016) which studies did not account for the difference in more advanced engine technologies and performance. *See* Proposed Determination App. A at

B. The Auto Industry Has Made a Dramatic Return to Profitability and Added Jobs

During the height of the economic recession in 2008, the American auto industry was on the verge of collapse. This prompted the Obama Administration to develop a bailout package for the industry, which provided the boost the industry needed to help rebound.[223]

The auto industry returned to profitability at the same time fleetwide fuel economy has climbed to its highest level ever (see Figure 2 below). Drivers in the United States bought more cars in 2016 than ever before – setting a record sales high for the seventh year in a row.[224]

Figure 2



Source: Created by EDF from data available from Wards Auto[225] and the EPA Fuel Economy Trends Report[226]

4-6. In addition, Leard et al. (2017) acknowledges that their analysis omits any valuation of standard-based innovation. *Id.* at 27.

[223] The Resurgence of the American Automotive Industry, The Obama White House (June 2011), https://obamawhitehouse.archives.gov/sites/default/files/uploads/auto_report_06_01_11.pdf.

[224] Ahiza Garcia, *Car sales set another U.S. record*, CNN (Jan. 4, 2017), https://money.cnn.com/2017/01/04/news/companies/car-sales-2016/index.html.

[225] *See* Data Center, WARD'S AUTO, *available at* http://www.WardsAuto.com/data-center (last visited Oct. 25, 2018) (including datasets on U.S. light vehicle sales).

[226] *See* EPA, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2016* (Nov. 2016), https://www.epa.gov/fuel-economy-trends/download-co2-and-fuel-economy-trends-report-1975-2016.

During its return to profitability the auto industry also added jobs. Since the recession, overall job growth in the industry has been strong, aiding a recovery of domestic manufacturing as a whole. As of 2017, the U.S. auto industry had added nearly 700,000 direct jobs since the low point of the recession in mid-2009 – and these jobs support several million indirect jobs throughout the economy.[227] The growth in direct jobs includes more than 300,000 added jobs in motor vehicle and parts manufacturing and 380,000 added jobs at auto dealers.[228] This brings total manufacturing employment in the industry to 930,000 – representing nearly 50 percent growth since 2009, and bringing employment at auto and parts dealers to 2 million, which is its highest level ever. Indeed, auto-manufacturing jobs accounted for roughly 40 percent of all net jobs added in U.S. manufacturing since the recession.[229]

A study by the BlueGreen Alliance found that nationwide, there are over 1,200 facilities in 48 states specifically building the technology that increases fuel economy and cuts emissions.[230] And those facilities support hundreds of thousands of manufacturing jobs – including nearly 100,000 in Michigan and Ohio alone.[231]

For example, Ford's F-150, the best-selling vehicle in America, has led to additional jobs across the automotive supply chain. Ford reports that the MY 2015 F-150 is more powerful than earlier models.[232] It also gets an average of 21 percent better fuel economy and uses 17 percent less fuel compared to 2010 models that were built before the current standards took effect.[233] The fuel economy savings from just the new F-150s sold since 2011 save 5 million barrels of oil a year and cut carbon emissions by 2.3 million metric tons.[234]

As part of achieving the first phase in fuel economy standards, Ford developed and deployed a number of new technologies, including its "EcoBoost" line of redesigned engines. And for the second phase of standards Ford is using innovative design and materials—advanced high-strength steels and high-strength military-grade aluminum—to make its F-150 lighter and stronger. Emissions gains have also come from suppliers of more efficient components, like advanced electrical steering (EPS) systems.

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[227] BlueGreen Alliance, *Supplying Ingenuity II: U.S. Suppliers of Key Clean, Fuel-Efficient Vehicle Technologies*, at 5 (May 2017), https://www.bluegreenalliance.org/resources/supplying-ingenuity-ii-u-s-suppliers-of-key-clean-fuel-efficient-vehicle-technologies/ (citing underlying data from U.S. Bureau of Labor Statistics, https://www.bls.gov/iag/tgs/iagauto.htm).
[228] *Id.*; BlueGreen Alliance, *Backgrounder: Sound Vehicle Standards & Policies Drive Strong Job Growth* (June 2016), https://www.bluegreenalliance.org/resources/sound-vehicle-standards-policies-drive-strong-job-growth/
[229] *Id.*
[230] BlueGreen Alliance, *Supplying Ingenuity II*, *supra* n.231, at 4.
[231] *Id.*
[232] BlueGreen Alliance, Combating Climate Change 426,000 Pickup Trucks At a Time, (June 2016), https://www.bluegreenalliance.org/resources/combating-climate-change-426000-pickup-trucks-at-a-time/.
[233] *Id.*
[234] *Id.*

An analysis by the BlueGreen Alliance summarized some of the jobs that Ford has supported through its innovation in the F-150.[235]

- Cleveland, Ohio: Ford's Engine Plant No. 1 employs 1,600 people
- Saginaw County, Michigan: Nexteer, supplier of EPS system, employs 5,000 people, largest employer in the county, after coming back from bankruptcy.
- Alcoa, Tennessee: Alcoa, aluminum producer, invested $275 million and added 200 jobs to expand its rolling mill.
- Davenport, Iowa: Alcoa, invested $300 million in facility where the aluminum is further customized to facilitate bonding between aluminum components.
- Dearborn, Michigan and Kansas City: Ford's Truck Plant and Assembly plant, invested $1.1 billion and added 900 workers before any aluminum body trucks could roll off the line. Kansas City Assembly, represented by United Autoworkers (UAW) Local 249, currently employs 6,450 hourly employees, the highest ever since the plant opened in 1951.
- Cleveland, Ohio: ArcelorMittal, steel mill, employs 1,900 people today after being mothballed in 2009.

There are also numerous other signs of economic health in the auto industry. The granting of patents by the United States Patent and Trademark Office (PTO) is often cited as a measure of inventive economic activity. The Clean Energy Patent Growth Index (CEPGI), published by the Cleantech Group at Heslin Rothenberg Farley & Mesiti P.C. provides an indication of the trend of innovative activity in the Clean Energy sector from 2002 to 2015. The CEPGI tracks the granting of U.S. patents for the following sub-components: Solar, Wind, Hybrid/Electric Vehicles, Fuel Cells, Hydroelectric, Tidal/Wave, Geothermal, Biomass/Biofuels and other clean renewable energy. In 2015, Hybrid/Electric Vehicle (HEV) technologies grew more than all others with a 30 percent increase in patents over 2014. HEV technologies were granted nearly 700 patents and fuel cell technologies were awarded more than 800 patents. The majority of these patents were granted to large automakers, including Toyota, GM, Honda and Ford.[236]

Finally, there is broad support for rigorous greenhouse gas standards by the labor community. Here are some quotes in support of the existing MY 2022-2025 standards:

- "In fact, that is the reason the UAW was central to the original CAFE agreement, which was carefully crafted to reduce emissions, increase fuel efficiency, give manufacturers flexibility to meet stringency standards, and create jobs in vehicle production and advanced technology. The UAW is proud of the role we played in reaching a consensus among a wide variety of

[235] *Id.*
[236] Clean Energy Patent Growth Index (CEPGI) - 2015 Year in Review, CLEANTECH GROUP AT HRFM (Oct. 31, 2016), http://www.cepgi.com/2016/10/cepgi_2015_year_in_review.html.

stakeholders, including the Obama Administration, state and federal regulators, the automobile industry, environmental advocates, elected officials and others to reduce greenhouse gases and raise the average fuel economy of vehicles....Fuel efficiency is our auto industry's future — plain and simple. From electric vehicles to full-sized pickups, fuel efficiency is improving across the industry. Countries around the globe continue to promote greater efficiency and lower emissions. If we ignore these realities, we could see the U.S. auto industry fall behind, hurting the American economy and American workers by ceding the auto markets of the future. Smart, balanced policies will make sure the U.S. auto industry does not fall behind, while also ensuring that these vehicles of the future are produced here, creating good paying union wage jobs." – Gary Jones, 2018 President of United Auto Workers[237]

- "[W]e urge the incoming Trump Administration and the 115th Congress to maintain our nation's commitment to improving fuel efficiency and reducing emissions. The basic structure and design of the One National Program was carefully constructed by a wide array of stakeholders and should be kept intact and not dramatically altered. We cannot afford to go back to the drawing board. Our competitors around the globe are working to strengthen environmental standards and it would be counterproductive to enact policies that provide disincentives for investing in advanced technologies and improving efficiency. History has taught us that a diverse fleet is essential for strong export sales and keeping jobs in the United States. Efficiency and emission standards can and must continue to be a win-win for the environment, working families, domestic manufacturing and the overall economy. The need to address climate change is real and urgent. We must act to protect our future and the future of our children and grandchildren. There is no scientific debate on the connection between fossil fuel consumption, rising carbon dioxide levels in the earth's atmosphere, and climate change. Climate change is real and we ignore it at our own peril. The need for a comprehensive strategy to address climate change could not be clearer and we all have responsibility to act." – Dennis Williams, 2016 President, United Auto Workers[238]

- At a September 2017 public hearing on EPA's reconsideration of the Mid-Term Evaluation, United Steel Workers leaders urged EPA to retain strong fuel economy standards for model year 2022-2025 light-duty cars, trucks, and SUVs to protect the jobs of thousands of Ohio workers building components for today's rapidly innovating auto industry:

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[237] Gary Jones, *Labor Voices: Sensible fuel policies can create jobs*, THE DETROIT NEWS (Sept. 25, 2018), https://www.detroitnews.com/story/opinion/columnists/labor-voices/2018/09/25/labor-voices-sensible-fuel-policies-can-create-jobs/1414150002.

[238] Comments of United Autoworkers on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation, (Dec. 30, 2016), ID: EPA-HQ-OAR-2015-0827-6155.

- "As president of Local 2, I represent workers building cutting-edge technologies that are helping to make our light-duty cars, trucks, and SUVs cleaner than ever. We are part of a much larger group of workers that have benefitted from these clean car standards." Jack Hefner, President of USW Local 2 represents members in Akron at Maxion Wheels, Goodyear, and other automotive industry suppliers.[239]

- "Today's fuel economy standards are proof that sound regulations can go hand in hand with making manufacturing thrive. Ohio and auto sector are proving you can build jobs while cutting pollution and enhancing energy security." Dan Boone, President of USW Local 979 represents members at the ArcelorMittal plant in Cleveland, one of most innovative and productive steel mills in the world that makes lighter, stronger steel primarily for cleaner vehicles.[240]

- "For years the nation has reaped the benefits of these world-leading standards.. . . . Automakers and suppliers have made billions of dollars in investments and created hundreds of thousands of jobs nationwide ensuring that any vehicle a consumer chooses to buy—whether a car, truck, or SUV—gets more efficient every year. Strong standards keep that investment flowing and those jobs secure." – Kim Glas, Executive Director, BlueGreen Alliance[241]

- In a recent blog post co-authored by United Steel Workers President, Leo Gerard, and Natural Resources Defense Council President, Rhea Suh, both expressed strong support for the current federal standards.

  - "Getting more miles per gallon helps reduce our exposure to global oil price shocks we can neither control nor predict. It also reduces the dangerous carbon pollution that's driving the central environmental challenge of our time — global climate change. . . . The clean car and fuel economy standards are helping us do that, while at the same time helping us bring back America's manufacturing leadership and jobs. We owe it to our workers, and we owe it to our children, to stay the course." – Leo

[239] BlueGreen Alliance, Congressman Ryan Joined USW Leaders in Akron to Discuss Their Upcoming Testimony in Washington DC on Keeping Fuel Economy Standards and Ohio Manufacturing Strong (Sept. 5, 2017), https://www.bluegreenalliance.org/the-latest/congressman-ryan-joined-usw-leaders-in-akron-to-discuss-their-upcoming-testimony-in-washington-dc-on-keeping-fuel-economy-standards-and-ohio-manufacturing-strong/

[240] *Id.*

[241] BlueGreen Alliance, Flawed Proposal to Roll Back Fuel Economy and Emissions Standards will Cost Thousands of Jobs (Aug. 2, 2018), https://www.bluegreenalliance.org/the-latest/flawed-proposal-to-roll-back-fuel-economy-and-emissions-standards-will-cost-thousands-of-jobs/.

Gerard, President, United Steelworkers, and Rhea Suh, President, Natural Resources Defense Council[242]

C. Clean car standards will continue to benefit and protect automakers, parts suppliers and workers

In addition to the current robust economic health of the auto industry, there is also strong evidence that automakers and their parts suppliers will continue to make profits under the future Clean Car standards and will be better safeguarded against fuel price shocks. And market stability translates into employment stability for American autoworkers.

In a 2016 analysis, Ceres forecast automaker pretax profits under 5 different fuel price scenarios under the current MY 2022-2025 standards. They concluded that the top 3 U.S. manufacturers (Ford, GM and Chrysler) will be profitable under the current standards in all fuel price scenarios in the study, including the "very low" price scenario. They also found that U.S. automakers will be able to fully recover their compliance costs at any fuel price above the Energy Information Administration's long term forecasted "low price".[243]

Suppliers too stand to gain from the Clean Car standards. Suppliers make up a significantly larger portion of the U.S. economy and of U.S. employment than do the automakers. In April 2016, automakers employed 214,700 people in the U.S., while makers of auto parts employed 564,100 – or 2.6 times as many people. Stronger standards lead to increased supplier revenue because as much as 80 percent of automaker compliance investments are paid to suppliers of fuel-saving technologies. And the regulatory certainty of maintaining the current standards is especially valuable to the suppliers making the majority of fuel-saving technology investments in research, development, and production capacity.[244]

In addition to supporting industry profits, studies have shown that fuel efficiency standards insulate the auto market from fuel price shocks – and that market stability translates into employment stability. In a marketplace without standards, not all manufacturers produce fuel-efficient models. For example, the U.S. automakers relied heavily on less efficient vehicle lines before the Clean Car standards began in 2012. When fuel prices spike in the absence of fuel economy standards, more fuel-efficient vehicles are in greater demand, shifting demand across manufacturers and disrupting sales and employment. Peer-reviewed research suggests that fuel

[242] Rhea Suh & Leo Gerard, *Don't Let Donald Trump Roll Back Auto Fuel Economy Standards*, USA TODAY (Aug. 2, 2018, 10:24 PM), https://www.usatoday.com/story/opinion/2018/08/02/stop-trump-rollback-obama-fuel-efficiency-standards-column/833287002/.
[243] Baum, Alan & Dan Luria, ANALYST BRIEF: Economic Implications of the Current National Program v. a Weakened National Program in 2022-2025 for Detroit Three Automakers and Tier One Suppliers, CERES (Jun. 27, 2016), https://www.ceres.org/resources/reports/economic-implications-current-national-program-v-weakened-national-program-2022.
[244] *Id.*

economy and GHG standards have led U.S. automakers to offer more diverse sets of products that are competitive under a wider range of fuel prices, making them better positioned to manage significant fuel price swings.[245] For autoworkers and parts manufacturing workers, strong standards safeguard the industry against negative impacts associated with unanticipated changes in the price of fuel, which could otherwise lead to layoffs and lost wages.

To evaluate whether the current fuel economy and GHG standards are a cost effective hedge (i.e. a correctly priced insurance policy) against future fuel price spikes, Ceres estimated the net losses of weakened standards in the event of a price spike. The analysis concluded that profits by the three largest U.S. automakers (Ford, GM and Chrysler) from U.S. new vehicle sales would plummet more than $1 billion per year in response to fuel price shocks without the Clean Car standards.[246] And because as much as 80 percent of automaker compliance costs are paid to suppliers of fuel-saving technologies, suppliers could lose up to $1.42 billion in the case of a fuel price shock.[247] This could put many American jobs at risk. Alternatively, Ceres also concluded that the U.S. automakers stand to make significant profits under the Clean Cars program, even with low fuel prices, as discussed above.[248]

As the Trump administration has proposed rolling back the Clean Car standards, automakers have expressed concern:

- Two major automaker trade associations, the Alliance of Automobile Manufacturers and the Association of Global Automakers, wrote in letters to California Governor Jerry Brown and President Trump of their commitment to continued increases in fuel efficiency.
    - "As our CEOs wrote to you in February of 2017, auto manufacturers are committed to continued gains in fuel efficiency and carbon reduction that appropriately balance environmental progress, safety, affordability, and jobs. That commitment has not wavered." – Alliance of Automobile Manufacturers & Association of Global Automakers[249]

- At EPA and NHTSA hearings this fall regarding the proposal to roll back the Clean Car standards, Auto Alliance stated:
    - "First, let me say climate change is real and automakers are taking action to reduce carbon emissions from new vehicles. Automakers are also committed to continued improvements in fuel economy. Today, consumers have more choice in energy-efficient vehicles than ever before. About 500 models are on sale that achieve 30 MPG or more on the highway, and 80 of those models achieve 40 MPG or more.

[245] Meghan R. Busse et. al., Who is Exposed to Gas Prices? How Gasoline Prices Affect Automobile Manufacturers and Dealerships, 14 QUANTITATIVE MARKETING & ECONOMICS 41-96 (Mar. 2016), https://dspace.mit.edu/handle/1721.1/103416.
[246] Baum et al.
[247] *Id.*
[248] *Id.*
[249] Letter from Mitch Bainwol, President and CEO of the Alliance of Automobile Manufacturers, and John Bozzella, President and CEO of Global Automakers to Governor Jerry Brown, California (Aug. 2, 2018).

Consumers can choose from 45 hybrid-electric models and another 50 plug-in electric and fuel-cell models. And more electrified vehicles are on their way to market." -- Chris Nevers, Vice President, Energy & Environment, Auto Alliance[250]

- "The last five years, we've sold more cars than have ever been sold in the history of the auto industry. It's not just because, but it coincides with these new standards. They're better cars, they're more fuel efficient. It clearly has not dampened sales. . . . We need those manufacturers to keep doing research and building better vehicles like they have been doing. And if they stop because the standards are reversed, it would be bad for us as a business, and for this country." – Adam Lee, Owner, Lee Auto Malls Dealerships[251]

- "We support increasing clean car standards through 2025 and are not asking for a rollback. We want one set of standards nationally, along with additional flexibility to help us provide more affordable options for our customers. We believe that working together with EPA, NHTSA, and California, we can deliver on this standard." – Bill Ford, Executive Chairman, Ford, and Jim Hackett, CEO, Ford[252]

- "Honda is committed to realizing a future of low-carbon mobility that will reduce greenhouse gas emissions that contribute to global climate change. This includes Honda's intention for two-thirds of our global automobile sales to be electrified vehicles by 2030. In addition, Honda supports continued improvements in the fuel economy of the U.S. vehicle fleet as prescribed by federal fuel economy and greenhouse gas (GHG) emissions standards through 2025." -- Robert J. Bienenfeld, Assistant VP, Regulatory Policy, Honda[253]
- "Consistent with Honda's support for the goals of the 2017-2025 (ONP2) program, we believe it is appropriate to maintain topline targets of approximately 5% per year annual improvement (with advanced technology vehicle incentives noted below)." American Honda Motor Co., Comments on The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks (Oct. 25, 2018)).
- "A single, national standard would allow us to focus our resources on innovations that benefit our customers and society as we pursue our vision of a world with zero crashes, zero emissions and zero congestion, instead of diffusing resources to meet different rules within the United States. Regardless of the outcome of these discussions, I assure you we have an absolute and unwavering commitment to improve fuel economy, reduce emissions and invest in technologies to drive an all-electric future. These are the right actions for our customers, our company and our environment." GM CEO Mary Barra, Keeping Our Commitment to an All-Electric Future (May 8, 2018), https://www.linkedin.com/pulse/keeping-our-commitment-all-electric-future-mary-barra/.

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[250] *Alliance remarks for NHTSA/EPA hearings on fuel economy standards*, Auto Alliance (Sept. 24, 2018), https://autoalliance.org/2018/09/24/alliance-remarks-nhtsa-epa-hearings-fuel-economy-standards/.
[251] Mary Kuhlman, *Maine Auto Leader: Fuel-Economy Rules Good for Business*, PUBLIC NEWS SERVICE (Aug. 3, 2018), https://www.publicnewsservice.org/2018-08-03/climate-change-air-quality/maine-auto-leader-fuel-economy-rules-good-for-business/a63546-2.
[252] Bill Ford & Jim Hackett, *A Measure of Progress*, MEDIUM (Mar. 27, 2018), https://medium.com/cityoftomorrow/a-measure-of-progress-bc34ad2b0ed.
[253] Our Perspective – Vehicle Greenhouse Gas and Fuel Economy Standards, Honda (Apr. 20, 2018), https://hondainamerica.com/views/our-perspective-vehicle-greenhouse-gas-and-fuel-economy-standards/.

Several major automakers have recently made increased commitments to develop electric vehicle technology and invest in electrification. In late 2017, GM announced plans to release 20 new all-electric models by 2023 as part of a commitment to increase EV usage and acceptance.[254] In January 2018, Ford committed to invest $11 billion dollars in electrification and launch 40 electrified models by 2022.[255] The company also just announced plans to start production of the first-ever hybrid-electric F-150 truck in 2020.[256] Automakers' commitments to continue reducing emissions and their support for increasing standards underscore the needless radicalism of this proposal.

D. Clean car standards help ensure that automakers retain their global competitiveness

The Clean Car standards are essential to ensuring that the resurgence for U.S. automakers endures, and that American autoworkers have a strong position in the years ahead. The strong fuel economy and GHG standards have led U.S. automakers to offer a more diverse and more efficient set of vehicles. As a result, their fleets will remain attractive to consumers in the years ahead, even if fuel prices spike again.[257]

Strong fuel economy and GHG standards are essential if the American auto sector is going to keep pace with global trends. Many other nations have adopted fuel economy and GHG emissions standards through 2025 that will drive improved passenger vehicle efficiency in line with the U.S., while some nations are planning to go farther faster. This includes a range of developed and developing countries, including: Canada,[258] the European Union[259], China,[260]

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[254] Press Release, General Motors, GM Outlines All-Electric Path to Zero Emissions (Oct. 2, 2017), https://media.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2017/oct/1002-electric.html (quoting Mark Reuss, General Motors executive vice president of Product Development, Purchasing and Supply Chain, "General Motors believes in an all-electric future....Although that future won't happen overnight, GM is committed to driving increased usage and acceptance of electric vehicles through no-compromise solutions that meet our customers' needs.").

[255] Stephen Edelstein, *Ford Will Launch 40 Electrified Vehicles by 2022*, THE DRIVE (Jan. 15, 2018), http://www.thedrive.com/tech/17681/ford-will-launch-40-electrified-vehicles-by-2022.

[256] Ian Thibodeau, *Ford Rouge complex's next chapter: a hybrid F-150*, DETROIT NEWS (Sept. 27, 2018, 10:03 PM), https://www.detroitnews.com/story/business/autos/ford/2018/09/27/ford-rouge-complex-hybrid-f-150/1443579002/; *see also* Benjamin Raven, *Ford says it will make hybrid F-150 at historic, 100-year-old Rouge complex*, MICHIGAN AUTOMOTIVE NEWS (Sept. 27, 2018), https://www.mlive.com/auto/index.ssf/2018/09/ford_says_it_will_make_hybrid.html.

[257] Meghan R. Busse et. al., Who is Exposed to Gas Prices? How Gasoline Prices Affect Automobile Manufacturers and Dealerships, 14 QUANTITATIVE MARKETING & ECONOMICS 41-96 (Mar. 2016), https://dspace.mit.edu/handle/1721.1/103416.

[258] Fact Sheet: Canada, Light Duty Vehicle Efficiency Standards (Jan. 2015), https://www.theicct.org/sites/default/files/info-tools/pvstds/Canada_PVstds-facts_jan2015.pdf.

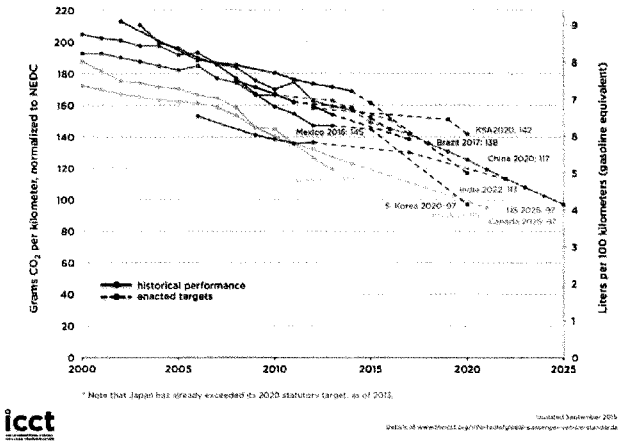
[259] EU Light Duty: GHG Emissions, TransportPolicy.net, https://www.transportpolicy.net/standard/eu-light-duty-ghg-emissions/ (last accessed Oct. 25, 2018).

[260] China: Light Duty Fuel Consumption, TransportPolicy.net, https://www.transportpolicy.net/standard/china-light-duty-fuel-consumption/ (last accessed Oct. 25, 2018).

India[261] and South Korea[262] (see Figure 5 below). And China – which is seeing the largest market growth worldwide – will require that foreign carmakers start manufacturing electric vehicles in 2019. U.S. automakers who intend to export cars to China will have to earn points from electric vehicles and hybrids equivalent to 10% of vehicles they import into the country, rising to 12% in 2020.[263]

Figure 3

Passenger car CO_2 emissions and fuel consumption, normalized to NEDC



Source: ICCT, *See* http://www.theicct.org/sctp-ldv-e

Looking past 2025, many nations have made commitments to fully phase out the combustion engine over the next couple of decades. Britain and France announced that they would end the sale of gas and diesel-powered vehicles by 2040.[264] Scotland pledged to phase out new petrol and diesel cars and vans by 2032, eight years ahead of the UK target.[265] India is making a vow to start selling only electric cars by 2030. The government's National Electric Mobility Mission

[261] India: Light-Duty: Fuel Consumption, TransportPolicy.net, https://www.transportpolicy.net/standard/india-light-duty-fuel-consumption/ (last accessed Oct. 25, 2018).
[262] South Korea: Light Duty: Fuel Consumption and GHG, TransportPolicy.net, https://www.transportpolicy.net/standard/south-korea-light-duty-fuel-economy-and-ghg/ (last accessed Oct. 25, 2018).
[263] *China Sets New deadline for Electric-Car Production*, DOW JONES NEWSWIRES (Sept. 28, 2017), http://www.foxbusiness.com/markets/2017/09/28/china-sets-new-deadline-for-electric-car-production.html.
[264] Stephen Castle, Britain to Ban New Diesel and Gas Cars by 2040, N.Y. TIMES (July 26, 2017), https://www.nytimes.com/2017/07/26/world/europe/uk-diesel-petrol-emissions.html.
[265] Shehab Khan, Scotland to 'Phase Out' New Petrol and Diesel Cars by 2032, INDEPENDENT.UK, (Sept. 5, 2017), http://www.independent.co.uk/news/uk/politics/scotland-petrol-diesel-cars-phase-out-ban-2032-nicola-sturgeon-snp-environment-air-pollution-a7930781.html.

Plan wants annual sales of electric and hybrid cars to hit between 6 and 7 million by 2020.[266] Norway set a target that all new passenger cars and vans sold in 2025 should be zero-emission vehicles. The country is considered a leader in this area. About 40% of all cars sold in the country in 2016 were electric or hybrid vehicles.[267] Austria, China, Denmark, Germany, Ireland, Japan, the Netherlands, Portugal, Korea and Spain have set official targets for electric car sales.[268] A number of governments have also set objectives for EV deployment.[269] To facilitate a deployment of 5 million electric vehicles by 2020, including 4.6 million passenger cars, China plans to implement a new energy vehicle (NEV) mandate that requires 7-10% of new cars sold in 2020 to be NEV vehicles, increasing to 40-50% by 2030.[270] The European Union has also set targets of 15% electric vehicle sales by 2025, and 30% by 2030.[271] Any backtracking on the current 2025 standards would therefore risk leaving U.S. manufacturers behind.

V. NHTSA Fails to Explain its Incongruous Treatment of Light Duty Trucks Compared to Heavy Duty Pickups and Vans

NHTSA touts its prior use of the Volpe and Autonomie models in establishing fuel efficiency and CO2 standards for heavy duty pickups and vans. 83 FR 43002. A more apt comparison is not between the use of those models for each set of standards, but for the appropriateness of year-over-year improvements for the vehicle classes covered by those standards and the standards for light duty trucks subject to this proposed rollback. EPA and NHTSA's joint heavy duty pickup and van standards require year-over-year increase in stringency in miles per gallon of 2.5 percent from model years 2021 through 2027. 81 FR at 73732 (Oct. 25, 2016). Heavy duty pickups and vans use the same fuel efficiency and CO2 emission reduction technologies as their light duty counterparts[272], are made by the same manufacturers and sometimes use identical engine platforms.[273] Compared to the current standards for light duty trucks subject to this proposed rollback, the standards for heavy duty pickups and vans are arguably more challenging to meet, due to fewer averaging opportunities, longer redesign cycles, and in some instances, lower technology efficiency. Heavy Duty RTC at 1342.

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[266] Jackie Wattles, India to Sell Only Electric Cars by 2030, CNN.com (June 3, 2017), http://money.cnn.com/2017/06/03/technology/future/india-electric-cars/index.html?iid=EL.
[267] Alanna Petroff, These Countries Want to Ditch Gas and Diesel Cars (July 26, 2017), http://money.cnn.com/2017/07/26/autos/countries-that-are-banning-gas-cars-for-electric/index.html.
[268] *Id.*; IEA, Global EV Outlook (2017) see https://www.iea.org/publications/freepublications/publication/global-ev-outlook-2017.html.
[269] International Energy Agency, Global EV Outlook 2018, at 34, Table 2.2 Announced country targets and objectives for EV deployment, 2020-30, https://webstore.iea.org/global-ev-outlook-2018.
[270] *Id.*
[271] *Id.*
[272] See, e.g. Heavy Duty RIA (EPA-420-R-16-900, August, 2016) at 2-56 through 2-64 (engine technologies in common). The exception is certain technologies incompatible with heavy duty pickup towing funetionality. Heavy Duty Response to Comment Document (EPA-420-R-16-901, August 2016) at p. 1331.
[273] 81 FR at 73733/2.

Notwithstanding these constraints, the agencies adopted the year-over-year percentage increase standard[274], no entity suggested that a freeze of standards was a reasonable alternative, and no entity challenged the promulgated standards. The agencies do not acknowledge, let alone provide a rational explanation for, this anomalous treatment of similarly situated vehicles.

VI. The Agencies' Rejection of Multiple Available Technologies is Inconsistent With the Governing Statutes, Under Which the Relevant Question Is Whether Given Technologies are Feasible and Can Be Deployed Within the Relevant Lead Time, Not Whether They are Currently Extant or Currently on the Market

We have shown elsewhere that the agencies' grounds for rejecting various of the advanced technologies, in particular HCR2, HCCI, and Miller cycle engines, are without factual basis. But the grounds assigned are also without *legal* basis. The agencies, for example, reject HCR2 as a "speculative technology" without "observable physical demonstration" and because it is a "theoretical application of additional technologies in combination..." and so is "entirely speculative, as no production engine as outlined in the EPA SAE paper has even been commercially or even produced as a prototype in a lab setting".[275] Similarly, HCCI is not considered because "manufacturers were not manufacturing HCCI engines at the time of the 2012 rulemaking, and accordingly there was a lack of conclusive and independently verifiable effectiveness, cost, and mass market implementation data available."[276] And the well-established, mass-produced Miller cycle engine technology is excluded from consideration because of the purported lack of engine maps.[277]

The fundamental legal error in all of these formulations is that agencies mandated to engage in technology-forcing determinations, as are EPA[278] and NHTSA[279] here, are required to look beyond technology presently in commercial application, are not limited to consideration of current technology, and are not hamstrung by absence of this or that type of performance

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[274] See 81 FR at 73801 (rejecting less stringent alternative still requiring emission reductions and increased fuel efficiency).

[275] 83 Fed. Reg. 43038;

[276] PRIA p. 240.

[277] 83 Fed. Reg. 43051 n. 174.

[278] Standards under section 202 (a)(1) are "expected to press for the development and applicability of improved technology rather than be limited by what exists. Standards should be a function of the degree of control required, not the degree of technology available today". S. Rep. No. 91-1146 at 23. Congress "expected [EPA] to press for the development and application of improved technology rather than be limited by that which exists today". *NRDC v. EPA*, 655 F. 2d 318, 328 (D.C. Cir. 1981) (construing section 202 (a)(1), see id. at 324-27 and 337). See 77 Fed. Reg. 62,624 at 62,777 (Oct. 15, 2012) ("Under section 202(a), EPA is called upon to set standards that provide adequate lead time for the development and application of technology to meet the standards.")

[279] "Congress created mandatory vehicle fuel economy standards, intended to be technology forcing, with the recognition that 'market forces...may not be strong enough to bring about the necessary fuel conservation which a national energy policy demands." *Center for Auto Safety v. Peck*, 793 F.2d 1322, 1339 (D.C. Cir. 1986), *citing* S. Rep. No. 179, 94th Cong., 1st Sess. 2 (1975), U.S.C.C.A.N. 1975 at 9; see also 77 Fed. Reg. at 62668 (NHTSA is "not limited in determining the level of new standards to technology that is already being commercially applied at the time of the rulemaking...").

information. The plain text of the relevant statutes makes this clear: The Clean Air Act directs EPA to identify "such period as the Administrator finds necessary to permit the development and application of the requisite technology," 42 U.S.C. 7521(a)(2). EPCA's fuel economy mandate is "intended to be technology forcing, with the recognition that 'market forces...may not be strong enough to bring about the necessary fuel conservation which a national energy policy demands.'" *Center for Auto Safety*, 793 F.2d at 1339, quoting S. Rep. No. 179, 94th Cong., 1st Sess. 2 (1975). NHTSA itself recognized that it is "not limited...to technology that is already being commercially applied at the time of the rulemaking" but rather "can, instead, set technology-forcing standards." 77 Fed Reg at 63,015; see also 75 Fed. Reg. 25,324, 25,605 (May 7, 2010).

Not only does a technology-forcing mandate "not constrict the agency to technology that is now available", it "permit[s] the agency to set standards based on projections of technology that is not currently available."[280] To prevent occurrence of "stagnating technology" and to further the Congressional objective to "promot[e] advances in emission control technology", the agency is "to engage in reasonable predictions and projections in order to force technology".[281] The D.C. Circuit has made clear that lack of existence of test data is not a bar to adopting technology-forcing standards based on technology and levels of performance not currently in commercial or theoretical application.[282] Courts have also held that EPA can infer that a technology is demonstrated as a whole based on operation of component parts which have not, as yet, been fully integrated.[283] *A fortiori*, the HCR2 package, where most of the components *have* been operated in combination already, cannot lawfully be rejected as "speculative" as the agencies dismissively do.

EPA's task is thus to identify the major steps necessary for "development and application of the requisite technology," and then the respective standard "*shall* take effect."[284] These individual decisions are highly consequential: as noted above, without changing anything else about the agencies' analysis, allowing HCR2 would reduce augural compliance costs by $619—or about

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[280] *NRDC v. Thomas*, 805 F. 2d 410, 429 (D.C. Cir. 1986).

[281] 805 F.2d at 430.

[282] See *Portland Cement Ass'n v. Ruckelshaus*, 486 F. 2d 375, 401-02 (D.C. Cir. 1973)(interpreting CAA section 111 (a) (1)'s requirement of standards reflecting performance of "best system of emission reduction ... adequately demonstrated" as being satisfied "not on the basis of tests on existing sources or old test data in the literature, but on extrapolations from this data, on a reasoned basis responsive to comments, and on testimony from experts and vendors". The same case reiterates that a technology need not be in commercial application to be considered, since this technology-forcing provision "looks toward what may fairly be projected for the regulated future, rather than the state of the art at present." *Id.* at 391 n. 59.

[283] See *Lignite Energy Council*, 198 F. 3d at 933-34 (none of the components of the selected best system had been operated at industrial boilers, much less "applied ... in combination" (83 Fed. Reg. 43038); *Sur Contra La Contaminacion v. EPA*, 202 F. 3d 443, 447 (1st Cir. 2000) (upholding "best available technology" determination under CAA section 169(3) based on a "novel combination of three proven control technologies" that "ha[d] not been used before"); *Native Vill. of Point Hope v. Salazar*, 680 F. 3d 1123, 1133 (9th Cir. 2012) upholding standard where "most major components for [the] system [were] available and ha[d] been [individually] field tested").

[284] *NRDC v. EPA*, 655 F. 2d 318, 333 (D.C. Cir. 1981)(interpreting CAA section 202 (a)(1) and (2)); *NRDC v. Thomas*, 805 F. 2d at 428-30 (same).

30% of the total difference between the augural and rollback scenarios.[285] The proposal's rejection of these technologies nowhere justifies how the (unfounded and cursorily justified) concerns accord with the agency's limited discretion under Section 202(a)(2) and duty to "press for the development and application of improved technology rather than be limited by that which exists today."[286]

[285] PRIA Table 13-4. See also the comments in this docket of the International Council on Clean Transportation.
[286] *NRDC v. EPA*, 655 F. 2d at 328; *see also id.* at 331 ("If the agency is to predict more than the results of merely assembling pre-existing components, it must have some leeway to deduce results that are not represented by present data."). Ironically, the agencies reject even a technology, the HCR2 package, which does consist of assembling pre-existing components.

Senator CARPER. Thank you.

I have sat in this hearing room for 18 years. I have always looked for—and I think my colleagues for their part—always look for win-win situations. I always look for situations where we can have good things for our air, water, public health, and do so in a way that does not impinge or degrade economic opportunity, economic growth.

I have raised in conversations with you, Mr. Wheeler, and here today, three instances where I believe we can do good things for our planet, for those of us who live here, and actually provide economic opportunity for American business. I have just talked 2 days ago with a cross-section of auto companies from all over the world. We talked about fuel efficiency standards, tailpipe emission standards. They are pleading for certainty.

They said to me repeatedly, we don't want to spend the next 4 or 5 years in a court battle with California and 13 other States, including Delaware, on what these standards should be. We need certainty; we need predictability. We need near term relief. And in the out years, we can, with a lot of electric powered vehicles and hydrogen powered vehicles, we can prescribe for and meet much more rigorous standards for CAFE.

I am troubled by something you said here. I think you said you have talked to the woman who runs CARB out in California, Mary Nichols, three times in I think 9 months about this. We are talking about the greatest source of carbon emissions on our planet is our mobile sources, our cars, trucks, and vans. California is critical to getting a deal, so are the other 13 States, including Delaware. And the idea that you spoke with her, whether it is her fault, your fault, three times in the course of a year, is deeply troubling.

One of the thoughts that keeps coming back to me in this conversation today, this hearing today, is the thought, I don't feel a sense of urgency. We do in Delaware. I live in the lowest lying State in the country. Our State is sinking; the oceans are rising.

We are not too far away from a place called Ellicott City. They have had two 500 year floods in a year. In a year. I live in not a very big State, but there are wildfires, bigger than the size of my State, in Oregon, Montana, Washington, and California, just in the last year. We used to measure rainfall by the inch, now we measure it by the foot. And one of the things I just don't sense of here is a sense or urgency to do something about it. We had 13 agencies that came together and said, this is a huge issue, and it is getting worse, not better. And they didn't do this because of something that Obama law would compel them to do. I think that was legislation signed by George Herbert Walker Bush, many, many years ago.

I am looking for some passion here. I just don't feel it. And that is deeply troubling. I am also looking for win-wins. We talked about hydrofluorocarbons and the threat that they pose to our atmosphere. And it is American technology that has a follow on to HFCs, and there is a great interest in being able to adopt the Kigali Treaty that actually allows for the phase down of HFCs and the introduction of replacements, from American made companies with American made technologies. It is not some wild eyed, liberal, tree hugging idea. This is the U.S. Chamber of Commerce. This is the

American Chemical Council. It is all these American businesses. And EPA, rather than being a good partner and helping to expedite this and make it happen, if anything else, I think the agency is an impediment.

And the other thing that I would say, I will never forget, my colleagues have heard me say this before, I beg their indulgence, I will never forget when Lamar Alexander and I, Senator Alexander and I were working on a four-P legislation to deal with—you may recall this—to deal with sulfur dioxide, nitrogen oxide, carbon, and mercury. The issue that we were kind of hung up on was mercury. And the idea, could we actually reduce mercury emissions by as much as 80 percent. Lamar Alexander said no, no, we can reduce it by 90 percent.

We had a hearing right here, and a guy sat right at the end of the table. Everybody who was from a utility at this table, said, oh, we can't even get to 80 percent, much less 90 percent. The guy who was representing the association that said, no, no, they can do better, they can do 90 percent; he said, they can do better than that. And you know what? They did. They reached 90 percent reduction.

And if you look at the MATS rule, the reason why the utilities are essentially sanguine about this is, they make investments, it costs a third as much money to make the investments. It is actually working. And not only do we do, I think, a beneficial thing for children, infants, for those who haven't even been born, we actually do a lot of goodness, not collateral damage, but collateral good things. And we do so in other areas, particulate matter and all kinds of stuff, to save lives. And to somehow say that that just doesn't add up enough, and in terms of cost-benefit analysis for us just to say, all right, they got it right, they actually got something right, in the Obama administration. That's on MATS, and all these other folks, all these other stakeholders, are for it, but maybe we should be as well.

What we are afraid of is you are going to do something, your agency is going to do something that gives some of us, not EPA, but somebody else the ability to come in and have standing in court and undo MATS, undo the Mercury Air Toxics Standard. That is what we are afraid of. That is what we are afraid of. And those are three instances where I think we can have, I think a lot of us think we can have cleaner air, cleaner water, better public health, more jobs.

And why we don't take that ball and run it right down the field, I don't know. I don't know. That is what frustrates me. I am sure it frustrates others on this panel, and frankly, a lot of people in this audience and who might be watching.

I don't normally give long speeches, I normally ask short questions and look for short answers. But respond to that, if you would. I am looking for passion. I am looking for a sense of urgency. I am looking for a real commitment. And that might not be your nature, but we need it. I think this agency needs that kind of leadership.

Mr. WHEELER. Senator, you and I have discussed the CAFE standard and a number of issues multiple times now. I want you to understand and believe that I really do want a 50 State solution. I really do.

When I met with Mary Nichols, that was one on one meetings with Mary Nichols, there were three over the last 6 months, that doesn't mean we haven't been working with California more than that. I know she has met with other people at the agency, we have had technical meetings between her technical staff and our technical staff. There have been a lot more meetings than just those three.

Those are the three one on one meetings that I had with Mary Nichols in my office. We have also been on phone calls, and she has met with Department of Transportation. Again, this is a joint rulemaking with DOT.

But at the end of the day, I want a 50 State solution. I want a regulation that provides certainty to the consumers, the automobile manufacturers, and to all the interested parties. And that is what I want at the end of the day, and that is what I hope we can get.

Senator CARPER. Yes, methylene chloride. Methylene chloride. I want you to impart a sense of urgency on getting a rule done on that. It is actually something that Scott Pruitt did that we thought was right. And here it is 2 years later, and we still haven't followed through. Let's get it done.

Mr. WHEELER. As I shared with you Tuesday, our hope had been to publish that last week. It is at OMB; it is ready to go as soon as the Federal Register opens. That is something that I have taken seriously, and it is something that we have spent a lot of time—I have spent a lot of personal time on that issue. And I hope we can get that out as quickly as possible.

Senator CARPER. Methylene chloride, for the record, is a paint stripper. It kills people. It must be a really good paint stripper, but unfortunately, it kills people.

Thank you.

Senator BARRASSO. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

First of all, I want our witness to recognize that I am not at all offended that you found your leadership in the Eagle Scouts to be more rewarding than your leadership under me for 14 years.

[Laughter.]

Mr. WHEELER. Thank you, Senator.

Senator INHOFE. Also, I appreciate the fact that you brought up the—and someone else did, Senator Braun, I believe it was—brought up the fact that, how much more that our land owners, property owners are good stewards of their land. This is kind of interesting, because under the previous Administration, Dan Ashe was the head of the Fish and Wildlife. He came, at my invitation, out to Oklahoma. This is the first time that I think in his career he realized this was true. He was actually in the western part of the State, and in the central part of the State. This is a recognition that I really appreciate.

Since the previous questioner brought up the CAFE standards, let me just share with you something you already know, but it needs to be in the record. That is that in 1975 the Congress created a law to help with the fuel shortage situation by establishing the corporate average fuels, or CAFE, standard. Now, we no longer have a fuel shortage, and yet that didn't stop the Obama administration and California from ensuring that standards kept increas-

ing beyond what technology can do to force their electric car fantasies and the rest of this.

Now, the consumers want trucks and SUVs; they make up about two-thirds of the market. And electric vehicles don't even make up 1 percent of the Nation's auto sales. But auto manufacturers are producing more and more of them. Why do you suppose that is?

Mr. WHEELER. I believe they are producing what the consumers want to buy.

Senator INHOFE. Yes, but what does this do to—I guess the question, my follow up question would be, is it your understanding that many car manufactures are not technically complying with the current Obama standards?

Mr. WHEELER. Yes.

Senator INHOFE. Aren't they paying penalties and cashing in credits to comply?

Mr. WHEELER. Yes.

Senator INHOFE. Now, what does that do to the ultimate price to the consumer?

Mr. WHEELER. It adds additional price to the consumer. There is a misconception out there that all the automobile manufactures are currently complying with the CAFE standards. They are not; some of them are not. There is a penalty basis in the regulation, and they are paying penalties for not complying.

It is projected over the life, if the Obama regulations were to stay in place, that the amount of penalties will be increasing, I believe up to a billion dollars over the life span of the Obama regulations. That—those penalties—would be passed on to the consumer.

Senator INHOFE. They will be passed on to the consumer. I mean, there's nothing else they can do to accommodate that.

So I think that is important. Is it really the role of Government to dictate what people are buying in America and enforcing that? That is something that I have watched, and you have seen it over the years. It is something that we have a serious problem with.

Mr. Wheeler, the EPA has been taking a lot of criticism for supposed lack of enforcement actions under Trump. Would you like to talk a little bit about the enforcement standards that have been imposed under your administration so far?

Mr. WHEELER. Absolutely. First of all, I think it is important to note that we did not have a political head of our enforcement office for all of 2017. Susan Bodine was not confirmed until the end of 2017, which is actually the first quarter of 2018. So we have only had a political head for the three quarters of 2018, yet our enforcement numbers, important enforcement numbers, are up.

As I mentioned a little while ago, our criminal prosecutorial—the number of criminal cases we opened was up in 2018, compared to 2017. We initiated 140 lead enforcement actions in fiscal year 2018, compared to 127 in 2017. And we are using all of our tools, including compliance assistance. The environmental benefits, as I mentioned in my opening statement, we removed 809 million pounds of pollution and waste through enforcement actions in 2018, which is almost double what we removed in 2017.

What our enforcement program needed, in the Trump administration, was a head of the office, and I am glad that the Senate confirmed Susan last year. We still have—the head of our emer-

gency response office has not been confirmed yet. I hope the Senate will move forward and confirm Peter Wright. I think it is important to have a head of the office that is responsible for responding to the California fires, the hurricanes, and all the other disasters that EPA is responsible for the response efforts. And we have not had a head of that office now for 2 years.

Senator INHOFE. I think you make that point very well, and let me compliment you on your responses to the questions that have been given to you during the course of this hearing.

Mr. WHEELER. Thank you.

Senator INHOFE. Thank you, Mr. Wheeler.

Senator BARRASSO. Thank you, Senator Inhofe.

Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman.

Mr. Wheeler, you and I had a chance yesterday to talk about the WRDA bill, a bipartisan bill to pass this Committee that provides new tools in dealing with water issues in this country. And we both talked about the fact that you are going to be restrained by funding, because some of the issues have not been funded at the level I think this Committee would like to see funded. I agree with you on that, and we are going to work to get you not only the legislative authority but also the resources.

In one case there is funds, and that is new Lead Service Line Replacement grant program. Congress did appropriate $10 million for the program for fiscal year 2018. Will you commit to standing up the program and providing this Committee a status update on how we are dealing with the lead service line replacements?

Mr. WHEELER. Absolutely. That is an important part of our lead strategy and our drinking water strategy, is to try to make sure that people have safe drinking water and we get the corrosive pipes taken care of, and the lead service lines replaced as quickly as possible as well.

Senator CARDIN. I appreciate that, and you will keep us informed as to how that is going?

Mr. WHEELER. Yes, Senator. And the legislation you are referring to is the WIA legislation passed as part of WRDA. That was passed after our appropriations for fiscal year 2019 was passed, a bill that Senator Van Hollen mentioned earlier today, the appropriations bill.

So it is my understanding there is no funding in the fiscal year 2019, except for the $10 million that you just mentioned for that one program, there is no additional funding for the other parts of the legislation that was passed. I will note that there is a lot of deadlines in the legislation that we are going to try to work on.

Senator CARDIN. Let's hope you have a fiscal year 2019 budget. We talked about that at the beginning of this hearing.

I think I understand what you are saying in regard to MATS, and in regard to the mercury standards. There is a process that is going through in your agency, including a comment process. But you are very confident that the current enforcement that is currently being done that is restricted to mercury emissions, that there will be no weakening in regard to the mercury emissions into our environment?

Mr. WHEELER. Under our preferred option, which is, when we put out the proposal, we took comments on everything, and you often do that in order to make sure that your proposals are legal sound in case they are challenged later. But under our preferred option, I do not believe there would be a weakening in the mercury standards at all, as far as the equipment that has already been deployed and implemented across the board.

I get accused of rolling back the Clean Power Plan. I don't think you can roll back a regulation that never took effect. And on MATS, I don't think you can roll back a regulation that has been fully implemented. And the MATS requirements for the pollution control equipment has been fully implemented. And I don't believe, I honestly do not believe that that equipment will be turned off or removed under our proposal.

Senator CARDIN. And then let me just respond more to my good friend Senator Inhofe's comments on energy efficiency in our autos, with CAFE standards. There are a lot of reasons to be interested in that, in regard to energy efficiency issues, particularly in transportation. Part of that is security issues; part of that is economic issues.

But under your jurisdiction, it is the environmental impact. There is a cost associated with the unnecessary use of fossil fuels as it relates to emissions into our environment.

So there is a real reason why we like to see more efficiency in the way that we transport. Part of that is the individual vehicle, part of that is transit policies; part of it is the whole way of making people happier but also more efficient in the use.

So I just really want to underscore the point of your very first comments, when you were saying the progress that you have made in protecting the environment. To me, this is an extremely important, urgent issue in transportation efficiency and protecting our environment. I hope that as the leader, if you are confirmed as the Administrator of EPA, that you will be focused on the environment and the impact transportation has on the environment, so that we can use technology that has been developed here in America to help our economy as well as our environment, and also by the way, quality of life, if we can get less emissions coming out of our transportation sector.

Thank you, Mr. Chairman.

Mr. WHEELER. Absolutely. It is not just the energy efficiency or the CO_2 from the automobile industry. But we are also, as I mentioned in my opening statement, moving forward on removing NO_x from the heavy duty trucks. That is a program that is not required under statute. It is not required by court order. But we are moving forward with that, because it makes sense, because it will protect the health and get more non-attainment areas into attainment around the country.

Senator CARDIN. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Senator Carper, do you have some unanimous consent requests?

Senator CARPER. I do, Mr. Chairman. Let me, if I could, just very briefly follow up on something that Senator Cardin was raising with Mr. Wheeler. I would ask you to forgive me if I don't feel fully

comfortable about the notion that the MATS rule implemented, not rolled back, doesn't somehow leave us in a situation that we have in Delaware and Pennsylvania, for nitrogen oxide, for NO_x pollution.

In my State, we literally could cut off our economy, all our cars off the road, all the businesses shut down, and we would still be out of compliance for NO_x. The reason why is because of pollution from Pennsylvania, three utility plants, coal fired. And I think one in West Virginia.

The cruel irony is, each of those plants had installed the technology to stop the pollution and to relieve it to us in the downwind States. They turned it off. They still have it turned off. And when we applied through a Section 126 waiver to try to get EPA to do something about it, they declined. So forgive me for being concerned and cautious on this front.

I have a couple of unanimous consent requests to put forward, if I may. I would ask unanimous consent to submit for the record materials that demonstrate the growing demand for electric and hybrid vehicles and the efforts by the oil industry to lobby in support of this Administration's fuel economy rollback.

Senator BARRASSO. Without objection.

[The referenced information follows:]

This is an update on EV/PHEV sales through the 3nd quarter of 2018 (plus October).

Sources https://insideevs.com/monthly-plug-in-sales-scorecard/
https://www.hybridcars.com/culture-market/

Both EVs and PHEVs hit a new monthly market share high in September, with EVs capturing 2.4% of the market and EVs capturing 0.74% of the market, for just over 3% of all sales (Figure 1). The industry has now achieved 12 quarters in a row with growing EV/PHEV sales compared to the same quarter in previous years (Figure 2).

The big story over the last four months is the increasing sales of the Tesla 3. Tesla 3 sales are estimated at 14,250 to 22,250 a month in that timespan (tesla does not directly report sales, but several outlets use other methods to estimate total deliveries). The Tesla 3 is by far the best selling EV on the market right now, followed by the Tesla X, Tesla S, Chevy Bolt, and Nissan Leaf. The Leaf and Bolt each averaged about 1,500 sales a month over the last four months. Tesla captured more than 50% of the EV/PHEV market in the 3rd quarter, up from 35% in the second quarter (Figure 3). The only new EV/PHEV addition in the last four months was the Jaguar i-pace.

For PHEVs, the Prius Prime remains the sales leader with about 2,000 sales per month. Close behind the Prius are the Chevy Volt and Honda Clarity PHEV. The BMW 5-series, Chrysler Pacifica, and Ford Fusion all maintained sales roughly around 500 vehicles per month, with smaller sales volumes for many PHEVs.

Figure 1: EV and PHEV Percentage of Total Monthly Sales

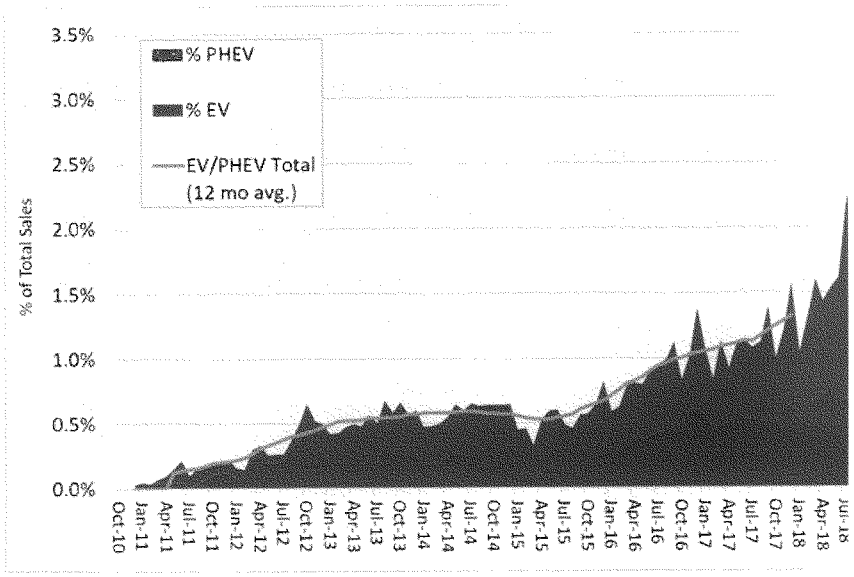
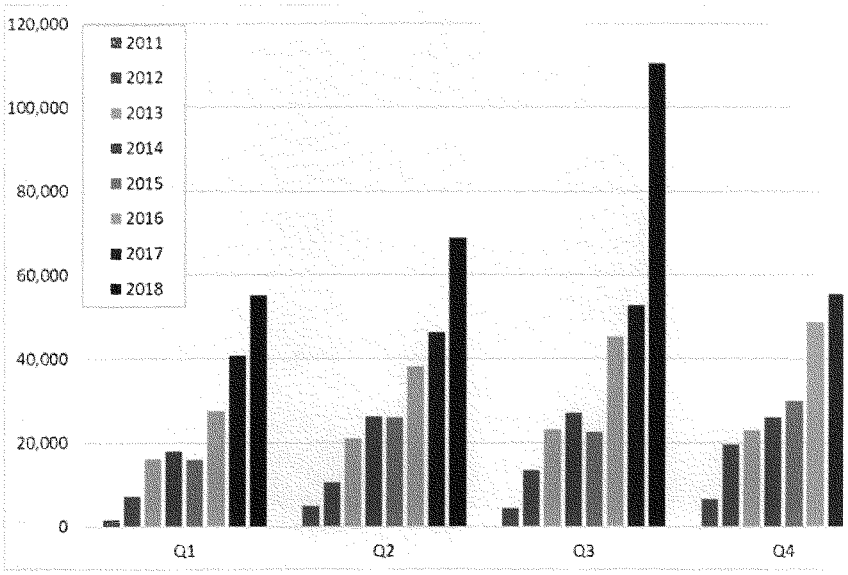
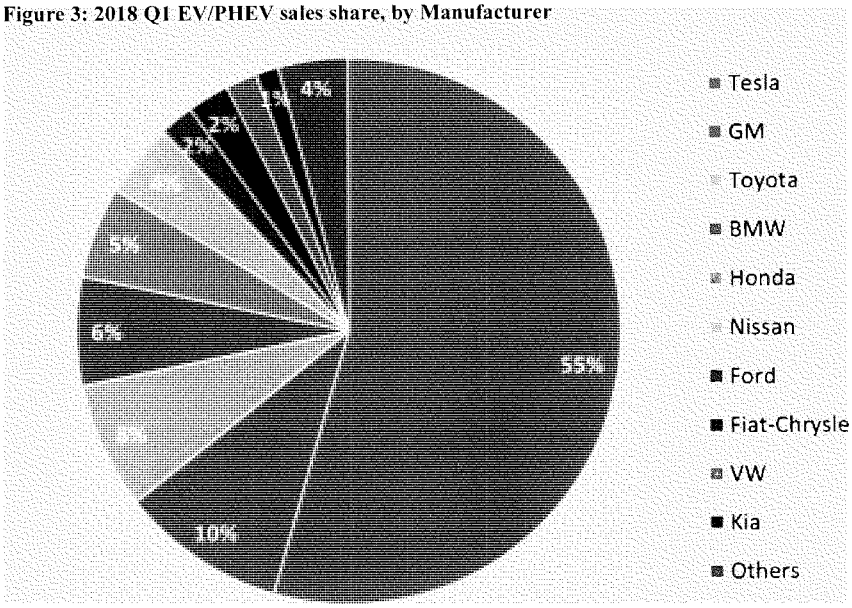


Figure 2: EV/PHEV sales by quarter



(2018 4th quarter only includes October sales so far)

Figure 3: 2018 Q1 EV/PHEV sales share, by Manufacturer



The New York Times

The Oil Industry's Covert Campaign to Rewrite American Car Emissions Rules

By Hiroko Tabuchi

Dec. 13, 2018

*Want climate news in your inbox? Sign up here for **Climate Fwd:**, our email newsletter.*

When the Trump administration laid out a plan this year that would eventually allow cars to emit more pollution, automakers, the obvious winners from the proposal, balked. The changes, they said, went too far even for them.

But it turns out that there was a hidden beneficiary of the plan that was pushing for the changes all along: the nation's oil industry.

In Congress, on Facebook and in statehouses nationwide, Marathon Petroleum, the country's largest refiner, worked with powerful oil-industry groups and a conservative policy network financed by the billionaire industrialist Charles G. Koch to run a stealth campaign to roll back car emissions standards, a New York Times investigation has found.

The campaign's main argument for significantly easing fuel efficiency standards — that the United States is so awash in oil it no longer needs to worry about energy conservation — clashed with decades of federal energy and environmental policy.

"With oil scarcity no longer a concern," Americans should be given a "choice in vehicles that best fit their needs," read a draft of a letter that Marathon helped to circulate to members of Congress over the summer. Official correspondence later sent to regulators by more than a dozen lawmakers included phrases or sentences from the industry talking points, and the Trump administration's proposed rules incorporate similar logic.

The industry had reason to urge the rollback of higher fuel efficiency standards proposed by former President Barack Obama. A quarter of the world's oil is used to power cars, and less-thirsty vehicles mean lower gasoline sales.

In recent months, Marathon Petroleum also teamed up with the American Legislative Exchange Council, a secretive policy group financed by corporations as well as the Koch network, to draft legislation for states supporting the industry's position. Its proposed resolution, dated Sept. 18, describes current fuel-efficiency rules as "a relic of a disproven narrative of resource scarcity" and says "unelected bureaucrats" shouldn't dictate the cars Americans drive.

A separate industry campaign on Facebook, covertly run by an oil-industry lobby representing Exxon Mobil, Chevron, Phillips 66 and other oil giants, urged people to write to regulators to support the rollback.

The Facebook ads linked to a website with a picture of a grinning Mr. Obama. It asked, "Would YOU buy a used car from this man?" The site appears to have been so effective that a quarter of the 12,000 public comments received by the Department of Transportation can be traced to the petition, according to a Times analysis.

Gary R. Heminger, Marathon's chairman and chief executive, said in a statement that the company supported "sound fuel economy standards" and wanted to "help ensure they are achievable and based on existing technology."

He added, "We appreciate the administration's willingness to conduct a thorough review in order to ensure future standards are achievable and will actually benefit American consumers."

Marathon's chief executive, Gary Heminger, third from right, at the New York Stock Exchange on Dec. 3 to note an acquisition that made the company the nation's largest refiner. Richard Drew/Associated Press

A spokesman for Koch Industries, the energy conglomerate led by Mr. Koch, said the company had "a long, consistent track record of opposing all forms of corporate welfare, including all subsidies, mandates and other handouts that rig the system."

The oil industry's campaign, the details of which have not been previously reported, illuminates why the rollbacks have gone further than the more modest changes automakers originally lobbied for.

The standards that the Trump administration seeks to weaken required automakers to roughly double the fuel economy of new cars, SUVs and pickup trucks by 2025. Instead, the Trump plan would freeze the standards at 2020 levels. Carmakers, for their part, had sought more flexibility in meeting the original 2025 standards, not a categorical rollback.

The Trump plan, if finalized, would increase greenhouse gas emissions in the United States by more than the amount many midsize countries put out in a year and reverse a major effort by the Obama administration to fight climate change.

The energy industry's efforts also help explain the Trump administration's confrontational stance toward California, which, under federal law, has a unique authority to write its own clean-air rules and to mandate more zero-emissions vehicles.

California has pledged to stick to the stricter standards, together with 13 other states that follow its lead. But President Trump's plan challenges California's rule-writing power, setting up a legal battle that threatens to split the American auto market in two.

That is a prospect automakers desperately want to avoid.

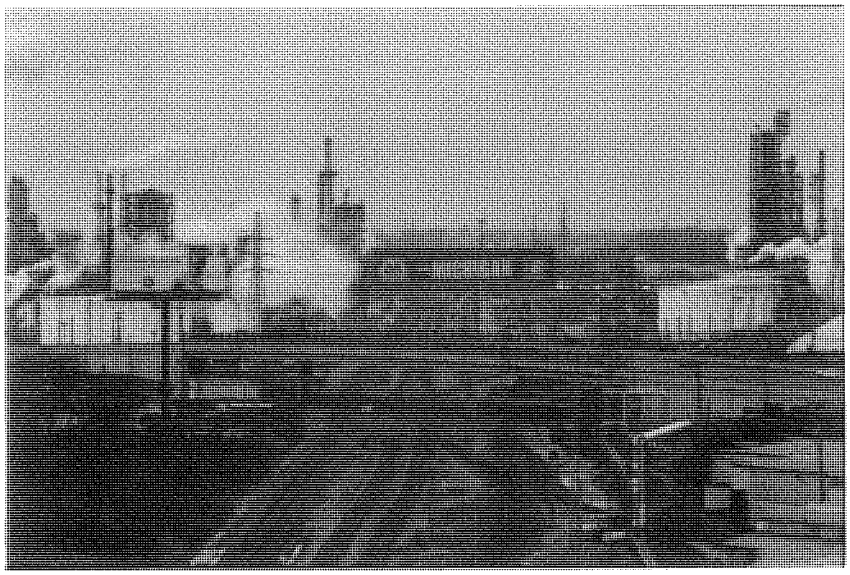
But for gasoline producers like Marathon, a shift toward more efficient vehicles poses a grave threat to the bottom line. In October, the company acquired a rival, Andeavor, making it the biggest refiner in the United States, with sales of 16 billion gallons of fuel a year.

Even while doubling down on gasoline, Marathon has projected an environmentally friendly public image. "We have invested billions of dollars to make our operations more energy efficient," Marathon said in a recent report. The company's Twitter account recently highlighted a gardening project and the creation of a duck pond at one of its refineries.

On a conference call with investors last week, Mr. Heminger, the Marathon chief executive, was already counting the extra barrels of fuel a Trump rollback would mean for the industry: 350,000 to 400,000 barrels of gasoline per day, he said.

"However, you have another side who doesn't want to pivot away" from the stricter rules, Mr. Heminger said. "So we have a lot of work to do to keep this momentum going."

Marathon's Early Start



A Marathon Petroleum refinery in Detroit. Erin Kirkland for The New York Times

Marathon began its outreach to the Trump administration early, asking to meet with Scott Pruitt at the Environmental Protection Agency soon after he became its administrator in early 2017. Marathon had been a top donor to Mr. Pruitt in Oklahoma, a state where oil is so prominent that a well stands on the grounds of the capitol building.

"Our CEO, Gary Heminger, would be very glad for an opportunity to visit with the Administrator," a Marathon lobbyist wrote in an email to Mr. Trump's transition team on May 8, 2017. "I believe this would be a constructive dialogue." The E.P.A. helps oversee fuel economy rules along with the Transportation Department.

Mr. Pruitt was scheduled to meet with the Marathon chief at least twice — once in June 2017 as part of a meeting with the board of a powerful fuel-industry group, American Fuel and Petrochemical Manufacturers, and again in September for a more private talk, according to emails and schedules released in a lawsuit filed by the Sierra Club.

A Marathon spokesman, Chuck Rice, said Mr. Heminger did not discuss auto-efficiency rollbacks with Mr. Pruitt. An E.P.A. official did not respond to a question about whether the auto rules were discussed.

Marathon then turned its focus to Congress, hiring the firm Ogilvy Government Relations to lobby legislators in Washington on fuel-economy standards, according to Ogilvy's disclosure forms. The firm did not respond to a request for comment.

Over the summer, Marathon representatives also approached legislators about an industry talking-points letter, according to six people familiar with that effort. The file properties of a Microsoft Word version of one letter, provided by a Congressional delegation, show that it was last edited by a Marathon lobbyist, Michael J. Birsic, on June 11, 2018.

Mr. Rice of Marathon said the company did not write the letter, and the company declined to say who did. It did not offer an explanation for Mr. Birsic's digital fingerprint on the document file.

Nineteen lawmakers from the delegations of Indiana, West Virginia and Pennsylvania sent letters to the Transportation Department that included exact phrases and reasoning from the industry letter. The lawmakers' letters, sent in June and July, all make the point that oil scarcity is no longer a concern.

Enacted in the 1970s, in a time of resource scarcity, the CAFE program sought to reduce the importation of foreign oil and conserve energy through increasing the efficiency of motor vehicles (fuel economy). Fast forward, and today the current iteration of the CAFE program, as constructed by the previous Administration, appears outdated and overly complicated, unable to keep up with the rapid changes in the marketplace. The undersigned believe the NPRM is an important step forward for the examination of MY2022-2025 CAFE standards. With oil scarcity no longer a concern, historically low gas prices, and increasingly ambitious CAFE requirements, it is important that NHTSA and EPA review the mandate to ensure that the U.S. is protecting consumers from higher costs and still allowing for choice in vehicles that best fit their needs.

A portion of a letter detailing pro-industry talking points that was later echoed in letters written by lawmakers to regulators, such as the example below.

Enacted in the 1970s, in a time of resource scarcity, the CAFE program sought to reduce the importation of foreign oil and conserve energy through increasing the efficiency of motor vehicles (fuel economy). Today, however, the current iteration of the CAFE program, as constructed by the Obama Administration, appears outdated and overly complicated. It is unable to keep up with the rapid changes in the marketplace.

With oil scarcity no longer a concern, and increasingly ambitious CAFE requirements, it is important that NHTSA and EPA review the mandate to ensure that the U.S is protecting consumers from higher costs and still allowing for choice in vehicles that best fits their needs. According to the National Auto Dealers Association, CAFE as it currently stands could increase the price of an average vehicle by $3,000 in 2025.

A letter sent by Pennsylvania's congressional delegation to regulators used language similar to the industry talking-points note, excerpted above.

The Trump administration's proposed rollback echoes the post-conservation theme. While energy conservation is significant, the proposal says, the downside of additional petroleum consumption would be dwarfed by the rollback's benefits.

Representatives from the three state delegations either declined to comment or did not respond to requests.

Senator Tom Carper of Delaware, the top Democrat on the Senate Environment and Public Works Committee, criticized the industry's campaign. "It appears as though oil interests are cynically trying to gin up support in Congress for the weakest possible standards to ensure that cars and SUVs have to rely on even more oil," he said.

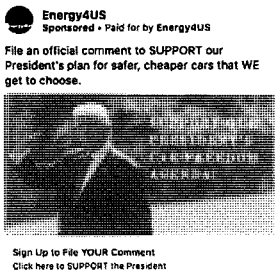
"If this attempt is successful, the outcome will be a blow to the auto industry, consumers, and our environment."

The Facebook Campaign

The Facebook ads, featuring Mr. Trump waving alongside the message, "SUPPORT OUR PRESIDENT'S CAR FREEDOM AGENDA!," appeared the week after the administration made public its fuel economy plan in August. At least 10 times during the two-month public comment period on the plan, the ads, which did not state their oil industry origins, asked people to write to the government to back weaker emissions standards.

Public comments matter in federal rule-making. The law requires that citizens' views be taken into account before a rule is finalized.

"File an official comment to SUPPORT our President's plan for safer, cheaper cars that WE get to choose," read one ad, which ran for seven days in early October. The ad leads to a page that provides basic language to submit.



Facebook ads by Energy4Us prompted more than 3,300 of the 12,000 public comments on the administration's rollback proposal, a Times analysis showed.

More than 3,300 of the 12,000 public comments that D.O.T. has made public contain language identical to that petition, an analysis of the files showed.

The campaign was a product of the fuel and petrochemical manufacturers trade group, widely known as AFPM. However, neither the Facebook ads nor the site identified the industry group. Instead they name a group called Energy4US, which describes itself as "a coalition of consumers, businesses and workers" promoting affordable energy.

Energy4US has close ties to the industry group. According to internet domain records, Victor Adams, listed as an AFPM web manager, registered Energy4Us.org in 2015 using his work email address. Energy4US lists the group as a coalition member, along with about 50 other groups including energy interests, labor groups, a sheriff's association and even a recreational fishing alliance.

The AFPM board includes representatives from Exxon, Chevron, Phillips 66, Marathon and Koch Industries. The companies all referred queries to the group.

Derrick Morgan, a senior vice president at AFPM, said the group "regularly works with policymakers, coalition groups and individuals to promote shared goals," and also will "lead and join groups like Energy4US."

The Department of Transportation said it was "generally aware" that there were groups urging the public to make comments through online campaigns, but said it does not regulate them.

Transportation Secretary Elaine Chao at the White House this year. Tom Brenner/The New York Times

Taking the Fight On the Road

House bill 1593 is just eight words long: "To repeal the corporate average fuel economy standards." Koch Industries, a petroleum empire with interests as diverse as gasoline, pipelines, fertilizer and Stainmaster carpets, is the bill's sole corporate backer.

The measure, which would eliminate fuel standards altogether, is not expected to go far. But it underscores the company's stance on the matter. And Koch interests are fighting that battle not only in Washington but increasingly in statehouses and even local policy meetings nationwide.

Earlier Investigative Reporting
Taking the fight over climate change to local communities

How the Koch Brothers Are Killing Public Transit Projects Around the Country June 19, 2018

In Dearborn, Mich., at a September meeting on the Trump fuel-efficiency rollbacks, Annie Patnaude of Americans for Prosperity, a Koch-funded group, spoke in favor. "This is a step in the right direction to protect consumers and workers against government mandates that would limit choice," she said.

In Iowa, Americans for Prosperity joined the fight over whether to make it easier for gas stations to install chargers for electric vehicles. In Illinois, it discouraged state officials from considering subsidies for electric vehicles.

And last month an Americans for Prosperity representative trekked to a public hearing in Colorado, where regulators were thinking about becoming the 13th state to follow California's stricter standards. The representative, Shari Shiffer-Krieger, a field director for the group, argued that people in the rugged state wanted SUVs, not tighter emissions rules. "Coloradans deserve much better," she said.

The oil industry lost that fight. Colorado allied itself with California.

But Americans for Prosperity said fights like these get to the heart of its free-market philosophy. "We believe in a level playing field so all Americans have the equal opportunity to succeed," said Bill Riggs, a spokesman for the group, in a statement. The organization will keep fighting "mandates that unfairly pick winners and losers in any industry," he said.

Drafting Pro-Oil State Legislation

On August 6, a Marathon lobbyist, Stephen D. Higley, emailed a Wisconsin state representative an explainer of American fuel economy law. The memo didn't mince words.

"It's a relic," the memo said, particularly at a time when the United States was "poised to become the largest oil producer in the world."

The Wisconsin representative, Mike Kuglitsch, participates in the American Legislative Exchange Council, a Koch-funded group that helps companies write model legislation for state lawmakers to use as a basis for their own laws.

Emails obtained by the Times show that Marathon has been working with members of the legislative exchange council to build support for the Trump fuel-efficiency rollback in state legislatures and to denounce California's power to write its own rules for cars. The emails were made public under Wisconsin's open records law to Documented, a watchdog group that tracks corporate influence in public policy.

California's special authority could effectively split the American auto market in two, since 13 other states — representing roughly 35 percent of nationwide car sales — have agreed to follow California's stricter rules. That means automakers might find themselves making cars to two competing standards.

"Who should decide what cars and trucks consumers should buy, consumers themselves or unelected bureaucrats in Sacramento, California or Washington, D.C.?" the memo sent by Marathon said.

In a statement, Bill Meierling of the legislative exchange council said that mandating fuel economy was a rule that "many state legislators believe doesn't make sense for working Americans."

Just days after the emails between Marathon and the Wisconsin lawmaker, some 1,500 state legislators and other officials from across the country gathered in New Orleans to cheer on Elaine Chao, the Secretary of Transportation, at the legislative exchange council's annual convention. Marathon sponsored the event.

The Transportation Department was determined to cut government regulations, said Ms. Chao, a former fellow at the Heritage Foundation, which has received Koch funding and has long opposed the fuel economy rules.

Mr. Trump's proposed rollback, she said, "ranks as one of the most significant regulatory reforms that this administration is undertaking." The room erupted in applause.

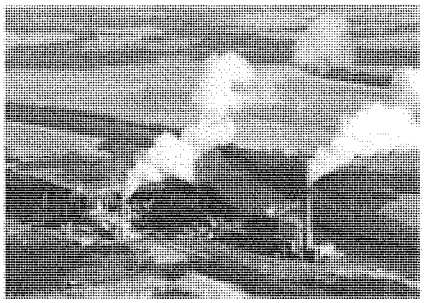
Senator CARPER. Thank you.

I would also ask unanimous consent, Mr. Chairman, to submit for the record a comprehensive science report from Syracuse University, Harvard School of Public Health and other universities that finds that the benefits of reducing mercury to our society is around $4 billion per year, not $4 million to $6 million, as EPA claims in its report.

Senator BARRASSO. Without objection.

[The referenced information follows:]

MERCURY MATTERS 2018: A SCIENCE BRIEF FOR JOURNALISTS AND POLICYMAKERS



DECEMBER 13, 2018

Mercury in Context

Coal-fired power plants are the largest source of mercury in the U.S., accounting for approximately 48% of mercury emissions in 2015[1].

The Mercury and Air Toxics Standards (MATS (https://www.epa.gov/mats)) were finalized in 2011 and currently regulate emissions of mercury, acid gases and other hazardous air pollutants (HAPs) from U.S. electric utilities.

The MATS rule is expected to reduce mercury emissions from the power sector by 90%, improve public health, and play an integral role in meeting U.S. commitments under the international 2017 Minamata Convention on Mercury (https://www.epa.gov/international-cooperation/minamata-convention-mercury).

The Latest from EPA

In August 2018, the U.S. Environmental Protection Agency (EPA) announced plans to revisit the Agency's prior determination that regulating HAPs emitted from power plants under section 112 of the Clean Air Act was "appropriate and necessary."

A proposal to reopen one or more aspects of MATS is currently under interagency review at the Office of Management and Budget and could result in lifting limits on mercury emissions from electric utilities in the U.S.

The Issue

Recent research shows that MATS has substantially reduced mercury levels in the environment and improved public health at a much lower cost than anticipated. However, the Regulatory Impact Assessment (RIA) that the Administration is relying on in its rollback proposal does not reflect current scientific understanding of the local impacts and societal cost of mercury pollution in the U.S.[2,3].

Many of the health effects associated with mercury exposure are not fully reflected in the RIA, and the final estimate of the mercury-related benefits from MATS only accounted for benefits to children of freshwater recreational anglers in the U.S., a small fraction of the total population affected.

Mercury Emissions Matter to Human Health and the Environment

Mercury in the form of methylmercury is a potent neurotoxin. Important facts about the health effects of methylmercury include the following:

- Children exposed to methylmercury during a mother's pregnancy can experience persistent and lifelong IQ and motor function deficits[4].
- In adults, high levels of methylmercury exposure have been associated with adverse cardiovascular effects, including increased risk of fatal heart attacks[5].
- Other adverse health effects of methylmercury exposure that have been identified in the scientific literature include endocrine disruption[6], diabetes risk[7], and compromised immune function[8].
- The societal costs of neurocognitive deficits associated with methylmercury exposure in the U.S. were estimated in 2017 to be approximately $4.8 billion per year[9].
- No known threshold exists for methylmercury below which neurodevelopmental impacts do not occur[10,11].

Mercury exposure in the U.S. occurs primarily through the consumption of freshwater fish and seafood (fish and shellfish). The consumption of marine fish, often harvested from U.S. coastal waters, accounts for greater than 80% of methylmercury intake by the U.S. population[12]. Dietary supplements cannot counteract methylmercury toxicity in U.S. consumers. A safe and consumable fishery is important to retaining a healthy, low-cost source of protein and other nutrients that are essential for pregnant women, young children, and the general population.

After mercury is emitted from power plants, it is deposited back to Earth where it can be converted to methylmercury, a highly toxic form of mercury that magnifies up food chains, reaching concentrations in fish that are 10 to 100 million times greater than concentrations in water[13].

With increasing levels of mercury in the environment due to human activities, virtually all fish from U.S. waters now have detectable levels of methylmercury. Some fish, such as swordfish, large species of tuna, and freshwater game fish, can have levels that exceed consumption guidelines.

States post fish consumption advisories for waterbodies that are known to have elevated contaminants. In 2013, consumption advisories for mercury were in effect in all 50 states, one U.S. territory, and three tribal territories, and accounted for 81% of all U.S. advisories[14]. This represents more advisories for mercury than for all other contaminants combined.

Wildlife that consume fish, such as common loons, bald eagles, otter and mink, and many marine mammals can also experience adverse effects from mercury and are unable to heed advisories[15]. The health of many songbird and bat species is threatened due to methylmercury exposure in wetland habitats. The productivity of economically valuable game fish stocks can also be compromised[16].

As Mercury Emissions in the U.S. Have Declined, Health Has Improved

In the 2011 MATS RIA, it was assumed that mercury emissions from coal-fired utilities are mainly transported long-distances away from the U.S. and that a substantial fraction of mercury in the U.S. comes from international sources. Since that time, scientific understanding of the fate of U.S. mercury emissions has advanced[17,18]. Recent research reveals that the contribution of U.S. coal-fired power plants to local mercury contamination in the U.S. has been markedly underestimated. Accordingly, controls on mercury emissions from U.S. electric utilities have contributed to the following human health and environmental improvements.

- Mercury emissions from U.S. coal-fired power plants have declined by 85% from 92,000 pounds in 2006 to 14,000 pounds in 2016[19]since states began setting standards, and MATS was introduced in 2011. Eleven states had implemented mercury emissions standards for power plants prior to 2011.
- Concurrent with declines in mercury emissions, mercury levels in air, water, sediments, loons, freshwater fisheries, and Atlantic Ocean fisheries[20] have decreased appreciably.
- Mercury levels in the blood of women in the U.S. declined by 34% between 2001 and 2010 as mercury levels in some fish decreased, and fish consumption advisories improved[21].

- The estimated number of children born in the U.S. each year with prenatal exposure to methylmercury levels that exceed the EPA reference dose has decreased by half from 200,000-400,000 to 100,000-200,000, depending on the measure used[22].

The Benefits of Reducing Mercury Are Much Larger Than Previously Estimated

The EPA estimated in the MATS RIA that the annualized mercury-related health benefits of reducing mercury emissions would be less than $10 *million*. Recent studies that account for more pathways of methylmercury exposure and additional health effects suggest that the monetized benefits of reducing power plant mercury emissions in the U.S. are likely in the range of several *billion* dollars per year[23,24,25]. These and other studies support the conclusion that the mercury-related benefits from MATS are orders of magnitude larger than previously estimated in the MATS RIA[26].

In addition to the mercury-related benefits, MATS has also decreased sulfur dioxide and nitrogen oxide emissions, improving air quality and public health by reducing fine particulate matter and ground-level ozone. The EPA estimated that the annualized value of these additional benefits is $24 to $80 billion; bringing the total annual benefits from MATS to tens of billions of dollars. Even with these more complete estimates, substantial benefits of reducing mercury and other air toxics remain unquantified due to data limitations[27].

On the cost side, new information suggests that the EPA's original cost-estimate for MATS of $9.6 billion is much higher than the actual cost due to declines in natural gas prices and lower than expected control equipment and renewable energy costs[28]. Yet, even with the original overestimate, the EPA projected that MATS would increase the monthly electric bill of the average American household by only $2.71 (or 0.3 cents per kilowatt-hour). This value is well within the price fluctuation consumers experienced between 2000 and 2011[29].

The Bottom Line

The science is clear, the health impacts of U.S. mercury emissions in the U.S. are large and disproportionately affect children and other vulnerable populations. Mercury emission standards in the U.S. have markedly reduced mercury in the environment and improved public health. The mercury-related benefits of MATS are much larger than previously estimated, the actual costs appear to be substantially lower than projected by the EPA, and the total monetized benefits across all pollutants far outweigh the costs of the standards.

Contributors

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◀ PREVIOUS (HTTP://ENG-CS.SYR.EDU/NEWS-EVENTS/NEWS/CAN-ISIK-NAMED-INTERIM-DEAN-COLLEGE-ENGINEERING-COMPUTER-SCIENCE/)

NEXT ▶ (HTTP://ENG-CS.SYR.EDU/NEWS-EVENTS/NEWS/INSPIRED-FIRST-SHAZIF-SHAIKH-EMBARKS-CAREER-AEROSPACE-ENGINEERING/)

Senator CARPER. Mr. Chairman, I ask unanimous consent to submit for the record two letters I sent to this Administration regarding EPA's proposal to undermine the Mercury and Air Toxics rule. This includes an August 24th, 2018 letter to Mr. Wheeler from Senator Alexander and myself expressing our support to keep the MATS rule in place and effective.

The second is a December 28th letter to OMB's Office of Information Regulatory Affairs, affectionately known as OIRA, outlining why I have grave concerns about the EPA's flawed cost-benefit analysis used in the MATS proposal.

And finally, one last one.

Senator BARRASSO. Without objection.

[The referenced information follows:]

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United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

August 24, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20004

Dear Acting Administrator Wheeler:

We write to express our support for the Mercury and Air Toxics Standards (MATS) rule. This rule is already in effect, and we urge you not to propose changes to it. Keeping the current rule in place will provide much-needed certainty for the electric power industry and help protect the health of all Americans.

In 1990, Congress listed mercury – along with one hundred and eighty-eight other air toxics such as lead and arsenic – as hazardous air pollutants in the Clean Air Act. We believe the Environmental Protection Agency (EPA) correctly implemented Congress' original intent when the agency issued the MATS rule in 2012. Modeling MATS on state actions that were already underway to address these pollutants, EPA issued standards that were achievable for industry and beneficial for public health and the environment. EPA also provided enough time for industry to comply with the new standards. Thus, EPA struck the right balance between protecting the environment, public health and our economy. For these reasons and more, we strongly supported the MATS rule when it was finalized and still support the rule today.

Today, MATS is overachieving expectations. We are seeing public health benefits faster than predicted. On July 10, 2018, every major electrical utility trade organization representing coal-fired generation and other utilities joined with labor organizations on a letter to EPA that confirmed our power plants have "reduced mercury emissions by nearly 90 percent over the past decade."[1] These reductions are in large part due to the investments that were made to comply with MATS. The letter goes on to say that industry compliance with the rule has been easier than first estimated, stating that today "all covered plants have implemented the regulation [MATS] and that pollution controls—where needed—are installed and operating." [2]

MATS has been a success, and changing the MATS rule just doesn't make sense. Industry agrees: in the July letter to EPA, industry and labor organizations urged EPA not to change the

[1] https://www.eenews.net/assets/2018/07/11/document_gw_04.pdf
[2] https://www.eenews.net/assets/2018/07/11/document_gw_04.pdf

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rule given all the investments that have already been made to comply with the MATS rule, saying "leave the underlying MATS rule in place and effective."[3] We hope you agree.

We thank you for your consideration of our request, and if you or your staff have questions about this letter please contact us directly or Laura Gillam of Senator Carper's Environment and Public Works Committee staff at [redacted] or Lindsay Garcia of Senator Alexander's office at [redacted]

With best personal regards, we are,

Yours Sincerely,

Tom Carper
United States Senator

Lamar Alexander
United States Senator

[3] https://www.eenews.net/assets/2018/07/11/document_gw_04.pdf

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United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

December 13, 2018

The Honorable Neomi Rao
Administrator
Office of Information and Regulatory Affairs
Eisenhower Executive Office Building
1650 Pennsylvania Avenue, NW
Washington, DC 20503

Dear Administrator Rao:

I write with great concerns about the Environmental Protection Agency's (EPA) proposed reconsideration of the Mercury and Air Toxics Standards (MATS) Supplemental Finding (81 FR 24420, April 25, 2016). Your office received this reconsideration proposal for review on October 4, 2018. According to press reports,[1] EPA intends to propose to reverse its decision that it is "appropriate and necessary" to regulate mercury and toxic air pollution from coal- and oil-fired power plants. These reports indicate that, in arriving at that conclusion, the EPA is attempting to ignore or dismiss many of the MATS rule's public health benefits. If this is the case, this proposal should be rejected. It would contravene Congressional intent and endanger the health of all Americans.

Mercury and other air toxics (such as lead, arsenic, benzene, and acid gases) harm the public while airborne, and when they settle on the soil and in the waterways we depend on for the water we drink and fish we eat. These toxic substances, which are emitted by power plants, then build up in our bodies, causing cancer, respiratory illness, mental impairment, and death. Mercury pollution is especially dangerous for unborn children, who can suffer long-lasting neurological damage if exposed during development. According to the American Academy of Pediatrics, there is no safe level of mercury exposure for children—none.

After a long delay, in 2012 EPA issued the MATS rule to reduce emissions from power plants, our nation's largest sources of mercury and air toxics. The MATS rule was expected to reduce utility mercury emissions by 90% and other air toxic emissions by 50%. In the agency's 2011 cost-benefit analysis for the MATS rule, EPA estimated that the quantifiable benefits to public

[1] *See, e.g.*, Stuart Parker, "EPA Sends Proposal to Reconsider MATS Rule for White House Review," INSIDEEPA, Dec. 11, 2018, https://insideepa.com/clean-air-report/epa-sends-proposal-reconsider-mats-rule-white-house-review.

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health (including 11,000 fewer deaths each year) of the MATS rule far outweighed the estimated costs of compliance for the utility industry.[2]

The substance of the MATS rule survived court challenges, and remains on the books today. However, in the 2015 *Michigan vs. EPA* case, the Supreme Court ruled 5-4 that EPA should have considered costs when deciding whether it is was "appropriate and necessary" to regulate hazardous air emissions from power plants. Instead of vacating the MATS rule, the Court allowed the rule to stay in place while EPA addressed the Court's concerns. In Justice Scalia's majority opinion, he wrote: "We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value. It will be up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost."[3]

In April 2016, in response to *Michigan vs. EPA*, EPA issued the MATS "Supplemental Finding." That finding reconfirms that it is "appropriate and necessary" to regulate hazardous emissions from power plants under Section 112 of the Clean Air Act.[4] EPA reiterated its conclusion after considering "the full range of factors relevant to the appropriate and necessary finding."[5] In coming to this conclusion, EPA reviewed the industry's compliance costs (*e.g.*, revenue, consumer costs, capital expenditures, operation costs, etc.) based on data provided for the Regulatory Impact Analysis (RIA). EPA also reviewed all the health and environmental benefits, including those that "are impossible, to quantify or monetize, but are no less real than any other advantage of regulation."[6]

Despite the MATS rule's overwhelming public health benefits, former-Administrator Scott Pruitt announced in 2017 that EPA would reconsider the April 2016 MATS Supplemental Finding. OMB's Regulatory Review Dashboard shows that your office is currently reviewing EPA's proposal to reconsider those determinations.[7] Based on public comments made by EPA Assistant Administrator Wehrum—both when he was a private citizen representing clients that opposed the MATS rule and supported a reconsideration of the MATS Supplemental Finding, and now in his official capacity at EPA—I believe the agency has decided to make a legal finding that it is no longer appropriate and necessary to regulate power plant air toxic emissions. Further, Mr. Wehrum's comments suggest that EPA is making such a finding based on a limited view of the benefits from the MATS rule. It is my understanding that EPA has determined that it will only consider quantifiable costs and benefits of reducing hazardous air pollutants, not all the actual benefits. If true, this blatant attempt to undermine the MATS rule would contradict longstanding EPA practice, OMB requirements, Congressional intent, and common sense.

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[2] U.S. EPA. 2011. *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*. Office of Air Quality Planning and Standards, Research Triangle Park, NC. EPA-452/R-11-011. Docket ID No. EPA-HQ-OAR-2009-0234-20131.

[3] *Michigan v. E.P.A.*, 135 S. Ct. 2699, 2711 (2015).

[4] *Supplemental Finding That It Is Appropriate and Necessary To Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units*, 81 Fed. Reg. 24,419 (Apr. 25, 2016).

[5] *Id.* at 24,429.

[6] *Id.*

[7] US EPA-OAR, *Mercury and Mercury and Air Toxics Standards for Power Plants Residual Risk and Technology Review and Cost Review*, Regulation Identifier No. 2060-AT99, https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201810&RIN=2060-AT99.

EPA should not to turn a blind eye to the societal benefits of the MATS rule that cannot easily be reduced to dollars and cents. Economic tools for projecting and estimating costs and benefits are always evolving and they work better in some situations than others. For example, EPA has good health, exposure, and mortality data that can translate to monetized health benefits for criteria air pollutants like ozone and particulate matter. Yet, EPA has struggled for over four decades to precisely monetize the health benefits of controlling air toxics such as mercury. EPA explains that difficulties in monetizing the health benefits of controlling mercury arise because: "the adverse health effects of toxics are often irreversible, not mitigated or eliminated by reduction in ongoing exposure, and involve particularly painful and/or protracted disease. Therefore these effects are not readily studied and quantified in human clinical studies, in contrast to, for example, ambient ozone."[8]

Congress, EPA, and OMB have long recognized that if EPA cannot quantify the benefits that does not mean those benefits do not exist. When Congress wrote and passed the 1990 Clean Air Amendments—including Section 112(n)—there were few, if any, quantifiable data available on cancer risks of air toxics and no quantifiable data whatsoever available for non-cancer risks, like birth and neurological defects.[9] Despite the lack of quantifiable benefits, Congress still found it necessary to require EPA to pursue robust regulations to address major sources of air toxics emissions. At the same time, Congress indicated that it was well aware of the limitations of relying exclusively on cost-benefit analyses when assessing air toxics, stating: "[T]he public health consequences of substances which express their toxic potential only after long periods of chronic exposure will not be given sufficient weight in the regulatory process when they must be balanced against the present day costs of pollution control and its other economic consequences."[10] Based on this legislative history, it is clear Congress did not intend for EPA to ignore public health benefits that could not quantified into dollars when determining if it is "appropriate and necessary" to regulate power plant air toxic emissions. Congress also did not intend for EPA to ignore co-benefits that *can* be monetized.

The scientific information critical to determining the monetized value of reducing air toxic pollution is still limited. This has resulted in some of the most important benefits (including reduced incidents of birth defects and cancer) not being able to be quantified in EPA's cost-benefit analyses for air toxic rules. In 2003, then-EPA Assistant Administrator for Air and Radiation Jeff Holmstead testified before the House Energy and Commerce Committee on the difficulty of quantifying the benefits of reducing air toxic emissions from power plants, saying: "These estimates [for Clear Skies] do not include the many additional benefits that cannot currently be monetized but are likely to be significant, such as human health benefits from reduced risk of mercury emissions, and ecological benefits from improvements in the health of our forests, lakes, and coastal waters."[11]

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[8] U.S. EPA. 1997. *The Benefits and Costs of the Clean Air Act, 1970 to 1990, EPA Report to Congress. Office of Air Quality Planning and Standards*, Research Triangle Park, NC. EPA-410/R-97-002, https://www.epa.gov/sites/production/files/2017-09/documents/ee-0295_all.pdf.

[9] Legislative History 1990 Clean Air Act Amendments, H.Rept 101-490 Part 1, 101st Congress (1989-1990).

[10] Legislative History 1990 Clean Air Act Amendments, S.Rept 101-228, 101st Congress (1989-1990).

[11] Statement of EPA Assistant Administrator Jeff Holmstead, Hearing Before the U.S. House of Representatives Energy and Air Quality Subcommittee of the House Energy and Commerce Committee entitled "The Clear Skies

EPA has tried to bridge the air toxic data gaps through various stakeholder workshops over the years. The latest workshop in 2009 concluded that monetizing all air toxic benefits is still not possible, making a cost-benefit analysis "difficult" to do for any action involving hazardous air pollutants: "[F]or many chemicals on the [Clean Air Act hazardous air pollutant] list, the information on potential health effects is so limited that quantitative benefits analysis is not feasible...This lack of information is in contrast to the criteria air pollutants for which there is extensive human exposure or epidemiological data on the health effects at ambient-exposure levels...characterizing the health effects of air toxics at ambient levels can be subject to a very high level of uncertainty; thus, using these health effects in economic benefits assessment is difficult."[12]

Fortunately, OMB has long-recognized the constraints of using cost-benefit analysis when evaluating a rule, especially when it is difficult to quantify benefits. That is why OMB's 2003 Circular A-4 requires EPA and other agencies to conduct a complete regulatory analysis that "includes a discussion of non-quantified as well as quantified benefits and costs. When there are important nonmonetary values at stake, you should also identify them in your analysis so policymakers can compare them with the monetary benefits and costs."[13] In addition, OMB clarifies in Circular A-4 that all ancillary benefits should be counted in any rule analysis, directing agencies to "look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking." OMB also states that when agency personnel "can estimate the monetary value of some but not all of the ancillary benefits of a regulation, but cannot assign a monetary value to the primary measure of effectiveness, you should subtract the monetary estimate of the ancillary benefits from the gross cost estimate to yield an estimated net cost."[14]

For decades, and in multiple Administrations, EPA has followed OMB's direction by providing a robust record of *all* the quantifiable and qualitative data for air toxic rules. The Congressional Research Service has found that, since January 1, 2000, EPA has issued at least thirty-two Regulatory Impact Analyses (RIAs) for rules that involve regulating air toxics under Section 112(d) of the Clean Air Act, including the MATS rule. None of these thirty-two RIAs fully quantified the direct benefits of reducing hazardous air pollutants, yet the rules discuss benefits that cannot be quantified as important justifications for reducing the toxic emissions—particularly those regarding critical health benefits. For the MATS rule specifically, EPA concluded "there are some costs and important benefits that EPA could not monetize, such as other mercury reduction benefits and those for the [hazardous air pollutants] other than mercury

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Initiative: A Mulitpollutant Approach to the Clean Air Act," (July 8, 2003), https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf.

[12] Gwinn et al, "Meeting Report: Estimating the Benefits of Reducing Hazardous Air Pollutants—Summary of 2009 Workshop and Future Considerations," Environ Health Perspectives. 2011 Jan; 119(1): 125–130, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018491/.

[13] 68 FR 58366.

[14] *Id.*

being reduced by this final rule. Upon considering these limitations and uncertainties, it remains clear that the benefits of the MATS are substantial and far outweigh the costs."[15]

In these thirty-two RIAs, EPA also provided monetized ancillary benefits, sometimes referred to as "co-benefits." These co-benefits included the dollar value of lives saved and other health benefits from the reduction of sulfur dioxide and ozone pollution that occurs along with—and often as a result of—the reduction of air toxics. EPA found that the quantified ancillary benefits for MATS are significant, up to $90 billion in benefits per year.

Based on all the health and scientific data, Congressional intent, and historical justification and precedent, it just does not make sense for EPA to change course regarding the consideration of non-quantifiable benefits in its Supplemental Finding for MATS. No judicial or legislative directive requires this willful blindness to the public health consequences of EPA's proposal. This decision is especially peculiar given that MATS is resulting in faster and significantly more cost-effective public health benefits than EPA initially predicted in 2011. On July 10, 2018, every major electrical utility trade organization representing coal-fired and other utilities joined with labor organizations in a letter to EPA that confirmed our power plants have already "reduced mercury emissions by nearly 90 percent over the past decade."[16] These reductions are in large part due to the investments that were made to comply with MATS—investments that turned out to be about one-quarter the costs EPA conservatively predicted. The utilities and labor organizations explained that industry compliance with the MATS rule was easier than first estimated, stating that today "all covered plants have implemented the regulation [MATS] and that pollution controls—where needed—are installed and operating." [17] The letter went on to cite the importance of regulatory certainty given all the investments made to meet the MATS rule and asked EPA to "leave the underlying MATS rule in place and effective."[18]

My hope is that OMB will ensure that EPA follows Congressional intent under the Clean Air Act when it comes to determining if it is "appropriate and necessary" to regulate air toxic emissions from power plants. If EPA looks at all the actual benefits and updated costs of this rule instead of persisting in its tortured effort to re-define its own legal authority and responsibility, there is no reasonable conclusion other than that it is appropriate and necessary to regulate these dangerous power plant emissions under Section 112 of the Clean Air Act. I echo the call of health and environmental groups, states and the business community: Keep the entirety of the MATS rule in place.

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[15] U.S. EPA. 2011. *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards.* Office of Air Quality Planning and Standards, Research Triangle Park, NC. EPA-452/R-11-011. Docket ID No. EPA-HQ-OAR-2009-0234-20131.

[16] Letter to USEPA Assistant Administrator of Office of Air and Radiation William Wehrum from The Edison Electric Institute, The American Public Power Association, The National Rural Electric Cooperative Association, The Clean Energy Group, The Class of '85 Regulatory Response Group The International Brotherhood of Electrical Workers The International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers, July 10, 2018, can be found at https://www.eenews.net/assets/2018/07/11/document_gw_04.pdf. Hereafter "2018 Industry Letter to EPA."

[17] *Id.*

[18] *Id.*

I thank you for your prompt attention to this matter. If you or your staff have questions about this letter, your staff is encouraged to contact Laura Gillam of my Environment and Public Works Committee staff at laura_gillam@epw.senate.gov.

With best personal regards, I am,

Sincerely yours,

Tom Carper
Ranking Member

Senator CARPER. Thank you.

Mr. Chairman, I ask unanimous consent to submit for the record a variety of materials. They include news articles, letters from stakeholders and other materials relating to Mr. Wheeler's time as EPA Acting Administrator.

Senator BARRASSO. Without objection.

[The referenced information follows:]

The New York Times

Trump Administration Prepares a Major Weakening of Mercury Emissions Rules

By Coral Davenport

Sept. 30, 2018

*Want climate news in your inbox? Sign up here for **Climate Fwd:**, our email newsletter.*

The Trump administration has completed a detailed legal proposal to dramatically weaken a major environmental regulation covering mercury, a toxic chemical emitted from coal-burning power plants, according to a person who has seen the document but is not authorized to speak publicly about it.

The proposal would not eliminate the mercury regulation entirely, but it is designed to put in place the legal justification for the Trump administration to weaken it and several other pollution rules, while setting the stage for a possible full repeal of the rule.

Andrew Wheeler, a former coal lobbyist who is now the acting administrator of the Environmental Protection Agency, is expected in the coming days to send the proposal to the White House for approval.

The move is the latest, and one of the most significant, in the Trump administration's steady march of rollbacks of Obama-era health and environmental regulations on polluting industries, particularly coal. The weakening of the mercury rule — which the E.P.A. considers the most expensive clean air regulation ever put forth in terms of annual cost to industry — would represent a major victory for the coal industry. Mercury is known to damage the nervous systems of children and fetuses.

The details of the rollback about to be proposed would also represent a victory for Mr. Wheeler's former boss, Robert E. Murray, the chief executive of the Murray Energy Corporation, one of the nation's largest coal companies. Mr. Murray, who was a major donor to President Trump's inauguration fund, personally requested the rollback of the mercury rule soon after Mr. Trump took office, in a written "wish list" he handed to Energy Secretary Rick Perry.

The proposal would also hand a victory to the former clients of William Wehrum, the E.P.A.'s top clean air official and the chief author of the plan. Mr. Wehrum worked for years as a lawyer for companies that run coal-fired power plants, and that have long sought such a change.

A spokesman for the E.P.A. did not respond to a request for comment.

The proposal also highlights a key environmental opinion of Judge Brett Kavanaugh, the embattled Supreme Court nominee, whose nomination hearings have gripped the nation in recent days.

The coal industry initially sued to roll back the mercury regulation, and in 2014 its case lost in the United States Court of Appeals for the District of Columbia Circuit. However, Judge Kavanaugh wrote the dissenting opinion in that case, highlighting questions about the rule's cost to industry.

Should the legal battle over the proposed regulatory rollback go before the Supreme Court, some observers expect that Judge Kavanaugh, if elevated to a seat on the high court, would side with the coal industry.

Specifically, the new Trump administration proposal would repeal a 2011 finding made by the E.P.A. that when the federal government regulates toxic pollution such as mercury from coal-fired power plants, it must also, when considering the cost to industry of that rule, take into account the additional health benefits of reducing other pollutants as a side effect of implementing the regulation. Under the mercury program, the economic benefits of those health effects, known as "co-benefits," helped to provide a legal and economic justification for the cost to industry of the regulation.

For example, as the nation's power plants have complied with rule by installing technology to reduce emissions of mercury, they also created the side benefit of reducing pollution of soot and nitrogen oxide, pollutants linked to asthma and lung disease.

The Obama administration estimated that it would cost the electric utility industry an estimated $9.6 billion a year to install that mercury control technology, making it the most expensive clean air regulation ever put forth by the federal government. It found that reducing mercury brings up to $6 million annually in health benefits — a high number, but not as high as the cost to industry. However, it further justified the regulation by citing an additional $80 billion in health benefits from the additional reduction in soot and nitrogen oxide that occur as a side effect of controlling mercury.

The new proposal directs the E.P.A. to no longer take into account those "co-benefits" when considering the economic impact of a regulation.

Should the proposal become final, it would mean that the mercury rule would, on paper, incur far greater economic cost than it would provide quantifiable health benefits. The Trump administration would then be legally justified in weakening the rule.

And that change could also give companies like Murray Energy a legal justification to sue for its deletion entirely, while giving the E.P.A. the legal basis to craft weaker pollution regulations that no longer take into account the co-benefits of eliminating additional pollutants.

"This is a sweeping attack on considering the benefits of cutting hazardous pollution from coal plants," said John Walke, a legal expert on the Clean Air Act with the Natural Resources Defense Council, an advocacy group that expects to take a lead role in the legal effort to uphold the mercury standard. "This is the first legal step toward eliminating the standard entirely."

A spokesman for Murray Energy cheered the expected move.

"E.P.A.'s proposal to revisit the outsized role that so-called 'co-benefits' play in the cost-benefit analyses used to justify costly regulations targeting pollutants such as mercury is appropriate and long overdue," wrote the spokesman, Cody Nett, in an email. He said the process is "nothing less than double-counting," since the E.P.A. already controls pollutants such as soot and nitrogen oxide in other regulations. He also called on the E.P.A. to review what he called "the questionable scientific foundation" for calculating the co-benefits.

Supporters and opponents of the proposal believe that the Supreme Court is likely to uphold it, particularly if Judge Kavanaugh is confirmed. In his 2014 dissent to the mercury ruling, he wrote, "The benefits of this rule are disputed." He added: "Industry petitioners focus on the reduction in hazardous air pollutant emissions attributable to the regulations, which amount to only $4 to $6 million dollars each year. If those figures are right, the rule costs nearly $1,500 for every $1 of health and environmental benefit produced."

The following year, in a decision that echoed Judge Kavanaugh's dissent, the Supreme Court blocked the Obama-era mercury rule, ordering the E.P.A. to conduct a new cost analysis. The Obama administration did so, and ultimately reinstated the rule in 2016.

Murray Energy then sued to block it, but last year, the E.P.A.'s administrator at the time successfully petitioned the United States Circuit Court of Appeals of the District of Columbia to delay the oral arguments for that case, as the Trump administration sought to rewrite the rule entirely.

For more news on climate and the environment, follow @NYTClimate on Twitter.

Correction: *October 1, 2018*
An earlier version of this article stated incorrectly the initial estimate of health benefits from the mercury rule. The Obama administration estimated those benefits to be worth $6 million per year, not $6 billion.

Coral Davenport covers energy and environmental policy, with a focus on climate change, from the Washington bureau. She joined The Times in 2013 and previously worked at Congressional Quarterly, Politico and National Journal. @CoralMDavenport • Facebook

A version of this article appears in print on Oct. 1, 2018, on Page A13 of the New York edition with the headline: Trump Prepares Major Weakening of Mercury Rules

The Washington Post

Energy and Environment

In rollback of mercury rule, Trump could revamp how government values human health

Companies also would no longer have to consider additional health benefits from air regulation.

By Juliet Eilperin and
Brady Dennis
October 1

The Trump administration wants to change federal rulemaking in a way that could make it easier to allow the release of harmful substances into the atmosphere.

It's making the case with mercury, a powerful neurotoxin that can damage the brains of infants and young children. In a proposal sent to the White House on Friday, the Environmental Protection Agency suggested recalculating the costs and benefits of a 2011 rule to limit mercury from coal plants, in part by questioning whether it was justified in the first place.

The shift is part of a broader effort to narrow what the government counts as benefits when crafting air rules. If adopted, the change would prevent the office from calculating positive health effects -- known as "co-benefits" -- that come from reducing pollutants other than those being targeted.

Under President Barack Obama, the EPA estimated that it would cost utilities $9.6 billion a year to comply with the new standards, while limiting mercury would translate into merely $6 million in public health benefits. But the EPA estimated at the time that the soot and nitrogen oxide reductions that would accompany cuts to mercury pollution would save between $37 billion to $90 billion in annual health costs and lost workdays by preventing as many as 11,000 premature deaths and 4,700 heart attacks.

But under President Trump, the EPA has published proposals to loosen carbon dioxide limits on power plants, arguing that it was inappropriate to count "co-benefits" such as having less soot in the air. And in a proposed rollback last month of a rule aimed at curbing leaks of hydrofluorocarbons, a potent greenhouse gas, the administration eliminated language in its analysis saying that children, elderly and the poor "are most vulnerable to climate-related health effects."

In an interview Monday, acting Administrator Andrew Wheeler said the EPA is focused on producing analyses that capture the specific impact of a rule -- in this case, mercury -- rather than the accompanying benefits that stem from installing new pollution controls on equipment.

"I just think it's a little fuzzy math when you say, 'Reduce mercury and we have all these other benefits over here,' as the shiny object," Wheeler said, adding that the agency could still consider other benefits but should categorize them separately.

If enacted, the new approach could reverberate far beyond this single rule. Previous administrations have repeatedly incorporated the benefits of cutting fine-particulate matter and smog-forming pollutants into their calculations when imposing limits on other emissions such as carbon dioxide. Reducing soot and contributors to smog often produce much bigger health benefits than curbs on greenhouse gas emissions linked to climate change, for example, because these traditional pollutants contribute to heart and lung disease.

John Walke, a clean-air lawyer at the advocacy group Natural Resources Defense Council, said in an email that Wheeler and Bill Wehrum, the head of the EPA's air office, are seeking to exclude legitimate health benefits that stem from limiting toxins in the air.

"The fraudulent denial of real-world benefits from clean air and climate safeguards is the unholy grail of EPA haters and polluting industry lobbyists," Walke said.

Details of the rule were first reported by the New York Times.

Jeff Holmstead, who was head of the EPA's air and radiation office under President George W. Bush and now represents some energy firms, said the Mercury and Air Toxics Standards represented the "most egregious" example of the Obama administration relying on incidental benefits to argue that a regulation was cost effective. "Really, all they are doing is saying that EPA has to live within the statutory framework that Congress established," Holmstead said.

Wheeler defended the administration's approach to public health during an event at EPA headquarters Monday celebrating Children's Health Day. "We are here to highlight the many ways the EPA is helping to protect children where they live, where they learn and where they play," he said, standing in front of a school bus with a cleaner diesel engine funded in part through an agency grant.

When reporters questioned Wheeler about whether some of the administration's recent proposals would harm children's health, he responded that the EPA had not changed the nation's overall air quality standards. "We have a criticism with the way the Obama administration tried to calculate their benefits," he said.

In a separate policy proposal last month, the EPA suggested reversing an Obama rule limiting the release of hydrofluorocarbons from large refrigerating and air-conditioning units. Documents posted in the Federal Register show that a section detailing how climate change would disproportionately hurt young people, seniors and the poor was cut from the proposed rule after undergoing a White House review.

"EPA is refusing to be transparent about the true costs of climate change, particularly to vulnerable populations like children," said Amit Narang, regulatory policy advocate at Public Citizen.

Coal-fired power plants are the single biggest emitter of mercury, which can cause brain damage in young children. Over time, these emissions also build up in fish, whose elevated levels of mercury are absorbed by people who eat them.

Congress gave the EPA the authority in the 1990s to regulate the toxic metals that are the byproduct of burning coal — a list that also includes arsenic, nickel and selenium — but it took the agency years to develop a standard.

In 2015, the Supreme Court dealt a major blow to the Obama administration's efforts, saying U.S. officials failed to properly consider economic costs. The court, in a 5-to-4 decision, remanded the rule back to the U.S. Court of Appeals for the D.C. Circuit with instructions that it should be sent back to the EPA in light of this cost-benefit analysis. In response, the EPA in April 2016 issued a final analysis detailing how the rule's benefits outweighed its costs. That finding became the subject of litigation.

Last spring, the EPA asked a federal court to delay a case challenging the rule brought by 15 states and several companies. Wheeler said the new rule aims to address the Supreme Court's critique of the previous administration's approach.

The nation's largest utility trade association, Edison Electric Institute, urged the EPA in July to leave the mercury rule "in place and effective" because the industry had already installed the required pollution controls. EEI estimates that the industry has spent $18 billion over the past five years, an average of $3.6 billion a year, installing scrubbers to capture toxic chemicals that otherwise would have been released into the air.

Industry groups such as the National Mining Association said the rule has already caused the closure of dozens of coal-fired power plants across the country.

Juliet Eilperin
Juliet Eilperin is The Washington Post's senior national affairs correspondent, covering how the new administration is transforming a range of U.S. policies and the federal government itself. She is the author of two books — one on sharks and another on Congress, not to be confused with each other — and has worked for The Post since 1998. Follow

Brady Dennis
Brady Dennis is a national reporter for The Washington Post, focusing on the environment and public health issues. He previously spent years covering the nation's economy. Dennis was a finalist for the 2009 Pulitzer Prize for a series of explanatory stories about the global financial crisis. Follow

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CBS NEWS *December 27, 2018, 7:36 AM*

EPA still hasn't acted nearly two years after proposing ban on deadly chemical methylene chloride

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Many of America's largest retailers, including Amazon, are planning to stop sellingall paint stripping products containing methylene chloride. Fifty-six people have died since 1980 from exposure to paint strippers containing the chemical and although the EPA proposed banning it in 2017, the agency has yet to take action.

CBS News correspondent Anna Werner has been investigating this story for the past year, reporting on three young men who died while using products made with methylene chloride since April 2017, and on a new, safer formula that's expected to be on the market in the U.S. soon.

This Christmas wasn't the same for Lauren Atkins. Last February, her 31-year-old son Joshua died while using paint stripper in a bathroom to refinish the fork from his BMX bike.

"He had a smile that lit the sky. He was very generous. He was very kindhearted," Atkins said. "I went up and knocked on the door and he didn't respond. So I opened the door and I found him."

Joshua had been gone for several hours.

"I was heartbroken because none of these deaths needed to occur. All of these were preventable," Lauren said.

Joshua joined victims Kevin Hartley and Drew Wynne, who both died in 2017 -- all young men who lost their lives using common strippers containing methylene chloride.

The chemical is so dangerous the EPA's own scientists decided it should be banned for all consumer and most professional uses, saying it posed an "unreasonable risk." But that was a year ago and the EPA still hasn't taken action. So Lauren Atkins and the other mothers plan to sue the agency next month.

"We've banded together and we're going to continue to be together until our voices are heard and until this is off the shelves," Lauren said.

The Environmental Defense Fund's Richard Dennison said those deaths were avoidable and the EPA must do more.

"It can't cut corners, It can't start creating loopholes that allow the industry to escape the intent of this rule, which is to ban these uses and protect consumers as well as workers. We are concerned that one corner they might cut is to try to exempt from this ban commercial uses of these chemicals," Dennison said.

But some aren't waiting for the government to act. Scientists at the University of Massachusetts Toxics Use Reduction Institute developed an alternative they say is safer and works just as well, and a Canadian company has announced it's producing a new product using that alternative formulation.

"The goal is to have it available in every major hardware paint and retail chain in the United States, Canada, and Mexico ... we feel it's a great option to have on the shelves of every retailer," said Greg Morose, a researcher at the institute, earlier this year.

In addition, major chains including Lowe's, Home Depot, Walmart and online retailer Amazon now say they will begin phasing out methylene chloride-based strippers by the end of the year. The changes should save lives

The primary manufacturer of the strippers with methylene chloride has been critical of the researchers' new alternative in the past. They point out it's flammable and say it too is toxic.

The researchers said the solvents in their formulation don't, "cause immediate death from high exposures" like methylene chloride can and that alone, they said, makes the new product much less hazardous. That product is expected to hit store shelves in the U.S. any day.

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The Energy 202: This mother was once 'optimistic' EPA would ban a chemical that killed her son. Now she's suing.

By Dino Grandoni
January 15

THE LIGHTBULB

Kevin Hartley died in 2017 while working in Nashville, Tenn. on refinishing a bathtub. His mother Wendy is now lobbying the Environmental Protection Agency to fully ban a chemical called methylene chloride contained in a paint stripper used by her son. (Courtesy of Safer Chemicals Healthy Families)

Wendy Hartley says she was once "cautiously optimistic" that the Environmental Protection Agency would ban several uses of a toxic chemical that killed her 21-year-old son. Now she's a part of a lawsuit suing the agency to make sure that happens.

Hartley met with then-Environmental Protection Agency Administrator Scott Pruitt in May to discuss the death of her

son Kevin Hartley, a trained contractor who died in 2017 from exposure to the fumes of a paint stripper while refinishing a bathtub. Though the EPA under President Trump had once postponed banning some uses of methylene chloride in paint stripper, Hartley says she and other environmental advocates thought Pruitt was "receptive to what we had to say."

A day after their meeting, the EPA announced it "intends to finalize" a ban originally proposed under President Barack Obama. A week after that, Pruitt reiterated that pledge during a Senate hearing.

ADVERTISING

But now, optimism about getting a nearly full ban of the use of the chemical has evaporated.

Hartley is one of two mothers of men dead from airborne exposure to the toxic compound who are now suing the EPA to keep that promise. They teamed up with the advocacy groups Safer Chemicals Healthy Families and Vermont Public Interest Research Group to file lawsuit in the U.S. District Court in Vermont to file suit on Monday.

Promise or no promise, they argue the EPA is obligated under law to restrict the use of any chemical its scientists find to cause an unreasonable risk of harm to human health. Agency researchers during the Obama administration determined that it was too dangerous for do-it-yourselfers and most professional contractors to remove paint with products containing methylene chloride. The EPA found 49 people in the United States died of exposure to methylene chloride during paint and coating removal between 1976 and 2016.

The lawsuit follows a decision in December by the EPA to move forward with banning the chemical's use by regular consumers but still allow commercial operators to continue using the product as long as they underwent training.

That exception was too much for public-health advocates who were seeking — and felt they had been promised by Pruitt — a more comprehensive ban.

"It's very much a breach of trust," said Liz Hitchcock, director of Safer Chemicals Healthy Families.

But the EPA leader who made that commitment is no longer in charge. Since July, acting chief Andrew Wheeler had led the agency after the White House forced Pruitt to resign amid numerous ethics investigations.

Safer Chemicals requested a meeting with Wheeler shortly after he was named acting administrator, but was offered time with one of his staffers. A meeting ultimately did not transpire because of scheduling issues. Separately, the Environmental Defense Fund, which helped coordinate the original meeting between Pruitt and the families, said it also asked in July to arrange a meeting between Wheeler and some of the mothers, but was not offered one.

"Acting Administrator Wheeler appreciates EDF reaching out on the regulation and for their help arranging a meeting with family members, and we look forward to continuing to work with EDF on both," EPA spokesman John Konkus wrote by email.

Wheeler was nominated this month by Trump to head the agency on a long-term basis. His confirmation hearing Wednesday is shaping up to be more contested than once thought, because the acting chief has pursued several of the most controversial policies adopted under Pruitt.

"After Scott Pruitt's destructive tenure, I urged Andrew Wheeler to right the ship at @EPA," tweeted Sen. Thomas R. Carper (D-Del.), the top Democrat on the Senate Environment and Public Works Committee. "But on issue after issue, he has kept the agency hurdling down a dangerous path, putting public health at risk."

The EPA's slow-footed response toward the paint-stripping compound stands in contrast that of home improvement stores such as Lowe's and Home Depot, which voluntarily decided to discontinue selling paint strippers containing the chemical.

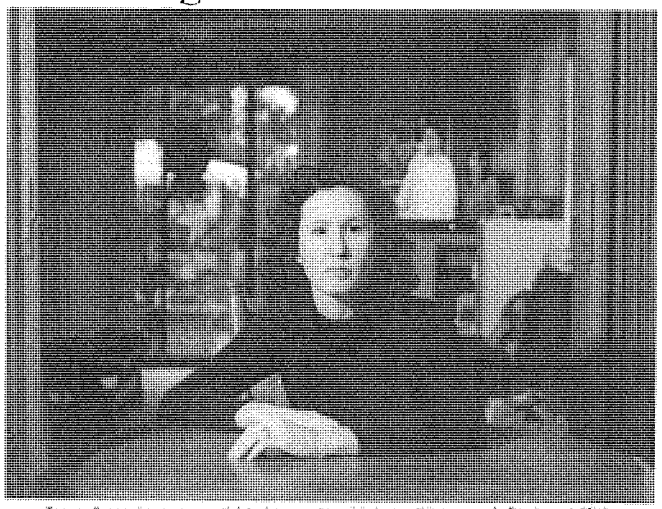
That holdup has come at a cost. Since the Obama administration originally proposed banning consumer and most commercial uses of the chemical, at least three people in addition to Kevin Hartley died of breathing in methylene chloride fumes, according to media reports.

Part of the delay may come from the fact that the Defense Department has lobbied to carve out an exemption for the toxic chemical's commercial use, The Post's Juliet Eilperin and Brady Dennis reported last week.

Manufacturers of methylene chloride have also publicly pressed the EPA to stop short of a full ban. Wendy Hartley foresees a long court fight because of the influence of chemical makers.

"I'm pretty sure that they're going to drag this out," she said, "because that's what the chemical industry wants."

'Not a problem you can run away from': Communities confront the threat of unregulated chemicals in their drinking water



Tammy Cosier became an activist when a water crisis began this summer in Parchment, Mich., where she and her family live. She recently traveled to Washington for a Senate hearing on the chemicals involved. (David Kasnic/For The Washington Post)

By Brady Dennis
January 2

PARCHMENT, Mich. — The day this small town told its residents to stop drinking the water, life on Glendale Boulevard turned from quiet to alarming.

One couple decided to immediately put their house up for sale. Another fretted over their young son and the baby who would

soon arrive. And up the street, one mom felt a rising indignation that would turn her into an activist to ban chemicals contaminating her family's drinking water -- and that of millions of other Americans.

That late July day, this town along the banks of the Kalamazoo River became the latest community affected by a ubiquitous class of compounds known as polyfluoroalkyl and perfluoroalkyl substances, or PFAS. For years, calls for the federal government to regulate the chemicals have been unsuccessful, and last year the Trump administration tried to block publication of a study urging a much lower threshold of exposure.

ADVERTISING

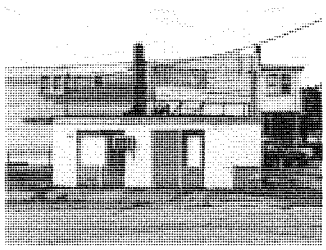
The man-made chemicals have long been used in a wide range of consumer products, including nonstick cookware, water-repellent fabrics and grease-resistant paper products, as well as in firefighting foams. But exposures have been associated with an array of health problems, among them thyroid disease, weakened immunity, infertility risks and certain cancers. The compounds do not break down in the environment.

In Parchment, where they were once used by a long-shuttered paper mill, tests found PFAS levels in the water system in excess of 1,500 parts per trillion — more than 20 times the Environmental Protection Agency's recommended lifetime exposure limit of 70 parts per trillion.

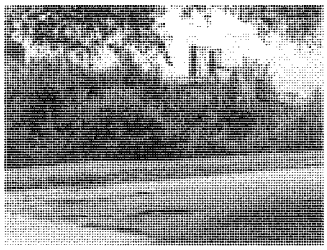
Local officials promptly alerted residents. Michigan officials declared a state of emergency. People started picking up free cases of bottled water at the high school. Within weeks, the town abandoned the municipal wells that had served 3,000 people and began getting water from nearby Kalamazoo.

"This is not a problem you can run away from," said Parchment resident Tammy Cooper, who has become an outspoken advocate for better regulation. "There are Parchments across the country."

Tammy Cooper sits with her 3-year-old daughter, Jillian, at their Parchment home. (David Kasnic/For The Washington Post)



A themed home along Riverview Drive, the town's main road. (David Kasnic/For The Washington Post)



A shuttered paper mill is a suspected source of the water contamination. (David Kasnic/For The Washington Post)

Harvard University researchers say public drinking-water supplies serving more than 6 million Americans have tested for the chemicals at or above the EPA's threshold — which many

experts argue should be far lower to safeguard public health. The level is only an agency guideline;the federal government does not regulate PFAS.

The compounds' presence has rattled communities from Hoosick Falls, N.Y., to Tucson. They have been particularly prevalent on or near military bases, which have long used PFAS-laden foams in training exercises.

Both houses of Congress held hearings on the problem last year, and lawmakers introduced bills to compel the government to test for PFAS chemicals nationwide and to respond wherever water and soil polluted by them are found. In late November, the head of the EPA vowed that the agency would soon unveil a "national strategy" to address the situation.

Affected communities are still waiting.

"There are some very real human impacts from this stuff," said Erik Olson, a drinking-water expert for the Natural Resources Defense Council. "Most people have no idea they are being exposed."

Michigan is one of the few states where officials are trying to determine the extent of PFAS contamination. Health officials undertook statewide tests this year across 1,380 public water supplies and at more than 400 schools that operate their own wells.

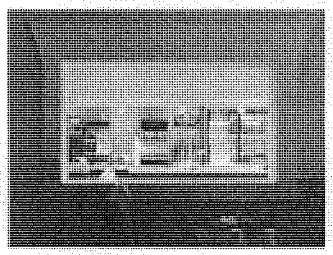
"When we look for it, we tend to find it," said Eden Wells, the state's chief medical executive. Yet detection raises difficult questions, given the lack of regulation involving PFAS in water and the evolving research on its long-term health effects.

"Many of our responses are outstripping the scientific knowledge we need," Wells said.

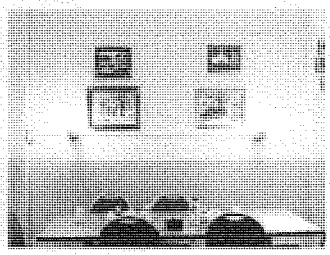
More is known about two particular types of the chemicals, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), which companies phased out years ago amid growing evidence that both were ending up in the blood of nearly every American. But thousands of other PFAS chemicals remain in use — among the many threats, including arsenic and lead, to drinking water nationwide.

"From a policy perspective, what bothers me about all this is there are industries everywhere that don't really have to report what they are using," said Detlef Knappe, a North Carolina State University environmental engineer whose research helped identify another PFAS chemical, known as GenX, in Wilmington's drinking water supply. "As a class, there are so many compounds . . . and it pops up in the most unexpected places."

A view of the Kalamazoo River as it flows through Parchment. (David Kasnic/For The Washington Post)



Scooter D's, a popular diner, scrambled to stay open during the town's water crisis. (David Kasnic/For The Washington Post)



The diner served only canned sodas through the summer because its drink machine was hooked to a water line. (David Kasnic/For The Washington Post)

The Trump administration's focus on the problem has been inconsistent.

Politico reported in May that the White House and EPA sought to block publication of a federal health study on the nationwide effects of PFAS contamination after one administration aide warned in an email that it could result in a "public relations nightmare." The study from the federal Agency for Toxic Substances and Disease Registry, which eventually was released, suggested that the EPA's existing, nonenforceable standard is inadequate to protect public health and should be much lower.

The same month, the EPA held a PFAS "summit" with industry representatives, public health groups, tribal leaders and officials from all levels of government. Then-administrator Scott Pruitt pledged action, saying, "There are concerns about these chemicals across the country because of their persistence, their durability, getting into the environment and impacting communities in an adverse way."

Little has happened since then, however.

At a hearing in early fall, Sen. Thomas R. Carper (D-Del.) pressed the EPA's director of groundwater and drinking water on when the agency might announce its plans to regulate the chemicals and finalize a drinking-water standard. Peter Grevatt, an agency veteran who recently retired, responded that officials were continuing to visit communities and develop a long-term "management plan." He acknowledged that it could take the agency a "number of years" to put enforceable regulations in place

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Federal attention is long overdue, Bilott contends.

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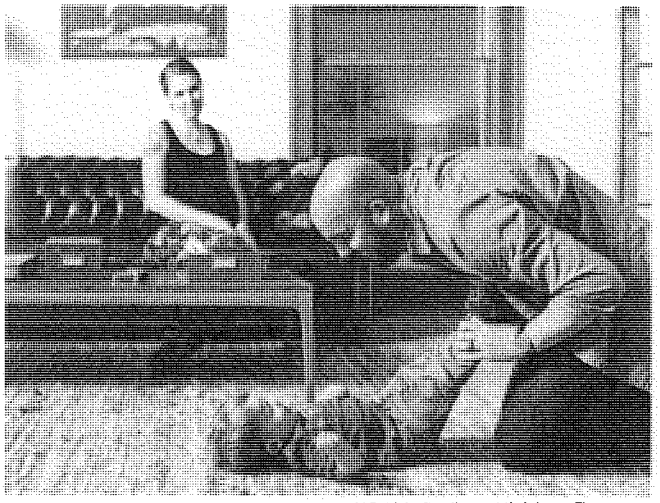

Sara Dean and her husband, Matt, play with 2-year-old Patrick after dinner at their home. The couple moved to Parchment several years ago specifically for its quieter, slower pace as they started their family. (David Kasnic/For The Washington Post)

At least outwardly, a sense of normalcy has returned to Parchment.

Bottled water is no longer being handed out at the high school, though the town is still relying on water from Kalamazoo. Officials say their investigation is ongoing, with one likely culprit of the contamination being a local landfill once used by the now-closed paper mill.

Yet beneath the surface, many people continue to worry.

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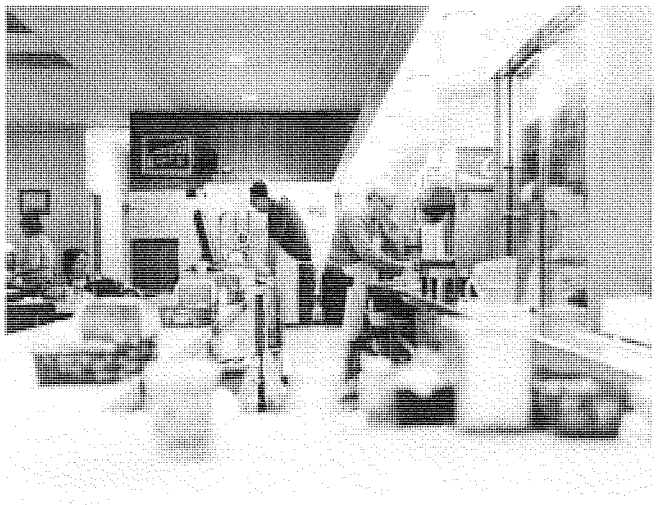

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Their former neighbors, Tammy Cooper and her husband David, have wrestled with the same emotions. "What did this crisis do? It woke me up to what the government is and is not doing on many levels," she said.

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The Washington Post

Health & Science

'Not a problem you can run away from': Communities confront the threat of unregulated chemicals in their drinking water

By Brady Dennis
January 2

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Brady Dennis
Brady Dennis is a national reporter for The Washington Post, focusing on the environment and public health issues. He previously spent years covering the nation's economy. Dennis was a finalist for the 2009 Pulitzer Prize for a series of explanatory stories about the global financial crisis. Follow

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This Coal Lobbyist Should Not Run the E.P.A.

President Trump's nominee to head the Environmental Protection Agency has overseen the dismantling of the nation's environmental laws.

By Dominique Browning
Ms. Browning is a writer and co-founder of Moms Clean Air Force.

Jan. 14, 2019

When I was pregnant with my first child, 35 years ago, one of the first things my doctor in Texas told me was to stop eating tuna, swordfish and other large, fatty fish because they were contaminated with mercury. What I didn't know until I began working on children's health issues is that the mercury in our food starts as a pollutant in our air.

Mercury is released from the combustion of coal and emitted into the atmosphere from the smokestacks of coal-fired power plants. It rains down on land and water, where it is passed up the food chain as methylmercury. Its effects among aquatic animals is particularly pernicious. By the time it reaches larger fish, the concentrations of mercury in their fatty tissue becomes dangerously magnified.

That's why the federal government warns against consuming certain seafood. When pregnant women eat mercury-laden fish, the poison immediately crosses into the bloodstream, travels into the placenta and then makes its way into the fetus, where it deposits itself in the fattiest tissue available: the brain. Mercury is a potent neurotoxin. It disrupts the developing architecture of a baby's brain. It can cause brain damage in infants, affecting a child's ability to walk, talk, read and learn.

For adults, ingesting even small amounts of mercury can cause serious health problems, harming the brain, heart, kidneys, lungs and immune system. Those coal-fired power plants also spew out lead, arsenic, dioxin, acid gases, as well as cancer-causing chromium and selenium.

The Environmental Protection Agency spent more than 20 years working on standards that would require power plants to filter mercury from their emissions. The power industry repeatedly sued the agency to block restrictions. But finally, in 2011, the E.P.A. finalized a rule, the Mercury and Air Toxics Standards, that imposed limits on mercury emissions. The standards have been a resounding success; a testament to a government agency doing its job to keep us safe.

To comply, many power plants were outfitted with technology known as scrubbers to remove mercury from the emissions before they leave the smokestack. Since the rule went into effect in 2012, electric companies have cut mercury emissions by nearly 90 percent, according to the Edison Electric Institute, an industry group. Mercury levels in Atlantic fish have been dropping in recent years, a consequence of this rule, but not in fish in the Pacific Ocean, where prevailing winds carry mercury pollution from Asia.

So who would want to unravel such an important health protection? The very man President Trump nominated last Wednesday to succeed Scott Pruitt as the administrator of the Environmental Protection Agency: Andrew Wheeler. Mr. Wheeler, currently the acting administrator, had served as the deputy administrator under Scott Pruitt, who resigned in July facing more than a dozen investigations into his spending and management practices. The Senate's Environment and Public Works Committee is scheduled to consider his nomination at a hearing this Wednesday.

A former coal industry lobbyist, Mr. Wheeler recently proposed a revision to the way the government evaluates the costs and benefits of regulating mercury emissions and, more broadly, air pollution. While the proposed change would not itself upend the rule, it would revoke the E.P.A.'s determination that it was "appropriate and necessary," undermining the very foundation on which the regulation is built.

In other words, if the rule wasn't "appropriate and necessary," why have it? In essence, Mr. Wheeler is inviting the coal industry to challenge the mercury rule in court. And not only the mercury rule. By rewriting the way costs and benefits are evaluated, Mr. Wheeler's proposal threatens regulations governing a host of other environmental poisons.

The issue over the mercury rule has focused on costs and benefits. Mr. Wheeler's E.P.A. argues that the Obama administration was wrong to include "co-benefits" that would result from the rule. The scrubbers that remove mercury from coal plant emissions also reduce other pollutants, especially particulates, which are deadly, so this co-benefit keeps lethal pollution out of the air.

Reductions in heart and lung disease from particulates prevent up to an estimated 11,000 premature deaths a year. And those other hazardous air toxics coming from industrial coal stacks? As someone who has survived kidney cancer — my oncologist vaguely explained it was "one of those environmental cancers" — I can promise you these aren't things we want to breathe: probable carcinogens like cadmium, arsenic, benzene and formaldehyde, among others. The cost associated with harm from these was not even monetized by the E.P.A. Keeping them out of our air is a "freebie."

If anything, the benefits of reducing mercury have been vastly understated. Since the rule was finalized, the science documenting the severe health impacts of mercury has become even stronger. New studies show that the quantified benefits of reducing mercury are now in the

billions of dollars; a study published in the journal Environmental Health in 2017 estimated that the societal costs associated with the neurocognitive deficits from methylmercury exposure in the United States that year was $4.8 billion.

Among those urging the E.P.A. to leave the mercury standards alone was, surprisingly, the nation's electric utility industry, which found that implementation cost far less than they had anticipated. Power industry experts indicate the true costs of the standards are $2 billion — or less than a quarter of what the agency originally estimated. Mr. Wheeler ignored the industry's request that the standards be left in place. As the Rev. Mitch Hescox, president of the Evangelical Environmental Network, wrote in The Christian Post, addressing Mr. Wheeler's legalistic cover of not overturning the rule but making it vulnerable to legal attack: "God is not fooled — and neither are we." He added, "We'll never give up on protecting children and the unborn from mercury pollution. Never."

President Trump's pro-polluter agenda is profoundly radical — and immoral. We are in danger of normalizing the president's ruthless disregard for health- and science-based protections. Mr. Wheeler's cynical ploy to upend the mercury regulations is emblematic of his agenda. His fingerprints are all over proposed rollbacks of environmental regulations covering cars, carbon emissions from power plants, coal ash and more. For this destructiveness, Mr. Trump praised him in November, saying he had "done a fantastic job and I want to congratulate him."

Mr. Wheeler's E.P.A. is also weakening implementation of a bipartisan law passed in 2016 protecting the public from toxic chemicals; people with chemical industry résumés dominate his staff. And Mr. Wheeler has sought to roll back an Obama-era rule requiring energy companies to monitor and repair leaks of methane; these leaks can occur from the moment a well is fracked until the gas gets to your home. Methane is an extremely powerful and swift contributor to global warming. Rather than move the country onto a path toward climate safety, Mr. Trump and Mr. Wheeler are leading us — and the world — closer to mutually assured destruction.

Mr. Wheeler is more media savvy than Mr. Pruitt ever was, and that makes him more dangerous. His nomination to run the E.P.A. is among the most consequential and cynical of all the cabinet appointments that Mr. Trump has proposed. Mr. Wheeler's disregard for the agency's core mission — to protect public health and the environment — is brazen. But what else should we expect from a former coal industry lobbyist?

Andrew Wheeler has demonstrated over and over again why he should not be entrusted with protecting us from harm. If his failure to do one single thing to address the global warming catastrophe isn't bad enough to stop this nomination, perhaps his decision to upend the mercury rule, which could threaten the brains of tiny babies, will wake up senators. No one voted to make America dirty again.

Dominique Browning is the senior director and a co-founder of Moms Clean Air Force.

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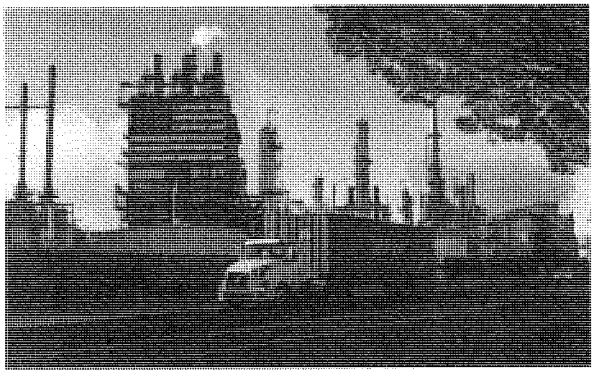

Carbon emissions up as Trump agenda rolls back climate change work

Last year's 3.4% jump in emissions is the largest since 2010 recession and second largest gain in more than two decades

Emily Holden *in Washington*

Tue 8 Jan 2019 05.00 EST

18,329

A new analysis shows US greenhouse gas levels are increasing as the Trump administration unravels efforts to slow climate change.

Carbon emissions rose sharply last year, increasing 3.4%, according to new estimates from the economic firm Rhodium Group. That year's jump in emissions is the biggest since the bounce back from the recession in 2010. It is the second largest gain in more than two decades.

Trump on own administration's climate report: 'I don't believe it'

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Coal plants are shutting down, but electricity demand is growing. Natural-gas fired power emits about half as much carbon as coal but still contributes to climate change. The fossil fuel is replacing most of the coal plants that are closing and also fed most of the higher demand, increasing power-sector climate pollution. Outside of the power sector, transportation, industry and buildings all increased their emissions as well, according to the estimates.

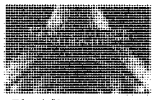
The numbers undercut one of the Trump administration's key defenses for dismissing federal science reports that show rising temperatures will

wreak havoc on the economy, kill people and cause more extreme weather. Trump has said he doesn't believe the findings and his officials have argued they are exaggerated.

The Environmental Protection Agency chief, Andrew Wheeler, often trumpets declines in greenhouse gases, citing data showing that they fell 2.7% from 2016 to 2017.

But the EPA is rescinding Obama-era climate work, including regulations meant to speed a shift from coal. The agency contends that Donald Trump's agenda is driving energy innovation that could help cut emissions. Energy experts, however, say Trump is doing the opposite by rolling back the rules and policies that could have sped renewable growth and by forgoing new regulations beyond the electricity sector.

Rhodium Group tracks the most prevalent greenhouse gas, carbon dioxide. The firm found a modest decrease in carbon emissions between 2016 and 2017, in part because of a warmer-than-usual winter that didn't require as much heating. Since then carbon output has surged.



The 'climate diaspora' trying to save the Paris agreement from Trump

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"The tailwinds of Obama administration policy are dissipating," said Trevor Houser, a partner at the firm. "This year makes it abundantly clear that energy market trends alone – the low cost of natural gas, the increasing competitiveness of renewables – are not enough to deliver sustained declines in US emissions."

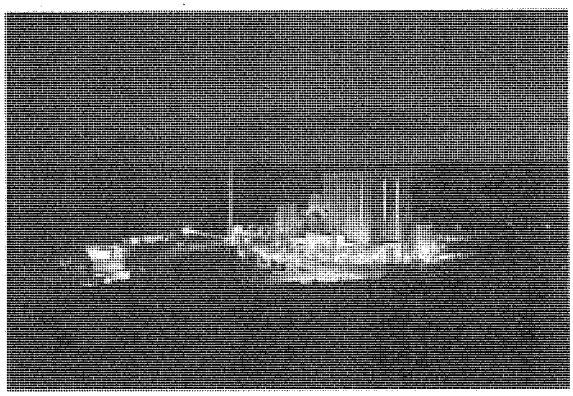
Houser said the numbers would have been worse without the state and local policies enacted during the past five to 10 years. But that the groundswell of climate commitments by governors and mayors since Trump said he would exit the international Paris climate agreement might not translate into policy for some time, he added. He said those efforts are likely to be significant but not sufficient to meet the levels the US pledged.

Vox

EPA analysis of its own new climate proposal: thousands of people will die

The Trump administration is proposing to replace Obama's Clean Power Plan with a much weaker rule.

By Umair Irfan | Aug 21, 2018, 2:20pm EDT



The Tri-State Generation and Transmission Association's Nucla coal-fired power plant is scheduled to shut down by 2020 due to environmental concerns, which will result in the loss of more than 80 area jobs. | Andy Cross/Denver Post/Getty Images

The Environmental Protection Agency has released the details of its plan to replace President Obama's signature climate change policy, the **Clean Power Plan**, and it's pretty much what we expected: a tepid pledge to fight climate change that's actually a coal bailout.

The 2015 Obama-era rule aimed to reduce greenhouse gas emissions from **power plants**, now the **second-largest source of greenhouse gases** in the United States. The CPP gave 47 states unique emissions targets while leaving it up to them how to get there. The EPA invoked health provisions of the Clean Air Act to make this rule, arguing that cutting greenhouse gas emissions would also limit other pollutants. That, in turn, would avert 3,600 premature deaths, 90,000 asthma attacks in children, and 1,700 heart attacks each year.

However, **24 states** sued to block the rule, arguing that the EPA overstepped its legal bounds. And in 2016, the **Supreme Court** put a stay on the CPP to allow the lawsuits to proceed.

Then Donald Trump became president and declared his love of coal and hatred of all things Obama. Even during his campaign, he made it clear that one of his top priorities would be to tear up Obama's climate policies like the Clean Power Plan. And two months after taking office, he signed an **executive order** to start rolling it back (along with various other regulations on methane emissions and carbon standards for new coal plants).

But unlike Trump's decision to begin to withdraw the United States from the **Paris climate accord**, something he could do unilaterally, the EPA is required by law to regulate carbon dioxide. So if the agency wants to toss out the CPP, it still needs to come up with a regulation that limits greenhouse gases. Otherwise, the EPA would need to launch a years-long campaign to change the underlying law, which it might lose.

Today, we're finally seeing the details of the replacement plan. Acting EPA Administrator Andrew Wheeler is calling it the **Affordable Clean Energy proposal**.

Acting Administrator Wheeler
@EPAAWheeler

Today @EPA released our Affordable Clean Energy proposal. At the direction of President Trump @POTUS this proposal will:
->Protect the environment
->Save consumers money
->Save jobs
Learn more about the proposal here: epa.gov/stationary-sou...

1,547 8:23 AM - Aug 21, 2018 · Washington, DC

Proposal: Affordable Clean Energy (ACE) R...
The proposal has several components: a best system of emission reduction analysis for coal-fired power plants, changes to the trigger for New
epa.gov

981 people are talking about this

Repeal and replace. Sound familiar? As Vox's David Roberts noted, the process of undoing the Clean Power Plan echoes the fight to repeal Obamacare. And like the health care repeal fight, it's shaping up to be a **huge mess**.

For the new proposal to stand, it has to be just as good as or better than the one it replaces in order to comply with the law. But it's much weaker than the rule it's replacing, so the EPA is arguing for a cost-benefit calculation that justifies a relaxed standard. Meanwhile, environmental activists and some states see this as a vulnerability and are girding themselves for a legal fight.

How is the new Affordable Clean Energy proposal different from the old Clean Power Plan?

The big difference is that rather than the federal government setting targets for states, states can set targets for themselves. The ACE also restricts what states can do to push coal-fired power plants to become cleaner.

The CPP's goal was to cut US greenhouse gas emissions by 32 percent compared to 2005 levels by 2030. The ACE would reduce emissions between **0.7 and 1.5 percent** in the same time frame.

> In comparing the ACE to the CPP, remember that the emissions baseline has changed a lot since 2014 thanks to cheap renewables and natural gas. **@EPA** could have responded to this by raising the ambition bar. Instead, they lowered it. **pic.twitter.com/REdDtPiy9x**
>
> — Trevor Houser (@TrevorGHouser) August 21, 2018

That means states that draw on a fossil fuel-heavy energy mix won't have to do much to comply with the rule, essentially allowing them to carry on as is.

To justify a much weaker regulation, the EPA is changing how it calculates the economic and societal values of reducing pollution, which reduces the benefits relative to the costs of curbing pollution.

Taylor Kuykendall
@taykuy

EPA says they are "unable to quantify the economic value of changes in exposure to mercury, carbon monoxide, SO2, and NO2, ecosystem effects or visibility impairment" in regulatory impact analysis epa.gov/sites/producti...

4 9:20 AM - Aug 21, 2018

See Taylor Kuykendall's other Tweets

But the EPA's own calculations show the new proposal would lead to upward of **1,400 additional premature deaths** and 48,000 new cases of asthma each year due to higher levels of air pollution. So the EPA is trading the health and well-being of thousands of Americans for keeping polluting and often unprofitable power plants online. (This **news** was first reported by the New York Times on Tuesday.)

It's part of a broader agenda in the Trump administration to **bail out and boost coal** to deliver on campaign promises.

While Trump, who is holding a rally Tuesday night in West Virginia, is likely to hail the new proposal as another win for the coal industry, the sector is still losing ground in large part due to competition from natural gas and renewables. Since 2010, **more than 200 coal plants** have gone offline or announced retirements. There are only **four new coal plants** planned in the US.

So all the ACE would do is give some of the oldest, dirtiest coal-fired power plants a few more wheezing gasps of life.

The public will now have 60 days to comment on the rule before it's finalized.

POLITICO

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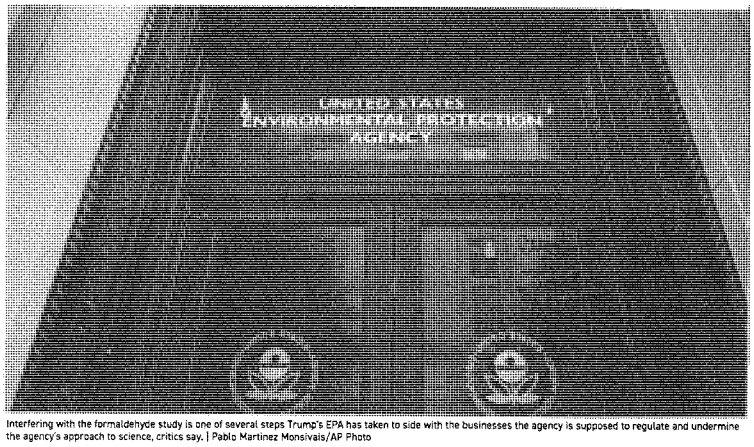
ENERGY & ENVIRONMENT

Sources: EPA blocks warnings on cancer-causing chemical

Burying the formaldehyde study is part of an effort by Pruitt and aides to undermine EPA's research program, current and former officials tell POLITICO.

By **ANNIE SNIDER** | 07/06/2018 05:07 AM EDT



Interfering with the formaldehyde study is one of several steps Trump's EPA has taken to side with the businesses the agency is supposed to regulate and undermine the agency's approach to science, critics say. | Pablo Martinez Monsivais/AP Photo

The Trump administration is suppressing an Environmental Protection Agency report that warns that most Americans inhale enough formaldehyde vapor in the course of daily life to put them at risk of developing leukemia and other ailments, a current and a former agency official told POLITICO.

The warnings are contained in a draft health assessment EPA scientists completed just before Donald Trump became president, according to the officials. They said top advisers to departing Administrator Scott Pruitt are delaying its release as part of a campaign to undermine the agency's independent research into the health risks of toxic chemicals.

Andrew Wheeler, the No. 2 official at EPA who will be the agency's new acting chief as of Monday, also has a history with the chemical. He was staff director for the Senate Environment and Public Works Committee in 2004, when his boss, then-Chairman Jim Inhofe (R-Okla.), sought to delay an earlier iteration of the formaldehyde assessment.

Formaldehyde is one of the most commonly used chemicals in the country. Americans are exposed to it through wood composites in cabinets and furniture, as well as air pollution from major refineries. The new assessment would give greater weight to warnings about the

chemical's risks and could lead to stricter regulations from the EPA or class-action lawsuits targeting its manufacturers, as frequently occurs after these types of studies are released.

Listen to Story

"They're stonewalling every step of the way," the current offic[illegible] assessment and other reports on toxic chemicals produced by EPA's Integrated Risk Information System. Industry has long faulted the IRIS program, the agency's only independent scientific division evaluating the health risks of toxic chemicals, whose assessments often form the basis for federal and state regulations.

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ource for energy and environment news — weekday mornings, in your inbox.

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The current official and former official requested anonymity out of fear for their jobs and the impact that speaking out could have on the IRIS program.

Interfering with the formaldehyde study is one of several steps Trump's EPA has taken to side with the businesses the agency is supposed to regulate and undermine the agency's approach to science, critics say. Public health advocates also expressed alarm after Pruitt replaced academic scientists with industry advocates on the agency's influential science advisory boards and sought to limit the types of human health research the EPA can rely on in rulemakings.

The officials said Trump appointees have required that career officials receive their permission before beginning the required internal review of the formaldehyde study and have canceled key briefings that would have advanced it. That interference came after EPA career scientists revised the study once already last year to insulate it from political controversy, they said.

In a statement, EPA denied that the assessment was being held back.

"EPA continues to discuss this assessment with our agency program partners and have no further updates to provide at this time," EPA spokeswoman Kelsi Daniell said. "Assessments of this type are often the result of needs for particular rulemakings and undergo an extensive intra-agency and interagency process."

But as long ago as January, Pruitt told a Senate panel that he believed the draft assessment was complete.

Five months later, it has yet to see the light of day. Meanwhile, internal documents show, a trade group representing businesses that could face new regulations and lawsuits if the study were released had frequent access to top EPA officials and pressed them to either keep it under wraps or change its findings.

"As stated in our meeting, a premature release of a draft assessment ... will cause irreparable harm to the companies represented by the Panel and to the many companies and jobs that depend on the broad use of the chemical," Kimberly Wise White, who leads the American Chemistry Council's Formaldehyde Panel, wrote in a Jan. 26 letter to top officials at the EPA. The panel represents companies including the Koch Industries subsidiary Georgia-Pacific Chemicals LLC that could face higher costs from stricter regulations or lawsuits.

EPA
Environmentalists: Pruitt's replacement 'should scare anyone who breathes'
By ERIC WOLFF

Nearly a million jobs "depend on the use of formaldehyde," White's letter argued.

The holdup is attracting attention on Capitol Hill, where Democrats have already expressed alarm, arguing that the Trump administration has allowed politics to interfere in EPA's scientific assessments of threats such as toxic pollution and climate change.

The agency must "move past politics and focus on its job of protecting human health" by releasing the formaldehyde study, Sen. Ed Markey (D-Mass.) said in a statement to POLITICO.

"Because formaldehyde can be found in everything from wood products to women's hair straighteners, the public health risks are substantial," Markey said. "Delaying the EPA's latest assessment of the health risks of formaldehyde only further endangers the health of Americans."

Public health advocates have similarly expressed fears that the Trump administration has allowed EPA to be captured by the industries it regulates. The revelations about the formaldehyde study come after Pruitt removed academic scientists from the agency's influential science advisory boards and in many cases replaced them with industry advocates, and after he proposed a policy to limit the agency's use of human health data while offering a carve-out for confidential industry studies.

"At every corner, you see the agency trying to either minimize the role of science or manipulate the role of science or just ignore the work of scientists in doing the critical work to ensure that human health and the environment is protected," said Jennifer McPartland, a senior scientist with the Environmental Defense Fund's health program.

POLITICO also reported in May that Trump administration officials, including EPA chief of staff Ryan Jackson, sought to delay an HHS study finding that nonstick chemicals pose health dangers at a lower level than EPA has said is safe.

Insiders anticipate few major policy changes under Wheeler, who is widely expected to continue Pruitt's deregulatory agenda and is well-versed in chemicals issues. He began his career in EPA's chemical safety office, and after leaving Inhofe's staff lobbied for several chemicals companies, including Celanese Corp., a major formaldehyde manufacturer and ICOR International, a refrigerants manufacturer that was recently acquired by Chemours Co., a DuPont spin-off. A Celanese spokesman said Wheeler worked only on the Renewable Fuels Standard for the company, although Wheeler's disclosure forms describe his lobbying as being on the broad topic of "chemicals issues." Wheeler is not barred from working on chemicals issues under the recusal statement he signed in May.

Decades' of research has linked formaldehyde to nose and throat cancer and respiratory problems, and newer research has suggested the connection to leukemia — controversial conclusions that would gain significant credence if EPA formally adopts them. The new assessment affirms those links to leukemia, nose and throat cancer and other ailments, according to the current and former officials familiar with its findings.

The new assessment could lead the EPA to impose stricter regulations of chemicals refineries or wood products and could spur class-action lawsuits from cancer patients attempting to hold companies responsible for their illnesses.

The agency officials said the political aides blocking the assessment include Jackson and Richard Yamada, a former staffer for House Science Chairman Lamar Smith (R-Texas) who is now a top official in EPA's Office of Research and Development. And they said Nancy Beck, who criticized the IRIS program in her previous job as a top chemical industry expert, is now helping to stymie the program's assessments in her new post as head of EPA's chemical safety office. Jackson, Yamada and Beck did not respond to requests for comment.

The EPA spokeswoman disputed the accusations and said Yamada and Jackson have, in fact, requested briefings on the assessment.

The current EPA official told POLITICO that political appointees have managed to avoid creating written evidence of their interference with the formaldehyde assessment by refusing to send emails or create other records that eventually could become public, instead using what the official described as "a children's game of telephone."

By blocking the report at the first step of the IRIS review process, political appointees are keeping it from being reviewed by the National Academies of Sciences, an independent panel of the country's top scientists that must weigh in on all such risk assessments. EPA has already paid the academies $500,000 for that review, the highest level of scrutiny a scientific study can receive, but the work cannot start until Pruitt's aides send the study.

"If the administration was really keen on protecting public health, why wouldn't they send this to the National Academy and give it a really good review?" the former EPA official asked. "If it survives that review, then there's a public health problem that needs to be dealt with, and if it doesn't survive the review, then they can point the finger at IRIS and say, 'You're dead.'"

ENERGY & ENVIRONMENT
How Scott Pruitt blew it
By ALEX GUILLÉN and ANDREW RESTUCCIA

The former official said there would be only one reason not to ask the country's top experts whether they agree with the analysis: "You don't want the answer."

Public health advocates say the administration's attacks on science have had especially significant implications for the IRIS program. The small office of about 35 experts pores over the huge body of existing research on chemicals, including industry-backed studies aimed at proving the substances safe, to independently assess their risks. While purely scientific, the program's reviews are looked to by regulators not just at EPA, but also in the states and around the world, often paving the way for new or more stringent regulations.

But industry has long targeted the program, arguing it uses an opaque process to decide which studies to rely on and which research to give credence to when findings conflict.

The American Chemistry Council, Beck's former employer, spent more than $7 million last year lobbying EPA and Congress on issues including IRIS, formaldehyde and the policy to limit EPA's use of human health research. Chemicals manufacturers, including Hexion, one of the country's largest manufacturers of formaldehyde, have also spent tens of thousands of dollars on lobbying related to the program this year.

A National Academies panel agreed with some of industry's criticisms of the IRIS program in a blistering review of an earlier iteration of the formaldehyde assessment that recommended major changes to how IRIS decides how much weight to give conflicting studies, although it did not attack the substance of its findings about the health effects of formaldehyde. Critics of the IRIS program have pointed to that review frequently as they have sought to kill it, including in an appropriations battle this spring. The EPA spokeswoman also pointed to that assessment in her statement. "The National Academy of Science and Congress in legislative reports have for years been highly critical of EPA's previous assessments involving formaldehyde," she said.

But te EPA has overhauled the program since then, hiring a new director for IRIS and a new head of the National Center for Environmental Assessment, in which it is housed. The changes have received high marks from the National Academies in two more recent reviews, one in 2014 and one this past April. The latest formaldehyde assessment is expected to demonstrate further progress implementing the academies' recommendations, potentially undermining industry critiques of the overall IRIS program if it were to be released.

Although efforts to kill EPA's independent scientific arbiter have so far failed, EPA officials and public health advocates say the program has been significantly hobbled under an administration with close ties to the chemicals industry.

White, the top staffer for the American Chemistry Council's Formaldehyde Panel, wrote the EPA three times between September 2017 and January 2018, urging the agency to incorporate industry-funded research that found no link between formaldehyde and leukemia, and arguing that the studies shifted the scientific consensus away from the conclusion that it does. In November, Pruitt appointed her to the agency's influential Science Advisory Board.

Less than a week after the council's Jan. 24 meeting with EPA, Pruitt himself confirmed that the report had been complete for months. During a Senate hearing at the end of January, Markey asked Pruitt for an update on the formaldehyde assessment, saying it was his understanding "that the EPA has finalized its conclusion that formaldehyde causes leukemia and other cancers and that [the] completed new assessment is ready to be released for public review, but is being held up."

"You know, my understanding is similar to yours," Pruitt replied, promising to follow up.

Markey reminded Pruitt of the exchange in a May 17 letter. In a response Thursday, the agency's principal deputy assistant administrator for science, Jennifer Orme-Zavaleta, said EPA "continues to discuss the formaldehyde assessment internally and has no further updates to provide at this time."

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Detection of PFAS pollution globally expected to increase

by Cheryl Hogue

Hot spots of drinking water contaminated with toxic fluorocarbons in Australia, the Netherlands, Italy, and the US grabbed headlines last year. In 2019, expect scientists to look for—and find—more areas polluted with nonpolymeric per- and polyfluoroalkyl substances (PFAS) in those countries and across the world.

TAKEAWAYS

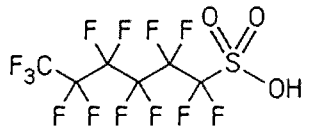
Discovery of more PFAS-contaminated drinking water is almost a given.

US states are likely to adopt their own limits for PFAS as the Environmental Protection Agency decides whether to act.

"It's going to seem to the public like the problem is getting worse," says Ginny Yingling, a research scientist at the Minnesota Department of Health and a PFAS expert. But scientists will just be identifying existing contamination through better analytical methods, says Yingling, who coleads the US Interstate Technology and Regulatory Council's PFAS team.

Scientists are also likely to identify additional PFAS besides well-known legacy compounds, such as perfluorooctanoic acid and perfluorohexanesulfonic acid, that were used industrially for decades, Yingling adds. Data indicate that at least some of these legacy chemicals, which have been found in people's blood, can cause reproductive, developmental, liver, and immunological effects in laboratory animals. Few toxicity data are available on many PFAS that replaced the older ones.

More widespread detection of these chemicals will likely trigger more calls from the public for cleaning up PFAS contamination, Yingling says.



Perfluorohexanesulfonic acid

In the US, states facing contamination problems will be under pressure to act on their own. That's because the acting head of the Environmental Protection Agency, Andrew Wheeler, has said the EPA is weighing only the need for a federal drinking-water limit for certain widespread PFAS.

Researchers and regulators are increasingly concerned that these substances are spreading into the food supply through polluted water and the use of treated sewage sludge to improve soils.
Australia warned people living where drinking water is tainted with PFAS from nearby military installations not to eat leafy greens harvested from gardens or home-raised poultry, eggs, beef, or lamb.

In 2019, Yingling expects to see advances in treatment technology for PFAS-tainted water supplies, moving beyond today's standard of activated carbon filters.

Meanwhile, financial liability is expanding for militaries and companies that make or use PFAS—or formerly did so. Utilities are seeking money from polluters to pay for cleaning up PFAS-contaminated drinking-water supplies.

Opinion + Live TV

EPA nominee Andrew Wheeler is even worse than Scott Pruitt

By Ken Kimmell

Updated 8:34 AM EST, Tue January 15, 2019

EPA chief worked for climate change skeptic (06:15)

Editor's Note: *(Ken Kimmell is the president of the Union of Concerned Scientists, a nonprofit science advocacy organization. The views expressed in this commentary are his own. View more opinion on CNN.)*

(CNN) — When Scott Pruitt stepped down as the Environmental Protection Agency administrator and his deputy Andrew Wheeler took over as acting administrator, many of us in the science advocacy community thought that it couldn't get worse. We hoped that Wheeler would listen to his agency's scientists and alter Pruitt's misguided policies of eliminating science-based policies and rolling back lifesaving climate and public health protections.

The Senate, which will soon vote on whether to confirm Wheeler as EPA administrator, should know this hasn't happened. Instead, Wheeler has continued to advance an agenda focused on

undermining safeguards upon which Americans rely to keep their air and water safe.

Ken Kimmell

When I met with Wheeler in October, we talked about the impact of climate change: dangerously high temperatures, rising seas, deadly wildfires, torrential rainfalls and devastating hurricanes. I pressed him to stop the climate policy rollbacks that Pruitt had launched.

I was gravely disappointed to hear him claim that the EPA didn't have the legal authority to do much of anything about carbon pollution from power plants, a departure not only from Supreme Court

decisions, but also from the Trump administration's expansive claims of executive power in so many other areas.

Wheeler made it clear he would press ahead in dismantling the two safeguards that lower major sources of US climate change pollution: the Clean Power Plan, which cuts carbon pollution from coal-fired power plants, and the clean car standards, which have already been saving consumers money at the pump. As an additional gift to the oil industry, the EPA is proposing the rollback of safeguards that limit the release of methane pollution, leaving communities near oil and gas facilities at even greater risk of developing serious health issues.

Related Article: Congress, reverse the EPA's assault on our environment and health

How does Wheeler justify policies that fly in the face of science? He obfuscates. Several months after our meeting, after a US government-led National Climate Assessment was released, he said in a press interview that he had not read the full report to which his own agency scientists had contributed.

Even more disturbing, Wheeler still felt comfortable speculating about the conclusions. The report had, in fact, made clear that the harms caused by climate change will increase exponentially without

action. Wheeler again dumbfounded the scientific community when he claimed that future iterations of the report would need to be reviewed by the Trump administration's political appointees.

But Wednesday is a moment of truth, as Wheeler will appear before the Senate committee that will consider his nomination. Lawmakers must grill him about how he has ignored the scientific community's overwhelming consensus on climate change and showcase just how dangerous it is when those in power leave science out of the equation.

Worries linger after EPA changes coal ash rules (06:02)

Senators must also focus on Wheeler's recently proposed plan to tilt the playing field against public health and safety protections. He has recommended a new formula for assessing mercury pollution from coal plants (mercury is one of the most toxic pollutants). Under this formula, the EPA can weigh coal plant owners' direct and indirect costs of installing technology to cut mercury pollution, but cannot look at all the protections' benefits to the public.

More specifically, if a pollution control technology reduces mercury pollution and also other dangerous air pollutants, such as soot, the EPA can only consider the value of lives saved and health care costs reduced due to mercury reductions -- and must ignore the benefits of reducing soot. Putting this blinder on makes no sense, but counting all the benefits of this safeguard makes it harder to roll back the protection, which is what the coal industry -- Wheeler's former client -- wants.

While it's clear my meeting with Wheeler did not change his perspective, it's not too late for the Senate to do its job. Wheeler has a long track record that shows he does not follow science and is not advancing the EPA's core mission to protect public health and the environment. There is a better alternative. When EPA Administrator Anne Gorsuch Burford resigned in scandal, President Ronald Reagan brought in William Ruckelshaus, an experienced and trusted moderate who respected science. Senators should insist on no less here.

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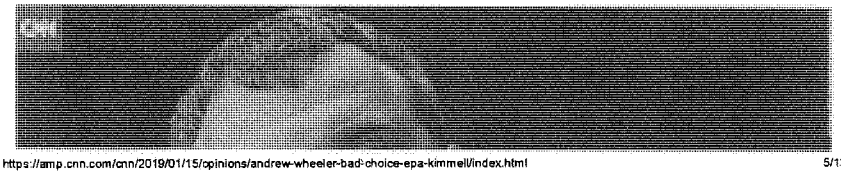

The Washington Post

Energy and Environment

Trump plans to nominate Andrew Wheeler, former coal lobbyist, as EPA chief

Wheeler took over as the agency's acting administrator in early July after Scott Pruitt resigned amid ethics scandals.

By Brady Dennis and
Juliet Eilperin
November 16

President Trump said Friday that he intends to nominate former industry lobbyist Andrew Wheeler as the Environmental Protection Agency's next administrator, a move that would ensure a continued deregulatory push at the agency.

Trump made the impromptu announcement during a Medal of Freedom ceremony at the White House, saying that Wheeler had done a "fantastic job" as the agency's acting administrator in recent months. Wheeler took the helm in early July after Scott Pruitt resigned amid mounting ethics scandals.

During his brief tenure as the EPA's acting chief, Wheeler has proved far different from the man he replaced. Where Pruitt was a politician who appeared to enjoy the limelight and trappings of Cabinet life, Wheeler has long worked behind the scenes on energy and environmental policy and generally avoids public attention. Along with Health and Human Services Secretary Alex Azar and Veterans Affairs Secretary Robert Wilkie, Wheeler represents the sort of technocrat who has risen through the ranks after an initial Trump Cabinet pick stumbled.

But Wheeler and his predecessor have this in common — a zeal to deregulate. Wheeler made clear from the start that he intends to carry out many of the regulatory rollbacks set in motion under Pruitt, and to pursue new ones.

"I will try to work to implement the president's agenda," Wheeler told The Washington Post shortly after he took over the reins at the EPA this summer. "I don't think the overall agenda is going to change that much, because we're implementing what the president has laid out for the agency."

In the months since, Wheeler has continued to advance Trump's agenda, proposing rules to loosen carbon limits on power plants and relax fuel-efficiency standards for cars and light trucks. Those proposals, along with moves to change the way the agency calculates the health benefits of new air-pollution standards, have sparked sharp criticism from environmental and public health groups.

But Wheeler also has struck a more conciliatory tone with career employees at the agency, emphasizing that he once served in their ranks and that he values their service. He also has postponed some of Pruitt's more controversial regulatory plans, including one relaxing emissions rules for long-haul trucks that place older engines in newer bodies, known as glider kits.

Just this week, Wheeler announced a plan to impose stricter limits on nitrogen-oxide emissions from heavy-duty trucks, winning praise from the trucking industry and the American Lung Association.

Wheeler, like his predecessor, undoubtedly will have the support of industry.

"Andrew's steady hand will help ensure a balanced approach that will continue both environmental progress and economic growth," said Karen Harbert, president of the U.S. Chamber of Commerce's Global Energy Institute.

Scott Segal, an energy lobbyist at the Bracewell law firm, called Wheeler "a good pick."

"Andrew Wheeler's background shows that he has the capacity to advance an appropriate balance of energy, environmental and economic considerations in a manner consistent with open administrative process and respect for rule of law," Segal said in a statement.

Wheeler stands a strong chance of winning Senate confirmation, though his nomination is still likely to spur debate. He won approval for his current job in April on a 53-to-45 vote, with three Democrats supporting his nomination. At the time, several Democratic senators questioned his past work for Murray Energy, one of the nation's biggest coal companies, as well as mining companies and other energy interests.

The top Democrat on the Senate Environment and Public Works Committee, Sen. Thomas R. Carper (D-Del.), said in a statement that he will evaluate how Wheeler has performed in recent months before deciding whether to back his nomination.

"If the president intends to nominate Andrew Wheeler to be the Administrator of EPA," Carper said, "then Mr. Wheeler must come before our committee so that members can look at his record as acting administrator objectively to see if any improvements have been made at the agency since he took the helm."

Another Democrat, Sen. Sheldon Whitehouse (D-R.I.), was less diplomatic.

"I hoped Scott Pruitt's policy dirty work would dry up after he left the EPA in disgrace, but proposals like the forthcoming rule to weaken or eliminate protections against mercury emissions make it clear Andrew Wheeler plans to continue ... with rollbacks of vital environmental protections," Whitehouse said in a statement.

Environmentalist activists also were quick to criticize the idea of Wheeler as EPA chief.

"In normal times, a zealous fossil fuel apologist and the top official in charge of protecting children's health from pollution would be two separate people with conflicting agendas," said Ken Cook, president of the Environmental Working Group. "But this is the Trump administration, where a former top coal lobbyist could become administrator of the EPA."

Brady Dennis
Brady Dennis is a national reporter for The Washington Post, focusing on the environment and public health issues. He previously spent years covering the nation's economy. Dennis was a finalist for the 2009 Pulitzer Prize for a series of explanatory stories about the global financial crisis. Follow

Juliet Eilperin
Juliet Eilperin is The Washington Post's senior national affairs correspondent, covering how the new administration is transforming a range of U.S. policies and the federal government itself. She is the author of two books — one on sharks and another on Congress, not to be confused with each other — and has worked for The Post since 1998. Follow

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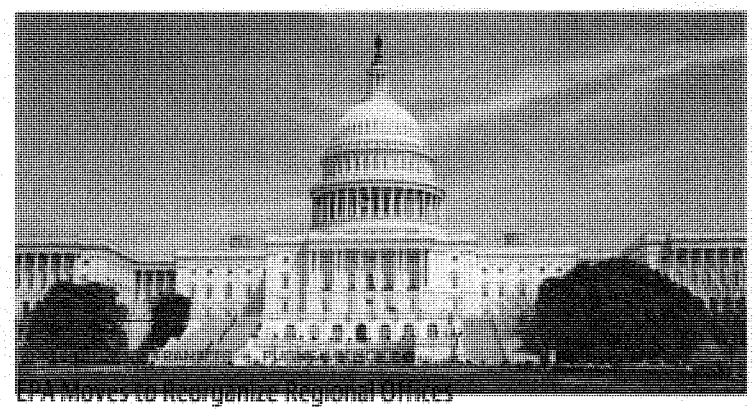

EPA Moves to Reorganize Regional Offices

Former EPA officials and employees are concerned the reorganization could open an opportunity to shrink the agency.

Waste360 Staff | Sep 28, 2018

Regional offices of the Environmental Protection Agency (EPA) are bracing for possible structural changes that could come by the end of the year.

The EPA is moving forward with a reorganization of 10 of its regional offices to mirror EPA headquarters, Acting Administrator Andrew Wheeler announced in a memo.

Related: Pruitt's Short Tenure Could Leave Lasting Impact on the EPA

According to a *Bloomberg Environment* report, former EPA officials and current employees are wary the reorganization could give the Trump administration an opportunity to shrink the agency. "The effort could also allow political leadership a tighter rein over the regions—where approximately half of the agency's career staff work and where much of the on-the-ground permit reviews, oversight and enforcement operations occur," the report stated.

Bloomberg Environment has more details:

The EPA's regional offices could see structural changes by year's end, but the trickle-down effects—on enforcement, staff levels, and leadership—are already raising alarms among current and former workers.

ADVERTISING

The Environmental Protection Agency is moving forward quickly with a reorganization of its 10 regional offices to minimize uncertainty for staff in those offices, Henry Darwin, the agency's chief of operations and acting deputy administrator, told Bloomberg Environment.

Acting Administrator Andrew Wheeler announced the effort, which will reshuffle the regional offices to mirror EPA headquarters, in a Sept. 6 memo.

Read the full article here.

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National Park Service to Resume Maintenance at Washington, D.C., Parks

Since the government shutdown began, the National Mall in Washington, D.C., has been scattered with trash near the Washington Monument and U.S. Capitol.

Waste360 Staff | Jan 14, 2019

MENU Waste 360 NEWSMASTER

The National Park Service has announced that it will resume maintenance services in Washington, D.C. area parks. The announcement comes after parks across the country have been overflowing with trash amid the ongoing partial government shutdown.

Since the shutdown, the National Mall in D.C. has been scattered with trash near the Washington Monument and U.S. Capitol. Area agencies and organizations have been doing their part to pick up the federal government's slack during the shutdown.

The Hill recently reported that members of a Muslim youth group collected trash and cleaned up national parks around the U.S. over the weekend of January 5 and 6. Dozens of people associated with Ahmadiyya Muslim Youth Association, the largest national organization for Muslim youths, cleaned up litter, emptied trash cans and swept the grounds in places such as the Everglades National Park in Florida and Joshua Tree National Park in California.

WAMU has more details:

The National Park Service announced that it

> *would resume maintenance services in Washington-area parks on Friday, including the National Mall, George Washington Memorial Parkway, and Rock Creek Park. It will also reopen several bathrooms at sites around the Mall.*

The Park Service has not completed any trash collection, roadwork, or sanitation services in its parks since the federal shutdown began on Dec. 22.

It will dip into fee revenue from national parks across the country to cover the costs. Those funds are typically reserved for future projects.

Read the full article here.

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January 14, 2019

The Honorable John Barrasso, Chairman, Committee on Environment and Public Works
The Honorable Tom Carper, Ranking Member, Committee on Environment and Public Works

RE: Andrew Wheeler EPW Committee Nomination Hearing

Dear Chairman Barrasso and Ranking Member Carper,

As the largest asbestos victims' organization in the United States, the Asbestos Disease Awareness Organization (ADAO) is closely following the nomination of Andrew Wheeler for the position of Administrator of the Environmental Protection Agency (EPA).

There is an overwhelming consensus in the scientific community that there is no safe level of exposure to asbestos. Despite the voluntary elimination of many asbestos products, the death toll from asbestos exposure remains alarmingly high. At ADAO's 14th Annual Asbestos Awareness and Prevention Conference in Washington D.C. in 2018, Dr. Jukka Takala DSc, MSc, BSC, President of the International Commission of Occupational Health, reported that asbestos-related deaths in 2016, numbered 39,275— more than double the previous estimates of 15,000 per year.

Americans demand and deserve a political appointee that will place the health of the public and our environment before corporate profits. Wednesday's hearing on his nomination is an important opportunity to ensure that Mr. Wheeler meets these demands.

If confirmed, Mr. Wheeler will have the opportunity to change course on asbestos and make protection of public health EPA's top priority. As such, we believe the Committee should press Mr. Wheeler on a number of important issues pertaining to asbestos regulation. We urge the Committee to question Mr. Wheeler about whether or not he is concerned by the ongoing importation of asbestos and— given the risks with exposure to asbestos— if he will commit to eliminating all asbestos imports following the ongoing risk evaluation. Mr. Wheeler should be questioned about whether he is prepared to strengthen and expand the ongoing asbestos risk evaluation under TSCA. His willingness to reverse the troubling exclusions of legacy use and disposal from the evaluation must also be discussed. We urge the Committee to press the nominee to effectively implement the safeguards for school children and teachers in the Asbestos Hazard Emergency Response Act (AHERA). Finally, Mr. Wheeler should be asked whether he supports a comprehensive asbestos ban under TSCA.

By addressing these essential issues, ADAO believes that the Committee may best safeguard the health and security of American citizens. We look forward to working with the EPA and the EPW Committee to ban asbestos once and for all.

On behalf of your constituents, thank you for your leadership, perseverance, and dedication to protecting the health of Americans and our environment.

Sincerely,

Linda Reinstein, President and CEO, Asbestos Disease Awareness Organization

Asbestos Disease Awareness Organization is a registered 501(c) (3) nonprofit organization
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United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

July 6, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Andrew:

I write to congratulate you on being named Acting Administrator of the EPA and to ask you to do all that you can to restore the American people's confidence in the agency's mission, which is the protection of human health and our environment.

Scott Pruitt's record of corruption, wasteful spending on himself while attempting to slash the EPA budget and workforce, secrecy, retaliation against those who dared object, and legally questionable rulemaking proposals have been well-documented.

They say that history doesn't always repeat itself, but it often rhymes. A review of a different chapter in EPA's history reveals the truth of that adage. Mr. Pruitt's tenure at the agency brings to mind the tenure of former EPA-Administrator Anne Gorsuch, which was described as "marked by sharp budget cuts, rifts with career EPA employees, a steep decline in cases filed against polluters and a scandal over the mismanagement of the Superfund cleanup program that ultimately led to her resignation in 1983....She filled various departments at EPA with subordinates recruited from the very industries the agency was supposed to be regulating.[1]"

When Ms. Gorsuch was forced to resign, President Reagan nominated William Ruckelshaus, who had served as the nation's first EPA Administrator, and who had since that time also worked on behalf of many companies regulated by EPA, to serve as Ms. Gorsuch's replacement. Much like your nomination to serve as EPA's Deputy Administrator, Mr. Ruckelshaus's industry ties[2] led to considerable skepticism[3] when his nomination was considered by the Environment and Public Works Committee.

In his opening statement (attached), he observed that the opposition to his nomination during the two days of hearings that preceded his appearance gave him "a sense that I was witnessing my own

[1] https://www.washingtonpost.com/news/energy-environment/wp/2017/02/01/neil-gorsuchs-mother-once-ran-the-epa-it-was-a-disaster/?utm_term=.1417a04c3592
[2] https://www.nytimes.com/1983/03/26/us/ruckelshaus-s-ties-split-environmental-leaders.html
[3] https://www.washingtonpost.com/archive/politics/1983/05/04/wildlife-federation-endorses-ruckelshaus-other-groups-neutral/b649ff6f-c7aa-4fee-896c-6324974f52a0/?utm_term=.13b427678ce7

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lynching." During his confirmation hearing, Mr. Ruckelshaus committed to following and enforcing environmental laws, said he would request and use the advice provided to him by EPA's career staff, and also said: "There will be no hit list. There will be no "Big P" political decisions, there will be no sweetheart deals.... I will seek help from scientists, from environmentalists, from economists, from industrialists and from the general public... Recognizing the important oversight function that Congress must play, a better dialogue and increased trust between the legislative and administering authorities in this area will be a high priority of mine."

After he was nominated, the Washington Post reported (attached) that he received "an emotional hero's welcome" from the beleaguered EPA employees as he promised that "the atmosphere of the demoralized agency will change dramatically." Within a week after he re-assumed the helm of the agency, Mr. Ruckelshaus authored the 'fishbowl memo' (attached) to establish strong transparency and ethics procedures at EPA. When he resigned in 1985, The New York Times said[4] that "he has widely been credited with restoring the morale of the career employees at the agency, bringing in a cadre of competent, experienced assistant administrators and restoring much of the agency's will and capacity to carry out the environmental laws. He also insisted that the agency's enforcement staff step up its operations against violators of the environmental laws."

Mr. Ruckelshaus recently opined,[5] of Scott Pruitt's EPA, that the "EPA should have no natural constituency but the public whose health it is mandated to protect.... the consequence of such conduct is the slow, destructive erosion of public trust in the EPA. Once trust is lost and warnings of unsafe air or contaminated water are ignored, Americans will pay the price. Without that trust, not only will people question whether they can believe their government but also business and industry will face public backlash."

Andrew, you have been granted an enormous challenge and responsibility, but an even greater opportunity. The damage Scott Pruitt has done to the Agency will not easily be undone. While you and I have not always agreed, and will not always agree, on every environmental policy matter, it is my hope and expectation that you will carefully consider the lessons of the past as you prepare to chart the Agency's future. My staff and I stand ready to help, and to that end, I request a meeting in the near future to discuss what we feel are some of the most important near-term steps you could take to restore confidence in the Environmental Protection Agency (attached).

With best personal regards, I am,

Sincerely yours,

Tom Carper
Ranking Member

[4] https://www.nytimes.com/1984/11/29/us/ruckelshaus-resigning-post-as-chief-of-the-epa.html
[5] https://www.washingtonpost.com/opinions/pruitt-is-turning-his-back-on-transparency-at-the-epa/2017/11/01/cd2c1b84-bd88-11e7-8444-a0d4f04b89eb_story.html?utm_term=.67fb14489d0a

Restoring Trust in the EPA

This is a non-exhaustive list that does not include all EPA actions that are of concern. Rather, this list represents ways to remedy some of Administrator Pruitt's most egregious proposals, practices and missed opportunities.

Restore transparency, trust and accountability

1. Provide daily, more detailed information about the activities of confirmed and other senior unconfirmed EPA officials.
2. Ensure that all policy and other decisions are properly documented in writing.
3. Respond to Freedom of Information Act requests in a complete, minimally redacted, and timely manner.
4. Respond to Congressional oversight letters in a complete, accurate, and timely manner.
5. Cease efforts to dramatically shrink, exclude, or retaliate against members of the EPA workforce.
6. Restore scientific information that was removed from EPA's website.
7. Advocate in support of a budget that appropriately reflects the agency's needs and responsibilities.
8. Ensure that environmental laws are enforced through enabling the detection and deterrence of potential violations and requiring appropriate monetary and/or environmental remedies.

Abandon legally questionable policies and proposals

1. Withdraw EPA's proposal to repeal air emission standards for glider trucks, which appears to largely benefit a single company while being opposed by the vast majority of industry, and was influenced by an industry-funded "study" that is currently the subject of an official investigation into research misconduct for failing to adhere to basic scientific standards.
2. Withdraw EPA's "secret science" proposal, which will require EPA—when developing rules—to rely only on scientific studies where the underlying data have been made public and are available to be reproduced. Such a policy would likely violate several laws that mandate the use of "best available science," including the Toxic Substances Control Act and Safe Drinking Water Act because it would require EPA to ignore some of the "best" scientific studies, and would also likely run afoul of the Administrative Procedure Act, which requires agencies to consider and respond to all information presented to it pursuant to a rulemaking.
3. Abandon efforts to complete the draft proposed rule that seeks to dramatically weaken vehicle fuel economy and greenhouse gas tailpipe standards and preempt California's authority to set and enforce its own greenhouse gas tailpipe standards (as well as that of the 12 additional states, including Delaware, that have adopted them). Instead, work to negotiate a 'win-win' solution on federal fuel economy and tailpipe emissions standards that can be supported by both the automobile industry and the State of California.

4. Implement the near-unanimously enacted Toxic Substances Control Act in a manner consistent with Congressional intent that new and existing chemical safety reviews be conducted for all uses of a chemical substance, and additionally, that proposed bans for some uses of three chemical substances be quickly finalized.
5. Follow the law when revising, implementing and enforcing rules to limit air pollution under the Clean Air Act, abandon efforts to weaken existing mercury and air toxics and ozone rules, and live up to the responsibility to protect downwind states from air pollution blown in from upwind states.

Senator STAFFORD. Thank you very much, Senator Simpson.
Mr. Ruckelshaus, we would be glad to hear your statement.

STATEMENT OF WILLIAM D. RUCKELSHAUS, ADMINISTRATOR-DESIGNATE, ENVIRONMENTAL PROTECTION AGENCY

Mr. RUCKELSHAUS. Thank you very much, Mr. Chairman and members of this committee.

I appreciate very much those kind comments that many of you have made in your charge to me to take my new assignment seriously. I watched these committee proceedings yesterday on television, and I must confess I had a sense that I was witnessing my own lynching. Here this morning, I have a sense in part that I have been at my own funeral.

Somewhere in between, I am sure, lies the real me.

Twelve years ago I appeared before this same committee and I asked the members to recommend that the full Senate confirm me as the first Administrator of the Environmental Protection Agency. I am today asking the committee to repeat its earlier vote of confidence.

The committee has amassed more information about me than I knew existed 6 weeks ago. You have all my financial data, my personal recusal statement, my work history, and virtually everything I have said, written, or thought about the environment or public health for the last 12 years. You even have every personal letter I have been able to find in my files relating to the job of Administrator of EPA, and all of this information has been furnished by me or at my direction by the organizations with which I am affiliated.

Mr. Chairman, I am about to note in passing the personal letters that the committee has. When the President announced his intention to nominate me some 6 weeks ago, I told my staff at Weyerhaeuser and elsewhere to cooperate with the committee fully, to give them anything they wanted. I gathered all of the speeches, testimony, articles that I had written. I even gathered all my personal correspondence, and I gave all that material to my staff and told them to give it to the committee. It never occurred to me, frankly, that the Committee would want my personal correspondence, but it was requested and turned over to the committee by my staff.

I didn't realize that this had happened until last Friday. By way of explanation, Mr. Chairman, of a letter that I wrote to you on Thursday enclosing some of the correspondencec that had appeared in the New York Times, I indicated to you I didn't know where it was coming from. On Friday, a member of my staff brought up the bundle he had sent and he was very proud of the fact that he had followed my instructions and turned everything over to the committee. That is how it happened.

I did find over the weekend some mention of the environment in a couple of letters that I sent to my mother which I would be glad to turn over to the committee.

She, like some other members of this committee, had a question about judgment in returning. She asked me on the phone how I could possibly take a job 10 years later in which I was not getting a promotion.

I told her she wouldn't want to hear the whole thing.

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Well, I don't believe it is possible, Mr. Chairman, for this committee to know any more about me than you now do. What you see is really what you get. I will, of course, answer any questions that you might have regarding the material that I have given you, and I would respond to any questions that might have arisen at the hearing yesterday.

In this statement I will not dwell on the record before you but instead will tell you what I plan to do if confirmed, how I intend to do it and what I hope to accomplish my second time around.

Before I start, let me make clear my personal perception of the issues the EPA was created to address. To the American people, protection of public health and our national environment embodies a terribly important and enduring set of values. The survey data I have seen and my own experience strongly indicate that Americans feel more deeply committed to the protection of public health and the environment than any people on earth.

Our country, acting through Federal, State and local governments over the past two decades, has translated that commitment into a massive network of laws and regulations to protect the health of our people, the air, water and earth that they all share. As these laws attest, the debate in this country over whether we are going to protect public health and our environment has long since ended.

I completely share our Nation's commitment to the values of public health and the environment. Since first coming to EPA in 1970, I have participated in the national dialog about how to translate those values into achievable goals. I intend, while at EPA, to continue to participate, and if confirmed, many of the same arguments I have made in the past whether in or out of the government.

Now, if I am confirmed, what do I plan to do? I discussed the nature of the Administrator's job with the President and his immediate staff before he asked me to serve. We agreed that people and resources to do the job were essential ingredients of success.

My first priority will be to recruit the best people I can find to manage the agency. I am gratified that in the last 6 weeks, there have been literally thousands of offers to help. Many have come from people who were there before who have proven themselves under fire and who are willing to disrupt their lives to help their country.

I am confident that from that group and others a superior group of people can be assembled.

As to the resources to do the job, it will be a very high priority of mine to review the existing budgetary ceilings to see if additional money or people are needed to carry out the mandate of Congress. If I conclude we need more help, working with the administraion, we will submit an amended 1984 budget request and supplemental 1983 budget request consistent with the 1984 amendments.

Many of you have expressed an interest in whether I intend to request additional budgetary authority or whether I will seek policy changes on virtually every program area the agency administers. These questions are hard, if not impossible, to answer in the abstract, and many of them I simply cannot properly respond to until I have a chance to review the policies and program needs in more detail.

I can offer some guidance on what I now see as high-priority issues. Much has been said and written in criticism of EPA's enforcement

policies. The questions seem to focus on three aspects of enforcement. The will, capacity and organization.

As to will, let me disabuse anyone who believes EPA, while I am there, will not have the requisite determination to enforce the laws as written by Congress. The environmental laws of this country were passed by Congress and were meant to be taken seriously by the administering authorities. I do take the Congressional charge seriously, and if I am confirmed, EPA will take that charge seriously.

We will enforce the laws of this country. We will be firm, and we will be fair. We must never forget that in a time of high emotion such as we now face where the public interest demands fairness in the enforcement of our law, the public good mirrored in the Bill of Rights demands that due process not be abandoned. The EPA I head will adhere to both principles.

I have asked the people now at EPA for a review of both the capacity to enforce, which is a resource question, and the organization of the enforcement function, which is a management question. I have had a preliminary response to both questions but have come to no final conclusions as to what makes the most sense for the agency.

The whole issue of toxic substances, as some of you have already mentioned, is of much greater prominence than when I was first at EPA. The law to regulate pesticides, FIFRA, was already enacted. There were provisions in the Clean Air Act and Clean Water Act that related to toxic substances, but only since I left has EPA established the basic structure to control the manufacture, distribution, use and ultimate disposal of toxic substances.

In the last 6 weeks, I have seen in the press that the number of problems, this has had an impact on me. Mr. Chairman and members of the committee, I had some feeling for the scope of this problem, but nothing like I received in the last 6 months by reviewing the clippings that EPA gets from all over the country relating to toxic substances. I have seen that the number of problems surfacing all over the country relating to toxic substances and toxic chemicals is truly staggering.

We have in place a complex set of laws and regulations to deal with the toxic substance problems. I certainly have no preconception whether these laws or regulations or the resources we have committed to their implementation are adequate. I do know that wise and aggressive implementation of these laws must be a very high priority of mine, and it will be.

There are other matters which will immediately demand my attention such as the reauthorization of most of the organic laws of EPA—8 out of 10 have expired—along with specific issues such as acid rain.

Last and certainly not least, I will make a concerted effort to harness the energies and the talents of the people at EPA toward the Agency's mission.

EPA's greatest resource today is the same as when we started: It's people. Mr. Chairman, when EPA was created in 1970, in the first 45 days of its existence, we received 250,000 applications for jobs from all over this country. That was an expression that was impressive to me at the time of the concern of the people of this country about the environment, and as best I can tell, that concerns has not diminished since.

If these people there are trusted, if they are included in and given clear guidance as to what is expected of them, they will perform to a very high standard. I will work hard, and they will work hard toward our common objective.

To carry this message of trust and reliance forward, I intend to personally visit and talk to as many people at EPA here and in the 10 regions and laboratories in the first few weeks after confirmation.

That is what I intend to do. How am I going to do it? In my judgment, it is important for this committee's deliberations to know what I intend to do. It is also important to know how I will do it.

The charges currently lodged against some of the people of EPA focus primarily on abuse of process. There are many policy differences, but the main allegations concentrate on the way the existing laws are administered. Without commenting on the substance of those charges, this committee should know how I intend to operate.

The existing laws will be administered as written. I will continue to bring to this committee's attention recommendations for change where I believe change is warranted, but in the meantime, ours remains a Nation of laws and not of men, and the laws will remain supreme.

As I did before when I was there, I will do now, and that is, operate EPA as honestly as I know how. There will be no hit list. There will be no "Big P" political decisions, there will be no sweetheart deals. We will attempt to communicate with everyone from the environmentalists to those we regulate, and we will do as openly as possible.

Mr. Chairman, I have already directed that my staff attempt to prepare—assuming this body confirms me—to prepare some guidance for how we will communicate so that it will be clear to everyone exactly how this communication can take place, and it will be as open as we know how to make it.

I will seek the best advice I can get on how to deal with the terribly complex problems EPA must confront. I will seek help from scientists, from environmentalists, from economists, from industrialists and from the general public. I hope to engage former administrators of EPA in a constant dialogue to take advantage of their collective wisdom.

Lastly, I hope to engage this committee—and I know, Mr. Chairman, every Committee that ever confirms anybody, and this body hears the same pledge made by the person they confirm, but I am going to do the best I can to live up to this pledge. I hope to engage this Committee, this Committee's staff and other committees of Congress and their staffs in a joint effort to improve our Nation's ability to respond to the mission of health and environmental problems facing EPA.

Recognizing the important oversight function that Congress must play, a better dialogue and increased trust between the legislative and administering authorities in this area will be a high priority of mine.

In the past weeks, I have given a good deal of thought to what I would like to do at EPA, what goals I would set for myself, what I would like to accomplish, and I thought it might be well to share with this committee at least my preliminary thoughts about those goals. First and foremost, the American people need to believe that the agency charged with protecting so many aspects of their health and their natural environment is staffed with first-rate people doing their very best. The problems EPA confronts are hard ones. Some of these prob-

lems just defy solution. Throughout, from the definition of the problem to its solution, the agency must deal with enormous scientific uncertainty. It often must act before it is clear what the optimum solution would be.

To function at all in such uncharted waters, the American people must trust EPA's motivation and ability. To insure that necessary trust will be a prime objective of mine.

I will endeavor to instill in the employees of EPA a sense of mission and dedication to excellence. I will try to convince them that EPA's mission must be carried out by people who recognize they are servants of the public and not their masters and by people who are as dedicated to fairness and civility to others as to excellence in themselves. An agency steeped in this tradition is a legacy to which I will aspire.

I will attempt to put a management system in place that can meet our goals effectively and efficiently. To accomplish this, EPA and all its elements must first understand our mission and objectives so we know what we are managing toward.

Most of EPA's mission and objectives are defined by statute. I would hope, working with the Congress, to create for the country a more effective legal framework to attain our goals. As I have stated, my obligation as an Administrator is to faithfully execute the laws of the country. In the process of such execution, I will seek to evaluate the impact of the law on both the intended and unintended targets.

Where I think we can lessen the effect on the unintended target without sacrificing our objectives, I will recommend change to the Congress. I did this at EPA before, and I will do it again.

As part of my effort to improve our legal framework, I intend to address the question of the role that the various levels of government play in administering our environmental and health laws.

Too much time is spent by one level of government overseeing the work of the other. With a more clear definition of understanding of who is supposed to do what and who pays for it, we could eliminate much of the public and private frustration over environmental laws. That is a tall order in our Federal system, but with a joint effort by the EPA, the Congress, and the States, more clarity and less redundancy is possible.

I will work toward gaining greater public comprehension of the complexities of managing risk in a free society. I also hope to enlist the scientific community in a more aggressive participation in the public dialog. In my view, the public needs to hear more of what the Administrator of a place like EPA hears regarding scientific uncertainty if they can be expected to support sound public policies.

I will work particularly hard to foster a better dialog between government and environmentalists and the regulated industries. The endless public and private acrimony that surrounds the mix of problems before EPA deflects energy, saps resources, and is ultimately debilitating to the whole effort. Over the last several years, I have become convinced that as Americans, we must first remember we all share this geography of our country, if we are to convince the rest of mankind that we must share and conserve the geography of our planet.

I have other goals regarding such things as developing new and accepted ways of measuring progress against our environmental and health goals and fashioning effective long-term strategies for controlling toxic substances.

I could go on, but accomplishing even a fraction of these objectives will be task enough. I will welcome suggestions from this committee regarding the what and how of my hopes.

I did not seek this job. But having decided to accept it, I am energized and excited by the challenge. If confirmed, I pledge to this committee and to the American people to do the best I can as long as I'm there.

Thank you, Mr. Chairman.

Senator STAFFORD. Thank you very much, Mr. Ruckelshaus, for your excellent opening statement.

I have conferred with Senator Randolph, and we would propose to our colleagues on the committee that we limit ourselves in the first round to 10 minutes per member for questions.

There will be as many rounds as necessary to satisfy all members of the committee. Questions which they wish to addres to Mr. Ruckelshaus will be addressed to him, and he will have a chance to respond to them. Is there objection to following that procedure?

[No response.]

Senator STAFFORD. I hear none, and that being the case, we will start. Again, Senator Randolph and I have conferred, and we would like to propose continuing the hearing today until 1 o'clock, at least, and then starting again at 10 o'clock tomorrow morning and running as long as necessary to see that the members are satisfied in connection with questions and answers.

Is there objection to following that procedure?

[No response.]

Senator STAFFORD. Before going to questions, the Chair is delighted to see that Senator Moynihan, a most valuable member of this committee, has joined us.

Senator Moynihan, do you have any opening statements that you would like to make? We would put them in an appropriate place in the record for you.

Senator MOYNIHAN. I would like to welcome my old friend, Mr. Ruckelshaus. We were together at the time of the drafting of the Executive order which created the EPA and which is still its basis. We welcome you back, sir. May I be the first to congratulate you on a superb opening statement.

Senator STAFFORD. Mr. Ruckelshaus, in my opening statement, I alluded to the fact that some decisions are entrusted by law to the Administrator of the Environmental Protection Agency and to no other person. It has long been the collective view of this committee that there are some decisions which even the President himself cannot make, even though the Administrator is a Presidential appointee. One example is the requirement of the Clean Air Act that the Administrator establish the ambient standards for air pollutants. I would like to ask you some questions regarding your view of the Administrator's independence in the administration as well as what assurances you have received, and from whom?

But first, let me make this brief observation: After the election of 1980, but before the administration had actually changed hands, David Stockman wrote an article laying out what he called a "regulatory blueprint." This article, entitled "Avoiding a GOP Economic

3/23/83
Wash. Post

RETURN

Ruckelshaus Given an Emotional Welcome By 1,000 Employes of Embattled EPA

By Dale Russakoff
Washington Post Staff Writer

William D. Ruckelshaus returned yesterday to the embattled Environmental Protection Agency, receiving an emotional hero's welcome from more than 1,000 agency employes who applauded him noisily, laughed at his jokes and hoisted a banner reading: "How do you spell relief? RUCKELSHAUS."

Ruckelshaus, the EPA's first administrator who was nominated Monday by President Reagan to return to his old post, pledged to restore public trust in the troubled agency, to make it "adhere to an iron integrity," to respect civil servants and to "administer and enforce the laws as they're written by Congress."

Those simple promises drew thunderous ovations from the employes, who crowded into Waterside Mall, where the agency is headquartered, to hear Ruckelshaus' first major address since his nomination. He did not mention his predecessor, Anne M. Burford, and made no specific commitments on policy or personnel shifts, but he appeared to be sending a message that the atmosphere of the demoralized agency will change dramatically.

The mood was reminiscent, many employes said, of the early 1970s, when the agency was founded amid a national clamor for environmental protection. Many of the EPA workers said they came to the agency as young college graduates with a sense of mission and they viewed Ruckelshaus as their comrade.

"The agency and the world were different then," said Hugh Kaufman, a self-styled "whistle blower" in the EPA toxic waste cleanup program. "In the last two years, we have been very much oppressed. We had poor management, outrageous management, potential criminal mismanagement, oppression of civil servants, a feeling that we as EPA regulators were being spat on by the White House. Seeing Bill Ruckelshaus come back is like opening the gates and tearing down the bars."

Ruckelshaus waded into the and said through tears: "I'm so happy you're back, I missed you."

Another woman put one hand on each of his shoulders and said with feeling: "The toxic waste program needs you badly." Ruckelshaus answered confidently: "Great, we're going to straighten her out."

Ruckelshaus told the employes he is convinced that Reagan "is committed to doing the job we have been assigned by Congress and to giving us adequate resources to do it," one of the few statements in the speech that was not followed by cheers. He also portrayed himself as a supporter of Reagan's positions.

Ruckelshaus indicated that he will support the administration's effort to revise the Clean Air Act and other landmark environmental laws, despite strong resistance from Congress in the last two years. White House-sponsored amendments to relax portions of the Clean Air Act have been defeated, with members of Congress denouncing them as an effort to favor industry over the public.

"We need to examine the means to achieving these goals [of environmental protection] and where we find or where we believe that better means can be used, we should ask the Congress for the authority necessary to adopt those means," he said. "In the meantime, we will administer and enforce the laws as they are written by Congress."

Interior Secretary James G. Watt said yesterday that he had talked with Ruckelshaus and was "greatly impressed with his commitment to the Reagan philosophy."

Ruckelshaus acknowledged that he had worked on behalf of many industries regulated by the EPA since leaving the Nixon administration in 1973, and said he expects close scrutiny for those ties during his Senate confirmation hearings.

As a Washington attorney he represented manufacturers of vinyl chloride and aluminum and other products. Since 1975 he has been senior vice president of the huge forest products concern, Weyerhaeuser Co. of Tacoma, Wash., named one of the nation's "Filthy Five" companies by Environmental Action, an environmentalist lobbying group.

Weyerhaeuser has contested EPA efforts to curb spraying of forests with herbicides containing toxic chemicals, including dioxin.

"My job as a lawyer was to represent my clients. My job at Weyerhaeuser was to represent all the stakeholders in that enterprise," Ruckelshaus said. "My job as EPA administrator is the same today as it was when I held that job before, and that is to represent the public interest to the best of my ability." That comment also drew loud applause.

Ruckelshaus also hinted at plans to bring in a new team of top EPA managers, but gave no specifics other than saying that Reagan "is committed to getting the best people we can find in this agency, the best people with iron integrity." Employes cheered those words as several top EPA political appointees, targets of congressional and Justice Department probes, watched quietly. They included acting EPA Administrator John W. Hernandez, Assistant Administrator John Todhunter and general counsel Robert M. Perry.

Todhunter and Hernandez came under new fire yesterday as a draft report by a House subcommittee accused them of allowing the formaldehyde industry to influence an agency decision not to regulate the suspected cancer-causing substance. Both men have denied showing favoritism toward industry.

White House officials yesterday told presidential aides to report to White House counsel Fred F. Fielding all contacts with EPA officials in the last two years, regardless of how insignificant they may seem.

The instructions came after reports that James Medas, special assistant in the White House office of intergovernmental affairs, had not reported a discussion with ousted EPA official Rita M. Lavelle on the political impact of toxic-waste cleanup decisions.

United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

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EPA

Environmental News

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FOR RELEASE: THURSDAY, MAY 19, 1983

(202) 382-4355

RUCKELSHAUS TAKES STEPS TO IMPROVE FLOW OF AGENCY INFORMATION

William D. Ruckelshaus, Administrator of the U.S. Environmental Protection Agency, today set forth a number of operating principles to carry out his pledge that EPA will operate "in a fish-bowl."

In addition, his legal staff has established a recusal system to assure his avoiding conflicts of interest and the appearance of conflicts of interest in the performance of his duties. Agency matters in which he excuses (recuses) himself from taking part will be made available to the public.

In a memorandum to all EPA employees, the Administrator said, "When I recently appeared before the Senate Committee on Environment and Public Works, I promised that EPA would operate 'in a fishbowl.' I said, 'We will attempt to communicate with everyone from the environmentalists to those we regulate and we will do so as openly as possible.'"

Ruckelshaus said he thought it was critical to set out for the guidance of all EPA employees a set of basic principles to guide their communications with the public.

Ruckelshaus' letter covers four areas: general principles, appointment calendars, litigation and formal adjudication, and rulemaking proceedings. They call for:

-- General principles. EPA will provide, in all its programs, for the fullest possible public participation in decision-making. This requires not only that EPA employees remain open and accessible to those representing all points of view, but also that

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(more) 2/8

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EPA employees responsible for decisions take affirmative steps in an open manner to seek out the views of those who will be affected by the decisions. EPA will not accord privileged status to any special interest group, nor will it accept any recommendation without careful critical examination.

He added that the guidelines would be disseminated to the public for its comments. "While this is not a formal solicitation of views, we will have a 30-day waiting period in which to receive the opinions of the public. We want to get feedback from the public because of the high and continuing degree of interest in how the agency deals with the regulated community and other affected parties."

Ruckelshaus pointed out that the principles are general in nature "because you can't cover every eventuality." But he said that even while awaiting public comment which could lead to modifications, these guidelines will be in effect as agency policy.

-- Appointment Calendars. "In order to make the public fully aware of any contacts with interested persons," Ruckelshaus wrote, "I have directed that a copy of my appointment calendar for each week be placed in the Office of Public Affairs and made available to the public at the end of the week." He added that all other key EPA officials will make their appointment calendars available in a similar manner.

-- Litigation and formal adjudication. All communication with parties in litigation must be through the attorneys assigned to the case. Program personnel who receive inquiries from parties in matters under litigation should immediately notify the assigned attorney, and should refer the caller to that attorney. Formal adjudications, such as pesticide cancellation proceedings, are governed by specific requirements to which Ruckelshaus said he would adhere and which he expected all EPA employees to meet. All adjudicatory rules governing ex parte (the interest of one party only) communications will be made available to all EPA employees and to the public to assure a policy of openness and candor.

-- Rulemaking proceedings. EPA employees must ensure that the basis for the agency's decisions appear in the record. Ruckelshaus instructed employees to be certain that all written comments received from persons outside the agency be entered in the rulemaking docket, and that a memorandum summarizing any significant new factual information likely to affect the final decision received during a meeting or other conversations be placed in the rulemaking docket.

"You are encouraged to reach out as broadly as possible for views to assist you in arriving at final rules," Ruckelshaus said. "How-

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ever, you should do so in a manner that ensures, as far as practicable, that final decisions are not taken on the basis of information which has not been disclosed to members of the public in a timely manner."

To avoid conflicts of interest or the appearance of them, a system has been established in which agency officials will use a recusal form to warn the Administrator of issues from which he should excuse himself.

Ruckelshaus has provided a list of companies in which he is in the process of divesting his financial interests as well as a list of various public institutions with which he has been associated as guidance in determining areas where conflicts of interest could exist. (lists attached.)

Gerald H. Yamada, Deputy General Counsel and the agency's chief ethics officer, said that the Administrator must, in instances where he still has a financial involvement, excuse himself. These instances are mandatory recusals covered by statute, Yamada said.

There also are discretionary recusals in which the Administrator will recuse himself because of the appearance of an impropriety or conflict of interest. Ruckelshaus' associations with public institutions, such as the Bio-Energy Council as an example, would fall into this discretionary category, Yamada said.

Some issues will be decided on a case-by-case basis. Once program officials have provided advice in discretionary matters, a final decision will be made by the Administrator, with the advice of Yamada. In a memorandum on the subject, it was noted that specific procedures must be followed to identify and track matters involving rulemaking, correspondence, litigation and enforcement, formal adjudication, policy statements, grants and contracts.

The memo on recusal to agency officials states, "When Mr. Ruckelshaus has recused himself from participating in any particular matter, your office is not to send him any written material or give him any briefings on such matters. His recusals will be made available to the public."

Yamada said the recusal system, however, does not mean that the Administrator will not be kept informed of everything that is going on at the agency. "He has to be made aware of what is happening, even if he can't participate in some of these matters," Yamada pointed out.

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In developing the guidance principles he announced today, Ruckelshaus had his staff meet with staff members of the Administrative Conference of the United States, an independent agency that develops improvements to legal procedures used by federal agencies in administering their programs. The principles are based on recommendations made by this group and EPA's Office of General Counsel.

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NOTE:

Attachment A lists those firms in which Mr. Ruckelshaus has a financial interest and is in the process of divesting himself of his financial involvement.

Attachment B is a list of public institutions with which Mr. Ruckelshaus has been associated. There may be instances involving some of these groups in which Mr. Ruckelshaus may decide to recuse himself because of the appearance of a conflict of interest.

Until Mr. Ruckelshaus finishes divesting himself of his financial interest in the firms listed on Attachment A, he is prohibited by statute from participating in any particular matter that would involve any of the firms. Once his divesiture is completed, the firms on Attachment A will be moved to the Attachment B list.

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Attachment A

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Weyerhaeuser Company (pulp and paper manufacturing, logging, wood and plywood products)
Cummins Engine Company, Inc. (diesel engine manufacturing)
Peabody International Corp. (manufacture of solid and hazardous waste cleanup equipment, manufacture of wet and dry scrubbers and electrostatic precipitators)
Nordstrom, Inc. (wearing apparel, shoes)
Pacific Gas Transmission Company (gas transmission)
U.S. West (telephone services holding company)
United Siscoe Mines, Ltd. (on-shore oil and gas extraction, gold mining)
Geothermal Kinetics, Inc. (a subsidiary of United Siscoe Mines)
SeaFirst Corp. (variety of financial services- mortgage lending, leasing, computers, insurance)
Seattle First National Bank (banking services- a subsidiary of SeaFirst Corp.)
Lincoln National Corp. (insurance services-life, health, property, pension)

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Attachment B

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AFS International/Intercultural Programs
American Enterprise Institute for Public Policy Research
American Paper Institute
American Refugee Committee
Bio-Energy Council
Conservation Foundation
Council for Public Interest Law
Council on Foreign Relations, Inc.
Council on Solar Bio Fuels
The Diet
Economic Development Council of Puget Sound
Environmental & Energy Study Institute
Environmental Law Institute
Explorers Club
Handgun Control, Inc.
Harvard University
Harvard/Monsanto Advisory Board
Indiana Academy
INFORM
Monday Club
National Business Council for ERA
National Research Council
National Victims of Crime
Pacific Science Center
Public Agenda Foundation
Resolve (Center for Environmental Conflict Resolution)
Seattle Art Museum
Seattle Chamber of Commerce
Seattle University
Twentieth Century Fund
University of Puget Sound
University of Washington
Urban Institute
U.S. Business Commission on the Reconstruction of Lebanon
Weyerhaeuser Company Archives
Weyerhaeser Company Foundation

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

3472-8

THE ADMINISTRATOR

MEMORANDUM

SUBJECT: Contacts with Persons Outside the Agency

TO: All EPA Employees

When I recently appeared before the Senate Committee on Environment and Public Works, I promised that EPA would operate "in a fishbowl." I said, "We will attempt to communicate with everyone from the environmentalists to those we regulate and we will do so as openly as possible." Therefore, I believe it is important to set out for the guidance of all EPA employees a set of basic principles to guide our communications with the public.

In formulating these principles I considered more stringent restrictions on contacts with those outside the Agency than those described below. At my request, my staff met with staff members of the Administrative Conference of the United States to discuss these issues. This organization is an independent agency that develops improvements to the legal procedures by which Federal agencies administer their programs. Based on the recommendations of the staff members of the Administrative Conference and those of the Office of General Counsel, I am convinced that restrictions beyond those set out below would unnecessarily inhibit the free flow of information and views. In adopting these flexible procedures I am relying on EPA employees to use their common sense and good judgment to conduct themselves with the openness and integrity which alone can ensure public trust in the Agency.

General Principles

EPA will provide, in all its programs, for the fullest possible public participation in decision-making. This requires not only that EPA employees remain open and accessible to those representing all points of view, but also that EPA employees responsible for

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decisions take affirmative steps to seek out the views of those who will be affected by the decisions. EPA will not accord privileged status to any special interest group, nor will it accept any recommendation without careful critical examination.

Appointment Calendars

In order to make the public fully aware of my contacts with interested persons, I have directed that a copy of my appointment calendar for each week be placed in the Office of Public Affairs and made available to the public at the end of the week. The Deputy Administrator, and all Assistant Administrators, Associate Administrators, Regional Administrators, and Staff Office Directors shall make their appointment calendars available in a similar manner.

Litigation and Formal Adjudication

EPA is engaged in a wide range of litigation, both enforcement and defensive in nature. All communication with parties in litigation must be through the attorneys assigned to the case. Program personnel who receive inquiries from parties in matters under litigation should immediately notify the assigned attorney, and should refer the caller to that attorney.

Formal adjudications, such as pesticide cancellation proceedings, are governed by specific requirements concerning ex parte communications, which appear in the various EPA rules governing those proceedings. These rules are collected and available in the Office of General Counsel, Room 545, West Tower. I will conduct myself in accordance with these rules, and I expect all EPA employees to do the same.

Rulemaking Proceedings

In either formal or informal rulemaking proceedings under the Administrative Procedure Act, EPA employees must ensure that the basis for the Agency's decision appears in the record. Therefore, be certain (1) that all written comments received from persons outside the Agency (whether during or after the comment period) are entered in the rulemaking docket, and (2) that a memorandum summarizing any significant new factual information or argument likely to affect the final decision received during a meeting or other conversations is placed in the rulemaking docket.

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You are encouraged to reach out as broadly as possible for views to assist you in arriving at final rules. However, you should do so in a manner that ensures, as far as practicable, that final decisions are not taken on the basis of information or arguments which have not been disclosed to members of the public in a timely manner. This does not mean that you may not meet with one special interest group without inviting all other interest groups to the same meeting, although all such groups should have an equal opportunity to meet with EPA. It does mean, however, that any oral communication regarding significant new factual information or argument affecting a rule, including a meeting with an interest group, should be summarized in writing and placed in the rulemaking docket for the information of all members of the public.

William D. Ruckelshaus

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Chairman John Barrasso
Ranking Member Thomas Carper
U.S. Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Barrasso, Ranking Member Carper, and Committee Members,

We write as communities of faith and conscience from diverse religious traditions, representing over 30,000 congregations across the U.S.A., to urge you to protect our communities and congregations from the devastating health effects of pollution and vote against Acting Administrator Wheeler's nomination to the position of EPA Administrator.

Mr. Wheeler's background as a coal lobbyist should be enough to disqualify him from a position whose role is to protect human health and the environment; he made his living lobbying for the very industries he would be responsible for regulating. We are concerned that, based on his record, Mr. Wheeler would enter the Administratorship with an agenda to roll back common-sense environmental safeguards and put polluters before people.

In fact, even during the current government shutdown, Acting Administrator Andrew Wheeler issued a proposal to undermine the EPA's Mercury and Air Toxic Standards by stating that they are no longer "appropriate and necessary." Mercury is a neurotoxin that impacts the most vulnerable among us: unborn babies and children. Babies exposed to mercury in the womb suffer long-term impacts on their memory, cognitive thinking, language, and fine motor skills. It's also dangerous for adults: exposure affects vital organs like the lungs, kidneys, brain, and heart.

People of faith are committed to the work of protecting life: the life of our children, the life of our elders, and the life of non-human creatures. The nomination of Mr. Wheeler is a fundamental attack on life, risking the health and wellbeing of the people, places, and communities we are entrusted by God to protect.

As people of faith and conscience, we are called to act from an ethic of love to defend the vulnerable and care for future generations. The mission of the EPA is "to protect human health and the environment." Mr. Wheeler's nomination goes against the very mission of the organization, and is anathema to the moral principles embraced by diverse religious traditions.

In your constitutional role to advise and consent, we ask you to demonstrate moral leadership to protect all walks of life and vote against Acting Administrator Wheeler's nomination to the position of EPA Administrator.

In faith,

Alabama Interfaith Power & Light

Arizona Interfaith Power & Light

California Interfaith Power & Light

Creation Justice Ministries

Delaware Interfaith Power & Light

Earth Ministry/Washington Interfaith Power & Light

Franciscan Action Network

Georgia Interfaith Power & Light

Iowa Interfaith Power & Light

Interfaith Power & Light

Interfaith Power & Light (DC.MD.NoVA)

Kentucky Interfaith Power & Light

Maine Interfaith Power & Light

Massachusetts Interfaith Power & Light

Minnesota Interfaith Power & Light

Missouri Interfaith Power & Light

Nebraska Interfaith Power & Light

New Mexico Interfaith Power & Light

North Carolina Council of Churches

Office of Social Justice, Christian Reformed Church in North America

Ohio Interfaith Power & Light

Oregon Interfaith Power & Light

Pennsylvania Interfaith Power & Light

South Carolina Interfaith Power & Light

Unitarian Universalist Ministry for Earth

Virginia Interfaith Power & Light

West Virginia Interfaith Power & Light

Wisconsin Interfaith Power & Light

July 10, 2018

The Honorable William L. Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20460

Dear Assistant Administrator Wehrum:

The Environmental Protection Agency (EPA or Agency) has indicated to the U.S. Court of Appeals for the District of Columbia Circuit its intent to address the Agency's Final Supplemental Finding for the Mercury and Air Toxics Standards (MATS) in which EPA determined that it was appropriate and necessary to regulate coal- and oil-based power plants under Clean Air Act (CAA) section 112 (Supplemental Finding). 81 *Fed. Reg.* 24,419 (Apr. 25, 2016). EPA's supplemental finding followed the Supreme Court's decision in *Michigan v. EPA*, which held that EPA must consider costs in evaluating whether it is appropriate and necessary to regulate.[1]

Driven by several factors—including customer demands, technology developments, and federal and state regulatory obligations—the electric power sector is undergoing a transition of its electric generating fleet that will continue over the next decade and beyond. Concurrent with this transition, electric companies, public power utilities, and electric cooperatives are making significant investments to make the energy grid smarter, cleaner, more dynamic, more flexible, and more secure in order to integrate and deliver a balanced mix of central and distributed energy resources.

Since the MATS rule became effective in 2012, it is estimated that the owners and operators of coal- and oil-based electric generating units (EGUs or units) have spent more than $18 billion to

[1] Litigation following EPA's supplemental finding is being held in abeyance at the U.S. Court of Appeals for the District of Columbia Circuit.

comply. These investments, parallel state requirements, other CAA programs, and non-environmental drivers have reduced mercury emissions by nearly 90 percent over the past decade. Given this investment and these emissions reductions, regulatory and business certainty regarding regulation under CAA section 112 is critical—many of these same units are part of ongoing rate reviews regarding the generating fleet operated by investor-owned electric companies. In the case of public power utilities and rural electric cooperatives (even those that are rate regulated by state commissions), compliance costs are directly borne by their customers.

To provide this certainty, the Edison Electric Institute (EEI), the American Public Power Association (APPA), and the National Rural Electric Cooperative Association (NRECA), the Clean Energy Group (CEG), the Class of '85 Regulatory Response Group, the International Brotherhood of Electrical Workers (IBEW), and the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers ask EPA to complete the statutorily mandated Residual Risk and Technology Review (RTR)[2] for power plants as expeditiously as possible. We believe a complete and robust RTR will recognize the capital investments already made for compliance and will allow the industry to continue full implementation of the MATS rule, which was completed in April 2016.

It is important to note that all covered plants have implemented the regulation and that pollution controls—where needed—are installed and operating. In traditionally regulated jurisdictions, state public utility commissions in many cases still are in the process of reviewing the cost of these controls for inclusion in rates, along with the related and ongoing operation and maintenance costs. Units that retired in part due to MATS—along with other regulatory requirements, low natural gas prices, resource planning initiatives, and a variety of other factors—have been decommissioned and cannot be reinstated. The U.S. Energy Information Administration reports that facilities representing 87.4 gigawatts (GW), or 29 percent of 2014 coal capacity, added pollution control equipment to comply with the MATS rule.[3] As noted above, the industry already has invested significant capital—estimated at more than $18 billion—in addition to these operating costs, and states are relying on the operation of these controls for their air quality plans.

Therefore, we urge EPA to move forward with an RTR for power plants under CAA section 112 and to leave the underlying MATS rule in place and effective. We also urge EPA to consider potential technical revisions to MATS—such as considering whether performance tests could be performed less frequently if units are running less frequently—while still ensuring that the standards are being achieved. We believe this approach can provide the regulatory and business

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[2] *See* CAA sections 112(d)(6) and (f)(2), which require that EPA complete the RTR by April 16, 2020.

[3] U.S. Energy Information Administration, *Coal plants installed mercury controls to meet compliance deadlines* (Sept. 18, 2017), https://www.eia.gov/todayinenergy/detail.php?id=32952. This period encompasses the time during which most coal-based generators installed pollution controls at EGUs to comply with the MATS rule's April 2015 compliance date and the one-year extension that many coal plants received to finalize their compliance strategies. By April 2016, virtually all coal- and oil-based generators completed their pollution control retrofits.

certainty our members need as they continue to provide safe, reliable, affordable, and increasingly clean energy to their customers.

Sincerely,

The Edison Electric Institute
The American Public Power Association
The National Rural Electric Cooperative Association
The Clean Energy Group
The Class of '85 Regulatory Response Group
The International Brotherhood of Electrical Workers
The International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers

* * * * * * * * *

The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 60 international electric companies, with operations in more than 90 countries, as International Members, and hundreds of industry suppliers and related organizations as Associate Members.

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 community-owned, not-for-profit electric utilities. These utilities include state public power agencies, municipal electric utilities, and special utility districts that provide low-cost, reliable electricity and other services to over 49 million Americans.

The National Rural Electric Cooperative Association (NRECA) is the national service organization for more than 900 not-for-profit electric utilities that provide electricity service to approximately 42 million consumers. NRECA members own and maintain 2.6 million miles, or 42 percent, of the nation's electric distribution lines and account for 11 percent of the total kilowatt-hours in the U.S. each year. With a commitment to contribute to the vitality and prosperity of the communities served by our members, electric cooperatives are dedicated to a healthy environment, building vibrant rural communities, and providing reliable and affordable electricity to our cooperative consumer.

The Clean Energy Group (CEG) is a coalition of electric generating and electric distribution companies that share a commitment to responsible environmental stewardship. The mission of CEG is to support and enhance the efforts of its members in understanding state and federal legislative, regulatory, and policy developments in environmental and energy areas.

The Class of '85 Regulatory Response Group is a voluntary ad hoc coalition of approximately 30 electric generating companies from around the country that has been actively involved in the development of Clean Air Act rules affecting the electric generating industry for over 28 years. The Class of '85 has written comments on all major stationary source regulations since the early 1990s, and members of the Class of '85 own and operate EGUs in approximately 35 states throughout the United States.

The International Brotherhood of Electrical Workers (IBEW) represents approximately 775,000 members and retirees who work in a wide variety of fields, including construction, utilities, manufacturing, telecommunications, broadcasting, railroads and government.

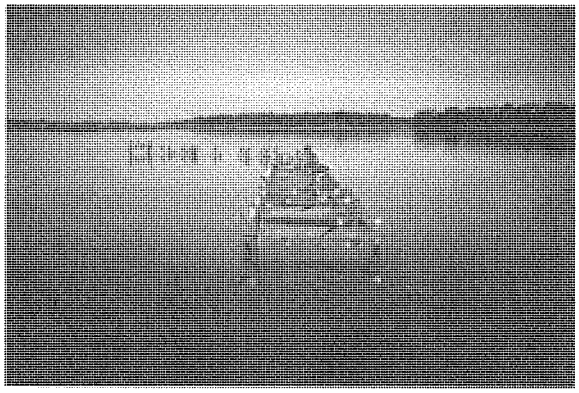
Established in 1880, the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers is a diverse union representing workers throughout the United States and Canada who are employed in industrial construction, maintenance and repair; ship building; manufacturing; railroads; cement; mining and related industries.

Vox

Why Trump wants to repeal an Obama-era clean water rule

The EPA this week revealed a plan to determine which waterways are protected by the federal government.

By Brad Plumer and Umair Irfan | Updated Dec 11, 2018, 5:23pm EST



Birds occupy a dilapidated pier on the Little Blackwater River October 9, 2014, in Church Creek, Maryland. | Mark Wilson/Getty Images

On Tuesday, the Environmental Protection Agency and the US Army Corps of Engineers presented the Trump administration's proposal to undo a major Obama-era environmental regulation, the **Clean Water Rule**.

The rule defined the "Waters of the United States," a.k.a. **WOTUS**. These are the rivers, streams, and lakes that fall under federal jurisdiction and forms the foundation of a massive piece of environmental regulation, the **Clean Water Act**.

The Obama rule, first published in 2015, was meant to clarify which streams and wetlands fall under federal clean water protections — a question that had been causing legal frustration for years.

But it triggered fierce blowback from farm and industry groups across the country. "Opponents condemn it as a massive power grab by Washington," Politico **reported**,

"saying it will give bureaucrats carte blanche to swoop in and penalize landowners every time a cow walks through a ditch." Some of those criticisms were overblown (it doesn't cover **puddles**, for instance), but the rule was widely cited by conservatives as a perfect example of EPA overreach under President Obama.

Last year, President Trump **signed an executive order** directing the EPA to begin the long process of repealing the Clean Water Rule and replacing it with ... something else.

Earlier this year, the EPA suspended the Obama rule. And on Tuesday, the agency revealed its replacement, one it said will smooth over the problems that made the 2015 regulation so contentious.

"For the first time, we are clearly defining the difference between federally protected waterways and state protected waterways," said EPA acting Administrator Andrew Wheeler in a press release. "Our simpler and clearer definition would help landowners understand whether a project on their property will require a federal permit or not, without spending thousands of dollars on engineering and legal professionals."

Molly Block
@mollyerinb

.@EPAAWheeler and Army Asst Secretary for Civil Works RD James sign the proposed new definition of #WOTUS surrounded by @SecretaryZinke and Congressional leaders

11 11:35 AM - Dec 11, 2018 · Washington, DC

See Molly Block's other Tweets

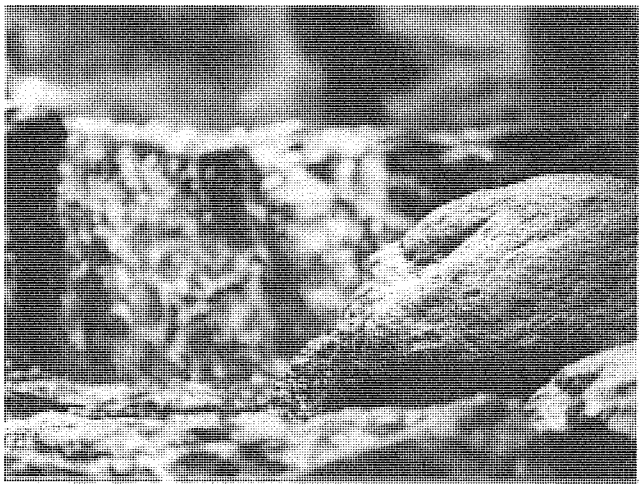
However, environmental groups said the new definition would cut the number of waterways the federal government must regulate, leaving them vulnerable to pollution. It excludes, for example, waterways that flow only for parts of the year, like after rainstorms while snow melts.

"This sickening gift to polluters will result in more dangerous toxic pollution dumped into waterways across a vast stretch of America," said Brett Hartl, government affairs director at the Center for Biological Diversity, in a statement. "The Trump administration's radical proposal would destroy millions of acres of wetlands, pushing imperiled species like steelhead trout closer to extinction."

EPA officials said they didn't know just how many waterways would be excluded from federal jurisdiction under the new proposal. However, a document obtained by **E&E News** showed that the EPA and the Army Corps had estimated last year that 18 percent of streams and 51 percent of wetlands would not receive federal protections under the revisions.

Tuesday's announcement is only the beginning of a long regulatory and legal process. The EPA is taking comments on the proposal for 60 days and will host a listening session in Kansas City, Kansas, in January. In the meantime, it's worth understanding how WOTUS became so controversial and what it means for huge swaths of the country. Here's what you need to know.

What the Waters of the US rule actually does



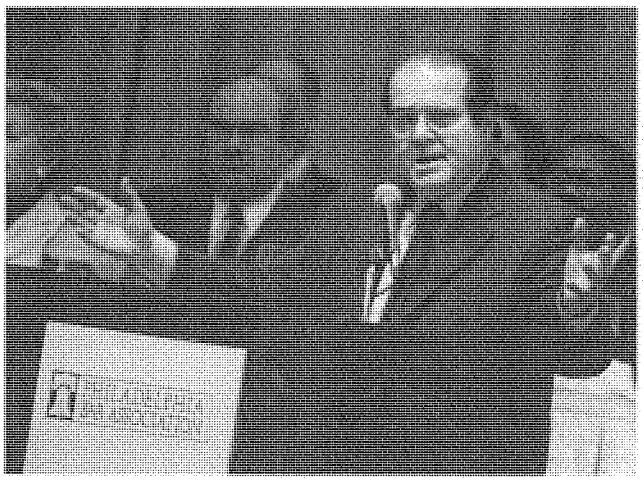
Caught between a rock and a tributary place. | Shutterstock

To understand this rule, we need to go back to 1972, when Congress passed the **Clean Water Act**. That law features dozens of regulations and permitting requirements for anyone discharging pollution into the "waters of the United States" in a way that could affect human health or aquatic life. These rules apply to factories, power plants, golf courses, new housing developments — and much, much more.

For example, under the law, a facility storing oil that could leak needs to prepare a spill prevention plan aimed at minimizing discharges. If the facility is far away from any "waters of the United States," however, it doesn't face these requirements.

But here's the tricky part. The Clean Water Act doesn't precisely define what "waters of the United States" means. That's left to the EPA and the Army Corps of Engineers. And it's a hard question. For instance, the law is clear that major navigable rivers and lakes and any connected waterways should be protected. That includes major rivers like the Mississippi River, the Colorado River, and the Ohio River. But what about waterways that are only *loosely* connected? What about the 60 percent of streams that are dry for part of the year but then connect when it rains? Any pollution dumped into those waters could affect key ecosystems. Should they be regulated?

In the 2000s, this uncertainty led to a pair of Supreme Court decisions that only ended up creating more bewilderment. In a split decision in ***Rapanos v. United States*** in 2006, Justice Anthony Kennedy argued that Clean Water Act protections applied to wetlands that "significantly affect the chemical, physical, and biological integrity of other covered waters." But Justice Antonin Scalia argued that protections only applied to wetlands "with a continuous surface connection" to navigable water — a far smaller number of wetlands. And it wasn't totally clear which opinion took precedence.



What'd I do? | William Thomas Cain/Getty Images

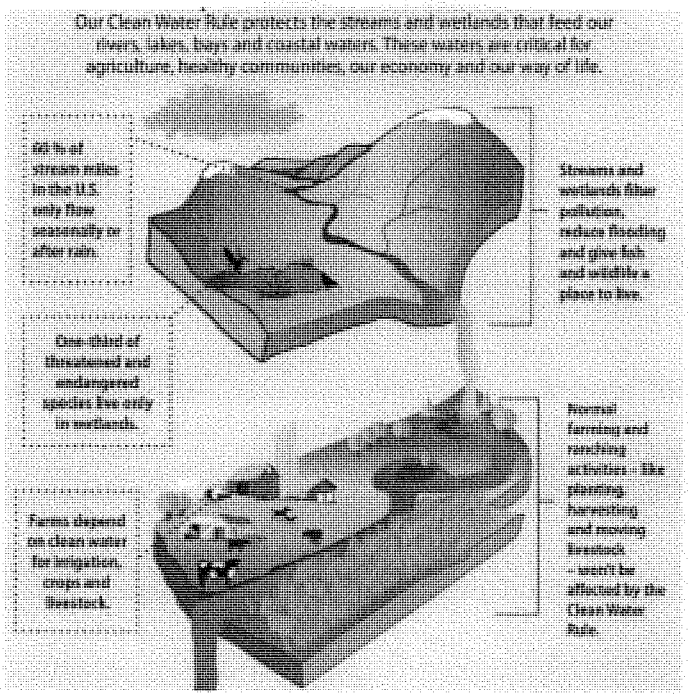
"The short answer is that the state of post-*Rapanos* wetlands jurisdiction is a mess," Richard Frank of the University of California Davis **told** Greenwire in 2011. In the ensuing years, whenever a dispute arose over whether a landowner — be it a housing developer, a golf course, a farm, or what have you — needed a Clean Water Act permit or not, courts had to resolve it on a case-by-case basis.

So under Obama, the EPA and Army Corps of Engineers tried to bring clarity to the matter. They sifted through more than 1,200 scientific papers to figure out which types of bodies of water were important to aquatic ecosystems and therefore deserved protection, per Kennedy's opinion.

The final **Waters of the US rule**, published in June 2015, outlined which bodies of water were automatically covered by the Clean Water Act — requiring permits for discharges or dredging or dirt fill — and which ones still needed to be dealt with on a case-by-case basis. **For instance**:

- In the past, tributaries of navigable rivers were evaluated on a case-by-case basis. But under the new rule, they're automatically protected if they have a bed, a bank, and a high-water mark. This includes many streams that are dry for part of the year. Waterways without these features are still dealt with case by case.
- Wetlands and ponds are now automatically covered if they're within 100 feet or within the 100-year floodplain of a protected waterway. Otherwise, it's case by case.
- Certain "isolated" waters that are not connected to navigable waters now get automatic protection if they have a "significant nexus" to protected waters — like the **vernal pools of California**.

The rule also explicitly exempted a number of bodies of water often found on farms, such as puddles, ditches, artificial ponds for livestock watering, and irrigation systems that would revert to dry land if irrigation were to stop. Here's a graphic:



(EPA)

For its part, the EPA argued that this rule didn't significantly expand the waters under its jurisdiction. Rather, it created more certainty **for about 3 percent** of the nation's waterways — to avoid bringing cases to court every time there was a legal gray area. According to the EPA, the rule offered clearer protection to upstream bodies of water that contribute to drinking supplies for one-third of the population.

Before the rule came out, few who worked on it expected widespread blowback. "This rule will provide the clarity and certainty businesses and industry need about which waters are protected by the Clean Water Act," Obama said when the final rule was announced. But things turned out very differently.

Why the Waters of the US rule became so controversial

Opponents of the rule — particularly farming and ranching groups — clearly didn't buy the EPA's line that this was only a technical update. Nor were they comforted by the EPA's exemptions for agriculture. Instead, they called it a power grab.

"The agency is making it impossible for farmers and ranchers to look at their land and know what can be regulated," **argues** the American Farm Bureau Federation on its site. "EPA has vastly expanded its authority beyond the limits approved by Congress and affirmed by the U.S. Supreme Court."

Some Western farmers, for instance, fretted about the open, unlined canals they use to irrigate their lands during the growing season. These systems divert water from streams, serve as water sources for wildlife, and can connect to larger bodies of water elsewhere. As Reagan Waskom and David Cooper of Colorado State University **explain**, farmers and ranchers feared that these canals would fall under the rule's definition of "tributary" and might have to be replaced by costly pressurized pipes. Or, alternatively, that fertilizer use near these waterways would be more strictly regulated.

Water stands in an irrigation canal at a sod farm on August 8, 2014, in Lodi, California. | Justin Sullivan/Getty Images

Defenders of the rule dismissed these scenarios. Jon Devine, a lawyer with the Natural Resources Defense Council, pointed out that the Clean Water Act has always regulated agriculture lightly. "This rule doesn't really change those exemptions," he says. Indeed, one

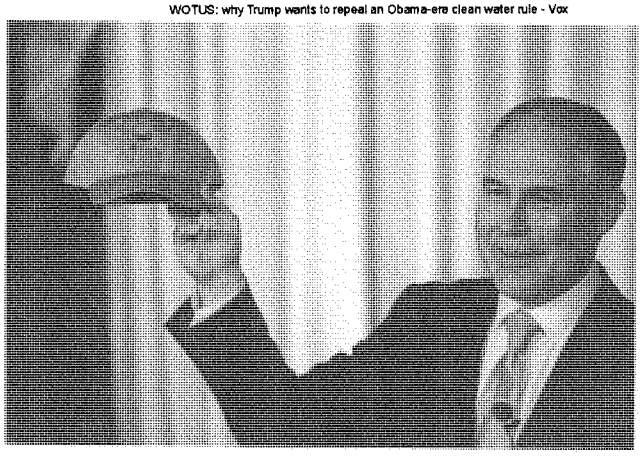
recent study found that the EPA's jurisdiction over farms actually shrank under the new rule.

The EPA was also pretty explicit that it wouldn't target farmers. "We will protect clean water without getting in the way of farming and ranching," then-EPA Administrator Gina McCarthy **told** the National Farmers Union in 2015. But few farmers or ranchers believed her. Their argument was that the rule was vague enough that the EPA could crack down on them if it chose. It's basically a question of trust. And at the moment, conservatives are not particularly inclined to trust the EPA.

Joni Ernst, a Republican senator from Iowa, made that clear in former EPA Administrator Scott Pruitt's confirmation hearing in 2017. "My constituents tell me the EPA is out to get them rather than work with them and there is a huge lack of trust between many of my constituents and the EPA," she **said**. "If we take a look specifically at the WOTUS rule, Iowans truly feel that the EPA ignored their comments and concerns, threw them under the rug and then just moved forward."

However the backlash started, it took on a life of its own. Trump began citing the water rule on the campaign trail as an example of EPA overreach, earning cheers from rural audiences. In signing his executive order in March, he called it a "destructive and horrible rule."

Why it will be difficult — but not impossible — for the EPA to undo the Obama-era WOTUS rule completely



Former EPA Administrator Scott Pruitt couldn't unto the Clean Water Rule on his own, but he could put it on hold. | Aaron P. Bernstein/Getty Images

Pruitt delayed the Obama WOTUS rule's implementation for **two years**, buying the EPA time to come up with an alternative.

But implementing a new definition for WOTUS requires proposing a new rule that's supported by extensive scientific and legal arguments, opening up the proposal for public comments, responding to those comments, and then defending the final rule in court as a superior approach. This could take years.

And much of the ambiguity around which waterways deserve Clean Water Act protection still holds even if you repeal the Obama rule. Which wetlands are covered? How do you deal with streams that flow part of the year? How do you interpret that mess of a Supreme Court decision in 2006?

In his executive order, Trump asked the EPA to consider Scalia's opinion in *Rapanos*, which extended protection to wetlands only if they had a "continuous surface connection" to navigable waterways and extended protection to streams only if they were "relatively permanent." So it's not surprising that acting EPA Administrator Wheeler's replacement rule would cover far fewer waterways — leaving out, for instance, many of the 60 percent of streams that don't flow year-round.

Environmental groups say that's a problem. Devine argues that polluters could take advantage of a weaker rule with less certain protection for streams and waterways. As long as there's ambiguity about where the Clean Water Act applies, it would be harder for citizen groups or the Department of Justice to bring a case against companies dumping chemicals or other pollutants into smaller bodies of water upstream.

"Without this rule, enforcement has been unpredictable," Devine says. "The EPA has mainly been focused on big rivers and lakes so that they wouldn't have to litigate to the ends of the earth about whether the Clean Water Act applied to waters upstream. But if you can only regulate the biggest rivers and lakes — and the pollution problem is much farther upstream — then you're not effectively protecting the receiving water or the watershed."

Still, it's not clear that the EPA *can* scale back the water rule significantly. Federal courts have typically embraced Kennedy's more expansive interpretation of the Clean Water Act rather than Scalia's, and any rollback of Obama's rule would still leave plenty of legal gray areas where the courts will need to decide on a case-by-case basis whether the Clean Water Act applies. "It's going to be incredibly complex to figure this out," says Richard Revesz, a professor of environmental law at New York University.

Further reading:

- Repealing the clean water rule is only step one for Trump. He's also targeting Obama's signature climate policy, the Clean Power Plan. Read **here for more** on how he might do that.
- The EPA is also rolling back restrictions on **major sources** of toxic air pollution.

Senator CARPER. Thank you.

Senator BARRASSO. And members may submit follow up questions for the record. By 5 p.m. is the deadline, Friday, January 18th. I will need you to respond to the questions by 5 p.m., Friday the 25th of January.

I want to thank the nominee for his time, his testimony today.

That concludes the hearing. The hearing is adjourned.

[Whereupon, at 2:42 p.m., the hearing was concluded.]

[Additional material submitted for the record follows:]

January 28, 2019

The Honorable John Barrasso
The Honorable Thomas Carper

Dear Chairman Barrasso & Ranking Member Carper,

We, the undersigned organizations, write in support of Andrew Wheeler to be the next permanent Administrator of the U.S. Environmental Protection Agency (EPA). We ask the Environment and Public Works Committee to move swiftly to confirm his nomination.

Growing crops, producing livestock and managing forests are challenging ways to make a living with a broad range of uncertainties including new and ever evolving pests and pathogens, unpredictable weather events and changing market dynamics. Farmers, livestock producers and foresters need a regulatory system that allows them to respond to these challenges and mitigate the risks that are inherent to agriculture. EPA has a significant role in approving the tools, innovations and mitigations that growers and livestock producers need to respond to the inherent uncertainties. The approval of innovative practices and tools require a rigorous assessment and evaluation by the EPA and must be overseen by an Administrator capable of leading the Agency and its staff in pursuit of assessments and decisions based in sound and reproducible science.

Fortunately, Mr. Wheeler is eminently qualified for the role of Administrator and has exhibited so during his time as the Acting Administrator. His previous experience as a career employee of EPA and time spent as staff director and legal counsel of the Senate committee with the most expansive jurisdiction over EPA have undoubtedly prepared him for the broad and complex regulatory obligations of the Agency.

It is hard to imagine a more qualified individual for the role of EPA Administrator and we respectfully request that the Committee move to confirm his nomination so that he may be considered by the full Senate at the earliest date possible.

Thank you for your time and consideration of this important issue.

Sincerely,

Agricultural Retailers Association
AMCOT
American Farm Bureau Federation
American Feed Industry Association
American Seed Trade Association
American Sesame Growers Association
American Sheep Industry Association
American Soybean Association
American Sugar Alliance
American Sugarbeet Growers Association
American Wood Council
AmericanHort
Association of Equipment Manufacturers
Calcot
California Fresh Fruit Association
California Specialty Crops Council
California Wool Growers Association
Carolinas Cotton Growers Cooperative
Cherry Marketing Institute
Colorado Sorghum Producers Association
Cotton Warehouse Association of America
Council of Producers and Distributors of Agrotechnology
Delta Council
Edge Dairy Farmer Cooperative
Florida Fruit and Vegetable Association
Georgia Agri-Business Council
Georgia Cattlemen's Association
Georgia Farm Bureau
Grain and Feed Association of Illinois
Kansas Grain Sorghum Producers Association
National Agricultural Aviation Association
National Alliance of Forest Owners
National Association of Wheat Growers
National Cotton Council
National Council of Farmer Cooperatives
National Milk Producers Federation
National Onion Association
National Pest Management Association
National Potato Council
National Sorghum Producers
National Turkey Federation

New Mexico Sorghum Association
Northwest Horticultural Council
Oklahoma Grain and Feed Association
Oklahoma Sorghum Association
Panhandle Peanut Growers Association
Plains Cotton Cooperative Association
Society of American Florists
South Carolina Peach Council
Southeastern Lumber Manufacturers Association
Southwest Council of Agribusiness
Staplcotn
Supreme Rice Mil
Tennessee Nursery and Landscape Association
Texas Citrus Mutual
Texas Grain Sorghum Association
TRC Trading
United Egg Producers
US Apple Association
US Rice Producers Association
USA Rice Federation
Western Growers
Western Peanut Growers Association

American Exploration &
Mining Association

10 N Post St. Ste. 305 | Spokane WA 99201-0705
P. 509.624.1158 | F. 509.623.1241
info@miningamerica.org | www.miningamerica.org

January 25, 2019

The Honorable John Barrasso
United States Senate
Washington DC 20510

The Honorable Tom Carper
United States Senate
Washington DC 20510

Dear Chairman and Ranking Member:

On behalf of the 1,700 members of the American Exploration & Mining Association (AEMA) we urge your support for the appointment of Andrew Wheeler as Administrator, U.S. Environmental Protection Agency (EPA). Mr. Wheeler is highly qualified for this position. His past service as the Deputy Administrator, as well as for Sen. Inhofe and as chief counsel for the Senate Environment and Public Works Committee has prepared him for this critical position.

Mr. Wheeler has demonstrated his effectiveness as a leader of the EPA. He has earned the respect of the many dedicated employees at EPA, the regulated community, and the public. His dedication to ensuring a clean environment while allowing responsible economic activity has been clearly demonstrated throughout his tenure. We urge you and your colleagues to support his nomination.

AEMA is a 123-year old, 1,700-member national association representing the minerals industry with members residing in 42 U.S. states. AEMA is the recognized national voice for exploration, the junior mining sector, and maintaining access to public lands, and represents the entire mining life cycle, from exploration to reclamation and closure. Our members work closely with EPA on necessary permits and to ensure that modern mining is environmentally responsible mining.

Thank you.

Yours truly,

Laura Skaer
Executive Director

Mark Compton
Executive Director (Incoming)

John Smaby
2019 President

Bob Goldberg
Chief Executive Officer

ADVOCACY GROUP
William E. Malkasian
Chief Advocacy Officer/Senior Vice President

Shannon McGahn
Senior Vice President Government Affairs

500 New Jersey Avenue, NW
Washington, DC 20001-2020
Phone 202-383-1194
WWW.NAR.REALTOR

January 15, 2019

The Honorable John Barrasso
Chair
Senate Committee on Environment and Public Works
307 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Tom Carper
Ranking Member
Senate Committee on Environment and Public Works
513 Hart Senate Office Building
Washington, DC 20510

Dear Chair Barrasso and Ranking Member Carper:

On behalf of the 1.3 million members of the National Association of REALTORS® (NAR), I would like to express NAR's support for the nomination of Andrew R. Wheeler to be the Administrator of the Environmental Protection Agency (EPA). Furthermore, NAR asks that the Senate Committee on Environment and Public Works vote to approve Mr. Wheeler's nomination and move it to the floor of the Senate soon as possible.

Mr. Wheeler is well qualified for this position. He has served as the Acting Administrator since July 2017, and started his career at the agency, working on toxic chemical, pollution prevention and right-to-know issues. He worked on the Senate Committee on Environment and Public Works, serving as majority staff director, minority staff director and chief counsel. In those roles, Mr. Wheeler worked on every major piece of environmental and energy-related legislation before Congress during that time, including the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007 and the Clean Air Interstate Rule.

NAR worked with Mr. Wheeler during his tenure on the Senate Environment and Public works Committee and appreciated his professionalism, his work ethic and his dedication to working on important policy issues in a bipartisan and balanced manner.

NAR urges the Senate Committee on Environment and Public Works to approve Andrew R. Wheeler as the Administrator of the EPA and move the nomination to the floor of the Senate so that one of the Administration's senior advocates for environmental protection can begin his important work on behalf of the country.

Sincerely,

John Smaby
2019 President, National Association of REALTORS®

cc: Senate Committee on Environment and Public Works

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January 25, 2019

The Honorable John Barrasso
Chairman
Senate Committee on Environment
and Public Works
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member
Senate Committee on Environment
and Public Works
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

The National Cattlemen's Beef Association (NCBA) and the Public Lands Council (PLC) urge you to support the prompt confirmation of Andrew Wheeler as the Administrator of the U.S. Environmental Protection Agency (EPA). NCBA is the cattle industry's largest and oldest national trade association, representing American cattle producers who manage a large part of America's private property. PLC is the only national organization representing the 22,000 western ranchers who hold federal grazing permits and care for over 250 million acres of federal public lands.

As Deputy Administrator, Mr. Wheeler has proven to be a capable EPA official, weighing multiple priorities and finding common ground on politically divisive issues. His background as an EPA staffer and his experience directing the staff of the Senate Environment and Public Works Committee informs his bipartisan perspective on federal environmental policy.

Mr. Wheeler successfully navigated the confirmation process one year ago and we expect he will do so again. Please do not delay the process. We urge you to act promptly on his confirmation.

Sincerely,

Kevin D. Kester

Kevin Kester
President
National Cattlemen's Beef Association

Bob Skinner

Bob Skinner
President
Public Lands Council

PCA
America's Cement Manufacturers™

Portland Cement Association
1150 Connecticut Avenue, NW, Suite 500
Washington, DC 20036-4104
202.408.9494 Fax 202.408.0877
www.cement.org

January 15, 2018

The Honorable Mitch McConnell
Majority Leader
S-230, The Capitol
Washington, D.C. 20510

The Honorable Charles Schumer
Minority Leader
S-221, The Capitol
Washington, D.C. 20510

The Honorable John Barrasso
Chairman
Environment and Public Works Committee
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member
Environment and Public Works Committee
456 Dirksen Senate Office Building
Washington, D.C. 20510

Majority Leader McConnell, Minority Leader Schumer and Senators Barrasso and Carper:

The Portland Cement Association (PCA) strongly supports President Donald Trump's nomination of Acting Environmental Protection Agency (EPA) Administrator Andrew Wheeler to officially serve as next Administrator of the EPA.

PCA, founded in 1916, is the premier policy, research, education, and market intelligence organization serving America's cement manufactures. PCA's members represent 93 percent of the Unites States' cement production capacity and have facilities in all 50 states. Cement and concrete product manufacturing, directly and indirectly, employs approximately 600,000 people in our country, and our collective industries contribute over $100 billion on our economy. Portland cement is the fundamental ingredient in concrete. The association promotes safety, sustainability, and innovation in all aspects of construction fostering continued improvement in cement manufacturing and distribution and promotes economic growth and sound infrastructure investment.

Acting Administrator Wheeler's leadership skills and professional qualifications in the public and private sectors make him the ideal candidate for this post. If confirmed, he will bring years of experience and knowledge to the role. Given his extensive background in the regulatory field and knowledge of environmental law, Mr. Wheeler will be an asset to the broader manufacturing industry as he leads thoughtful strategy and process for smart growth in American industries, while protecting the environment.

Most notably, Mr. Wheeler's current tenure as Deputy Administrator and Acting Administrator lends to a strong foundation of institutional knowledge and an opportunity of seamless transition to leadership. PCA asks you to support the nomination of Acting Administrator Andrew Wheeler to serve as Administrator of the Environmental Protection Agency.

Sincerely,

Rachel Derby,
Vice President, Government Affairs
Portland Cement Association

The Washington Post

Letters to the Editor Opinion

The importance of the Chesapeake Bay's health cannot be overstated

By Letters to the Editor
January 13

After we have invested almost $20 billion to clean up the Chesapeake Bay, it's dismaying that the bay's health is declining for the first time in a decade ["Rainy year degrades health of Chesapeake Bay," Metro, Jan. 8].

Runoff from farms and development — washing nitrogen, phosphorus, sediment and other chemicals into the bay — is one of the principal culprits. Yet if, as it has proposed, the Environmental Protection Agency cuts Clean Water Act protections to wetlands and small streams, which naturally filter runoff pollution, the bay's health will suffer. On the Eastern Shore alone, for example, more than 34,000 acres of wetlands called Delmarva potholes could lose federal protections, opening them up to agricultural conversion or other development, according to a recent report by the Environmental Integrity Project.

To continue to make progress cleaning up the bay and other waterways, the EPA must maintain the Clean Water Act's long-standing protections for wetlands and streams.

Ed Hopkins, Washington

I think it is safe to say that the Chesapeake Bay nonprofit community took a collective sigh of relief after reading the Chesapeake Bay Foundation's State of the Bay report. While a D-plus is not something that we are striving for, nor are happy about, the reality is that we all thought it might be much worse.

Last year, this region saw record rainfall, with Washington and other cities in the watershed recording their wettest years on record. Pennsylvania received so much rain that the Conowingo Dam's gates were opened multiple times, releasing incredible amounts of water filled with debris and nutrient and sediment pollution into the bay. However, despite all of this, the bay's health score dropped by only one point. This is what we have been hoping for — that the bay would not only be restored but be resilient, too. This is especially important as our region experiences an increase in intensity and frequency of major storms because of climate change.

This report demonstrates that the work we are doing for the Chesapeake is making a difference and that now is not the time to slow down.

Chanté Coleman, Annapolis

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