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S. HRG. 116–214

HEARING TO EXAMINE S. 2662, THE GROWING AMERICAN INNOVATION NOW (GAIN) ACT

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

NOVEMBER 6, 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 TO EXAMINE S. 2662, THE GROWING AMERICAN INNOVATION NOW (GAIN) ACT

WEDNESDAY, NOVEMBER 6, 2019

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

The Committee met, pursuant to notice, at 10:06 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Carper, Inhofe, Capito, Cramer, Braun, Rounds, Sullivan, Boozman, Ernst, Cardin, Gillibrand, Markey, and Van Hollen.

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

Senator BARRASSO. Good morning. I call this hearing to order.

Today, we are here to discuss S. 2662, the Growing American Innovation Now Act, or the GAIN Act. This bill would bring long overdue legislative reform to the Clean Air Act's New Source Review program.

The New Source Review program protects air quality when industrial boilers, factories, and power plants are modified or newly built. The GAIN Act provides much needed clarity to factory and power plant owners, as well as to State permitting officials, about when permits are needed.

The New Source Review program was originally designed to support pollution control projects and upgrades. It has actually had the opposite effect.

In its current form, the program is complex, it is costly, it is time consuming. The program directly slows economic growth. It slows jobs creation, it slows technical innovation, as well as the ability to modernize our American industry and infrastructure.

The Portland Cement Association submitted a letter to the Committee outlining the extreme burden that New Source Review places on its members. The association explained that "A member company sought a permit to combust alternative fuels. The EPA Regional Office insisted that permitting to burn alternative fuels automatically triggered NSR permitting. After going through a costly, lengthy, and burdensome process, the EPA Regional Office concluded that the project was not required to go through NSR permitting. It took 5 years to go through this process."

Five years to figure out that you do not need a permit. Simply unacceptable.

So I ask unanimous consent to enter the letter into the record.

And without objection, it is done.
[The referenced information follows:]

PCA Since 1916
America's Cement Manufacturers™

Portland Cement Association
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Washington, DC 20036-4104
202.408.9494 Fax 202.408.0877
www.cement.org

October 24, 2019

The Honorable John Barrasso
Chairman
Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

The Honorable Tom Carper
Ranking Member
Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

I am writing on behalf of the Portland Cement Association to share our support for the Growing American Innovation Now Act (GAIN Act) that seeks to modernize the New Source Review Program (NSR). We believe this legislation is an integral part of that effort and ensures balance between providing necessary environmental protections and encouraging economic growth.

PCA, founded in 1916, is the premier policy, research, education, and market intelligence organization serving America's cement manufacturers. PCA members represent 92 percent of the United States' cement production capacity and have distribution facilities in every state in the continental U.S. Cement and concrete product manufacturing, directly and indirectly, employs approximately 610,000 people in our country, and our collective industries contribute over $125 billion to our economy. Portland cement is the fundamental ingredient in concrete. The Association promotes safety, sustainability, and innovation in all aspects of construction, fosters continuous improvement in cement manufacturing and distribution, and promotes economic growth and sound infrastructure investment.

Portland cement is not a brand name, but the generic term for the type of cement used in virtually all concrete. Concrete forms when portland cement is mixed water, and aggregate (sand and rock), and allowed to harden. Cement holds the concrete together and has a role similar to flour in a cake mix. Concrete is the most-utilized material after water in the world; the U.S. uses about 260 million cubic yards of concrete each year. It is used to build highways, bridges, runways, water & sewage pipes, high-rise buildings, dams, homes, floors, sidewalks, and driveways.

By way of brief background, understanding the cement production process is essential for understanding the extensive environmental regulations that the industry complies with and its role in the economy. Cement is manufactured through a tightly controlled chemical combination of calcium, silica, aluminum, iron and other minor ingredients. These chemicals are commonly derived from limestone, chalk, or marl, combined with shale, clay, slate, blast furnace slag, silica sand, and iron ore. These materials are heated to high temperatures, 2700°F or more, until they liquefy and become clinker. Once cooled, gypsum is added to the clinker, and the product is

ground into the fine powder that becomes portland cement. Cement manufacturing is an energy-intensive process that depends on carefully balanced chemistry and physics. Cement plants are large, complex systems stretching hundreds of feet, with carefully calibrated environmental controls. One change to one system, particularly for environmental compliance, affects the entire production process. Cement plants can cost several hundred million dollars to build, with the largest plants exceeding $1 billion, including millions of dollars of investment in emissions monitoring and control equipment and associated operational expenses.

PCA and the cement industry have supported appropriate and necessary regulatory measures aimed at reducing harmful air pollution. PCA's members comply with a variety of environmental regulations, including stringent air emissions requirements that are part of their permits, which can require tens of millions of dollars in emission control equipment and associated operating expenses. PCA members are committed to environmental stewardship and sustainable operations as responsible members of their communities. For example, PCA's members have been on the forefront of undertaking voluntary efforts to contribute to a cleaner environment through increased plant efficiency and the use of alternative fuels such as scrap tires, used motor oils, petroleum sludge, and other waste materials that would otherwise go to landfills or incinerators.

Such sustainability, efficiency, and operational improvements often requires PCA members to undertake, or at the very least consider, modifications to their facilities. Many current EPA policies governing New Source Review (NSR) can discourage, if not prevent, our members from making beneficial improvements to their facilities and operations.

The New Source Review Program (NSR), established under the Clean Air Act (CAA) Amendments of 1977, was intended to ensure that "modifications" to facilities did not "significantly increase" emissions. The NSR statutory provision was measured in scope, and contained a common-sense exemption for "routine maintenance." In practice, the well-intentioned law did not provide adequate specificity for keywords and phrases used to trigger or preclude review, resulting in inconsistent application of the program by the Environmental Protection Agency (EPA), delayed maintenance, investment, and process improvements by manufactures, and an unduly lengthy and burdensome permitting process. These statutory flaws have had real and negative consequences for both the industry and the environment.

In one instance, a member company sought a permit to combust alternative fuels, which often end up in landfills. The EPA Regional Office insisted that permitting to burn alternative fuels automatically triggered NSR permitting, despite the fact that it was only a change to the method of operation and likely would result in decreased emissions. After going through a costly, lengthy, and burdensome process to develop stack testing results with and without alternate fuels to prove what the Company had already determined, the EPA Regional Office concluded that the project was not required to go through NSR permitting. It took five years to go through the permitting process.

The GAIN Act will improve the NSR program by clarifying the definitions for "modification" and "construction." This bill is an essential legislative step towards addressing the EPA's inconsistent approach to the program. Should this legislation become law, we encourage Congress to provide strict oversight of the EPA's implementation to ensure the agency does not

use it to justify additional monitoring, recordkeeping, or emissions limits beyond what the CAA already requires. Plainly, this legislation will give manufacturers the certainty they need to plan investments in their businesses. Only now, the cement industry is beginning to recover from the harm of the recession, and this legislation is a step towards robust economic growth.

PCA appreciates the opportunity to share our member's perspectives on the GAIN Act. We look forward to working with the committee on its efforts to modernize the New Source Review Program.

Sincerely,

Sean O'Neill
Senior Vice-President, Government Affairs
Portland Cement Association

Senator BARRASSO. Such permitting uncertainty and delays discourage key upgrades that would otherwise be good for the economy and the environment. Last year, a group of seven unions wrote to the Committee urging New Source Review reform legislation. These seven unions that wrote state, "The New Source Review program adversely impacts American workers by creating a strong disincentive to undertake projects that can improve the efficiency and productivity of existing utility and industrial plants, ranging from steel and chemicals to refineries."

I am going to enter that letter into the record without objection as well.

[The referenced information follows:]

The Honorable John Barrasso
Chairman
Environment & Public Works Committee
United States Senate
410 Dirksen Senate Ofc. Bldg.
Washington, DC 20510

The Honorable Thomas R. Carper
Ranking Member
Environment & Public Works Committee
United States Senate
456 Dirksen Senate Ofc. Bldg.
Washington, DC 20510

RE: NEW SOURCE REVIEW PROGRAM

Dear Chairman Barrasso and Ranking Member Carper:

We are writing to express support for legislation designed to improve EPA's New Source Review (NSR) program. The NSR program was enacted some 40 years ago in the Clean Air Act Amendments of 1977, at a time when the nation faced the threat of rising air pollution levels in many areas. The Clean Air Act has since led to dramatic reductions of air pollutants and improvements in air quality across the country.

NSR generally has worked well to ensure that new industrial and utility sources are equipped with the best available control technology. However, its application to existing sources has led to a complex welter of EPA regulations and court rulings that have strangled investment in energy efficiency and other plant modernizations.

As enacted, the NSR program was intended to ensure that "modifications" to facilities did not "significantly increase" emissions. The statute contains a common-sense exemption for routine maintenance activities. Subsequent EPA regulations and court decisions have constrained the ability of facility owners to invest in needed plant modernization without triggering onerous NSR provisions, including elaborate air quality modeling and plantwide application of best available control technologies for all regulated pollutants.

The NSR program adversely impacts American workers by creating a strong disincentive to undertake projects that can improve the efficiency and productivity of existing utility and industrial plants, ranging from steel and chemicals to refineries. The disincentive to undertake such projects results from the burdensome regulatory consequences of triggering NSR review.

As EPA moves forward with a replacement to the Clean Power Plan, the nation needs strong incentives to undertake efficiency projects at fossil-fueled generating plants that can cost-effectively reduce CO_2 and other air emissions. Major efficiency improvement projects at existing power plants, such as boiler and generator upgrades, would greatly reduce CO_2 emissions because less coal would be used to produce each kilowatt-hour of electricity. Other types of efficiency improvement projects include the installation of more efficient auxiliary drive motors and replacement of degraded boiler components. These investments would create substantial new job opportunities while enhancing the overall reliability of the electric generation fleet.

Legislation also is needed to streamline the emissions permitting practices for routine maintenance, repair and replacement rules, and to exclude pollution control projects from the definition of "modification." We support the exclusion of pollution control projects that result in net overall reduction(s) of air pollutants from the existing definition of "major modifications."

We urge Congress to enact common-sense, simplifying reforms of NSR that can facilitate job-creating investments in our existing industrial infrastructure. These reforms will not jeopardize the air quality improvements made over the past decades, but will contribute to a modernized industrial base that will benefit American workers and the public.

DATED: JULY 12, 2018

INTERNATIONAL BROTHERHOOD OF BOILERMAKERS, IRON SHIP BUILDERS, ET AL.
INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS
INTERNATIONAL ASSOCIATION OF IRON WORKERS, ET AL.
SMART - TRANSPORTATION DIVISION
TRANSPORTATION • COMMUNICATIONS • UNION, IAM
UNITED ASSOCIATION OF PLUMBERS, PIPEFITTERS, ET AL.
UNITED MINE WORKERS OF AMERICA

CC: ALL COMMITTEE MEMBERS

Senator BARRASSO. Congress enacted the New Source Review program more than 40 years ago. It is time for us to streamline and modernize the program.

When Congress last addressed the New Source Review program, we didn't have power plants using carbon capture, like we now have at the Petra Nova project.

At a 2017 hearing before this Committee, NRG Energy testified that it had to redesign the Petra Nova project in Texas to avoid triggering New Source Review requirements. This unnecessary redesign added $100 million to the cost of the project.

We can't have our environmental regulations pose roadblocks to critical technologies that would reduce our emissions, and combat climate change.

The GAIN Act would make much needed changes to the Clean Air Act. It would provide more clarity about what types of changes fit the definition of "modifications," and therefore warrant a New Source Review permit.

The bill would clarify that projects designed to reduce emissions or improve reliability and safety should not generally trigger New Source Review permits. Permitting would no longer be based on annual emissions estimates, which have been the subject to endless litigation and are very difficult to project.

So I would like to thank Leader McConnell, Senator Braun, Senator Capito, Senator Paul, and Senator Inhofe for joining me on this bill. The GAIN Act is identical—identical—to a bipartisan bill, the New Source Review Permitting Improvement Act, that is sponsored in the House by Congressmen Morgan Griffith and Collin Peterson and Alexander Mooney.

I encourage Senate Democrats to join us in making this bill bipartisan on this side of the Capitol as well, as we have it bipartisan in the House. Any Senator who cares about economic growth, emissions reductions, and clear regulations, I would encourage to support this legislation.

Now I would like to turn to Ranking Member Carper for his opening remarks.

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

Senator CARPER. Thanks, Mr. Chairman.

I am going to do something today I don't think I have ever done in 18 years. I just ask my colleagues to bear with me for a moment.

We all have military personnel who have served, been injured, and some killed. I just want to share with you briefly before I recap my opening comments just a couple of words about an Army Battalion Ranger from Delaware who was nearly killed 2 months ago today.

He sustained four brain injuries. A log building exploded, crushed him and some other people. Broke his ribs, broke his pelvis, broke his leg, right leg. Fractured vertebrae in his spine, and it is amazing he is alive.

He was miraculously saved there, eventually brought back to Walter Reed, and has gotten great care there.

He was moved a couple of weeks ago, I talked to him, and he was moved to the polytrauma center in Tampa, Florida.

His mom lives in Delaware, I talked to her the other day. She says he is doing well. He has no infections. Apparently, he is learning to walk again. He needs occupational therapy; he needs brain stimulation. Four traumatic brain injuries, can you believe that?

Currently he is having difficulty remembering. He remembers the incidents and some items, others he loses focus on. But he has a good attitude. I talked to him, and I told him that, in the words of Henry Ford, if you think you can and you think you can't, you are right.

This is a greeting card. His mother said he loves cards. She said, maybe you can send him one. I am going to send him one, and ask you all to sign it, all my colleagues. Thank you.

Now I want to say terrible things about this bill.

[Laughter.]

Senator CARPER. When I was a Congressman, I used to hold a lot of town hall meetings. I still have some, not as many as then.

Every now and then somebody would raise an issue and say, they would have an idea, or propose an idea which really was devoid of much value. Rather than just say, That is the dumbest idea I have ever heard, I would say, Now, there is a germ of a good idea in what you are proposing, and just focus on that germ of a good idea.

The issue that the Chairman is raising here is one that is not new, and we adopted the Clean Air Act, gosh, how many years ago, many, many years ago. I was involved in 1990 in the modification of the amendments to the Clean Air Act. So this is not a new issue.

It is one I would welcome, Mr. Chairman, just a chance to sit and talk with you and your staff, and to explore, find out where there is a germ of a good idea. I think there probably is.

But I am just going to ask that my statement for the record be entered. Some of you have heard me say this before. I live in a little State in the northeast, we are the 49th largest State. But we are surrounded by a lot of other States, where there is a lot of pollution.

When I was Governor, I could have shut down the economy of my State, stopped every car on the roads, we still would have been way out of compliance for Clean Air standards in a lot of ways because of the pollution that comes to us from other places.

My fear, one of my fears is that this legislation doesn't help that situation get any better. We all care about our States, the quality of the air in our States. This is something we continue to wrestle with. My fear is this legislation, if adopted, won't make that any better.

But I would be willing to have a conversation, Mr. Chairman. In the meantime, I just ask unanimous consent to enter into the record this statement.

Senator BARRASSO. Without objection.

[The prepared statement of Senator Carper follows:]

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

Good morning, everyone.

Today, we are here to discuss Chairman Barrasso's bill, the "Growing American Innovation Now (GAIN) Act."

Although this is the first hearing our Committee has held on this particular piece of legislation, the New Source Review permitting program has been a topic for discussion for years—because it has been a target for industry for decades.

The New Source Review program applies to our nation's largest sources of air pollution—approximately 14,000 sources nationwide—and requires any new industrial facility to install state of the art pollution controls. Older facilities built before 1978, however, only have to install pollution controls if they make operational or physical upgrades and other changes that increase their emissions.

These protections were designed to ensure that older facilities do not make life extending upgrades that ultimately increase pollution in our communities. Unfortunately, for decades now, industry has been pushing to weaken the New Source Review program under the cloak of "improved efficiencies."

In fact, one of our witnesses here today, Mr. Holmstead, tried to make similar changes for the power sector almost two decades ago when he ran the EPA air office. The Trump EPA also proposed a similar change in its Dirty Power Plan proposal.

However, those efforts eventually failed or were thrown out by the courts entirely. That's because the changes sought by industry would allow aging facilities to operate longer, and in many cases, without pollution controls, resulting in more human exposure to dangerous emissions, and also violate Congress's intent that these sources either keep emissions the same or install pollution controls.

The bill before us today tries yet again to weaken the New Source Review program, but it is even more problematic than past EPA efforts. The GAIN Act would allow an estimated 14,000 of the largest, oldest, dirtiest sources of air pollution to emit more pollution each year. It would be especially harmful for downwind States, including my home State of Delaware, which are already struggling under this Administration to hold upwind States accountable.

I expect that our Republican friends will use this hearing to argue that the current New Source Review program is preventing existing factories, coal plants, and other large polluters from making upgrades to become more efficient. I expect that we will hear that this bill will result in emissions reductions, and therefore help us to addressing the climate crisis.

On the surface, these arguments may seem compelling and worth seriously considering.

In fact, I have seriously considered those arguments. As my colleagues know, I have long been an advocate for reducing air emissions and increasing efficiency. That is why I implore my colleagues to take a deeper look into this legislation. Again, what is being proposed today is not a new idea—and it has been proven time and again to increase, not decrease, pollution.

If emissions truly went down under this proposal, as our colleagues claim it would, then changes to New Source Review would not be necessary. New Source Review is only triggered if a change at the source causes emissions to significantly increase. That is the law.

What's more, the legislation before us today applies to all 14,000 regulated emissions sources—not just the power sector. If industry claims under the bill that an upgrade is "designed" for reliability or safety purposes, then requirements to reduce emissions are waived entirely.

This is all the more troubling when you add in the deluge of harmful and half-baked deregulatory efforts emanating from the Trump EPA's air office. Right now, the EPA has proposed or finalized rules that undermine the Mercury and Air Toxics Standards, deny downwind States the right to cleaner air, weaken the Regional Haze Rule and roll back power plant carbon standards.

This EPA has even floated changes to a nearly 40 year old-interpretation of what "ambient air" is. It sounds laughable, but it's true: the Trump EPA is considering redefining "air."

This Administration isn't even trying to hide its contempt for clean air. Late last year, in an interview with the Washington Post, Administrator Wheeler was asked to name three rules he is working on that would reduce air pollution in absolute terms. Mr. Wheeler responded by saying, and I quote, "I'm not sure I'm going to be able to give three off the top of my head." End quote.

Meanwhile, look to the west, to the wildfires currently ravaging the State of California. The climate crisis demands our full attention and bold action. Yet all of the actions taken by this EPA take us in the wrong direction—they will hurt or even kill thousands of Americans, while imposing serious costs to our economy and society.

When you take a closer look, it is clear that the GAIN Act is likely more of the same. At a time when carbon and other harmful emissions are increasing, and our

people are regularly experiencing the effects of climate change, we simply cannot afford to make the changes proposed in the GAIN Act.

With that said, I thank the witnesses for being here and look forward to today's testimony.

Thank you.

Senator CARPER. And I would ask my colleagues, if you would take the time just to write a note on this.

Senator BARRASSO. What is his name?

Senator CARPER. It is Kyle Robert Montgomery, Ranger.

Senator BARRASSO. We would be happy to do it.

Senator CARPER. Thank you.

Senator BARRASSO. We can start with our No. 1 veteran, and we can continue throughout. Thank you.

We will now hear from our witnesses. Jeff Holmstead, who is a partner at Bracewell LLP; we have also Sean Alteri, who is the Deputy Commissioner of the Kentucky Department for Environmental Protection; as well as John Walke, who is the Clean Air Director for the Natural Resources Defense Council.

I would like to remind the witnesses that your full written testimony will be made part of the official hearing records. Please keep your statements to 5 minutes, so that we may have time for questions. I look forward to hearing the testimony of each of you.

Director Alteri, I think you are first. Will you please proceed?

STATEMENT OF SEAN ALTERI, DEPUTY COMMISSIONER, KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Mr. ALTERI. Good morning, Chair Barrasso, Ranking Member Carper, and members of the Committee. My name is Sean Alteri, and I currently serve as the Deputy Commissioner for the Kentucky Department for Environmental Protection. I am honored to testify today, and I appreciate the opportunity to provide comments relative to the New Source Review program.

It is important to note that the New Source Review program is utilized by EPA, State, tribal, and local air pollution control agencies to attain and maintain compliance with the National Ambient Air Quality Standards. The New Source Review program is necessary to protect the health of our citizens and prevents the significant deterioration of air quality.

Regarding this legislation, the proposed amendments are narrow in their scope of the New Source Review program. This bill proposes to amend the definition of modification to exclude projects that implement efficiency measures, which reduce the amount of any air pollutant emitted by the source per unit of production. The proposed amendment also limits the emissions increases to the maximum achievable hourly emission rate demonstrated in the last 10 years.

To be certain, this bill does not apply to new major stationary sources, or new units that exist in major stationary sources. This bill does not allow the de-bottlenecking of downstream emission units and does not exempt those emissions from New Source Review. And this bill does not allow sources of emissions to violate the National Ambient Air Quality Standards.

Since 2008, the Cabinet has issued more than 25 New Source Review permits. These actions allow for economic growth and develop-

ment, while requiring major sources of emissions to install and operate the best available control technologies.

During this same time period, air quality in Kentucky has improved dramatically.

In the last 10 years, emissions of sulfur dioxide have decreased more than 83 percent, and emissions of nitrogen oxides have decreased by more than 70 percent from our coal fired electric generating units. These tremendous reductions did not occur as a result of New Source Review.

Due to potential applicability of New Source Review requirements, facilities have unfortunately foregone efficiency measures and improvements that can provide substantial environmental benefits.

This bill will not allow coal fired electric generating units to violate applicable emissions standards established by the Cross-State Air Pollution Rule and the Mercury Air Toxics Standards. However, this bill will allow an existing coal fired electric generating unit to implement energy efficiency measures and reduce their emissions of carbon dioxide per megawatt generated.

Energy efficiency projects at existing coal fired electric generating units will be necessary to reduce their carbon dioxide emissions and will be critical for air pollution control agencies to meet the requirements of the Affordable Clean Energy rule. A State plan under the ACE rule will establish carbon dioxide emission limitations from existing coal fired generating units for the first time.

Balancing environmental protection and economic growth and development often creates tension between regulated industries and environmental activists. This tension is most noticeable and evident in the Clean Air Act's New Source Review program.

When setting forth the statutory authority, Congress declared the New Source Review program is "to ensure that economic growth will occur in a manner consistent with the preservation of clean air resources."

Striking the proper balance between economic growth and protection of our air resources is essential to fulfill our statutory obligations under the act. To resolve this tension, final determinations of New Source Review permits are often administratively challenged and decided through litigation.

In recent years, the New Source Review program has served as the vehicle to delay the permit process and the construction of major economic development opportunities.

In Kentucky, third party interest groups challenged or petitioned EPA to object to eight air quality permits related to New Source Review in the last 10 years. All of the challenged air quality permits utilized coal as an energy resource, and the focus of the challenges centered on coal fired electric generation.

Ultimately, EPA and the courts found that the air quality permits issued by the Division for Air Quality contained all applicable requirements and sufficient monitoring to demonstrate compliance.

In an effort to resolve the differences of this proposed legislation, one option would be to further restrict the scope of the New Source Review amendments to apply only to energy efficiency projects at existing coal fired electric generating units. By establishing clear statutory authority, State air quality regulators will be provided

with the regulatory certainty to establish carbon dioxide emission limitations from existing coal fired generating units, and again, for the very first time.

Again, thank you for the opportunity to comment today. I look forward to any questions you may have regarding my testimony.

[The prepared statement of Mr. Alteri follows:]

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

TESTIMONY OF SEAN ALTERI

ON

"HEARING ON S. 2662, THE GROWING AMERICAN INNOVATION NOW (GAIN) ACT"

BEFORE THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

November 6, 2019

Good morning, Chair Barrasso, Ranking Member Carper, and members of the Environment and Public Works Committee. My name is Sean Alteri and I currently serve as the Deputy Commissioner of the Kentucky Department for Environmental Protection. I am honored to testify today before this committee and appreciate the opportunity to provide comments relative to the New Source Review permit program.

Thank you for considering potential statutory clarifications to the New Source Review program. Establishing clear statutory authority will allow the United States Environmental Protection Agency to properly implement the New Source Review program and provide consistent direction to State, Local, and Tribal air pollution control agencies. Effective administration of the New Source Review program provides regulatory certainty for air pollution control agencies, as well as the regulated industries and the general public.

It is also important to note that the New Source Review program is utilized by EPA, State, Local, and Tribal air pollution control agencies to attain and maintain compliance with

National Ambient Air Quality Standards. The New Source Review program is necessary to protect the health of our citizens and prevents the significant deterioration of air quality.

Proposed Legislation

Regarding this legislation, the proposed amendments are narrow in their scope of the New Source Review permit program. This bill proposes to amend the definition of "modification" to exclude projects that implement efficiency measures, which reduce the amount of any air pollutant emitted by the source per unit of production. The proposed amendment also limits the emissions increases to the maximum achievable hourly emission rate demonstrated in the last ten years.

Additionally, the proposed legislative text clarifies the term "construction" under the New Source Review program and when a modification should be subject to New Source Review as a "major modification." The proposed statutory text clarification provides regulatory certainty and eliminates confusion as to when New Source Review applies.

To be certain, this bill does not apply to new major stationary sources or new units at existing major stationary sources. This bill does not allow the debottlenecking of downstream emission units and does not exempt those emissions from New Source Review. And this bill does not allow sources of emissions to violate the National Ambient Air Quality Standards.

Kentucky's New Source Review program

In Kentucky, the New Source Review Program is codified into Kentucky law and approved in the State Implementation Plan by EPA. As such, the Energy and Environment Cabinet is the New Source Review permitting authority for all counties in the Commonwealth, except for Jefferson County. Since 2008, the Cabinet issued more than twenty-five (25) New Source Review permits. These actions allow for economic growth and development, while

requiring major sources of emissions to install and operate the Best Available Control Technologies.

During this same time period, air quality in Kentucky improved dramatically. In the last 10 years, emissions of sulfur dioxides from Kentucky electric generating units decreased by more than 83 percent and emissions of nitrogen oxides decreased by more than 70 percent. These tremendous emissions reductions from Kentucky electric generating units occurred due to regulatory requirements established under Section 111 and 112 of the Clean Air Act, not the New Source Review program.

Relationship to the Affordable Clean Energy Rule

Due to potential applicability of New Source Review requirements, facilities have unfortunately forgone efficiency improvements that can provide substantial environmental benefits. During last year's hearing in the House related to this proposed legislation, the discussion centered on existing coal-fired electric generating units. This bill will not allow coal-fired electric generating units to violate the applicable emissions standards established by the Cross-State Air Pollution Rule and the Mercury and Air Toxics Standards. However, this bill will allow an existing coal-fired electric generating unit to implement energy efficiency measures and reduce their emissions of carbon dioxide per megawatt hour generated.

Important to air quality regulators, the proposed legislation will provide for the timely issuance of permits related to energy efficiency measures. Energy efficiency projects at existing coal-fired electric generating units will be necessary to reduce their carbon dioxide (CO_2) emissions and will be critical for air pollution control agencies to meet the requirements of the Affordable Clean Energy rule, also known as the ACE rule. To satisfy the ACE rule, state plans

will establish carbon dioxide emission limitations from existing coal-fired generating units for the first time.

Tension in the Clean Air Act

Balancing environmental protection and economic growth and development often creates tension between regulated industries and environmental activists. This tension is most noticeable and evident in the Clean Air Act's New Source Review program. When setting forth the statutory authority, Congress declared the New Source Review program is "to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources."[1] Striking the proper balance between economic growth and protection of our air resources is essential to fulfill our statutory obligations as regulators.

To resolve the tension between industries and third party interest groups, final determinations of our New Source Review permits are often administratively challenged and decided through litigation. In recent years, the New Source Review program has served as the vehicle to delay the permit process and construction of major economic development opportunities.

In Kentucky, third party interest groups challenged or petitioned EPA to object to eight air quality permits related to New Source Review in the last ten years. All of the challenged air quality permits utilized coal as an energy resource and the focus of the challenges centered on coal-fired electric generation. Ultimately, EPA and the courts found that the air quality permits issued by the Division for Air Quality contained all applicable requirements and sufficient monitoring to demonstrate compliance.

[1] Clean Air Act, CAA § 160(3)

Legislative Compromise

In an effort to resolve the differences of this proposed legislation, one option would be to further restrict the scope of the New Source Review amendments to apply only to energy efficiency projects at existing coal-fired electric generating units. By establishing clear statutory authority, state air quality regulators will be provided with the regulatory certainty to establish carbon dioxide emission limitations from existing coal-fired generating units for the first time under the Affordable Clean Energy rule.

In closing, air quality control agencies must be provided with regulatory certainty when developing state plans to comply with the Affordable Clean Energy rule. This proposed legislation will ensure statutory authority is established for the ACE rule and will provide for the timely issuance of New Source Review permits related to energy efficiency measures at existing coal-fired electric generating units. Again, thank you for the opportunity to participate in today's hearing and I look forward to any questions you may have regarding my testimony.

Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing on S. 2662, the Growing American Innovation Now (GAIN) Act"*
November 6, 2019
Questions for the Record for Mr. Alteri

Chairman Barrasso:

Please provide a response to each question, ***including each sub-part.***

1. In your testimony, you mentioned how the New Source Review program has "served as a vehicle to delay the permit process and the construction of major economic development opportunities." Can you elaborate on specific examples of how the New Source Review program has been used as a vehicle to delay projects in your State?

During the hearing and in response to a question from Chairman Barrasso, I mentioned two coal-gasification projects that were subject to New Source Review permitting requirements. The Cash Creek project proposed to construct an Integrated Gasification Combined Cycle plant capable of generating 770 megawatts per hour to be located in Henderson, Kentucky. The Kentucky Syngas project proposed to generate 216 million standard cubic feet per day (MMscfd) of substitute natural gas from coal. Both projects were the subject of litigation at the state and federal level, in addition to the permit challenges afforded under Title V of the Clean Air Act.

It should be noted that the construction and operating permits issued by the Kentucky Division for Air Quality were affirmed and upheld in the state's administrative hearing process. Additionally, the D.C. District Court dismissed the petitioner's challenge against EPA. The lawsuit urged EPA to prevent the construction of the significant economic development projects.

Detailed timelines of the permit actions, as well as the legal challenges, are attached to these responses. "Attachment A" is a printout from the petitioner's public website. Ultimately, the projects were not constructed due to the significant delays in permitting and costly litigation, and the petitioner characterized the plant status of the projects as "Defeated."

Senate Committee on Environment and Public Works
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(Page 2)

2. During the hearing, there was some discussion about emissions transported across state lines.

    a. Can you explain how Kentucky has addressed downwind pollution issues to ensure Kentucky is fulfilling its responsibilities under the Clean Air Act?

Effective July 5, 2018, Kentucky adopted the federal Cross-State Air Pollution Rule (CSAPR) update, which is designed to reduce interstate transport emissions that significantly contribute to downwind states. As required by 40 CFR 52.940(b)(1) and (b)(2), the owner and operator of each source located in Kentucky and subject to CSAPR must comply with the CSAPR NOx Ozone Season Budget. These applicable requirements are federally-enforceable and can be relied upon to satisfy the "Good Neighbor" provision related to the interstate transport of emissions.

Prior to the more stringent emission limitations established in 2017, EPA allocated Kentucky a NOx ozone season budget of 36,167 tons through CSAPR in 2015 and 2016. However, as noted below, the actual emissions from Kentucky electric generating units (EGUs) were much less than the allocations. Through the promulgation of the CSAPR Update rule, EPA considerably reduced Kentucky's 2017 NOx ozone season budget to 21,115 tons, a 42% reduction.

Implementation of CSAPR and the CSAPR Update successfully reduces NOx emissions during the ozone season; thus, prohibiting Kentucky emissions from significantly contributing to nonattainment, or interfering with the maintenance, of downwind states. The tables below details the allocations to Kentucky EGUs and the actual emissions from those emission units.

2015 - 2017 EGU Point Sources Ozone Season NO_x emissions (tons per ozone season)

	2015	2016	2017
Allocations	36,167	36,167	21,115
NO_x Actual Emission Totals (tons)[1]	27,790.75	25,473.99	20,053.01

[1] Ozone Season NO_x emissions data obtained from EPA's Air Markets Program Data https://ampd.epa.gov/ampd/

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b. During your tenure as Director of Air Quality, what was your most difficult issue regarding air quality in your State?

Addressing the interstate transport of air pollution requirements under the Clean Air Act proved to be difficult; however, responding to citizen complaints of odor from a landfill that accepted more than one (1) million tons of out-of-state waste was the most difficult air quality issue that I experienced as Air Quality Director. The interstate transport of the waste led to increased odors, citizen complaints, and Notices of Violations issued by the Division.

In calendar 2015, the Kentucky Division for Air Quality received 3,268 odor complaints related to a solid waste landfill located in Ashland, Kentucky. In response to the complaints, the Division for Air Quality issued 50 Notices of Violation of the odor standard established in 401 KAR 53:010. The Division expended considerable resources to address the odor issues related to the interstate transport of waste.

As stated above, the primary reason for the odor was determined to be the volume of out-of-state waste, primarily from New Jersey, that the landfill accepted. A detailed account of the waste received by the landfill, including the origin of the waste, is provided in Attachment B to these Questions for the Record. For clarification, Attachment B is the waste manifests provided by the offending landfill to the Kentucky Division of Waste Management.

Attachment A

Petitioner's Permit and Litigation Timeline

For the New Source Review Projects

Of

Cash Creek, LLC[1]

And

Kentucky Syngas, LLC[2]

[1] https://content.sierraclub.org/coal/environmentallaw/plant/cash-creek-igcc
[2] https://content.sierraclub.org/coal/environmentallaw/plant/newgas-energy-center

Attachment A – 1

Petitioner's Permit and Litigation Timeline

For the New Source Review Project

Of

Cash Creek, LLC[1]

[1] https://content.sierraclub.org/coal/environmentallaw/plant/cash-creek-igcc

Cash Creek IGCC

content.sierraclub.org
11 mins read

Update: February 2013

Cash Creek remains an active plant but no new updates have been released as of July 2012.

Update: July 2012

Based on a review of the Petition and other relevant materials, including the Cash Creek permit and permit record, and relevant statutory and regulatory authorities, EPA granted in part and denied in part the Petition requesting that EPA object to the Cash Creek permit. A copy of the order is available in the related documents section below.

Update: June 2012

On June 20, we received a decision from U.S. EPA on a 2010 petition regarding the Title V permits for Cash Creek coal-to-gas facility in Kentucky. The petition was granted on six separate issues: (1) that Kentucky Department of Air Quality (KDAQ) failed to provide an opportunity for meaningful public participation; (2) that KDAQ failed to account for full emissions from flaring in calculating the potential to emit certain pollutants; (3) the VOC limit is not enforceable as a practical matter; (4) the BACT limits for the flare do not cover shutdown and malfunction; (5) the calculations for particulate emissions from material handling used an unreasonable high control efficiency; and (6) permit conditions on material handling are

unenforceably vague. For more a copy of the decision please click on the case documents and other related information link below.

Update: September 2011

On September 19, the Cash Creek Generation project received a five-year extension on its county conditional use permit. Project sponsor Erora Group sought the extension because the project has been unable to get off the ground. Erora Group sought no changes to its 2006 permit other than changing the name of a planned ash storage area to slag storage. Board members had no questions and no members of the public spoke, the zoning board gave unanimous approval to the permit extension.

Update: July 2011

On July 1, the U.S. Court of Appeals for the D.C. Circuit upheld the District Court's dismissal of Sierra Club and Valley Watch's lawsuit against EPA (opinion available below).

Update: March 2011

On February 3, 2011, the Secretary of the Cabinet adopted the Hearing Officer's Report and affirmed the final air permit for the proposed Cash Creek coal-fired power plant. In response, on March 4, Sierra Club and Valley Watch filed a petition for review with the Henderson County Circuit Court, arguing that the final air permit fails to contain adequate emission limits for several air pollutants, and should be vacated and remanded to the Cabinet.

Update: January 2011

On January 10, 2011, Sierra Club and Valley Watch filed their opening brief in the appeal challenging EPA's failure to act and prevent construction of the Cash Creek coal plant that is moving forward under a defective State Implementation Plan (SIP). In their brief, the environmental groups argue that Kentucky's SIP still fails to meet two important requirements of the federal Clean Air Act's Prevention of

Significant Deterioration (PSD) permitting program; it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks, and it does not require new sources to demonstrate that nitrogen oxide (NOx) emissions will not violate ozone air quality standards. The groups contend that EPA has a mandatory duty, under a provision of the Clean Air Act, to address these deficiencies before the Cash Creek coal plant can move forward. EPA's opening brief is due on February 9, and Sierra Club and Valley Watch's response is due on February 23. Oral argument is scheduled for April 7, 2011.

Update: December 2010

Unfortunately, on December 13, the Hearing Officer in the air permit appeal recommended that the Secretary affirm and uphold the final air permit for the proposed Cash Creek coal-fired power plant. Sierra Club and its allies will submit their brief on exceptions to the Secretary by December 27.

On another front, on December 1, the Kentucky Division of Water issued the final revised Kentucky Pollutant Discharge Elimination System (KPDES) water permit for the proposed Cash Creek coal plant. In response, on December 17, Sierra Club, Kentucky Waterways Alliance, and Valley Watch voluntarily dismissed their challenge against the water permit.

Update: September 2010

On July 20, the D.C. District Court dismissed Sierra Club's challenge against the U.S. Environmental Protection Agency (EPA). The lawsuit urged the agency to take action and prevent construction of three proposed plants in Kentucky - Cash Creek, NewGas and Smith - that are moving forward under a state implementation plan (SIP) that does not meet the requirements of the federal Clean Air Act. The District Judge ruled that the Court lacked jurisdiction to review the agency's decision. On September 1, Sierra Club and Valley Watch appealed the decision to the D.C. Court of Appeals. A copy of the

District Judge's opinion is available in the related documents section below.

Update: July 2010

On July 15, opponents of Cash Creek spoke out against the proposed coal plant's revised water permit at a packed hearing in Henderson County, Kentucky. While the Kentucky Division of Water made some modifications to strengthen the permit, several citizens and activists stressed that the permit does not do enough to protect the Green River from Cash Creek's pollution.

Update: Late June 2010

On June 18, Sierra Club and its allies filed a petition, urging the U.S. Environmental Protection Agency (EPA) to object to the Title V operating permit for the proposed Cash Creek plant (available below). The groups contend that the Kentucky Division for Air Quality did not publicize all vital information to allow for meaningful public participation before issuing the permit. The Division also failed to properly consider flaring and fugitive emissions from the plant, and wrongfully classified the facility as a minor source of hazardous air pollutants to avoid strict maximum achievable control technology (MACT) requirements.

Update: June 2010

Great news! On June 10, in a rare move, the Kentucky Energy and Environment Cabinet decided to re-open proceedings on the Cash Creek plant's water permit, in response to concerns that pollution from the plant would degrade the Green River. Sierra Club, Kentucky Waterways Alliance, and Valley Watch originally challenged the water permit in early March, claiming that the permit failed to control dangerous toxic pollution from the plant. Now, the public will have another chance to convince the state to keep the Green River clean, as the state prepares to hold a new public hearing on the plant. To read more, click here!

Update: May 2010

On May 5, the Kentucky Division for Air Quality issued a final revised prevention of significant deterioration (PSD) air permit/Title V operating permit for the Cash Creek plant (available below). Although the U.S. Environmental Protection Agency (EPA) objected to the original permit in December 2009, due to inadequate fine particulate matter (PM2.5) modeling and a failure to consider natural gas in the BACT analyses, EPA did not object to the revised permit. Erora Group submitted revised PM2.5 modeling to the Division on April 20, 2010.

Update: April 2010

On April 5, Sierra Club and its allies filed a petition for a hearing on the final air permit for the proposed Cash Creek plant (available below). In the petition, Sierra Club, Ursuline Sisters of Mount Saint Joseph, and Valley Watch highlight several deficiencies with the air permit; it contains inadequate best available control technology (BACT) analyses for several air pollutants, such as sulfur dioxide and particulate matter, and contains no emission limits for carbon dioxide and other greenhouse gases. During the permitting process, the Kentucky Division for Air Quality failed to make all permit documents available to allow for meaningful public participation. The Division also failed to properly consider cleaner fuel options for the project or cleaner alternatives before issuing the final permit.

Update: March 2010

On March 5, the Kentucky Division for Air Quality issued a final prevention of significant deterioration (PSD) permit/proposed Title V operating permit for the Cash Creek plant (available below).

On March 3, Sierra Club, Kentucky Waterways Alliance, and Valley Watch filed a petition with the Kentucky Office of Administrative Hearings, seeking state review of a final water permit that would allow the Cash Creek plant to discharge wastewater and other effluents into the Green River. (The Kentucky Division of Water issued the final permit on February 1, 2010.) Discharges from the

plant are potentially hazardous to human health and the environment, and in their petition, the environmental groups highlight how the permit fails to adequately address the plant's impacts. The permit contains inadequate discharge limits, insufficient monitoring requirements, and fails to control high temperature discharges, among other things. A copy of the petition is available in the related documents section below.

Update: January 2010

On January 14, Sierra Club and its allies submitted comments on the revised draft air permit for the proposed Cash Creek coal plant (available below). In the comments, Sierra Club argued that the draft permit is deficient for several reasons; it contains inadequate emission limits for several air pollutants, such as particulate matter, and does not contain any emission limits for carbon dioxide, the leading greenhouse gas that causes global warming. Additionally, the draft permit does not properly account for flaring emissions during times of startup and shutdown. During the permitting process, the Kentucky Division for Air Quality failed to consider cleaner alternatives to the proposed plant, such as increased energy efficiency and renewable energy, and did not consider cleaner fuel options for the project.

Update: December 2009

On December 15, the Kentucky Division for Air Quality (DAQ) issued a revised draft combined PSD construction permit/Title V operating air permit for the proposed Cash Creek plant. The Division is now accepting public comments on the permit and a public hearing will be held in Henderson, Kentucky on January 15, 2010. Also on December 15, Sierra Club and Valley Watch scored a big victory against the proposed 770-MW plant when the U.S. EPA handed down its decision on our petitions asking the agency to object to the plant's PSD/Title V permit. In the decision (available below), U.S. EPA Administrator Lisa Jackson granted our request on a number of significant issues, including 1) requiring the Division to include natural gas as a clean

fuel in its BACT analyses, 2) requiring appropriate new source performance standards for the combustion turbines at the facility; and 3) requiring the permit to include a PM2.5 limit. In her order, Administrator Jackson also decided in our favor regarding our claims that the Division did not consider public input regarding an alternatives analysis for the proposed permit, lower permit limits for sulfuric acid mist, and increased ozone formation due to the emissions from the proposed plant.

Update: November 2009

On November 4, Sierra Club and Valley Watch filed a complaint against the U.S. Environmental Protection Agency (EPA) for failing to respond to Sierra Club's August notice letters regarding the NewGas, Smith and Cash Creek coal plants in Kentucky (available below). In the notice letters, Sierra Club urged the agency to take action and prevent construction of the three new coal plants that are moving forward even though Kentucky's State Implementation Plan (SIP) does not meet the requirements of the Clean Air Act. Kentucky's SIP fails to meet two important federal requirements; it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks, and it does not require new sources to demonstrate that nitrogen oxide (NOx) emissions will not violate ozone air quality standards. While Kentucky is working to adopt a regulation that will address NOx emissions from new major sources, the regulation has not been finalized and the coal plant projects are still moving forward under a noncompliant SIP.

Update: September 2009

In response to Sierra Club's notice letters, Kentucky is adopting an emergency regulation that will require all new major sources to demonstrate that their nitrogen oxide emissions will not violate ozone air quality standards. Kentucky must revise its SIP to include this regulation, and a public hearing on the revision will be held on October 28, at the Division for Air Quality in Frankfort, Kentucky.

Update: September 2009

On September 9, the Kentucky Division of Air Quality issued the revised draft air permit for the Cash Creek plant. A public hearing on the draft permit will be held in Henderson County on October 9.

On August 24, a hearing on Erora Group's pending water discharge permits for the Cash Creek plant was held in Henderson County, Kentucky. At the hearing, several local residents spoke out against the plant, citing concerns with the plant's impact on water quality. Protestors expressed concern with the proposed permits' failure to regulate toxins and metals that will be released into the waste stream and eventually into the drinking water supply of Evansville and Henderson Counties.

Update: August 2009

On August 5, Sierra Club sent a notice of intent to sue to the U.S. Environmental Protection Agency, urging the agency to take action and prevent construction of two new coal plants, the Kentucky Smith Station and the Kentucky NewGas plant, that are moving forward even though Kentucky's State Implementation Plan (SIP) does not meet the requirements of the Clean Air Act (see below). As Sierra Club highlights, Kentucky's SIP fails to meet two important federal requirements; it does not require new sources to demonstrate that nitrogen oxide emissions will not violate ozone air quality standards and it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks.

On August 26, Sierra Club sent a second notice letter to the U.S. Environmental Protection Agency, urging the agency to prevent construction of a third coal plant, the Cash Creek Generating Station, for the same reasons.

Update: May 2009

The Kentucky Division of Air Quality continues to review Erora Group's revised air permit application for the Cash Creek plant. The U.S. Army Corps of Engineers and the Kentucky Division of Water are also reviewing the plant's water permit applications.

Update: April 2009

On April 3, 2009, the Sierra Club filed comments on Cash Creek's Section 404 Clean Water Act permit application to fill waters of the United States in order to construct a landfill to store coal combustion waste from its proposed coal plant in Henderson County. Cash Creek proposes to fill 1,545 feet of intermittent streams with gasifier slag. In its comments, the Club explained why Cash Creek's application is incomplete and why the permitting process should be put on hold until the EPA issues its final rules on coal waste disposal.

Update: February 2009

On February 17, 2009, the Sierra Club filed a complaint in the U.S. District Court for the District of Columbia seeking an order requiring the EPA to grant or deny Sierra Club's petitions to object to the Cash Creek plant's proposed Title V Operating Permit. The deadline for EPA to perform its non-discretionary duty to rule on the Sierra Club's petitions expired nearly a year ago.

Update: December 2008

On December 15, 2008, the Erora Group submitted a Best Available Control Technology (BACT) analysis for CO2 and revisions to its particulate matter emissions modeling as part of its application for a PSD air permit for its proposed Cash Creek coal plant.

On November 25, 2009, following a request from the Kentucky Division of Air Quality, the Erora Group submitted revisions to its PSD air permit application.

Update: November 2008

Update: October 2008

On October 2, 2008, Erora Group, LLC submitted a revised Prevention of Significant Detioriation (PSD) air permit application to the Kentucky Division of Air Quality for its proposed Cash Creek coal plant.

Also, on October 2, 2008, the Sierra Club and allied towns and groups submitted comments on Cash Creek Generation's application for a Clean Water Act Section 404 permit permit to allow it to construction a proposed coal-to-gas conversion plant and generating station at the confluence of Cash Creek and Green River in Henderson County (attached below). Construction of the project would seriously impact these waterways by filling or degrading close to 5,000 feet of streams and more than 3.5 acres of wetlands. The groups submitted their comments to the Louisville District of the U.S. Army Corps of Engineers, which is responsible for issuing the permit.

On October 7, 2008, the KY Division of Water issued a Clean Water Act Section 401 water quality certification permit to the proposed Cash Creek plant.

Update: November 2007

On November 30, 2007 the Kentucky Department of Environmental Protection issued the proposed final PSD/Title V permit for the 770-MW IGCC Cash Creek coal-fired power plant proposed for Henderson County. The plant still requires additional regulatory approval before construction can begin. The final permit can be found at http://www.air.ky.gov/permitting/Cash+Creek+Generation+LLC.htm

Update: June 2007

The Kentucky Department of Environmental Protection's Permit Review Branch has issued the draft air permit for the Cash Creek plant for public comment and on June 29, 2007 the agency held a public hearing for the permit. Members of the local environmental group Valley Watch and other opponents to the plant voiced concerns about negative effects the plant would have on local air and health quality.

To view the draft permit and related documents, please visit http://www.air.ky.gov/permitting/Cash+Creek+Generation+LLC.htm or check the "Related Documents" section below.

Update: February 2007

According to the Kentucky Department of Environmental Protection's Permit Review Branch, the agency is working on the draft air permit for the Cash Creek plant and estimates that the permit will be issued in early March 2007. Please visit http://www.air.ky.gov/homepage_repository/Public+Notices.htm to monitor when the agency issues the draft permit and the public comment period begins.

Background:

Erora Group, LLC has proposed a 770-megawatt (MW) integrated gasification combined cycle (IGCC) coal power plant to be located on 1,900 acres near Owensboro, KY on the Green River in eastern HendersonCounty. The proposed plant will burn coal from Western Kentucky, adding pollution to an area that has struggled to comply with U.S. Environmental Protection Agency air quality guidelines. The proposed plant could cost up to $1.5 billion, with construction scheduled to begin in late 2007 or early 2008 and operations scheduled to begin in 2010 or 2011.

The local environmental group Valley Watch is opposed to the proposed plant. For more information, please visit: http://www.valleywatch.net/valleywatch/.

■

Attachment A – 2

Petitioner's Permit and Litigation Timeline

For the New Source Review Project

Of

Kentucky Syngas, LLC[1]

[1] https://content.sierraclub.org/coal/environmentallaw/plant/newgas-energy-center

NewGas Energy Center

content.sierraclub.org
6 mins read

Update: February 2013

NewGas Energy Center remains an active plant but no new updates have been released as of July 2012.

Update: July 2012

Based on a review of the Petition submitted by the Environmental Law & Policy Center on behalf of Sierra Club and Valley Watch, EPA granted in part and denied in part the Petition requesting that EPA object to the Title V permit. A copy of the order is available in the related documents section below.

Update: June 2012

On June 22, U.S. EPA issued an order on the petitions from 2010 regarding the Title V permits for two Kentucky plants (NewGas and Cash Creek). Our petition regarding the Kentucky NewGas facility was granted on four separate issues: (1) that the Kentucky Division for Air Quality (KDAQ) failed to provide an opportunity for meaningful public participation, specifically in response to the lack of a public comment period; (2) emissions estimates from the flare and Best Available Control Technology for the flare were in error; (3) the permit fails to meet Hazardous Air Pollution requirements; (4) KDAQ failed to account for all Volatile Organic Compound emissions.

Similar to the Cash Creek decision, the EPA again emphasized in this decision the need to account for all actual emissions including those

from all flaring events to ensure compliance with sourcewide limits.

For a copy of the order, please see the related documents section below.

Update: September 2011

On August 29, Kentucky NewGas requested an extension of the current construction deadline under their Title V/PSD Permit. Construction of the NewGas Plant has been delayed due to litigation with the Sierra Club and Valley Watch, Inc. On September 19, the Kentucky Division of Air Quality agreed that the construction authority permit would be extended until April 9, 2013. Both documents are available below.

Update: July 2011

On July 1, the U.S. Court of Appeals for the D.C. Circuit upheld the District Court's dismissal of Sierra Club and Valley Watch's lawsuit against EPA (opinion available below).

On May 31, a Secretary of the Kentucky Energy and Environment Cabinet issued a final decision adopting the Hearing Officer's February 24 report and affirming the final air permit for the proposed NewGas plant. In his report, the Hearing Officer denied Sierra Club and Valley Watch's claims that the air permit underestimated particulate matter emissions, failed to contain enforceable conditions, and did not properly account for fugitive and flaring emissions during times of plant startup and shutdown. On May 18, the Hearing Officer issued a second report, recommending that the Secretary dismiss the environmental groups' claim that the Cabinet erred when it failed to hold a public comment period after modifying the Title V operating permit to address EPA concerns.

Update: January 2011

On January 10, 2011, Sierra Club and Valley Watch filed their opening brief in the appeal challenging EPA's failure to act and prevent

construction of the NewGas plant that is moving forward under a defective State Implementation Plan (SIP). In their brief, the environmental groups argue that Kentucky's SIP still fails to meet two important requirements of the federal Clean Air Act's Prevention of Significant Deterioration (PSD) permitting program; it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks, and it does not require new sources to demonstrate that nitrogen oxide (NOx) emissions will not violate ozone air quality standards. The groups contend that EPA has a mandatory duty, under a provision of the Clean Air Act, to address these deficiencies before the NewGas plant can move forward. EPA's brief is due on February 9, and Sierra Club and Valley Watch's response is due on February 23. Oral argument is scheduled for April 7, 2011.

Update: October 2010

The hearing on the air permit appeal will be held November 1-15 at the Kentucky Energy and Environment Cabinet's Office of Administrative Hearings in Frankfort.

Update: September 2010

On July 20, the D.C. District Court dismissed Sierra Club's lawsuit against the U.S. Environmental Protection Agency (EPA), which urged the agency to take action and prevent construction of three proposed plants in Kentucky - Cash Creek, NewGas and Smith - that are moving forward under a state implementation plan (SIP) that does not meet the requirements of the federal Clean Air Act. The District Judge ruled that the Court lacked jurisdiction to review the agency's decision. On September 1, Sierra Club and Valley Watch appealed the decision to the D.C. Court of Appeals. A copy of the District Judge's opinion is available in the related documents section below.

On September 24, the Kentucky Division for Air Quality issued a slightly revised Title V operating permit in response to EPA concerns

that the NewGas plant would violate national ambient air quality standards (NAAQS) for fine particulate matter.

Update: June 2010

On June 15, Sierra Club and Valley Watch filed an amended petition in the air permit appeal for the NewGas plant (available below).

Update: May 2010

On May 7, Sierra Club and Valley Watch filed a petition for a hearing to contest the final air permit for the proposed NewGas plant (available below). In the petition, the groups contend that the Kentucky Division for Air Quality failed to, among other things, set adequate emission limits for several air pollutants or properly account for flaring and fugitive emissions from the plant. Additionally, in the air permit, the Division wrongfully classified the facility as a minor source of hazardous air pollutants to avoid critical maximum achievable control technology (MACT) requirements.

Update: April 2010

On April 9, the Kentucky Division for Air Quality issued a final prevention of significant deterioration (PSD) air permit/proposed Title V operating permit for the NewGas plant (available below).

Update: January 2010

On January 19, Sierra Club and its allies submitted comments on the draft air permit for the proposed NewGas plant (available below). In the comments, Sierra Club argued that the draft permit is deficient for several reasons; it contains inadequate emission limits for several air pollutants, such as particulate matter, and does not contain any emission limits for carbon dioxide, the leading greenhouse gas that causes global warming. Additionally, the draft permit does not properly account for flaring emissions during times of startup and shutdown. During the permitting process, the Kentucky Division for Air Quality failed to consider cleaner alternatives to the proposed

plant, such as increased energy efficiency and renewable energy, and did not consider cleaner fuel options for the project.

Update: December 2009

On December 15, the Kentucky Division for Air Quality issued a draft air permit for the proposed NewGas plant. The Division is now accepting public comments on the permit and a public hearing will be held in Powderly, Kentucky on January 19, 2010.

Update: November 2009

On November 4, Sierra Club and Valley Watch filed a complaint against the U.S. Environmental Protection Agency (EPA) for failing to respond to Sierra Club's August notice letters regarding the NewGas, Smith and Cash Creek coal plants in Kentucky (available below). In the notice letters, Sierra Club urged the agency to take action and prevent construction of the three new coal plants that are moving forward even though Kentucky's State Implementation Plan (SIP) does not meet the requirements of the Clean Air Act. Kentucky's SIP fails to meet two important federal requirements; it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks, and it does not require new sources to demonstrate that nitrogen oxide (NOx) emissions will not violate ozone air quality standards. While Kentucky is working to adopt a regulation that will address NOx emissions from new major sources, the regulation has not been finalized and the coal plant projects are still moving forward under a noncompliant SIP.

Update: September 2009

In response to Sierra Club's notice letters, Kentucky is adopting an emergency regulation that will require all new major sources to demonstrate that their nitrogen oxide emissions will not violate ozone air quality standards. Kentucky must revise its SIP to include this regulation, and a public hearing on the revision will be held on October 28, at the Division for Air Quality in Frankfort, Kentucky.

Update: September 2009

On August 5, Sierra Club sent a notice of intent to sue to the U.S. Environmental Protection Agency, urging the agency to take action and prevent construction of two new coal plants, the Kentucky Smith Station and the Kentucky NewGas plant, that are moving forward even though Kentucky's State Implementation Plan (SIP) does not meet the requirements of the Clean Air Act (see below). As Sierra Club highlights, Kentucky's SIP fails to meet two important federal requirements; it does not require new sources to demonstrate that nitrogen oxide emissions will not violate ozone air quality standards and it does not require companies to notify the public about a project's impacts on air quality in surrounding wilderness and national parks.

On August 26, Sierra Club sent a second notice letter to the U.S. Environmental Protection Agency, urging the agency to prevent construction of a third coal plant, the Cash Creek Generating Station, for the same reasons.

Update April 2009:

On April 6, 2009, the Sierra Club submitted comments to the Kentucky DAQ on Kentucky Syngas's Modeling Report in its proposed NewGas air permit application. The Club pointed out the numerous deficiencies and omissions contained in the report and the significant changes and additions that must be made to the modeling in order to ensure that the permit comply with the state regulations and federal law.

The DAQ is currently reviewing the air permit application.

Update: January-March 2009

The Kentucky Division of Air Quality (DAQ) continues to review Kentucky Syngas's air permit application.

Background:

On December 16, 2008, Kentucky Syngas, LLC (comprised of energy company ConocoPhillips and coal company Peabody Energy) filed for a state air permit to build a coal-to-natural gas facility near Central City in Muhlenberg County – the same location that Peabody Energy had wanted to build its controversial Thoroughbred coal plant . The plant would gasify coal and petroleum coke into natural gas.

News sources expect the Kentucky Division for Air Quality to take 12-24 months to conduct the permit review process.

To view the NewGas Energy Center project website, click here.

Attachment B

2015 Waste Manifest

For

Big Run Landfill located in Ashland, Kentucky

Jan-Feb-Mar 2015

Waste Source (County and State)	Type of Waste			**Waste Used as Alternate Daily Cover (Tons Only)
	*Municipal Solid Waste (Tons Only)	*Industrial Waste (Tons Only)	*Special Waste (Tons Only)	
BERGEN CO., NJ	83,272.90		65.74	
ESSEX CO., NJ	101,430.27	24.17		
HUDSON CO., NJ	5,324.54	214.71	7,742.86	
PASSAIC CO., NJ	3,043.55			
SOMERSET CO., NJ	23,099.27			
BRONX CO., NY	3,222.69	73.21	14,137.62	
KINGS CO., NY	2,475.52			
NASSAU CO., NY	2,045.38	22.49		
QUEENS CO., NY	22,017.48	8,452.25	196.18	
ROCKLAND CO., NY	6,218.00		21.20	
BUTLER CO., OH			1,024.61	
Total for this page	252,170.53	8,789.04	23,188.21	0.00
GALLIA CO., OH	5.14			
HAMILTON CO., OH		0.97		
JACKSON CO., OH	4.46			
LAWRENCE CO., OH	4,427.38	271.22	182.87	
SCIOTO CO., OH	973.77	426.37	10,809.00	
PROVIDENCE CO., RI	73.31			
BOONE CO., WV	11.31	29.86		
CABELL CO., WV	8,466.17	1,822.10	173.16	
CLAY CO., WV	4.94			
FAYETTE CO., WV	8.18			
JACKSON CO., WV	48.34	11.00		
KANAWHA CO., WV	1,327.39	589.22	10,173.15	
LINCOLN CO., WV	72.11			
Total for this page	15,422.50	3,150.74	21,338.18	0.00

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MARION CO., WV	24.43			
MASON CO., WV	5.22			
MERCER CO., WV		6.27		
MINGO CO., WV	36.67			
PUTNAM CO., WV	218.17	92.67		
ROANE CO., WV		11.83		
SUMMERS CO, WV		2.84		
WAYNE CO., WV	2,516.52	3,398.37		
WOOD CO., WV	10.52			
Total for this page	2,811.53	3,511.98	0.00	0.00

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Grand Total 270,404.56 15,451.76 44,526.39

Apr-May-Jun 2015

Waste Source (County and State)	Type of Waste			**Waste Used as Alternate Daily Cover (Tons Only)
	*Municipal Solid Waste (Tons Only)	*Industrial Waste (Tons Only)	*Special Waste (Tons Only)	
BERGEN CO., NJ	116,531.36		20.33	
ESSEX CO., NJ	129,217.32		51.42	
HUDSON CO., NJ	16,581.68	310.16	9,657.33	
PASSAIC CO., NJ	5,153.62			
SOMERSET CO., NJ	30,121.12			
BRONX CO., NY	2,146.77		11,204.96	
KINGS CO., NY	3,113.48			
NASSAU CO., NY	3,450.52	23.72		
QUEENS CO., NY	38,369.40	9,378.38	46.69	
ROCKLAND CO., NY	6,193.94			
GALLIA CO., OH	5.02			
JACKSON CO., OH	12.70			
Total for this page	350,929.78	9,712.26	20,980.73	0.00

LAWRENCE CO., OH	5,401.49	362.94	334.76	
PIKE CO., OH		1.50		
SCIOTO CO., OH	1,493.22	494.69	9,967.91	
WASHINGTON CO., OH		1.50		
PROVIDENCE CO., RI	189.50			
BOONE CO., WV	25.68			
CABELL CO., WV	11,341.84	1,298.77	289.06	
DODDRIDGE CO., WV	18.95			
FAYETTE CO., WV	42.92			
JACKSON CO., WV	10.74	2.90		
KANAWHA CO., WV	1,005.61	1,074.60	3,045.04	
LEWIS CO., WV		1.92		
LINCOLN CO., WV	18.67	0.61		
Total for this page	19,548.62	3,239.63	13,636.77	0.00

LOGAN CO., WV	7.72			
MARION CO., WV	7.06			
MASON CO., WV	21.13			
MINGO CO., WV	50.56			
PUTNAM CO., WV	732.12	59.70	6.74	
WAYNE CO., WV	3,580.24	2,718.57		
WOOD CO., WV	26.36			
Total for this page	4,425.19	2,778.27	6.74	0.00

Grand Total	**374,903.59**	**15,730.16**	**34,624.24**

Jul-Aug-Sep 2015

Waste Source (County and State)	Type of Waste			**Waste Used as Alternate Daily Cover (Tons Only)
	*Municipal Solid Waste (Tons Only)	*Industrial Waste (Tons Only)	*Special Waste (Tons Only)	
BERGEN CO., NJ	100,237.49			
ESSEX CO., NJ	117,726.67			
HUDSON CO., NJ	17,644.15	291.79	5,632.44	
PASSAIC CO., NJ	5,567.20			
SOMERSET CO., NJ	18,948.44			
SUSSEX CO., NJ			747.05	
BRONX CO., NY	62.29		5,942.36	
KINGS CO., NY	2,773.23			
NASSAU CO., NY	1,144.53			
QUEENS CO., NY	32,683.22	8,081.00	24.62	
ROCKLAND CO., NY	61.59		191.97	
GALLIA CO., OH	15.25	12.79		
GUERNSEY CO., OH	0.60			
Total for this page	297,064.66	8,385.58	12,538.44	0.00

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JACKSON CO., OH	38.94			
LAWRENCE CO., OH	5,608.57			
MEIGS CO., OH	0.74	1,212.76	405.85	
PIKE CO., OH		3.74		
SCIOTO CO., OH	1,014.67	4.56		
WASHINGTON CO., OH	6.71	454.38	9,987.06	
WISE CO., VA	6.07	2.79		
BOONE CO., WV	69.55			
CABELL CO., WV	10,344.16	1,486.31	600.03	
CALHOUN CO., WV	0.77			
DODDRIDGE CO., WV	24.39			
FAYETTE CO., WV	25.69			
Total for this page	17,140.36	3,164.54	10,992.94	0.00

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Waste Source (County and State)	Type of Waste: *Municipal Solid Waste (Tons Only)	*Industrial Waste (Tons	*Special Waste (Tons	Waste Used as Alternate Daily Cover (Tons Only)
JACKSON CO., WV	56.20			
KANAWHA CO., WV	1,097.80	702.28	2,611.19	
LEWIS CO., WV		88.03		
LINCOLN CO., WV	79.56			
LOGAN CO., WV	13.22	1.82		
MASON CO., WV	34.22	17.96		
MERCER CO., WV		3.84		
MINGO CO., WV	49.20	0.24		
PUTNAM CO., WV	223.68	62.19		
RALEIGH CO., WV	15.75			
WAYNE CO., WV	3,000.20	995.14	23.26	
WOOD CO., WV	38.37			
Total for this page	4,608.30	1,871.50	2,634.45	0.00

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Grand Total 318,813.32 13,421.62 26,165.83

October 2015

Sum of Tons / County, State	Ticket Info: RCCD - RAIL CAR CD	RCMSW - RAIL CAR MSW	RCIND - RAIL CAR INDUSTRIAL	Grand Total
Bergen County, NJ	23,365.48	9,422.30		32,787.78
Essex County, NJ		36,776.08		36,776.08
Hudson County, NJ		8,365.47		8,365.47
Passaic County, NJ		1,556.48		1,556.48
Somerset County, NJ		8,127.22		8,127.22
Sussex County, NJ			346.38	346.38
Kings County, NY		860.41		860.41
Queens County, NY	4,925.12	1,126.13		6,051.25
Grand Total	28,290.60	66,243.09	346.38	94,880.07

November 2015

Sum of Tons / Row Labels	Column Labels: RCCD - RAIL CAR CD	RCMSW - RAIL CAR MSW	Grand Total
Bergen County, NJ	20,569.29	8,760.80	29,330.09
Essex County, NJ		35,312.28	35,312.28
Hudson County, NJ		5,749.28	5,749.28
Kings County, NY		660.95	660.95
Passaic County, NJ		1,342.05	1,342.05
Queens County, NY	4,239.13		4,239.13
Somerset County, NJ		7,855.39	7,855.39
Grand Total	24,808.42	59,680.75	**84,489.17**

December 2015

Sum of Tons	Ticket Info		
County, State	RCCD - RAIL CAR CD	RCMSW - RAIL CAR MSW	Grand Total
Bergen County, NJ	22,318.38	9,710.52	32,028.90
Essex County, NJ		38,094.32	38,094.32
Hudson County, NJ		5,112.00	5,112.00
Passaic County, NJ		1,432.74	1,432.74
Somerset County, NJ		7,286.33	7,286.33
Kings County, NY		902.05	902.05
Queens County, NY	4,489.67		4,489.67
Bronx County, NY		20.88	20.88
Grand Total	26,808.05	62,558.84	**89,366.89**

Senator BARRASSO. Thank you so much for your thoughtful testimony. We appreciate your coming in from Kentucky to do that.

Mr. Holmstead.

STATEMENT OF JEFFREY R. HOLMSTEAD, ESQ., PARTNER, BRACEWELL LLC

Mr. HOLMSTEAD. Thank you very much for giving me the chance to testify this morning.

Senator CARPER. Have you testified here before?

Mr. HOLMSTEAD. A few times.

Senator CARPER. If you had to guess how many times you have testified here, how many times would you guess? A dozen or more?

Mr. HOLMSTEAD. Well, maybe close to that number. Yes, quite a few.

Senator CARPER. Welcome back.

Mr. HOLMSTEAD. Thank you.

Senator CARPER. Don't agree with you on everything.

Mr. HOLMSTEAD. I have to say, it is always an honor to be here.

As some of you know, for almost 30 years, I have devoted my professional career to working on Clean Air Act issues. As a staffer in the White House, as the head of the EPA Air office and as an attorney in private practice. And I have to say that one of the things I find so frustrating is, it is very hard to have an honest conversation about the New Source Review program; what it does, and what it doesn't do.

I had the chance last night to review the testimony from NRDC. I have to say that I found it dispiriting, even bordering on dishonest when it comes to coal fired power plants. I want to just tell you why.

Historically, the pollutants of greatest concern from power plants have been SO_2 and NO_X, because of their impact on human health and the environment. In 1990, when the modern Clean Air Act was passed, and at least two of you were involved in that, power plants were far and away the biggest sources of SO_2 in the country, and along with motor vehicles, the biggest source of NO_X.

But since 1990, power plant emissions of SO_2 have decreased by 92 percent in our country. And power plant emissions of NO_X have decreased by 84 percent. That is a remarkable achievement.

If you read the NRDC testimony and didn't know anything about the Clean Air Act, you would assume that the NSR program must be responsible for all these pollution reductions, that all these plants triggered NSR and were forced to install the best available control technology. But that is simply not the case.

If you go to the EPA website that tracks power plant emissions, it says that these dramatic reductions are attributable to a number of other regulatory programs, primarily a series of cap and trade programs, starting with the Acid Rain program, that have imposed increasingly stringent caps on SO_2 and NO_X emissions from coal fired power plants.

NRDC seems to believe that the best way to reduce emissions is to wait until plants trigger NSR, and they are required to install BACT. But EPA has learned that it is actually much better just to issue regulations telling them that they have to reduce their emissions by how much and by when.

You might be surprised to know that there are many different Clean Air Act programs that regulate the very same pollutants from the very same facilities. In fact, power plant emissions of SO_2 and NO_X are regulated under at least 14 different Clean Air Act programs, a cornucopia of acronyms, that some of you know.

The NRDC testimony gives these programs no credit. But these are the programs that have actually reduced power plant emissions by 90 percent over the last 25 years. And these are the very same programs that will make sure that pollution continues to go down, regardless of what happens with the NSR program.

I did a word search last night and found 15 different places in the NRDC testimony saying that the reforms in the GAIN Act would lead to either massive or enormous increases in pollution, and 13 places saying ominously that it would allow industrial facilities to evade pollution controls. I will say, in a theoretical world, where there are no other environmental regulations, and there is unlimited demand for all products, this might be the case.

But in the real world, even if Congress decided to exempt all existing power plants from NSR entirely, and that is not what this bill does, but even if they did, there would not be an increase in power plant pollution. In fact, because of the many other programs that regulate the same pollutants from these facilities, emissions would continue to decrease as they have been doing since 1990.

The NRDC testimony almost concedes that total emissions would continue to go down, but suggests that the current NSR program is needed to ensure that no individual plant can increase its annual emissions. But this is just plain silly.

The current NSR program does nothing to prevent a facility from increasing its emissions. Annual emissions from individual plants go up and down all the time, for reasons entirely unrelated to NSR and modifications.

The hours that plants run depend entirely on what the demand is. If the economy heats up, or if other big power plants in an area shut down for any reason, other plants will need to operate more hours, and their annual emissions will increase. That is the way the world works.

The NSR program doesn't prevent this. But thankfully, as Mr. Alteri said, there are many other regulatory programs that when there are these increases in annual emissions, they are not enough to adversely affect air quality or cause health problems.

In the real world, the current NSR program does make it difficult for plant owners to make capital investments that would make their plants more efficient, and it does make it more difficult to maintain industrial plants in good working order.

The GAIN Act would remove these disincentives while still ensuring that when a new industrial facility is built or an existing facility is expanded, it will be required to install the best available control technology at that time.

Again, I thank you very much for inviting me here today. I look forward to answering questions.

[The prepared statement of Mr. Holmstead follows:]

Testimony of Jeffrey R. Holmstead
before the

Senate Committee on
Environment And Public Works

Hearing on
S. 2662, the Growing American Innovation (GAIN) Act
and the New Source Review (NSR) Program

November 6, 2019

Chairman Barrasso, Ranking Member Carper, and distinguished members of the Committee, thank you very much for inviting me to participate in today's hearing. My name is Jeff Holmstead. I am a partner in the law firm of Bracewell LLP.

For almost 30 years, my professional career has been focused on policy, regulatory, and legal issues arising under the Clean Air Act. From 1989 to 1993, I served in the White House Counsel's Office as Associate Counsel to President George H.W. Bush. In that capacity I was involved in many of the discussions and debates that led to the passage of the 1990 Amendments to the Clean Air Act – and was then deeply involved in the initial efforts to implement the 1990 Amendments. From 2001 to 2005, I was the Assistant Administrator of EPA for Air and Radiation and headed the EPA Office in charge of implementing the Clean Air Act. I am well acquainted with the legal, policy, and practical issues associated with the Clean Air Act and the many regulatory and permitting programs that have been designed to protect and improve air quality in the U.S.

When not in the federal government, I have been an attorney in private practice, representing a wide variety of clients on Clean Air Act (CAA) and other environmental issues. Since I joined Bracewell in 2006, I have worked primarily with companies and trade groups in the energy and manufacturing sectors.

Today, however, I am not appearing on behalf of any of my clients, and I have not shared my testimony with anyone else for their review or approval. Instead, I speak as someone who has worked on CAA issues for many years – as a policymaker, a regulator, and an attorney in private practice representing companies who are trying to manufacture products or develop energy resources in the U.S. in an environmentally responsible manner. Based on my experience in all these roles, I can say that the CAA's New Source Review (NSR) program is badly in need of reform.

Over the years, the NSR program has become a Kafkaesque tangle of convoluted, burdensome and completely unnecessary regulations, guidance documents, applicability determinations, and court decisions that make it more difficult for companies to do things that we should all want

them to do – like maintaining the reliability and safety of their facilities and making them more efficient. In some parts of the country, it effectively bans the construction of new facilities even if they use state-of-the-art pollution controls and would not have a meaningful impact on the environment – and even though the communities where they would be located desperately want them to be built.

It is certainly true that the NSR program does result in environmental benefits, especially as it applies to new facilities. But these benefits can be preserved by reforming NSR in a thoughtful way that would provide regulatory certainty and dramatically reduce the burden that it imposes on U.S. businesses, workers, and consumers. In my view, S. 2662 – the Growing American Innovation (GAIN) Act – would do just that.

Background

The Clean Air Act has been a remarkable success. Since it was adopted in 1970 – and especially since the passage of the 1990 Amendments – air quality has dramatically improved in virtually every part of the country. Since 1970, emissions of the six common pollutants that EPA has targeted for reduction – particles (generally called particulate matter or PM), ozone, lead, carbon monoxide (CO), nitrogen dioxide (NO2) and sulfur dioxide (SO2) – have dropped by almost 75 percent while gross domestic product has grown more than 260 percent.

More importantly, these emissions reductions have dramatically improved the quality of the air that we breathe. According to EPA's most recent Air Trends Report, since 1990 (when the current CAA was put in place), national concentrations of air pollutants improved 89 percent for SO2, 82 percent for lead, 74 percent for CO, 57 percent for NO2, and 21 percent for ozone. (Report available at https://www.epa.gov/air-trends.)

Most important of all have been the recent reductions in concentrations of fine particles, which are technically referred to as "PM2.5" because they consist of particulate matter with a diameter of less than 2.5 microns. EPA and many outside researchers have identified PM2.5 as the greatest risk to public health of all pollutants. Just since 2000, shortly after EPA began to regulate PM2.5, daily average concentrations have improved by almost 40 percent nationwide. This represents a remarkable achievement in protecting public health.

However, these very substantial emission reductions and improvements in air quality do not mean that everything about the Clean Air Act is working well. The CAA created dozens of different regulatory programs, and, using the authority of the CAA, EPA has issued hundreds of different regulations. Since 1990, when Congress last amended the CAA in a meaningful way, we have learned a great deal about regulatory policy. We now understand that some CAA programs are very effective and others are not. Some programs actually create unforeseen problems that make them counterproductive.

Because the CAA and regulations issued under the CAA have been developed over many years, there are often a number of different regulations that regulate the same pollutants from the same facilities. Some of these programs have been very successful at reducing pollution and improving air quality cost-effectively. In general, the Act's regulatory programs for "mobile sources" (cars, trucks, and non-road vehicles and engines) have been responsible for very

substantial improvements in air quality (especially in urban areas) and have been very cost-effective.

The regulatory programs for "stationary sources" (industrial and manufacturing facilities and power plants) have been more of a mixed bag. Some – especially the acid rain program and the various cap-and-trade programs around the country that have been modeled on it – have been enormously successful in achieving cost-effective pollution reductions and improvements in air quality. Other CAA programs impose significant costs with little benefit. Because there are so many overlapping programs that regulate the same pollutants from the same facilities, we, as a society, are paying much more than we should for preserving and improving air quality. If we take advantage of the lessons that have been learned over the last 30 years and use the most effective and efficient approaches for reducing air pollution, we can achieve our air quality goals at a much lower cost.

This is important because the costs of these programs are borne by all of us – not just the businesses and industries that pay the costs directly. These costs are, of necessity, passed along to anyone who uses electricity or heats a house or fuels a vehicle or purchases any products that are produced in the U.S. or transported anywhere in the U.S.—*i.e.*, to all of us.

As noted above, I have spent almost 30 years working on and studying the various regulatory programs created under the Clean Air Act. I can say with confidence that the NSR program, as it applies to existing facilities, is the most problematic of all Clean Air Act programs. In many cases, it is actually counterproductive. It creates perverse incentives and makes it difficult for industrial facilities to improve their efficiency and maintain the reliability of their operations. To the extent that the NSR program provides environmental benefits, those same benefits can be preserved by reforming the program in a thoughtful way and by relying on other, much more effective CAA programs that regulate the same pollutants from the same facilities.

The NSR Program

NSR for New Sources

As the name implies, the New Source Review or NSR program was designed primarily for "new sources" of emissions (new manufacturing facilities and power plants). Before any new major source can be constructed, it must first go through a permitting process that identifies the "best available control technology" (BACT) to minimize emissions from the new facility. The permit applicant must then obtain an NSR permit that requires the new facility to meet emission limits that can be achieved with that technology. The basic theory of the program is that modern pollution controls should be part of the design and construction of any new major source of emissions.

The NSR program is probably the most important CAA program for controlling pollution from new sources, but it does include certain requirements that now make it difficult or impossible to build new industrial or manufacturing facilities in certain parts of the country, even if those facilities would be built with the best pollution control equipment in the world – and even if the communities where they would be located desperately want them to be built.

In a recent paper published in the Environmental Law Reporter (ELR), Art Fraas (a Visiting Fellow at Resources for the Future), John Graham (the Dean of the School for Public and Environmental Affairs at Indiana University), and I discuss the NSR Program at some length and outline a number of reforms that would make it easier to build new manufacturing facilities in the U.S. as long as they use the best available technology to control their emissions. That paper, entitled "EPA's New Source Review Program: Time for Reform?" is focused primarily on the ways in which the NSR Program applies to new facilities. Rather than summarize that paper here, I have asked that it be included in the record for this hearing. That said, I would be happy to answer questions that any members of the Subcommittee might have about it.

NSR for Existing Sources

The NSR program also applies to existing sources, but only if they make "major modifications" as defined under EPA regulations. Again, the theory is that, when there will be a modification to an existing plant that will significantly increase emissions, modern pollution controls should be designed into the modification. Thus, before the owner of an existing facility can make a major modification to it, the owner must obtain a permit to ensure that BACT will be used to control emissions from the facility once it is modified.

The concepts behind the NSR program are sensible and appear to be simple and straightforward. In practice, however, the program has long been the cause of great uncertainty and controversy. In general, industry officials believe that a project at an existing facility should trigger NSR only if it would increase the facility's capacity. Thus, companies understand that, when they are expanding a facility, they need to obtain an NSR permit before doing so. Since the late 1990s, however, EPA has taken the position that replacing virtually any type of equipment or component at an existing facility – even if it involves replacing a worn-out piece of equipment with a new but identical piece of equipment – is a major modification that triggers NSR.

Although the NSR program is the primary regulatory tool for controlling emissions from new plants, it was *not* intended to be a key program for controlling emissions from existing facilities. As EPA stated in a 2002 Report on the NSR program:

> The NSR program is by no means the primary regulatory tool to address air pollution from existing sources. The Clean Air Act provides for several other public health-driven and visibility-related control efforts: for example, the National Ambient Air Quality Standards Program implemented through enforceable State Implementation Plans, the NOX SIP Call, the Acid Rain Program, the Regional Haze Program, etc. Thus, while NSR was designed by Congress to focus particularly on sources that are newly constructed or that make major modifications, Congress provided numerous other tools for assuring that emissions from existing sources are adequately controlled.

New Source Review: A Report to the President (2002) at pp. 3-4.

The question of what is a "major modification" that triggers NSR at an existing source has been the source of much controversy and is discussed in several EPA regulations, more than a thousand pages of Federal Register notices and guidance documents, and many dozens of court

cases – and there is still much uncertainty about how to determine whether something is a major modification.

This is important to industry because, if a company makes a "major modification" to a facility, the cost of going through NSR, and the delays it can cause, are very substantial. In a number of cases, EPA has taken the position that relatively small projects – projects that cost less than five hundred thousand dollars – were "major modifications" that triggered the need for the facility to spend hundreds of millions of dollars in new control equipment. Even without the cost of new equipment, the time it takes to go through the NSR permitting process can be very long – perhaps a year on average but, in some cases, it can take several years. Because of the cost and delays, companies are very reluctant to do anything that might trigger NSR.

Over the last 20 years, EPA enforcement officials have tried to expand the definition of major modification in an effort to capture more facilities into the NSR program. At the same time, companies have spent much more time and effort figuring out how they can maintain their facilities without triggering NSR. I know of companies that actually employ teams of employees and outside lawyers to make sure that the investments they make to maintain their facilities do not trigger NSR, and companies often make suboptimal decisions about investing in their facilities because of the current NSR program. As a result, the NSR program makes it more difficult for companies to do things that we should all want them to do – like maintaining the reliability and safety of their facilities and making them more efficient.

The Emissions Increase Test

Under the statute and EPA's regulations, a major modification is a "physical change or change in the method of operations" at an existing source that will cause a "significant emission increase," which is defined as an increase in annual emissions that is greater than certain thresholds (which are different for different pollutants). As EPA has noted, this definition essentially creates a two-step test that a plant operator must use in order to determine the applicability of NSR requirements to any particular project at an existing source: "first, you will determine whether a physical or operational change will occur. If so, then you will proceed to determine whether the physical or operational change will result in an emissions increase over baseline levels." 67 Fed. Reg. 80186, 80187 (Dec. 31, 2002).

Under EPA regulations, "routine maintenance, repair, and replacement" projects are exempted from the definition of a physical change, so there has been much litigation over whether certain specific projects are "routine." But, perhaps surprisingly, there has also been much controversy over the question of how to determine if a physical or operational change will result in an emissions increase.

Another CAA program, referred to as the New Source Performance Standards or NSPS program, employs the exact same definition of the term "modification." In fact, when Congress added the NSR program to the CAA in 1977, it simply adopted the existing statutory definition of "modification" that had been used since 1970 for the NSPS program. Under the NSPS program, EPA determines whether a project at a plant will cause an emissions increase (and will thus be a modification) by looking at the maximum hourly emission rate of the plant before the project and comparing it to the maximum hourly emission rate of the plant after it. If a project does not

increase this rate – that is, if the plant has not been changed in a way that would increase its maximum hourly emissions rate – then the project is not a modification. There is rarely any controversy about this issue because the maximum hourly emission rate is a readily available number that is based on the design of the facility. It is simply a question for engineers.

Under the NSR program, however, EPA has adopted a very different approach for determining if a physical or operational change will cause an emissions increase – not based on plant design but on projections of future annual emissions that depend on many other factors besides the physical design of a facility. First, a company must determine its "baseline" emissions. For power plants, this is their annual average emissions of the highest 2-year period of operation over the last 5 years. For other facilities, it is the highest yearly emissions during the last 10 years.

Then, a company must make a projection of what its future annual emissions will be during the 5- or 10-year period after the change (depending on the type of project being undertaken). If projected future emissions are higher than baseline emissions by more than the "significance thresholds," then the company is allowed to subtract the amount of its projected future emissions that are unrelated to the physical change at the facility (such as increased demand for the product being produced). If projected future emissions are still higher than the "significance threshold," then the physical change is a "major modification" that triggers NSR.

This is complicated enough, but there has been substantial controversy as to how future annual emissions should be projected. Some power companies have projected future emissions using sophisticated computer modeling techniques that they use to plan future investments – only to have EPA enforcement officials insist that they should have used another method that would have predicted higher emissions and thus that the project triggered NSR. Like virtually every other NSR issue, this has been the subject of protracted litigation.

S. 2662 – the Growing American Innovation (GAIN) Act

Clarifying the Emissions Increase Test

Because of all the uncertainty and controversy caused by the "emission increase test," it would be helpful for Congress to clarify this issue. That's what the GAIN Act would do. It would make clear that there is not a "major modification" under NSR if there is not a "modification" as defined under NSPS. Thus, companies (and EPA) would evaluate a project to determine whether it would increase the maximum hourly emission rate at the plant. If not, then the project does not trigger NSR. If so, then the project would be a modification and would then be evaluated under the current NSR test to determine whether it would be a "major modification" that would trigger NSR.

There are at least two important reasons for Congress to consider such an approach. First, it would provide much more certainty to EPA, states, and the regulated industry. As opposed to the current NSR approach, the maximum hourly emission rate is an objective measure based on the design of the facility and is easily ascertainable. As recent experience has shown, there is much subjectivity under the current approach and many different ways to project future annual emissions and then determine the amount of those emissions that are unrelated to the project being evaluated.

Second, from an environmental perspective, a one-hour test is much more meaningful than an annual test because the most stringent EPA standards are based on maximum concentrations of a pollutant averaged over one hour (for SO2 and NO2), eight hours (for ozone and CO), and 24 hours (for PM2.5). The only pollutant for which a longer "averaging time" is meaningful is lead, for which the air- quality standard is based on a 3-month average (and which has rarely, if ever, been addressed by NSR.) Simply put, in terms of protecting human health, the maximum amount of a pollutant that a facility emits in one hour is generally more important than the amount it emits in a year. (This is obviously not the case when it comes to emissions of carbon dioxide (CO2), but the Supreme Court has held that increases in CO2 emissions do not trigger NSR, meaning that CO2 emissions are not subject to the emissions increase test.)

Energy Efficiency Projects

Importantly, the GAIN Act would also ensure that NSR is not an impediment to improving energy efficiency. To address climate change, we must focus on reducing CO2 emissions. There is no question that the most cost-effective way to reduce CO2 from existing facilities is to improve their efficiency – that is, to make physical or operational changes that would enable them burn less fossil fuel (coal, oil, or natural gas) to produce a given amount of product (whether it be electricity or gasoline or widgets).

However, the current NSR program is a significant impediment to energy efficiency projects because EPA, in a number of NSR enforcement cases, has argued that energy efficiency projects trigger NSR – i.e., that an existing facility must go through the cumbersome and costly NSR permitting process before it can do such a project. I am aware that, for this reason, a number of companies have identified energy efficiency projects that they would like to undertake but have decided *not* to do them for fear of triggering NSR.

It may seem strange that EPA would take a position that actively discourages energy efficiency, but here is the theory espoused in several NSR enforcement cases: When a facility owner makes a physical or operational change at a facility to make it more energy efficient, this reduces the cost of operating the facility, because it uses less fuel per unit of production. For this reason, the more energy efficient facility would have a competitive advantage over other facilities that make the same product. As a result, the more energy efficient facility will take away business from less efficient facilities and operate longer hours. Because it operates longer hours, it will increase emissions and, as a result, the energy efficiency project triggers NSR.

If you have followed this reasoning, I hope you will be troubled by it. Because of a desire to bring NSR enforcement actions, EPA has implemented the NSR program in a way that clearly makes it more difficult and costly to make energy efficiency improvements to existing plants. If Congress wants to encourage energy efficiency, it should adopt legislation to make it clear that any physical or operational change at an existing facility that makes it more energy efficient – that enables it to reduce its CO2 emissions per unit of production – does not trigger NSR.

Power Plants: A Case Study

Much of the controversy around the NSR program has focused on coal-fired power plants, which have been the largest single source of two pollutants that historically have been of greatest

concern to EPA and other policymakers – SO2 and NOx. Environmental groups often claim that the NSR program, as it currently operates, is essential for reducing SO2 and NOx emissions from power plants. They argue that all such plants must go through NSR and be required to install BACT whenever they replace a component such as boiler tubes or a preheater, even if the replacement component is identical to the old one. They claim that any reform like the GAIN Act would allow power plants to dramatically increase their emissions.

This claim, however, is demonstrably untrue. Even if Congress eliminated the NSR program entirely, SO2 and NOx emissions from existing U.S. coal-fired power plants would continue to decrease, as they have over the last 30 years, because of a host of other CAA programs.

According to EPA data, since the enactment of the 1990 CAA Amendments, there has been:

- **A 92 percent reduction in SO2 emissions from coal-fired power plant; and**
- **An 84 percent reduction in NOx emissions from coal-fired power plants.**

Again, this is a remarkable achievement – and it has nothing to do with the NSR program. Coal-fired power plants have not reduced their emissions because they have triggered NSR and been forced to install BACT. According to EPA itself, these emission reductions are attributable to a number of other programs (summarized below) that have imposed explicit emission reduction requirements on such plants, regardless of whether they have undertaken any "major modifications."

Emissions of SO2 and NOx from coal-fired power plants are covered by multiple different CAA regulatory programs – as many as 14, depending on where the plants are located. For any *new* coal-fired plant that might be built in the future, the NSR program is important and will ensure that it will be built with the best available technology to control its emissions. But when it comes to the fleet of *existing* coal-fired plants, any policy analyst who has seriously studied the CAA will tell you that it has not been a meaningful regulatory tool for reducing emissions and that there are other CAA programs that have been responsible for the dramatic emission reductions that have been achieved over the last two decades. They will also tell you that these same programs will also ensure that emission continue to decrease, regardless of the NSR program.

To start, SO2 and NOx emissions are regulated under 4 different "national ambient air quality standards" or NAAQS:

- the **NAAQS for PM2.5** (because both SO2 and NOx emissions contribute to the formation of PM2.5);
- the **NAAQS for ozone** (because NOx emissions are the most important contributor to ozone formation in most parts of the country);
- the **NAAQS for NO2** (because NO2 is a subset of NOx);
- the **NAAQS for SO2** itself.

In recent years, as EPA has set more stringent NAAQS (especially for PM2.5 and ozone), many states have been required to develop more stringent "state implementation plans (SIPS) under the CAA to reduce SO2 and NOx emissions from coal-fired power plants (and other industrial sources) within their borders.

In addition, because of the CAA's "good neighbor" provision, EPA itself has issued increasingly stringent regulations to ensure that SO2 and NOx emissions from coal-fired power plants do not "significantly contribute" to air quality problems in downwind states. These regulations, well known to anyone involved in CAA law or policy, are known as:

- the **"NOx SIP call"** (which was finalized in 1997 and regulates NOx only);
- the **"Clean Air Interstate Rule"** (CAIR) (which was finalized in 2004 and regulated both NOx and SO2) until it was replaced by
- the **"Cross-State Air Pollution Rule"** (CSAPR) (finalized in 2011 and covering both pollutants);
- and the **"CSAPR Update"** (finalized in 2016 and covering both pollutants).

In terms of public health and cost, these rules are collectively the most significant stationary source rules that EPA has ever issued and have achieved dramatic reductions in emissions of both NOx and SO2 from coal-fired power plants.

The Acid Rain Program was the centerpiece of the 1990 Clean Air Act Amendments and the first cap-and-trade program in the world. Its success has been well documented. Designed to reduce acidification in lakes and streams in the eastern U.S., it was largely responsible for the substantial reductions in power plant SO2 emissions that occurred between 1990 and 2004, when the CAIR rule was issued. It also reduced emissions of NOx, but to a lesser extent, because NOx emissions were not covered under the cap-and-trade program.

In addition, the following regulations or regulatory programs have also reduced emissions of SO2 or NOx (or both) from coal fired power plants. Some of them will continue to require further reductions in the future.

The Regional Haze Program. In addition to programs designed to protect public health, the CAA also includes a separate program, known as the Regional Haze Program, to improve visibility in national parks and other areas designated for special protection. Because SO2 and NOx emissions contribute to the formation of fine particles that can obscure visibility, they are both regulated under this program. Under this program, EPA and states have required coal-fired power plants to substantially reduce their SO2 and NOx emissions.

Best Available Retrofit Technology (BART). As part of the Regional Haze Program, all coal-fired power plants that were constructed between 1962 and 1977, were required to install the "Best Available Retrofit Technology" (BART). Plants that were covered by CAIR, CSAPR, or the CSAPR Update rule were deemed to have complied with this requirement, but the BART mandate substantially reduced SO2 and NOx emissions from coal fired power plants in western states.

The Mercury and Air Toxics Standards (MATS). EPA issued the MATS rule in 2011 to regulate power plants emissions of certain pollutants that are listed as "hazardous air pollutants" (HAPS) under the Act. Although SO2 and NOx are not listed as HAPS, SO2 is a surrogate for "acid gases," which are listed as HAPS. In fact, certain plants were given the option of meeting an emission standard for SO2 instead of meeting the MATS standard for acid gases. As a practical matter, MATS has significantly reduced emissions of SO2 because of the control technology installed to meet the acid gas requirements of the rule – and because a number of power plants shut down because it was not economically feasible for them to comply with MATS. The plant shutdowns also reduced NOx emissions from such plants.

The NSPS Program. This program is very similar to the NSR program in that it regulates SO2 and NOx emissions from new or modified coal-fired plants.

Claims Made by NSR Proponents

Proponents of the current NSR program like to point to settlements (usually in the form of consent decrees) that have been reached over the years in a number of NSR enforcement cases. They argue that the current program should remain unchanged so that EPA enforcement officials can bring more NSR cases.

If you take the claims made in government press releases at face value, you might think that these NSR settlements have achieved large reductions in air pollution – especially from coal-fired power plants. But if you look carefully at the terms of the settlement agreements, you'll find that most of the things that a company has agreed to do in terms of reducing pollution from its plants are things that the company is already required to do under other Clean Air Act regulations. In some cases, you'll see that companies are simply agreeing to do things *that they have already done.* This means that government enforcement officials, in their press releases, are claiming credit for things that have already been done or pollution reductions that would be achieved anyway – *i.e.*, even without the settlement. And if you're familiar with the other CAA programs that regulate the same emissions from the same facilities, you would see that all the pollution reductions that have been claimed for these NSR enforcement could be achieved by other, more cost-effective CAA programs.

Again, it is instructive to look at the NSR program as it has been imposed on the power sector. The NSR settlements that have required companies to reduce emissions from their coal-fired power plants apply almost exclusively to plants located in areas that, under other CAA programs, have "caps" on the total amount of pollution that can be emitted by the coal-fired plants in these areas. Because of the area-wide cap, a settlement requiring emission reductions from certain plants does nothing to reduce total emissions in that area. It simply ensures that they are achieved at some plants rather than others – and not necessarily where the emission reductions are most needed or where they can be achieved most cost-effectively.

Conclusion

I hope that the Committee will give serious consideration to S. 2662. This bill would simply re-introduce some common sense into the NSR program and make sure that it does what it was intended to do:

1. Ensure that, when a new industrial facility is built or an existing facility is significantly expanded, modern pollution controls will be used to minimize its emissions; and

2. Ensure that the NSR program does not make it hard for companies to keep their facilities in good working order and, where possible, reduce the operating cost of these facilities by making them more efficient.

Again, I very much appreciate the opportunity to appear before the Committee and hope my testimony will be helpful to you as you review the New Source Review program and decide whether Congress should take action to reform it.

Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing on S. 2662, the Growing American Innovation Now (GAIN) Act"*
November 6, 2019
Questions for the Record for Mr. Holmstead

Chairman Barrasso:

Please provide a response to each question, ***including each sub-part.***

1. *During the hearing, John Walke testified that the GAIN Act allows "grandfathered power plants that still lack controls ... to run forever without installing modern pollution controls." Do you think that this is a fair representation of what the GAIN Act does?*

Response: No. As I explained in my written testimony, the idea of "grandfathered" power plants is disingenuous. In the U.S., there are no power plants that lack controls because power plants are subject to many different regulatory programs that require pollution controls. Mr. Walke's testimony is misleading because he suggests that power plants will only reduce their emissions if they are forced to "trigger NSR." Yet U.S. power plants have reduced their emissions by approximately 90 percent since the modern Clean Air Act was adopted in 1990, and, according to EPA's own evaluation, virtually none of these emission reductions are attributable to the NSR program. Rather, they are attributable to a number of other CAA programs, primarily cap-and-trade programs like Acid Rain Program, the NOx SIP Call, CAIR, and CSAPR.

The GAIN Act will simply make it easier for companies to maintain their facilities and make them more efficient.

2. *In his response to a question from Senator Markey during the hearing, John Walke agreed with Senator Markey that the GAIN Act gives facility owners a "license to pollute." Do you agree with this assessment?*

Response: Statements like this one are just plain silly. As I explain in my written testimony, any facility that would be covered by the GAIN Act is subject to multiple different regulatory programs that limit its emissions. Even if the NSR Program were eliminated entirely, no facility covered by the GAIN Act would have "license to pollute."

3. *Can you elaborate why you believe an hourly test is the best emissions test for the New Source Review program?*

Response: Under the current NSR Program, companies and regulators are required to apply an "annual test" in determining whether a physical or operational change at a facility will cause an emissions increase in the future. This test is highly uncertain and has given rise to much controversy and years of litigation.

The hourly test would provide much more certainty to EPA, states, and the regulated industry. As opposed to the current NSR approach, the maximum hourly emission rate is an objective measure based on the design of the facility and is easily ascertainable. As recent experience has shown, there is much subjectivity under the current approach and many different ways to project future annual emissions and then determine the amount of those emissions that are unrelated to the project being evaluated.

4. *At a hearing before the House of Representatives on New Source Review legislation last year, Ross Eisenberg, Vice President of the National Association of Manufacturers (NAM), testified. He stated the following:*

> *"[A] NAM member company manufactures gas turbine upgrade technology that could improve the vast majority of in-service gas turbines by 2.6 percent and reduce their total carbon dioxide (CO2) emissions per megawatt-hour (MWh) by 6.5 percent. This company reports that its customers are choosing not to install this equipment simply because it triggers NSR. The company is facing the same impediments for large and small fossil steam turbines, such as steam path redesign technologies, rotor replacement, and steam turbine warming systems."*[1]

   a. *Can you discuss how the current New Source Review program serves as an impediment for the installation of modern equipment like turbine upgrades?*

Response: The current NSR program is a significant impediment to energy efficiency projects because EPA, in a number of NSR enforcement cases, has argued that energy efficiency projects trigger NSR – i.e., that an existing facility must go through the cumbersome and costly NSR permitting process before it can do such a project. I am aware that, for this reason, a number of companies have identified energy efficiency projects that they would like to undertake but have decided *not* to do them for fear of triggering NSR.

It may seem strange that EPA would take a position that actively discourages energy efficiency, but here is the theory espoused in several NSR enforcement cases: When a facility owner makes a physical or operational change at a facility to make it more energy efficient, this reduces the cost of operating the facility, because it uses less fuel per unit of production. For this reason, the more energy efficient facility would have a competitive advantage over other facilities that make the same product. As a result, the more energy efficient facility will take away business from less efficient facilities and operate longer hours. Because it operates longer hours, it will increase its annual emissions and, as a result, the energy efficiency project triggers NSR.

This theory, of course, ignores the fact that, if a more efficient facility operates longer hours, it will displace production from less efficient plants. Moreover, if the threat of NSR enforcement

[1] *Hearing on Legislation Addressing New Source Review Permitting Reform Before the H. Comm. on Energy and Commerce Subcomm. on Env't*, 115th Cong. (2018) (statement of Ross Eisenberg, Vice President of Energy and Resources Policy, National Association of Manufacturers), available at http://documents.nam.org/ERP/NAM_Testimony_Ross%20Eisenberg_House%20EC_5.16.18.pdf

for energy efficiency projects is removed, it will be easier for all facilities to improve their efficiency.

b. How would an hourly test help to alleviate this issue?

Response: The hourly test eliminates the disincentive for energy efficiency projects because it eliminates the question of how much a plant will operate on an annual basis, which is affected by many factors other than a physical or operational change at the plant itself. Energy efficiency projects generally do not increase a plant's hourly emissions rate, which is an easily determined objective number.

5. *Following the hearing for the GAIN Act, John Walke tweeted the following:*

> *"17. Letting air pollution increase & worsen from individual polluting facilities, *because* air pollution is decreasing *nationally,* is irresponsible, harmful & absurd; that's not how individuals breathe.*
>
> *Americans get that even if industry & some politicians don't.*
>
> *The end."*

Isn't it a good thing for greenhouse gas emissions to decrease nationally?

Response: When it comes to greenhouse gas emissions, the only thing that matters is whether emissions are decreasing nationally (actually internationally). For other pollutants, we need to pay attention to emissions from individual facilities, but there are multiple regulatory programs that deal with this issue and ensure that emissions from individual facilities do not harm people who leave nearby.

Do you have any other reactions to this tweet?

Response: In my experience, Mr. Walke never lets the truth get in the way of a good tweet. He is a colorful witness (and tweeter), but he appears to have little interest in engaging in real issues.

6. *Are there any other issues you would like to comment on from the hearing or materials that you would like to provide to the Committee?*

Response: Not at this time. I think the Committee has a very strong record that demonstrates the need for legislation like the GAIN Act.

<u>Ranking Member Carper:</u>

Please provide a response to each question, ***including each sub-part.***

7. *In your written testimony, you state that, since the late 1990's, "EPA has taken the position that replacing virtually any type of equipment or component at an existing facility – even if it involves replacing a worn-out piece of equipment with a new but identical piece of equipment – is a major modification that triggers NSR."*

   However, EPA's regulations make clear that replacements of equipment only constitute a major modification if the change "would result in a significant emissions increase…of a regulated NSR pollutant . . . and a significant net emissions increase of that pollutant…."

   Do you wish to amend this portion of your written testimony to clarify that, in fact, EPA has not taken the position that merely replacing "any type of equipment or component" can itself constitute a major modification? If not, why not?

Response: In context, the meaning of my statement is clear. My written statement explains the current "emissions increase" test and how it has been misused to claim that replacing virtually any type of equipment or component at an existing facility – even if it involves replacing a worn-out piece of equipment with a new but identical piece of equipment – can be a major modification that triggers NSR.

EPA's enforcement initiative demonstrates that, in the view of EPA enforcement officials, NSR is triggered without any increase in emission. In a number of cases, EPA has brought enforcement lawsuits alleging that equipment replacement projects violated NSR even though emissions actually went down and stayed down after the project was completed. Notwithstanding the emission decreases, EPA has argued that the plant owners violated NSR because they *should have predicted* an emission increase when they replaced various components. The fact that they correctly predicted no emission increase and that there was no increase in emissions after the equipment replacement projects was not a bar to NSR enforcement actions.

8. *In your written testimony, you state that you support the changes of the GAIN Act in because, "in terms of protecting human health, the maximum amount of a pollutant that a facility emits in one hour is generally more important than the amount it emits in a year." You further write that, "The only pollutant for which a longer 'averaging time' is meaningful is lead, for which the air quality standard is based on a 3-month average (and which has rarely, if ever, been addressed by New Source Review)."*

   a. *You base this assertion on the fact that two of the National Ambient Air Quality Standards (NAAQS) use averaging times of one-hour. However, the same sentence includes NAAQS with longer averaging times than one hour: the eight-hour NAAQS for ozone and carbon monoxide, and the 24-hour NAAQS for $PM_{2.5}$. Given the rationale of your assertion, does this mean that you would support an amendment to the GAIN Act that would increase the averaging time from one hour to 24 hours? If not, why not?*

Response: A 24-hour test would be much better than the current annual test. If Senator Carper would support the GAIN Act with a 24-hour test, I would happily support such an amendment, even though it create a whole new approach for determining emission increases instead of adopting the approach that has been used for many years under the NSPS Program.

b. Given your statement in the above paragraph on lead, would you support an amendment to the GAIN Act that would keep lead regulated as it is currently? If not, why not?

Response. Yes. As far as I know, lead has never been an issue under the NSR Program.

c. *In addition to the one-hour NAAQS for NOx, EPA also has a NOx standard (53 ppb) based on a full year of exposure. Do you believe that the effects of chronic NOx exposure are meaningful? If so, do you wish to revise your testimony to recognize the importance of federal officials considering those chronic health effects when developing public policy? If not, why not?*

Response: I certainly recognize the importance of considering the chronic health effects of NOx and other pollutants, but the NSR Program (especially as it relates to existing sources) has never been an effective program for dealing with these issues. Thankfully, EPA has many other regulatory programs that are.

d. In addition to the 24-hour $PM_{2.5}$ standard, EPA also has a $PM_{2.5}$ NAAQS (12 micrograms per cubic meter) based on a full year of exposure. When the George W. Bush Administration during your tenure was reviewing the annual $PM_{2.5}$ NAAQS, it wrote, "The recent studies suggest that long-term exposure to fine particles is associated with development of chronic respiratory disease and reduced lung function growth...." The agency found that the one-year NAAQS "protect[s] against health effects associated with long-term exposure (including premature mortality and development of chronic respiratory diseases)." Do you believe that the effects of chronic $PM_{2.5}$ exposure are meaningful? If so, do you wish to revise your testimony to recognize the importance of federal officials considering those chronic health effects when developing public policy? If not, why not?

Response: Yes, I believe that the effects of chronic $PM_{2.5}$ exposure are enormously important, as I have made clear on many occasions. The NSR Program (especially as it relates to existing sources) has never been an effective program for dealing with chronic $PM_{2.5}$ but, thankfully, EPA has many other regulatory programs that are.

e. If it was important enough during the Bush Administration to retain the $PM_{2.5}$ NAAQS, why do you now believe that chronic $PM_{2.5}$ exposure is non-

"meaningful" that NSR need not consider the potential for increases in long-term exposure?

I do not believe, and did not mean to suggest, that chronic $PM_{2.5}$ exposure is not meaningful. Chronic exposure to $PM_{2.5}$ is probably the most serious air quality problem in the world today and, when I was at EPA, reducing levels of $PM_{2.5}$ was our highest priority. That said, the NSR Program (especially as it relates to existing sources) is not an effective way of dealing with it. Thankfully, EPA has many other regulatory programs that have been and will continue to be effective in reducing unhealthy levels of $PM_{2.5}$.

9. *The GAIN Act (S. 2662) would change the New Source Review program so that a facility's baseline for judging a significant emissions increase would be calculated based on that facility's maximum potential hourly emission rate, rather than its actual historical emissions. During your tenure leading the George W. Bush EPA's Office of Air and Radiation, the EPA finalized a number of changes to the NSR program. But in 2002, under your leadership, OAR specifically declined to adopt a potential-to-potential hourly emission test proposed by the Chemical Manufacturers Association (CMA), which is similar to the test embodied in S. 2662.*

   In rejecting the CMA proposal, the Bush EPA "did a preliminary analysis of the impact on the NSR program of the [CMA] changes."[2] Although the Bush EPA noted that the proposal would provide "maximum flexibility to existing facilities," the agency's "concern about environmental consequences" militated against the proposal. EPA elaborated on the basis for these concerns, as outlined below:

   a. *First, the Bush EPA during your tenure noted that, under such a test, "For one, you could modernize your aging facilities (restoring lost efficiency and reliability while lowering operating costs) without undergoing preconstruction review, while increasing annual pollution levels as long as hourly potential emissions did not change."*

      Do you still agree that a potential-to-potential test like that in S. 2662 and the rejected CMA proposal could allow some sources to increase annual pollution levels as long as hourly potential emissions do not change? If not, please explain why not.

   Response: This question is based on the faulty premise that the current annual increase test prevents facilities from increasing their annual emissions. This is not so. Industrial facilities are allowed to increase their annual emissions without triggering NSR as long as they meet all the CAA regulatory requirements that apply to them. These other CAA programs are designed to ensure that such increases do not pose an unacceptable risk to human health and the environment. This would be the case under S. 2662 as well.

[2] 67 FR at 80205.

It is theoretically possible that, in some cases, an hourly potential-to-potential test could allow a source to increase annual emissions without triggering NSR, when it might have triggered NSR under the current test. In my experience, however, this would rarely be an issue in the real world. In any case, a variety of other CAA programs would ensure that any year-to-year increase in annual emissions would not pose an unacceptable risk to human health and the environment.

b. *Second, the Bush EPA during your tenure stated that, the rejected CMA proposal "would allow your facilities to generate netting credits and ERCs [Emission Reduction Credits] for offsets based on potential hourly emissions, even if never actually emitted. This could sanction greater actual emissions increases to the environment, often from older facilities, without any preconstruction review."*

   Do you still agree that a potential-to-potential test like that in S. 2662 and the rejected CMA proposal could possibly allow facilities to generate emission reduction credits for offsets—offsets intended to protect human health and the environment—based on potential hourly emissions, rather than any reduced actual emissions affecting human health or the environment? If not, please explain why not.

Response: Under S. 2662 or any hourly test, EPA would have to develop regulations dealing with the creation and use of offsets. This could be done in a way that, along with the variety of other CAA programs, is fully protective of human health and the environment.

c. *Third, the Bush EPA during your tenure stated that, under the rejected CMA proposal, "actual emissions increases resulting from unreviewed projects could go largely undocumented until a PSD review is performed by a new or modified facility that ultimately must undergo review. By that time, however, a violation of an increment could have unknowingly occurred."*

   Do you still agree that a potential-to-potential test like that in S. 2662 and the rejected CMA proposal present legitimate enforcement concerns, that actual emissions increases from unreviewed projects could go largely undocumented? If not, please explain why not.

Response: PSD increments create many implementation challenges, and under S. 2662 or any hourly test, EPA would have to develop regulations dealing with increment consumption. This could be done in a way that, along with the variety of other CAA programs, is fully protective of human health and the environment.

d. *Finally, the Bush EPA during your tenure stated that it was "also concerned that [the CMA proposal] would ultimately stymie major new source growth by allowing unreviewed increases of emissions from modifications of existing sources to consume all available increment in PSD areas."*

Do you still agree that a potential-to-potential test like that in S. 2662 and the rejected CMA proposal could have the perverse effect of stymieing new sources for constructing in attainment areas? If not, please explain why not.

Response: Again, PSD increments create many implementation challenges, regardless of the form of the emission increase test. If there is any change to the current test, including S. 2662, EPA would have to develop regulations dealing with increment consumption. I am confident that S. 2662 or any other hourly test could be implemented in a way that does not inhibit the development of new, well-controlled industrial facilities.

10. *During the Committee's November 6, 2019 hearing on the GAIN Act, I noted that during your tenure leading EPA's Office of Air and Radiation, "EPA expressly rejected a change to NSR based on the maximum hourly rate," referring to the rejected CMA proposal. You responded: "**So let me be clear. We never rejected the, what, this approach. We didn't adopt it.**"*

    Your response to my question simply is not accurate. EPA did reject the across-the-board proposal to use a potential-to-potential approach, which is what S. 2662 would accomplish as well. In the 2002 New Source Review rule, EPA expressly stated that:

    > *Our own concerns, coupled with the concerns expressed by some commenters, have **caused us to reject the use of the [CMA] Exhibit B regulatory changes** for general purposes when determining whether a proposed physical or operational change would result in a major modification. For the reasons stated above, we do not believe that a potential-to-potential approach is acceptable for major NSR applicability as a general matter.*[3]

    Indeed, the decision to reject an across-the-board potential-to-potential test like the one in S. 2662 is the only time that the agency used the word "reject" in the entire 103-page NSR rule.

    *Similarly, three years into your tenure at EPA, when the Bush EPA and DOJ were defending the 2002 New Source Review rule before the D.C. Circuit, the administration's brief defended its decision to reject CMA's potential-to-potential test: "In adopting the actual-to-projected test, **EPA rejected the potential-to-potential test** of CMA Exhibit B."*[4] *Do you wish to amend your testimony to clarify that, in fact, during your tenure at EPA, the agency did expressly reject a change to New Source Review based on maximum hourly rate, warning that such a test "could sanction greater actual emission increases to the environment, often from older facilities, without any preconstruction review," and that such an approach "could lead to unreviewed increases in emissions that would be detrimental to air quality"? If you decline to amend your oral testimony, why do you so decline?*

[3] 67 FR at 80205–06 (emphasis added).
[4] Brief for Respondent U.S. EPA, *New York v. EPA*, 2004 WL 1906856 at *25 (emphasis added).

Response: After receiving your question, I went back and reviewed the 2002 NSR rule and yes, I need to amend my testimony. When I was at EPA, we did reject the CMA Exhibit B proposal, which was similar to S. 2662 in key respects. As you point out, EPA noted at the time that such a test "*could* sanction greater actual emissions increases" and "*could* lead to unreviewed increases in emissions that would be detrimental to air quality." Again, however, the Agency was unable to determine whether this would in fact be the case because of the difficulties involved in analyzing how all the other applicable EPA programs would regulate the same facilities.

11. *Your written testimony notes that the Clean Air Act's New Source Performance Standard (NSPS) program "employs the exact same definition of the term 'modification'" as the Act uses for New Source Review. As you know, EPA has long distinguished the emissions increase step of the test for a modification under the NSPS and New Source Review programs. Indeed, in the George W. Bush Administration's D.C. Circuit defense of the 2002 New Source Review rules, the agency told the court that EPA analyzes emission increases differently under the "technology-based provisions of NSPS and the air-quality based provisions of NSR [New Source Review],"[5] and that EPA had "long ago recognized the differences in the purposes of the NSPS and NSR programs to justify different interpretations."[6] The government's brief goes on to highlight a number of judicial precedents recognizing the same distinction.*

    You support the GAIN Act, however, which would apply the same definition of modification under both programs.

    a. *Do you still agree that the Clean Air Act's NSPS program is largely intended to establish minimum technology-based standards, whereas the New Source Review program is largely intended to protect air quality?*

    Response: I think that this distinction is artificial. The only reason to establish technology-based standards is to protect air quality. Both programs serve essentially the same purpose.

    b. *In the same brief, the Bush Administration noted: "That different purposes exist for the two programs [NSPS and NSR] justifying different regulatory definitions of 'modification' can hardly be disputed."[7] Do you agree that, under the current law, it "can hardly be disputed" that Congress's different regulatory purposes in enacting the NSPS and New Source Review programs justify different interpretations of "modification"?*

[5] 2004 WL 1906856 at *17–18.
[6] 2004 WL 1906856 at *38 (citing an example).
[7] 2004 WL 1906856 at *41 (citing *Alabama Power v. Costle*, 636 F2d 323 (D.C. Cir. 1979)).

Response: Again, I think that this distinction is artificial. The only reason to establish technology-based standards is to protect air quality. Both programs serve essentially the same purpose.

12. *Many portions of your testimony suggest that there are numerous other Clean Air Act programs that satisfactorily control emissions, and thus that adopting the New Source Review changes in S. 2662 would not have a meaningful impact on emissions. You cite a number of rules that curb emissions of sulfur dioxide (SO2) and nitrogen oxide (NOx), but the vast majority of those only apply to power plants. As you know, the GAIN Act is not exclusive to power plants and will affect emissions from an estimated 14,000 stationary sources. Compared to power plants, are you more concerned that the GAIN Act could authorize significant increases of actual, total annual emissions from non-power sector sources?*

    Response: Because of the numerous regulatory programs that apply to the power sector, it is easy to conclude that S. 2662 would not result in an increase in power plant emissions. In fact, emissions from such sources will continue to decline with or without S. 2662.

    I agree that the situation is different when it comes to non-power sector sources, but I believe that other Clean Air Act programs provide sufficient regulatory authority to fully protect public health and the environment regardless of any changes that might be made to the NSR program for existing sources. As I have said on many occasions, the NSR program is not an effective program for reducing emissions from existing sources and in some cases is actually counterproductive.

13. *The Trump EPA has enacted a number of changes to the New Source Review program. For example, the agency has stated that it no longer intended to "substitute [the agency's] judgment for that of the owner or operated [of a source] by 'second-guessing' the owner or operator's emissions projections."[8] Does this recent change make it more likely, or less likely, that a source that factually triggers New Source Review—under any test, even that embodied under S. 2662 or the rejected CMA proposal—might evade preconstruction permitting review requirements?*

    Response: I think that most companies take their CAA obligations seriously and do a good job when it comes to projecting future actual emissions. That said, I believe that EPA should retain some form of oversight – not to 2nd guess reasonable projections but to ensure that bad actors are not able to skirt regulatory requirements.

    As I said above, however, one of the big advantages of S. 2662 is that there will be very little controversy about projections of future hourly emissions. Unlike annual emissions,

[8] Memorandum from EPA Admin'r Scott Pruitt to Reg'l Administrators, *New Source Review Preconstruction Permitting Requirements: Enforceability and Use of the Actual-to-Projected Actual Applicability Test in Determining Major Modification Applicability* (Dec. 7, 2017) at 8, https://www.epa.gov/sites/production/files/2017-12/documents/policy_memo.12.7.17.pdf.

which are greatly influenced by many outside factors that have nothing to do with any physical changes that might be made to a plant, hourly emissions are based on a plant's design and are much easier to determine.

14. *Before you joined the George W. Bush EPA, you represented a number of clients in private practice at the law firm Latham & Watkins. The Committee has a copy of the May 7, 2001 recusal agreement you signed prior to your confirmation as the EPA Assistant Administrator for Air and Radiation. In your recusal agreement, you promised that for a period of one year after you confirmation, you would not work on specific issues in which Latham & Watkins clients would be impacted, "if a reasonable person with knowledge of the relevant facts to question [your] impartiality in the matter," unless you first received permission from EPA's ethics officials. If you do not have a copy of your signed recusal letter, the committee can provide one to you.*

    a. *Under the terms of that agreement, could you have worked on a reversal of EPA's enforcement policy that specifically references, was specifically timed to benefit a former law firm client fighting, an ongoing EPA enforcement action against your former law firm clients? Please explain your response.*

    Response: When I was at EPA, I never worked on enforcement policy, which was under the purview of the Office of Enforcement and Compliance Assurance (OECA). I was the head of the Office of Air and Radiation (OAR), where we worked on a number of regulatory reforms to the NSR program. All these reforms were rules of general applicability and prospective only, as we explained in the rulemaking. None of my work on the NSR reforms involved particular matters involving specific parties.

    b. *Former EPA Air Administrator Bill Wehrum met privately with a number of his own past clients to discuss EPA's pending policy reversal in a New Source Review enforcement case related to one specific client, he also seems to have worked directly on the actual document that reversed the EPA policy, which was then rushed out the door so it could be filed by his former law partners in their appeal to the Supreme Court. Would you agree that if true, Mr. Wehrum's actions do not appear to be consistent with the terms of the recusal agreement you yourself signed and presumably abided by? If not, please specifically explain why not.*

    Response. I am not aware of the actions by Mr. Wehrum to which you refer in your question. I was careful to abide by my recusal agreement when I was at EPA, and I am confident that Mr. Wehrum did the same with his.

15. *On July 8, 2003, when serving as EPA Assistant Administrator for Air and Radiation, you provided the following remarks in written testimony to the House Energy and Air Quality Subcommittee of the Energy and Commerce Committee: "Mercury, a potent toxin, can cause permanent damage to the brain and nervous system, particularly in developing*

fetuses when ingested in sufficient quantities. People are exposed to mercury mainly through eating fish contaminated with methylmercury... EPA estimates that 60% of the mercury falling on the U.S. is coming from current man-made sources. Power generation remains the largest man-made source of mercury emissions in the United States. Mercury that ends up in fish may originate as emissions to the air. Mercury emissions are later converted into methylmercury by bacteria. Methylmercury accumulates through the food chain: fish that eat other fish can accumulate high levels of methylmercury."[9]

a. *Do you believe at the time your statement was accurate? If not, why not?*

   Response: Yes

b. *Do you continue to believe, "Mercury, a potent toxin, can cause permanent damage to the brain and nervous system, particularly in developing fetuses when ingested in sufficient quantities?" If not, why not?*

   Response: Yes

c. *Do you agree that uncontrolled power plants remain a major source of mercury pollution?*

   Response: Because the Mercury and Toxics Standards (MATS) imposes stringent mercury emission standards on all coal-fired power plants in the U.S., there are not any U.S. power plants that remain uncontrolled for mercury. I am not familiar with current data on global sources of mercury emissions, but I believe that (1) there are many coal-fired power plants in other countries without mercury controls and (2) they remain a major source of anthropogenic mercury emissions.

d. *At that same hearing, you stated, "EPA is required to regulate mercury because EPA determined that mercury emissions from power plants pose an otherwise unaddressed significant risk to health and the environment, and because control options to reduce this risk are available."*[10] *Do you believe at the time power plants were an unaddressed significant risk to health and the environment? If not, why not?*

   Response: Yes.

16. *Recently, Peabody Energy argued before the Indiana Utility Regulatory Commission that the local utility (Northern Indiana Public Service Company or NIPSCO)) should no longer be allowed to recover costs incurred from meeting the Mercury and Air Toxics Standards (MATS) because Peabody Energy believes EPA is expected to weaken or revoke the standard. Peabody Energy argued,*

[9] https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf
[10] https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf

> *"Although NIPSCO understandably installed MATS compliance equipment initially, it is inappropriate for NIPSCO to continue assuming they will incur long-term MATS O&M costs for these electric power generating units. There is a significant likelihood that EPA will withdraw MATS entirely or drastically alter the rule as to reduce the ongoing O&M cost burden. Therefore, NIPSCO's assumption to build these high O&M costs into its [integrated resource plan] is unreasonable. Additionally, NIPSCO's prudence should be questioned given its lack of support for EPA's current opportunity to withdraw MATS and eliminate the costs that EPA has concluded are unreasonable."*[11]

Utilities have pointed to Peabody Energy's statements as proof that if EPA undermines or revokes the Mercury and Air Toxic Standards that it is likely more such arguments will occur before state public utility commissions and their ability to pass on costs of already installed controlled technology may be impaired.[12]

a. *Do you believe the concerns are valid? If not, why not?*

Response: I cannot anticipate the arguments that might be made before state public utility commissions, but I do not believe that EPA will revoke or undermine the MATS Rule. Although EPA has proposed to reverse the so-called "appropriate and necessary" finding, the Agency has repeatedly said that it has no intention of revoking or weakening the rule. As far as I know, every electric power company in the U.S. believes that MATS should be left in place.

b. *Do you agree with the following statement issued by every major utility trade organization in the country, "regulatory and business certainty regarding regulation under Clean Air Act (CAA) section 112 is critical—we urge that EPA leave the underlying MATS rule in place and effective"?*[13] *If yes, please explain. If not, why not?*

Response: Yes.

17. *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, when serving as EPA Assistant Administrator for Air and Radiation you 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*

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[11] *See* Direct Testimony of Michael J. Nasi on behalf of Peabody COALSALES, LLC in Cause No. 45159, Petition of NIPSCO before the State of Indiana's Utility Regulatory Commission.
[12] *See* EEI Comments, DOCKET NO. EPA-HQ-OAR-2018-0794
[13] *See* EEI Comments, DOCKET NO. EPA-HQ-OAR-2018-0794

ecological benefits from improvements in the health of our forests, lakes, and coastal waters."[14] *Do you still agree that monetizing the human and ecological benefits that result from reducing mercury or other air toxic emissions is difficult and in some cases impossible? If so, please explain. If not, please explain.*

Response: When MATS was issued, EPA did provide an estimate of the monetized human health benefits of reducing mercury emissions. I still agree, however, that monetizing all the human health and ecological benefits that result from reducing mercury or other air toxic emissions is very difficult

18. *During the time you served as EPA Assistant Administrator for Air and Radiation, did you ever work on a proposed or final rule that included monetized co-benefits or considered co-benefits in its Regulatory Impact Analysis? If so, please provide the committee a list of those rules.*

Response: I believe that, in all the major rules that the Air Office issued during my time at EPA, we tried to estimate all costs and all benefits (including co-benefits) in our Regulatory Impact Analyses. The big issue then, as now, was $PM_{2.5}$ co-benefits and the shape of the dose response curve for $PM_{2.5}$. Because of the uncertainty regarding this issue, I believe that we generally provided three different estimates of $PM_{2.5}$ co-benefits – one assuming no threshold (*i.e.*, a linear dose-response curve down to zero); one assuming a threshold at 10 micrograms per cubic meter (annual average), which was the lowest level for which we had reliable data; and one assuming a threshold equal to the national ambient air quality standard (NAAQS) for $PM_{2.5}$.

19. *During the time you served as EPA Assistant Administrator for Air and Radiation or as your time representing industry, have you ever heard of a power plant or industrial source turning off installed control technologies?*

Response: In most parts of the country, ozone is only an issue during the summer months, when temperatures and sunshine create the conditions that are conducive to ozone formation. For that reason, certain NOx control regulations apply only in the summertime "ozone season." I understand that, in the past, certain power plants installed advanced NOx control technology (like selective catalytic reduction units) but did not always operate those controls in the wintertime. I believe, however, that EPA and certain states have updated their regulations to ensure that these NOx controls are operated year around.

20. *Do you agree that the EPA cannot make the New Source Review program changes prescribed within the GAIN Act without Congressional action? If not, why not?*

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[14] 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 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.

Response: Some of the GAIN Act reforms could not be done without Congressional action, but others certainly could. Most importantly, the Supreme Court has made it clear that EPA has authority to use the NSPS emissions increase test under the NSR program, even though the Agency is not required to do so. Even so, it would be better for Congress to adopt the GAIN Act to provide long-term certainty and avoid the costly and time-consuming litigation that would result if EPA were to make the changes on its own.

Senator BARRASSO. Thanks so much for your very thoughtful testimony. We appreciate your coming back to the Committee today.

Mr. Walke.

STATEMENT OF JOHN D. WALKE, ESQ., CLEAN AIR DIRECTOR AND SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Mr. WALKE. Thank you, Chairman Barrasso, Ranking Member Carper, and Committee members.

I have been a Clean Air attorney for over 25 years. I am afraid this bill is the most harmful Senate bill to amend the Clean Air Act I have ever read. This bill allows a greater amount of air pollution increases from a greater number of industrial polluters than any Senate bill I have seen.

Indeed, the bill lets industrial facilities increase dangerous air pollution to higher levels than they ever have polluted, worsening air quality and evading pollution controls that today's law requires.

This bill lets facilities increase pollution all the way up to their worst possible polluting hour in the past 10 years, and then, incredibly, the bill lets facilities exceed even that astronomical increase.

Bill supporters say there are other legal limits on these enormous pollution increases. That begs the question: Why weaken the law so severely to allow massive pollution increases, if there are these other limits on actual pollution increases? The answer is because there are not these other limits.

My written testimony provides multiple examples why these other limits on the actual pollution increases do not exist, or do not limit massive increases.

Notably, the written testimony of my fellow witnesses does not contain a single example of a single law that limits actual air pollution increases from a single facility in the country, much less the many thousands of facilities that this bill would let increase air pollution.

The main benefit of today's New Source Review safeguards are to constrain runaway pollution increases.

When my fellow witness, Mr. Holmstead, headed the Bush EPA Air Office, EPA rejected an approach similar to this bill's amnesty, saying the approach would mean "increases in emissions that would be detrimental to air quality," allowing pollution increases of 100 to 200 percent.

The Bush EPA Enforcement Office found that a single power plant that had violated the law and evaded pollution controls would have been able to get away with an astonishing 21,000 ton per year increase in smog forming pollution under the approach of this bill, and the approach the Bush EPA rejected.

How bad is a 21,000 ton increase from one plant? That is greater than the total smog forming pollution from all coal burning power plants in each of these Committee's States: Alabama, Arkansas, Delaware, Iowa, Maryland, Mississippi, New Jersey, Oklahoma, and Oregon.

A 21,000 ton increase is an incredible 7 percent of all smog forming, nitrogen oxide pollution emitted from all sources in Indiana, including cars and trucks and industrial and manufacturing plants.

It is 10 percent of all sources in Kentucky, 12 percent of all sources in Iowa, and an astounding 91 percent of all pollution from all sources in Delaware, nitrogen oxides.

When smokestacks are belching more smog pollution from burning coal or oil, they are also belching more of the brain poisons lead and mercury, more cancer causing pollution, more carbon pollution that drives dangerous climate change. A 21,000 ton smog increase would correspond to many millions of tons of increased carbon pollution.

What about claims that the bill encourages energy efficiency? What bill supporters claim to incentivize are marginal improvements in pollution rates that are then allowed to increase overall air pollution significantly and worsen air quality significantly. This is not greater efficiency.

But the bill does not even require any efficiency improvements. Facilities may increase pollution up to and beyond their worst possible polluting hour in 10 years, becoming less efficient.

The parents of a child rushed to the ER from an asthma attack do not care if pollution per product or kilowatt decreases. What these frantic parents care about is their daughter's health after overall air pollution worsens, causing her asthma attacks. That is what this bill's amnesty enables: more pollution, more asthma attacks.

This bill does helpfully confirm how illegal a proposed Trump EPA rollback is that pretends the Clean Air Act authorizes the same rollbacks in this bill. Current law does nothing of the sort, as even the bill's co-sponsors seem to realize.

The House is unlikely to pass any version of this bill. The main thing this bill appears to do now is attempt to give cover to the proposed Trump EPA rollback. The bill says it is merely clarifying the Clean Air Act, but that is plainly incorrect, as all the bill's new text makes clear.

If you want to let industries pollute more, that is what this bill does. If you want to explain to Americans why we should let industry pollute all the way up to their worst possible polluting hour in 10 years, that is what this bill does. And then pollute even more than that, all the way up to what they are physically capable of polluting, that is what this bill does.

Deadly tiny particle pollution has worsened over 5 percent since 2016. We don't need to go backward further. Senators should not advance this bill.

Thank you.

[The prepared statement of Mr. Walke follows:]

TESTIMONY OF JOHN D. WALKE

CLEAN AIR DIRECTOR

NATURAL RESOURCES DEFENSE COUNCIL

HEARING ON "S.2662, THE GROWING AMERICAN

INNOVATION NOW (GAIN) ACT,"

BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

November 6, 2019

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I. INTRODUCTION

Thank you, Chairman Barrasso and Ranking Member Carper for the opportunity to testify today. My name is John Walke. I am the clean air director and a senior attorney for the Natural Resources Defense Council (NRDC). NRDC is a nonprofit organization of scientists, lawyers, and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.3 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles, San Francisco, Chicago, and Beijing.

I have worked at NRDC since 2000. Before that, I was a Clean Air Act attorney in the Office of General Counsel for the U.S. Environmental Protection Agency (EPA). Prior to that, I was an attorney in private practice where I represented corporations, industry trade associations and individuals. Having worked on air pollution issues for the entirety of my career, I have done a great deal of work relating to the New Source Review (NSR) provisions of the Clean Air Act (CAA). I believe the NSR provisions of the Act strike a responsible balance, requiring new and modified stationary sources of air pollution to protect our nation's air quality through appropriate pollution controls and other measures. I would like to thank the Committee for the opportunity to testify. I look forward to your questions.

New Source Review is a Clean Air Act pre-construction permitting program—with requirements for modern air pollution controls, offsets of any remaining emissions increases, air-quality impact analyses, and public participation—that imposes those requirements only when industrial facilities *significantly increase* emissions of regulated air pollutants like fine particulate matter ($PM_{2.5}$) pollution, sulfur dioxide (SO_2), or precursors to smog, such as nitrogen oxides (NO_x) or volatile organic compounds (VOCs).

Accordingly, any proposed NSR legislative or regulatory "reform" first should answer one simple question: will it let industry *pollute more*, and evade air pollution controls and other air quality safeguards? Unfortunately, when that question is asked about S.2662, the "Growing American Innovation Now (GAIN) Act," the answer is absolutely yes. This legislation would allow massive increases in dangerous air pollution from nearly 14,000 industrial emitting facilities across the United States. The bill is so extreme that it first repeals existing limits on emissions increases under longstanding Clean Air Act requirements, and then the legislation does not even limit the amount of dangerous air pollution increases that facilities could cause.

For all the reasons in this testimony, the Committee should reject this legislation and the amnesty it creates to increase dangerous air pollution across America and harm Americans.

I. BACKGROUND

The Clean Air Act requires an existing source to undergo NSR permitting whenever it makes a "modification," which is defined in the statute as, *inter alia*, any physical or operational

change that "increases the amount of any air pollutant emitted."[1] Nowhere in the Clean Air Act does Congress describe major stationary sources, modifications, or emissions increases as being measured in terms of hourly emissions rates. Emissions increases in tons per year are identified as the relevant metric in all instances in which Title I, parts C and D identify a magnitude of emissions.

The U.S. Court of Appeals for the D.C. Circuit has held that the Act "unambiguously defines 'increases' in terms of actual emissions."[2] The *New York I* court reached this result after evaluating the text and history of the Clean Air Act's New Source Review provisions, concluding that Congress was "conscious of the distinction between actual and potential emissions," and "use[d] the term 'emitted' to refer to actual emissions." The decision followed earlier precedent in *Alabama Power v. Costle*, 636 F.2d 323, 353 (D.C. Cir. 1979), in which the court held that the term "emit" is a "reference to some measure of actual emissions."

A. New Source Review & Actual Emissions Increases v. New Source Performance Standards & Potential Emissions Increases.

Congress enacted the Clean Air Act's NSR program in 1977, in order to limit air pollution beyond what had until that time been achieved by a prior program, called New Source Performance Standards, or NSPS.[3] The NSPS program had proven unsuccessful at curbing air pollution, and the NSR permitting requirements were added to minimize actual air pollution *increases* from new and modified sources.[4] I emphasize the word, increases. While Congress included a "grandfathering" exemption for existing sources, that exemption was not intended to be permanent, but rather existing sources were to be brought into the NSR program at the point when they made changes that would "*increase* emissions."[5]

As the Seventh Circuit stated in the important *Wisconsin Elec. Power Co. v. Reilly, or* "*WEPCO*" decision:

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[1] Section 111(a)(4) of the Act describes when a source is to be considered "modified": "The term 'modification' means any physical change in, or change in the method of operation of, a stationary source which *increases the amount* of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." 42 U.S.C. § 7411(a)(4) (emphasis added). See 42 U.S.C. §7479(2)(C)(adopting §7411(a)(4) into the prevention of significant deterioration program definition of "modification"); 42 U.S.C. § 7501(4)(adopting §7411(a)(4) into the nonattainment new source review program).

[2] *New York v. EPA*, 413 F.3d 3, 39-40 (D.C. Cir. 2005) (*New York I*); see also *New York v. EPA*, 443 F.3d 880, 885, 889-90 (D.C. Cir. 2006) (*New York II*) (holding that "to the extent industry…rel[ies] on the NSPS regime to reargue their position that 'modifications' require an increase in maximum emission rates, that issue was resolved in *New York I*.").

[3] See generally, 40 C.F.R. Part 60: Standards of Performance for New Stationary Sources.

[4] Statement of Sen. Muskie, 123 Cong. Rec. 18022 (June 8, 1977), see also *Wisconsin Elec. Power Co. v. Reilly*, 893 F.2d 901, 904 (7th Cir. 1990) ("*WEPCO*").

[5] *Alabama Power Co. v. Costle*, 636 F.2d 323, 350, 400 (D.C. Cir. 1979) (emphasis added).

> Members of the House recognized that "building control technology into new plants at the time of construction will plainly be less costly then [sic] requiring retrofit when pollution control ceilings are reached." H.R. Rep. No. 294, 95th Cong., 1st Sess. 185, reprinted in 1977 U.S. Code Cong. & Admin. News at 1264. But Congress did not permanently exempt existing plants from these requirements; section 7411(a)(2) provides that existing plants that have been modified are subject to the Clean Air Act programs at issue here.[6]

In fact, beyond balancing the goals of cleaner air for the nation with reduced disruption for older facilities, the modification trigger was, to the Seventh Circuit, a means of "forcing" investment in cleaning the nation's airsheds:

> Congress intended to stimulate the advancement of pollution control technology. See, *e.g.*, S. Rep. No. 91-1196, 91st Cong., 2d Sess. 17 (1970) ("Standards of performance should provide an incentive for industries to work toward constant improvement in techniques for preventing and controlling emissions from stationary sources. . . ."). The development of emissions control systems is not furthered if operators could, without exposure to the standards of the 1977 Amendments, increase production (and pollution) through the extensive replacement of deteriorated generating systems.[7]

The NSR program thus was added as an additional layer of protection, beyond the NSPS, in order to limit or prevent actual emissions increases to a degree greater than had been achieved by the NSPS alone, and to ensure that advances in pollution control since the NSPS was established, and any source-specific pollution control opportunities, would be captured. NSPS establish national pollution limits for categories of sources, based on an EPA determination of the best system of emissions reduction. NSR, on the other hand, is source-specific—to ensure that a source with the potential to adversely impact air quality is required to control its actual annual emissions *increases*.

Congress was directing additional air pollution controls when it adopted the NSR program. The different focus of the two programs led EPA to conclude that there must be a stronger legal basis for the Agency to promulgate exemptions to the NSR program than the fact that exemptions existed in the NSPS program:

> The [NSR/PSD] review is a tool for air quality management and comprehensive consideration of increases of any pollutant regulated under the Act. The NSPS exemption is inconsistent with this approach. ... The fact that both programs use the definition of modification contained in section 111 of the Act is not, in itself, sufficient to prove that Congress intended the NSPS exemptions then in effect would automatically be [sic] incorporated into PSD. ... Apparently the only legislative history on the subject is a remark that Congress intended to conform the meaning of "modification" for PSD purposes to "other parts of the act [(1233 Cong. Rec. H11957)]. Given the distinct differences between the NSR regulatory processes promulgated in response to the 1977

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[6] *WEPCO*, 893 F.2d at 909 (emphasis added).
[7] *Id.* at 909-10 (citation omitted).

> amendments and the preexisting NSPS regulations defining "modification," it seems clear that Congress desired to conform the usage of that term only in the broad sense.[8]

The NSPS program, introduced in the 1970 amendments to the Clean Air Act, grew out of Congressional concern that the state planning process then in effect "was insufficient by itself to achieve the goal of protecting and *improving* air quality:"[9]

> By 1977, however, states had made little headway in the battle for clean air. Congress recognized that the existing NSPS program was not sufficient either to clean the air in the most polluted areas of the country, or to keep the air clean in areas that currently complied with ambient air quality standards. In addition to strengthening the NSPS program, Congress determined that "[s]ome mechanism [was] needed to assure that before new and expanded facilities are permitted, a State demonstrate that these facilities can be accommodated within its overall plan to provide for attainment of air quality standards."[10]

Accordingly, Congress adopted the NSR program.[11]

Among other things, an NSR preconstruction permit requires a case-by-case determination of Best Available Control Technology ("BACT") (or Lowest Achievable Emissions Rates, or "LAER," if the source is locating in a nonattainment area) rather than the automatic application of NSPS, and a demonstration that emissions from the source will not cause or contribute to the deterioration of air quality. In addition, Congress chose to place much greater emphasis on public health and impacts on air quality, and less emphasis on economic feasibility, in designing the NSR program. For example, in the Conference Committee Report for the 1977 Amendments, in a discussion of the LAER requirement for the NSR program, the Committee stated that "[i]n determining whether an emission rate is achievable, cost will have to be taken into account, but cost factors in the nonattainment context will have somewhat less weight than in determining new source performance standards under section 111. Of course, health considerations are of *primary* importance."[12]

Although Congress incorporated the statutory NSPS definition of modification into the NSR program, EPA appropriately adopted different definitions of modification in order to

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[8] Memorandum from Gerald A. Emison, Director, Office of Air Quality and Planning, U.S. EPA, to Director, Air Management Divisions, Regions I, III, V, and IX[;] Director, Air and Waste Management Division Region II[;] Director, Air Pesticides, and Toxic Management Division Region IV and VI[;] [and] Director, Air and Toxics Division Regions VII, VIII, and X, "Prevention of Significant Deterioration (PSD) Definition of 'Modification,'" at 2-3 (July 7, 1986).

[9] *ASARCO v. EPA*, 578 F.2d 319, 327 (D.C. Cir. 1978) (emphasis in original).

[10] S. Rep. No 95-127, *55 (May 10, 1977).

[11] 42 U.S.C. §§ 7470-7479 (Prevention of Significant Deterioration); 7501-7515 (nonattainment areas).

[12] 95 Cong. Conf. Report H. Rept. 564, 175 (Aug. 3, 1977). See also House Rep. No. 95-294, *214-15 (emphasis added).

comply with the different statutory purposes of the two programs. Under NSPS, EPA measures an "increase [in] the [emission rate] of any air pollutant" for the purpose of determining whether a modification has occurred in terms of hourly emission rate increases in order to be consistent with the program's industry-wide focus.[13] Under the NSR definition of modification, by contrast, emissions increases are measured in terms of total annual emissions, in order to be consistent with the NSR program's local and ambient air quality-based purpose:[14]

> Courts have long recognized the different purposes and requirements of the NSR and NSPS programs, and have rejected attempts to import provisions and rationales from one program to the other. In *Alabama Power*, the D.C. Circuit upheld EPA's application of the "bubble concept" to calculate emission increases in NSR, after having rejected its use in the NSPS program.[15] As the Court explained: "EPA has latitude to adopt definitions of the component terms of 'source' that are different in scope from those that may be employed for NSPS and other clean air programs, due to differences in the purpose and structure of the two programs."[16]

In *WEPCO*, the Seventh Circuit observed that by 1977 the NSPS program, with its focus on hourly rates of emissions, had resulted in "only varying degrees of success in controlling pollution in different parts of the country."[17] Consequently, Congress added the PSD program, "concerned with increases in total annual emissions" from major sources of pollution rather than its hourly rate of emissions, and ensuring that sources "in relatively unpolluted areas would not allow a decline of air quality . . . ."[18] Likewise, the Ninth Circuit has, on at least two occasions, rejected attempts to import provisions and rationales from one program to the other. As stated in *Citizens for Clean Air v. EPA*: "While the NSPS program and the PSD are both interrelated parts of a comprehensive federal legislative effort to protect and enhance this national's air quality, the *two programs play different roles in achieving that broad general goal*."[19]

As the Seventh Circuit has observed:

> To determine whether a physical change constitutes a modification for purposes of NSPS, the EPA must determine whether the change increases the facility's *hourly rate* of

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[13] 40 C.F.R. § 60.14(a), (b).
[14] *Id.* § 51.165(v), (vi). See 57 Fed. Reg. 32314, 32316 (July 21, 1992) (Emissions increase component of modification definition differs under NSPS and NSR, reflecting distinct purposes of the two programs).
[15] 636 F.2d 323 (D.C. Cir. 1979). *See also ASARCO v. EPA*, 578 F.2d 319 (D.C. Cir. 1978).
[16] *Id.* at 397-98. *See also Potomac Elec. Power Co. v. EPA*, 650 F.2d 509, 518 (4th Cir. 1981) (upholding EPA's different construction of the definition of "stationary source" based on "a significant difference between the PSD and NSPS programs," noting the emphasis in PSD on new air emissions).
[17] *WEPCO*, 893 F.2d at 904.
[18] *Id.*
[19] 959 F.2d 839, 849 (9th Cir. 1992)(emphasis added).

> emission. . . . For PSD purposes, current EPA regulations provide that an increase in the *total amount* of emissions activates the modification provisions of the regulations.[20]

Likewise, in the preamble to its *WEPCO* rule, EPA pointed to the difference in how the emissions increase is measured as the primary distinguishing characteristic between the two programs: "[The] two-step test for determining whether activities at an existing facility constitute a modification subject to new source requirements . . . [branches apart at the emissions increase step,] reflecting the fundamental distinctions between the ... NSPS *and the air quality-based provisions of NSR.*"[21]

Accordingly, because of NSR's focus on a source's location and its potential effect on air quality and the environment, the source's hours of operation and overall annual emissions are key factors in determining whether NSR is triggered. Under an NSPS hourly emissions rate approach, a physical change to a source can result in an increase in hours of operation or an increase in production, and accordingly a significant increase in emissions, and still escape NSR and its air pollution controls and accompanying air quality protections.[22]

I turn now to the air pollution increases that EPA regulations deem permissible, or that require air pollution controls and/or emission limitations, under the two programs. EPA has established regulatory "significance thresholds," describing the level of actual tons per year increases of air pollutants above which impacts will not be *de minimis* in nature, and therefore would trigger NSR. See 40 C.F.R. § 52.21(b)(23)(i), (establishing 40 tons per year significance thresholds for NO_x and SO_2, for example). In *Alabama Power Co. v. Costle,* the D.C. Circuit Court of Appeals, while recognizing the NSR program's focus on minimizing actual annual emissions increases, indicated EPA could (upon making specified rigorous showings) define levels of actual (tons per year) emissions increases which would produce no regulatory benefit under the statute. See *Alabama Power*, 636 F.2d at 360-61, 400 (describing that authority to craft *de minimis* exemption is potentially available "when the burdens of regulation yield a gain of trivial or no value. That implied authority is not available for a situation where the regulatory function does provide benefits, in the sense of furthering the regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs.").

Moreover, in the 1990 Clean Air Act amendments, Congress adopted a special *de minimis* rule for sources that emit volatile organic compounds, and couched that rule as well in terms of tons per year increases, not hourly emissions rates. See CAA § 182(c)(6), 42 U.S.C. § 7511a(c)(6) (discussing NSR applicability in areas classified as severe for ozone non-attainment). Specifically, that provision states:

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[20] *WEPCO*, 893 F.2d at 905 (citations omitted, emphasis in original).
[21] 57 Fed. Reg. 32,314, 32316 (July 21, 1992) (emphasis added).
[22] Joint Comments of Environmental and Public Health Organizations on the New Source Review Regulatory Changes Proposed With EPA's 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, Docket No. EPA-HQ-OAR-2017-0355 (Oct. 31, 2018).

> The new source review provisions under this part shall ensure that increased emissions of volatile organic compounds resulting from any physical change in, or change in the method of operation of, a stationary source located in the [serious nonattainment] area shall not be considered *de minimis* for purposes of determining the applicability of the permit requirements established by this chapter unless the increase in net emissions of such air pollutant from such source *does not exceed 25 tons when aggregated with all other net increases in emissions from the source over any period of 5 consecutive calendar years which includes the calendar year in which such increase occurred.*[23]

Immediately following that provision, Congress adopted another provision creating a "special rule for modifications of sources emitting less than 100 tons," which applies whenever such a source makes a change "except for a *de minimis* increase" as established in § 182(c)(6), 42 U.S.C. § 7511a(c)(6). See CAA § 182(c)(7), 42 U.S.C. § 7511a(c)(7). Thus, the applicability of this provision depends on whether a change would lead to more than a *de minimis* increase, which § 182(c)(6), 42 U.S.C. § 7511a(c)(6) defines in terms of the annual tonnage increase resulting from a planned change. *Id.* The same is true for § 182(c)(8), 42 U.S.C. § 7511a(c)(8), which establishes a "special rule for modifications of sources emitting 100 tons or more." These provisions confirm that Congress understood, and intended that NSR would focus on actual, annual emissions, not hourly emissions or output.

B. EPA Has Repeatedly Rejected the Maximum Achievable Pollution Rate Approach in S.2662 Because it Harms Air Quality.

A maximum hourly pollution rate test—like that in S.2662 and the NSPS program—measures increases in an emissions unit's potential emissions rate, rather than its actual emissions rate, as the NSR program does.[24] Accordingly, changes at a facility that do not

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[23] 42 U.S.C. § 7511(c)(6)(emphasis added).

[24] *See, e.g.*, 68 Fed. Reg. 61,248,61,272 (Oct. 27, 2003) ("The NSPS program requires a change to result in an increase in the hourly *potential to emit* of the facility. 40 CFR 60.14(a)-(b). In contrast, under NSR, we require an increase in annual emissions. *E.g.*, 40 CFR 51.165(a)(1)(x).") (emphasis added). Numerous industry statements confirm that maximum hourly emissions rate tests are "potential"-based emissions increase tests. See Joint Brief of Industry Petitioners, *New York v. EPA*, 431 F.3d 801 (D.C. Cir. 2005) ("*New York I*") at 6 (characterizing an increase in a facility's maximum hourly emissions rate as an increase in its existing capacity to emit, and recognizing that to be a modification under NSPS regulations); at 8 (the NSPS modification provision applies to "activities that increase a unit's 'potential' emission rate"); at 9 (for a project to "create 'new' capacity to emit," it "must first increase an existing facility's maximum achievable emissions rate"); *id.* ("Activity that increases an existing facility's maximum achievable emissions rate is referred to hereinafter as 'NSPS modification activity.'"); at 10-11 (equating "potential to emit" with a facility's "existing design capacity."); at 23 (equating a unit "maximum emissions rate" with its "capacity to emit"); at 26 (NSPS regulatory "'modification' is a physical or operational-method change that creates new pollution capacity – i.e., that increases an existing unit's *maximum emissions rate*) (emphasis in original); *id.* (equating the preceding test to a change that "increases the *potential emission rate*" of a regulated pollutant") (emphasis in original); see also Joint Brief of Industry Intervenors, *New York I*, at 3 (Alleging

increase a unit's potential emissions rate may nonetheless increase actual harmful air pollutants by very significant amounts and evade air pollution control equipment; avoid air quality impact analyses; escape the need for emissions offsets in areas experiencing unsafe air ("nonattainment" areas); worsen local and air quality; and harm public health.

Under S.2662, changes that significantly increase dangerous, actual emissions into America's skies would be exempt from air pollution controls & air quality safeguards. The legislation concerns itself only with increases in maximum hourly emission rates—and in one section even allows increases above a facility's maximum hourly emission rates—but the bill does not limit total emissions or protect health-based National Ambient Air Quality Standards (NAAQS) or statutory "increments" of clean air resources in areas meeting those health standards. It is clear that due to the massive emissions increases that are allowed to result from the bill, its newly created amnesty would not in any way comport with the ambient air quality protection or health purposes of the Clean Air Act.

EPA has concluded repeatedly that a maximum hourly emissions test, like that in S.2662, would allow changes that cause significant actual emission increases to evade pollution controls and other safeguards. For example, in 1996, EPA explained that it did not intend to adopt an hourly emissions increase test supported by industry, because:

> For example, assume the emissions unit at the widget factory that is emitting 10 pounds an hour but has historically operated at 40 percent capacity due at first to operating cost, but with age, reduced efficiency and reliability. Under the [industry approach], the owner could modernize the unit, thus lowering the operating costs and increasing efficiency and reliability. *This change will allow the owner to use the machine at much higher levels (e.g., more hours per day or week) than it had in the past. As a result, actual emissions (measured in tpy) could more than double due to the increase in utilization even though hourly potential emissions remain the same.*

61 Fed. Reg. 38,250, 38,269 (July 23, 1996) (emphasis added). Likewise, when the Bush Administration EPA squarely rejected industry's proposed hourly emissions test in 2002, the agency explained that an hourly test "could sanction greater actual emissions increases to the environment, often from older facilities, without any preconstruction review." 67 Fed. Reg. 80,185, 80,205 (December 31, 2002). *See also, id.* ("actual emissions increases resulting from unreviewed projects could go largely undocumented until a [Prevention of Significant Deterioration] ("PSD") review is performed by a new or modified facility that ultimately must undergo review. By that time, however, a violation of an [air quality] increment could have

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that "EPA established a regulatory definition of "modification" [under NSPS], which provided that the determination of whether an emissions increase occurs is made by reviewing whether maximum emissions after a change would be greater than maximum emissions at full capacity before the change, *i.e.*, a "potential-to-potential" test. 40 C.F.R. § 60.14; *see* 67 FR 80,199 (2002)."); & at 11 ("'potential-to-potential' test" compares "maximum emissions before a change to maximum emissions after a change.") & 12 (linking increases in potential emissions rate to operation at full design capacity) & 13 ("increase in a major source's "potential" emissions, *i.e.*, in the source's maximum pre-change emissions level.")

unknowingly occurred."), *id.* ("We agree that a potential-to-potential test for major NSR applicability could lead to unreviewed increases in emissions that would be detrimental to air quality.").

One significant problem with the hourly emissions rate test concerns the vast gulf between actual and allowable emissions at major industrial facilities in areas that EPA studied. As EPA found following its analysis of Texas and Illinois emissions data:

> The results of the Texas and Illinois analysis indicate that typical source operation frequently does result in actual emissions that are substantially below allowable emissions levels. In these two States, actual emissions represent from 30 to 86 percent of the allowable emissions, depending on source category and pollutant.

61 Fed. Reg. at 38,270; see generally "Results of Data Gathering and Analysis Activities for the CMA Exhibit B Settlement Agreement," Prepared for Dennis Crumpler, U.S. EPA, by Radian Corporation (Nov. 1988), Appendix F. In other words, the delta between actual and allowable emissions under an hourly potential test for NSR would allow individual sources to increase actual emissions by more than a factor of three, without triggering NSR.

These data are significant because there was *no* instance in EPA's analysis in which an electric generating unit ("EGU") would not have been allowed to increase its hourly or annual emissions *by at least 50%* under an hourly emissions rate test. Again, this is due solely to the significant gap between actual and allowable emissions. Fifty percent increases were on the low end under EPA's study, however, with emissions increases *over 100% and 200%* more the norm. EPA included this study in the docket for a 2002 Bush EPA NSR rulemaking that rejected an hourly emissions test for NSR.

In 2005, EPA issued a proposed rulemaking, entitled "Prevention of Significant Deterioration, Nonattainment New Source Review, and New Source Performance Standards: Emissions Test for Electric Generating Units," proposing hourly emissions rate approaches for NSR. See 70 Fed. Reg. 61,081 (October 20, 2005). Section IV.F of the proposal contained a section entitled "Benefits of Maximum Achievable Hourly Emissions Test." *See id.* at 61,093. The most glaring characteristic of this section is the fact that not even EPA itself could ascribe a single air quality or public health-related benefit to its proposed maximum hourly emissions rate tests. For the most sweeping revision to the way that emissions increases are calculated under the NSR and NSPS programs, it was highly revealing that EPA identified only air quality *disbenefits*. Instead of public health or air quality benefits, EPA described benefits that redound entirely in favor of industry and against Americans' health and environment: the agency claimed the proposals will "promote the safety, reliability and efficiency of EGUs," and improve facilities' "productive capacity." *Id.* at 61,094.

EPA conducted a briefing for the public about the 2005 NSR proposal on October 14th, 2005 in the EPA headquarters building at Ariel Rios. I attended that briefing. At this briefing, I posed a series of questions to agency officials about the 2005 proposal, the 2002 NSR analysis discussed above, any new analysis conducted by EPA since then in support of its proposal, and

the agency's regulatory experience with the NSPS modification provision. I relate my questions and the responses by the agency's officials here.

I asked the EPA officials whether the agency had conducted any new analysis or data gathering similar to the 2002 NSR analysis examined here, to determine what the gap might be for EGUs between actual emissions, and allowable emissions under an hourly emissions rate test. The EPA official admitted that the agency had not.[25] I have confirmed that there was no such analysis or data in the 2005 EPA rulemaking docket apart from the 2002 analysis, which showed very substantial gaps between actual and allowable emissions for EGUs.

I asked the EPA officials whether the agency knew what the average or typical delta was between actual and allowable emissions for EGUs. The EPA official admitted that the agency did not know. I asked whether the agency had evaluated the issue with respect to any power plants and, if so, for how many. The EPA official admitted that the agency had evaluated none. I confirmed that there was no such analysis or data in the 2005 rulemaking docket apart from the 2002 analysis.

I asked the EPA officials whether the agency had conducted any analysis to refute the data and conclusions underlying the 2002 analysis. The EPA official admitted that the agency had not. I confirmed that there is no such analysis or data in the 2005 docket apart from the 2002 analysis.

Considering that the agency was proposing to extend the NSPS hourly emissions modification test to EGUs under the NSR program, I asked the EPA officials whether the agency knew how many NSPS modifications had been undertaken by power plants over the lifetime of the program. The EPA official admitted that the agency did not evaluate this issue. I asked the EPA officials how many modifications the agency projected under the NSR program if any one of the proposals were adopted. The EPA official admitted that the agency did not evaluate this issue. I confirmed that there was no analysis or data in the 2005 docket concerning these questions.

I asked the EPA officials whether the agency was aware of *any* instance of a power plant having triggered the NSPS modification provision during the lifetime of the program. The officials declined to respond. Following my insistence, the officials still refused to respond. I confirmed that there is no analysis or data in the 2005 docket disclosing any instance of a modification by an EGU triggering the NSPS modification provision.

I urge Senators at the hearing to ask the witnesses whether they are aware of any *specific* instances of a power plant or other major stationary source having triggered the NSPS modification provision. If so, how frequently does that occur? Did the sources install modern air

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[25] Unless otherwise noted, the responses to these questions were all provided by Mr. William Harnett, who participated in the briefing by telephone from North Carolina. At the time, Mr. Harnett was the Director of the Information Transfer and Program Integration Division in the Office of Air Quality Planning and Standards, Office of Air & Radiation, Environmental Protection Agency.

pollution controls due to the rules governing NSPS modifications? Americans deserve to know whether the NSPS modification provision that S.2662 echoes, but in a more extreme fashion, has ensured installation of modern air pollution controls. The public also deserves to know whether the NSPS modification provision has proven meaningless in practice, as has been my experience, the experience of EPA's enforcement office,[26] and the realization of Bush EPA air office officials who refused to identify a single NSPS modification within the electric power sector.

In sum, in EPA's 2005 NSR proposal, and a subsequent 2007 supplemental NSR proposal to adopt an hourly emissions rate test, 72 Fed. Reg. 26,202 (May 7, 2007), the administrative records for both EPA proposals failed to identify a single instance in which a power plant owner/operator *would* install controls, or would *need* to install controls, under any of the proposed hourly emissions rate tests, when the owner/operator would not also *need* to install controls under the NSR annual, actual emissions test. The NSPS hourly emissions rate test is so extreme and, therefore, ineffective, that in the real world industrial sources simply do not experience hourly potential emissions increases in a manner that would trigger NSPS controls for existing sources. Extending this NSPS approach to the NSR modification program, as S.2662 would do in a more extreme fashion, would thwart the very purposes of the NSR program, result in substantial emissions increases, worsen air quality and harm Americans' health. *See* EPA, Respondent Brief in *New York v. EPA*, D.C. Cir. Case No. 02-1387 (Aug. 9, 2004), at 74 ("the purpose of New Source Review is to require that facilities making changes that increase their emissions meet emission limits that reflect state-of-the-art control technology, analyze the increased emissions from their facilities to ensure that they will not adversely affect air quality, and, in nonattainment areas, offset their emissions increases with emission reduction credits.")

C. EPA's Enforcement Office Has Concluded a 'Maximum Achievable Hourly Pollution' Approach Would Sanction Massive Pollution Increases Like Those Successfully Prosecuted in NSR Enforcement Cases Against Coal-Burning Power Plants.

EPA well knows that maximum achievable emissions tests are a function of potential emissions—that are rarely if ever exceeded: "[t]he 'achievable' test is a measure of the 'potential' emissions of a source ... in the classic and historic sense of the use of that term." Memorandum from Adam M. Kushner, Director of EPA's Air Enforcement Division, Office of Enforcement and Compliance Assurance, to William Harnett, dated August 25, 2005, at 9 (hereinafter "EPA Enforcement Memo," attached to this Testimony). In a case study undertaken by EPA's enforcement office, "the achievable hourly emission rate was calculated to be *more than ten times higher* than the average hourly emission rate in the *five-year period* prior to the change." EPA Enforcement Memo at 3 (emphases added). The more extreme ten-year period in S.2662 would cause facilities' worst achievable pollution rates to be even higher.

A series of utility industry case studies accompanying this 2005 EPA Enforcement Memo, as well as the Memo itself, confirm that hourly emissions rate approaches would result in actual annual emissions increases wildly in excess of existing NSR "significant" emission thresholds. See, *e.g.*, 40 C.F.R. §52.21(b)(23)(identifying "significant" emissions increase

[26] See *infra* section II.C.

thresholds for "modifications" in attainment areas, such as 40 tons per year for NO_x and SO_2). The Bush EPA enforcement office also found that these changes would have produced annual emissions increases well in excess of the "significant" emissions thresholds under a maximum hourly achieved emissions rate test. See EPA Enforcement Memo attachment at 5, 8, 14, 18, 22, 25, 29 & 32). Had SO_2 controls been installed, in contrast, the EGU's *total emissions* – not just the emissions increase magnitude – were assumed to be reduced by 95%. For NOx controls, the assumed reduction was to a BACT level of 0.100 lb/MMBtu. See, *e.g.*, *id.* at 6, 9.

Examining actual emissions data for EGUs from the Clean Air Markets Division, the EPA enforcement office concluded that the maximum hourly achievable emissions rate test proposed in 2005 would have failed to control actual annual emissions *increases* of 50 tpy of SO_2 and 978 tpy of NO_x in one case study (EPA Enforcement Memo attachment, at 10); *13,096 tpy* of SO_2 in another case study (*id.* at 2); 939 tpy of SO_2 and 1,405 tpy of NO_x in another (*id.* at 20); and 1,700 tpy of SO_2 and 507 tpy of NO_x in a fourth case study (*id.* at 27). See also EPA Enforcement Memo at 3. Again, S.2662 is even more extreme; had it been at the law at the time, it would have permitted these same massive emissions increases, and even higher increases.

In the 13,096 tpy example, the annual SO_2 emissions increase that escapes control is *over 327 times* the "significant" emissions threshold for SO_2 that requires pollution controls under the Clean Air Act. As discussed elsewhere, these exempted pollution increase levels are significantly higher than even the major stationary source threshold for new power plants (100 tpy), that EPA continues to recognize should be subject to Best Available Control Technology and Lowest Achievable Emissions Rate. And in many cases, these uncontrolled emissions *increases* are well above the *total* SO_2 and NO_x emissions from EGUs that EPA's Clean Air Interstate Rule would have covered in 2020. In the case study, even though sulfur dioxide emissions increased by 13,096 tons per year, the maximum achievable hourly rate did not increase.[27] *Id.* Attachment to EPA Enforcement Memo, at 2 (Case Study #1) (emphasis added). Based on this analysis, the EPA enforcement office found that "one can only conclude from application of the so-called 'achievable' test that *no 'change' causing an emissions increase . . . at an EGU would trigger NSR. . . .*" *Id.* at 5 (emphasis added).

Similarly, the power plant improvement projects that were the underlying basis of EPA's enforcement lawsuits against Duke Energy for NSR violations, and which (the company argued) did not increase hourly emissions rates,[28] were projected to result in significant increases in actual annual emissions.[29] One of the projects, which included replacing and upgrading the economizer for unit 1 at the Belews Creek Steam Station, was projected to increase annual emissions of SO_2 by 1,319.80-14,909.30 tons, and NO_x by 537.20 tons.[30] A project at the Allen

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[27] The enforcement office used actual operating data to perform the case study analyses. EPA Enforcement Memo, at 3.

[28] Br. in Supp. of Duke Energy's Mot. in Limine under the Federal Rules of Evidence at 26, EPA v. Duke Energy, 278 F. Supp. 2d 619 (M.D.N.C. 2003) (No. 1:00CV1262).

[29] Plaintiff's Consolidated Opp. to Duke Energy's Mot. in Limine to Exclude the Testimony of Robert Koppe, Ranajit Sahu, Bruce Biewald, and Philip Hayet at 45-48, EPA v. Duke Energy, 278 F. Supp. 2d 619 (M.D.N.C. 2003) (No. 1:00CV1262).

[30] *Id.* at 46.

Steam Station, which involved replacement of the economizer for Allen Unit 5, was projected to increase annual emissions of SO_2 by 123.30- 14,294.10 tons, and NO_x by 79.40-2,210.90 tons.[31] These projects were expected to improve unit availability and, in the case of the Belews Creek project, improve efficiency (heat rate).[32] They increased annual tons of emissions well above the regulatory (*de minimis*-based) significance thresholds,[33] without undertaking NSR or applying the modern pollution control represented by the statute's Best Available Control Technology, or Lowest Achievable Emissions Rate provisions, to limit those pollution increases.

Analysis of the NSR enforcement cases against coal-fired power plants reveals that *none* of those cases would have been viable under maximum hourly emission rate approaches; indeed, that is precisely why industry was relying upon their hourly-potential emissions increase defenses to avoid liability. *See* EPA Enforcement Mem. at 13 ("This is Duke's, and every other Defendant's, favorite defense in the NSR enforcement cases: we have not expanded capacity and, consequently, NSR was not triggered.") That is also why the government stipulated that the projects at issue in the Duke Energy NSR enforcement case would not have "caused an increase in the maximum hourly rate of emissions at any of Duke's units."[34] Tens of thousands of tons of illegal NO_x and SO_2 emissions increases were at issue in the Duke Energy case, and all of those increases would have been permissible under maximum hourly emission rate approaches —since EPA was not contending there was any maximum hourly rate increase, and was instead alleging significant net emissions increases in actual, annual emissions (the PSD/NSR test) at the units from modifications that resulted in the units' post-change, increased utilization. Thus, it's easy to see why the enforcement office conclude that basing emissions increases only upon increases in

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[31] *Id.* at 45.

[32] Plaintiff's Consolidated Opp. to Duke Energy's Mot. in Limine to Exclude the Testimony of Robert Koppe, Ranajit Sahu, Bruce Biewald, and Philip Hayet at 118-21, EPA v. Duke Energy, 278 F. Supp. 2d 619 (M.D.N.C. 2003) (No. 436-2); Plaintiff's Consolidated Opp. to Duke Energy's Mot. in Limine to Exclude the Testimony of Robert Koppe, Ranajit Sahu, Bruce Biewald, and Philip Hayet at 2-5, EPA v. Duke Energy, 278 F. Supp. 2d 619 (M.D.N.C. 2003) (No. 1:00CV1262).

[33] EPA has established regulatory "significance thresholds," describing the level of actual tons per year increases of air pollutants above which impacts will not be de minimis in nature, and therefore would trigger NSR. See 40 C.F.R. § 52.21(b)(23)(i), (establishing 40 tons per year significance thresholds for NOx and SO2, for example). In Alabama Power Co. v. Costle the D.C. Circuit Court of Appeals, while recognizing the NSR program's focus on minimizing actual annual emissions increases, indicated EPA could (upon making specified rigorous showings) define levels of actual (tons per year) emissions increases which would produce no regulatory benefit under the statute. See Alabama Power, 636 F.2d 323, 360-61, 400 (D.C. Cir. 1979) (describing that authority to craft de minimis exemption is potentially available "when the burdens of regulation yield a gain of trivial or no value. That implied authority is not available for a situation where the regulatory function does provide benefits, in the sense of furthering the regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs.").

[34] *United States v. Duke Energy Corp.*, Civil Action No. 1:00 CV 1262Order and Final Judgment, at 2 (M.D.N.C. April 15, 2004).

maximum hourly emission rates would be "fatal" to its enforcement cases. See EPA Enforcement Memo, at 13.

Finally, the enforcement office concluded that application of the maximum hourly achievable emissions rate test would be "largely unenforceable." *Id.* at 2. Their analysis found the baseline "achievable" level to be so high that very few changes increasing emissions substantially could possibly result in emissions levels that would surpass it. For example, the enforcement office's first power plant case study found the achievable hourly emission rate to be more than *ten times higher* than the average hourly emission rate in the five-year period prior to the change. *Id.* (emphasis added). Thus, unless the utility were to increase its actual emissions *by an order of magnitude*, it would not be considered a regulated modification under NSR. In the case study, even though sulfur dioxide emissions *increased by 13,096 tons per year*, the maximum achievable hourly rate did not increase. *Id.* Attach. A to EPA Enforcement Memo, at 2 (Case Study #1). Based on this analysis, the enforcement office found that "one can only conclude from application of the so-called 'achievable' test that *no 'change' causing an emissions increase . . . at an EGU would trigger NSR . . . .*" *Id.* at 5 (emphasis added).

A maximum hourly emissions rate test like that in S.2662 or the NSPS program would have exempted the $23 million equipment replacement project undertaken by TVA at Unit 1 of its Cumberland plant, since that project did not experience an increase in maximum achievable or maximum achieved hourly emissions rates.[35] That projected resulted in an NO_x emissions increase of 21,187 tpy—nearly one-and-one-half times the total amount of NO_x emitted annually by all sources in the District of Columbia. 21,187 tpy of NO_x is approximately *530 times* the 40 tpy NO_x "significant" emissions threshold for modifications, and nearly *212 times* the 100 tpy statutory threshold for *new* "major emitting facilities."[36]

II. Legislative Analysis: S.2662: The GAIN Act.

S.2662 is much more harmful and irresponsible than the "maximum achievable" pollution tests that EPA has rejected and condemned again and again.

First, S.2662 defines massive increases in actual air pollution not to be "increases" at all, unless a modification increases a facility's maximum hourly emissions rate above the worst pollution rate possible in the prior *ten years*. S.2662, Sec. 2(2) ("a change increases the amount of any air pollutant emitted by such source only if the maximum hourly emission rate of an air pollutant that is *achievable* by such source after the change is higher than the maximum hourly emission rate of such air pollutant that was *achievable* by such source during any hour in the *10-year period* immediately preceding the change.")

The NSPS program, by contrast, defines massive increases in actual air pollution not to be "increases" at all, unless a modification increases a facility's maximum hourly emissions rate

[35] Final Order on Reconsideration in *In re Tennessee Valley Authority*, (EPA Environmental Appeals Board, September 15, 2000).
[36] CAA § 169(1). See 68 Fed. Reg. at 61,272 ("500 tpy is far above any level EPA has ever thought justifiable as *de minimis*. *E.g.*, 40 CFR § 51.166(b)(23)(i) (definition of "significant").")

above the worst pollution rate possible in the prior *five* years. 40 C.F.R. § 60.14(h) ("No physical change, or change in the method of operation, at an existing electric utility steam generating unit shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the *5 years* prior to the change.") (emphasis added). By choosing a ten-year period rather than five, S.2662 expands the time period for which facilities can increase actual pollution up to its worst pollution rate possible over a longer time period, calling it no increase when pollution increases substantially and evades pollution controls.

Second, S.2662 dispenses with even that lax, meaningless definition of 'pollution increase' if a facility operator increases emissions above those astonishingly high levels, by claiming it is doing so to "restore, maintain, or improve the reliability of operations at, or the safety of, the source." S.2662, Sec. 2(3).

The NSPS program and its maximum achievable hourly pollution test, by contrast, contains no glaring amnesty for unlimited emissions increases when a facility operator invokes reliability or safety to justify the unlimited increases. That is a more radical feature of S.2662, alone.

A. Scope of Amnesty from Clean Air Act Permitting & Pollution Controls.

First, S.2662's harmful amnesty and loopholes, granting permission to increase dangerous air pollution, are extended to nearly 14,000 major industrial polluting facilities and their industrial equipment across the United States.[37] These include but are not limited to: electric power plants that burn coal, oil and gas; oil refineries; chemical plants; hazardous waste and medical waste incinerators; landfills; iron and steel mills; cement plants; manufacturing facilities; industrial boilers; coal cleaning plants (with thermal dryers); Kraft pulp mills; Portland cement plants; primary zinc smelters; primary aluminum ore reduction plants; primary copper smelters; municipal incinerators; hydrofluoric, sulfuric, or nitric acid plants; lime plants; phosphate rock processing plants; coke oven batteries; sulfur recovery plants; carbon black plants (furnace process); primary lead smelters; fuel conversion plants; sintering plants; secondary metal production plants; fossil-fuel boilers; petroleum storage and transfer units; taconite ore processing plants; glass fiber processing plants; charcoal production plants; and "any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant."[38]

B. Repealing Limits on Significant Air Pollution Increases.

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[37] *See* U.S. EPA, *Proposed Information Collection Request; Comment Request; Part 70 State Operating Permit Program (Renewal)*, 83 Fed. Reg. 45,926 (Sept. 11, 2018) (estimating 13,712 major stationary sources with Title V operating permits under the Clean Air Act). https://www.govinfo.gov/content/pkg/FR-2018-09-11/pdf/2018-19771.pdf.

[38] See, *e.g.*, 40 C.F.R. § 52.21(b)(1) (definition of major stationary source).

Second, S.2662 harmfully amends the Clean Air Act by repealing the law's longstanding regulation of "modifications" that result in significant increases in actual emissions of dangerous air pollution. S.2662 does so by substituting a severely weakened definition of 'emissions increase,' addressing sources' increase only above their worst possible pollution rate in the past ten years; the bill eliminates the longstanding statutory definition of "modification" that is concerned with significant increases in actual emissions of dangerous air pollution. See S.2662, sec. 2 ("For purposes of the preceding sentence, ….").

The legislation permits significant increases of all regulated NSR pollutants: carbon monoxide, nitrogen oxides, sulfur dioxide, particulate matter, PM10, PM2.5, ozone, lead, fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur, reduced sulfur compounds; municipal solid waste landfill emissions; and municipal waste combustor organics, metals and acid gases.[39]

Realize, however, that when these regulated NSR pollutants increase under the bill's amnesty, industries *also* will be able to increase carbon pollution that drives dangerous climate change. They will increase the brain poison, mercury; they will increase cancer-causing pollution like arsenic & benzene. That's because fossil fuel combustion releases these dangerous toxins from smokestacks into America's skies.

C. Authorizing Significant Air Pollution Increases.

Third, the bill adopts a new extreme, irresponsible and harmful definition of air pollution "increase." A "change increases the amount of any air pollutant" only if a facility's worst possible pollution rate after a change, today, is higher than the facility's worst possible pollution rate in the past ten years:

> a change increases the amount of any air pollutant emitted by such source only if the maximum hourly emission rate of an air pollutant that is achievable by such source after the change is higher than the maximum hourly emission rate of such air pollutant that was achievable by such source during any hour in the 10-year period immediately preceding the change.

S.2662, sec. 2. Under the bill, a "change" at an industrial facility could increase its actual air pollution in the real world by two times, five times, ten times or more above what the facility was polluting before the change—and this would not be an "increase" under the bill if that additional air pollution did not exceed the facility's worst *possible* pollution rate in the past ten years. The bill is more extreme than allowing a source to increase dangerous air pollution all the way up to its worst *actual* polluting level in the past ten years; instead, the bill lets polluting facilities increase dangerous air pollution all the way up to its worst *possible* polluting level in the past ten years. The bill does so with the term, "maximum hourly emission rate of an air pollutant that is *achievable* by such source," rather than "achieved" by such source. *Id.* (emphasis added).

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[39] See, *e.g.*, 40 C.F.R. § 52.21(b)(23)(i) (regulated NSR pollutants and significant emissions rates).

Indeed, the bill is so extreme that it bases its definition of emissions "increase" on the absurd prospect of a polluting facility exceeding the "maximum hourly emission rate of such air pollutant that was achievable by such source *during any hour* in the 10-year period." *Id.* (emphasis added). That would mean the single filthiest level of air pollution that the plant was *capable* of emitting during any hour, including when the plant had zero air pollution controls; when any air pollution control equipment was turned off; when the plant was experiencing malfunctions that caused air pollution to spike; or when the plant was flaring gases uncontrolled from smokestacks to avoid accidents.

Through these approaches, S.2662 would let polluting equipment and facilities increase dangerous air pollution to higher levels than they ever have polluted, worsening air quality and evading air pollution controls that today's law requires. This testimony discusses real world examples of the stunning magnitude of increases in air pollution that the bill's amnesty would newly authorize, exempting huge pollution increases from the Clean Air Act's air pollution control requirements and air quality analyses. Astonishingly, the bill just *declares* these are not pollution increases at all, even though pollution has increased in American communities by hundreds or many thousands of tons per year or more. Or millions of tons per year of carbon pollution.

Realize, too, that S.2662 would unleash significant air pollution increases after repealing limits on this significant increases under the Clean Air Act. But S.2662 does not create any legal *limit* on those potential emissions increases; rather, a facility's physical *ability* to pollute more is the only actual limit in the real world. That is stunning & alarming, inconsistent with 50 years of air pollution regulation in America.

D. Authorizing Even *More* Significant Air Pollution Increases.

The legislation is not content with allowing industrial facilities to increase dangerous air pollution all the way up to the facility's worst *possible* pollution rate in the past ten years. Section 2(B) of S.2662 dispenses with even that meaningless constrain on pollution increases, by allowing polluting facilities to *exceed* the facility's worst possible pollution rate during any hour in the past ten years:

> (B) Notwithstanding subparagraph (A), the term 'modification' does not include a change at a stationary source that is designed—
>
> > (i) to reduce the amount of any air pollutant emitted by the source per unit of production; or (ii) to restore, maintain, or improve the reliability of operations at, or the safety of, the source,

Sections (B)(i) & (ii) in the bill become the exceptions that swallow the grossly lax rule in (A). The loopholes created here allow truly unlimited increases in air pollution, all the way up to a facility's physical capacity to pollute, following a change.

First, the word "designed" in (B) is revealing: so long as a facility operator claims that a change at a stationary source was "designed" to do one of the two things delineated in (B)(i) or (B)(ii), the change need not actually *do* either one of those things. That is, if a change were

"designed" to "reduce the amount of any air pollutant emitted by the source per unit of production," the bill would not penalize any actual failure to reduce any air pollutant per unit of production. And yet the bill would say there has been no "modification," allowing facility operators to evade air pollution control equipment, pollution offsets, air quality analyses and other NSR safeguards.

Second, so long as a facility operator claims that a change at a stationary source was designed to "reduce the amount of *any air pollutant* emitted by the source per unit of production," S.2662, sec. 2(B)(i), the post-change facility could increase *any other air pollutant* per unit of production. So, the facility could reduce, say, carbon dioxide per unit of production, while increasing lead, smog-forming nitrogen oxides, deadly $PM_{2.5}$ or sulfuric acid mist. And yet, again, the bill would say there has been no "modification," allowing facility operators to evade air pollution control equipment, pollution offsets, air quality analyses and other NSR safeguards.

Third, the bill permits the reduction of any amount of any air pollutant emitted by the source per unit of production, however trivial, to increase dangerous total air pollution by so much that the increases *exceed* the facility's worst possible pollution rate during any hour in the past ten years. Again, the bill would say there has been no "modification," allowing facility operators to evade air pollution control equipment, pollution offsets, air quality analyses and other NSR safeguards.

It's hard even to conceive of a business that would rationally undertake changes at a facility in order to *increase* the amount of pollution per unit of production. That is because higher costs per unit of production would be associated with factors increasing pollution per unit of production: greater fuel consumption; greater waste; increased raw materials and more. Because businesses can lower these costs by reducing pollution per unit of production, it's reasonable to conclude business will seek to do this for production-related changes.

That is a very far cry, however, from overall air pollution levels going down. If a facility operator reduces air pollution per unit of production by a marginal amount, certain production increases or increases in hours of operation will increase total amounts of air pollution from the facility. Federal courts long have recognized this reality, while affirming that NSR is concerned with *overall* air pollution increases, not pollution per unit of production:

> The fact that a firm's decision to introduce new, more efficient machinery may lead the firm to decide to increase the level of production, with the result that, despite the new machinery, overall emissions will increase.

Puerto Rican Cement v. EPA, 889 F.2d 292 (1st Cir. 1989). EPA has consistently shared this same understanding about the core purposes of the NSR safeguards:

> For example, assume the emissions unit at the widget factory that is emitting 10 pounds an hour but has historically operated at 40 percent capacity due at first to operating cost, but with age, reduced efficiency and reliability. Under [an hourly emissions rate test], the owner could modernize the unit, thus lowering the operating costs and increasing

> efficiency and reliability. *This change will allow the owner to use the machine at much higher levels (e.g., more hours per day or week) than it had in the past. As a result, actual emissions (measured in [tons per year]) could more than double due to the increase in utilization even though hourly potential emissions remain the same.*"[40]

It is no consolation to Americans or air quality or the environment that the total, overall increases in dangerous air pollution that they are experienced resulted from facility decisions following reductions in the amount of air pollution per unit of production.

Finally, S.2662 authorizes increases in total amounts of dangerous air pollution by so much that the increases may *exceed* the facility's worst possible pollution rate during any hour in the past ten years, so long as the facility operator claims a change is being undertaken "to restore, maintain, or improve the reliability of operations at, or the safety of, the source." S.2662, sec. 2(B)(ii). This allows truly unlimited increases in air pollution, all the way up to a facility's physical capacity to pollute, following a change. Once again, the bill would say there has been no "modification" following these massive air pollution increases, allowing facility operators to evade air pollution control equipment, pollution offsets, air quality analyses and other NSR safeguards.

Again, a facility operator need only claim that a change was "designed" to "restore, maintain, or improve" reliability or safety, not that the change did so. Moreover, this loophole invites further abuse based upon a defining feature of the NSR permitting program: it is self-initiated by regulated entities. That is, facility operators decide whether emissions increases resulting in a modification have occurred; they decide whether a change qualifies for an exemption; they would decide if a change were "designed" to "to restore, maintain, or improve the reliability of operations at, or the safety of, the source." Only then, following a conclusion that a modification will occur, do facility operators submit permit applications to regulators responsible for issuing NSR permits.

This means that state and local regulators responsible for issuing most NSR permits, or EPA regulators responsible for issuing a small minority of NSR permits, may never know that a facility operator wrongly determined, *illegally* determined, that a change was not a modification because it was allegedly "designed" to "restore, maintain, or improve" reliability or safety.

For good reason, the Clean Air Act never has allowed runaway increases in dangerous air pollution, merely because a business claimed reliability or safety justified worsening air quality and hurting Americans surrounding the facility. We know that air pollution travels far and knows no boundaries, hurting Americans in downwind states many hundreds of miles away. The Clean Air Act does not and should not exempt polluting facilities that perform valuable services for society, whether that is providing electricity or manufacturing medicine. Americans expect polluting facilities to clean up their own pollution and not dump that pollution, or significantly increase that pollution, into America's skies. S.2662 badly fails those expectations.

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[40] 61 Fed. Reg. 38,250, 38,269 (July 23, 1996) (emphasis added).

E. S.2662's Strawman Constraint on Emissions Increases Does Not Protect Americans.

There is an exception to sec. 2, (B)(i) or (ii), when a "change would be a modification as defined in subparagraph (A) and the Administrator determines that the increase in the maximum achievable hourly emission rate of a pollutant from such change would cause an adverse effect on human health or the environment." This attempt at a constraint on emissions increases nonetheless fails to protect American or U.S. air quality.

The first, and most obvious, thing to note about this provision is that increases in dangerous air pollution all the way up to facilities' worst *possible* polluting level in the past ten years, do not result in an opportunity for the EPA Administrator to determine if the pollution increases "cause an adverse effect on human health or the environment." This determination simply does not apply to changes addressed in (A); indeed, by implication, S.2662 admits that enormous air pollution increases permissible under (A) could "cause an adverse effect on human health or the environment."

Second, if there is such a determination by the Administrator under (B), changes simply revert to the grossly lax amnesty created in (A), wherein increases in dangerous air pollution may happen all the way up to facilities' worst *possible* polluting level in the past ten years. And the Administrator cannot then determine if the worsened air pollution caused "an adverse effect on human health or the environment."

More important, the seeming constraint on unlimited emissions increases is a strawman in the legislation. The reality is that state and local permitting authorities issue the vast majority of NSR permits in the U.S., not EPA or the "Administrator." EPA issues NSR permits only rarely, primarily in tribal areas or in Puerto Rico. This means that the "Administrator" would not have an opportunity to "determine" pursuant to sec. 2(B) that the "increase in the maximum achievable hourly emission rate of a pollutant from such change would cause an adverse effect on human health or the environment." Today, when state and local permitting authorities issue NSR permits, EPA officials are not required to review them; and the EPA Administrator virtually never reviews such permits.

Moreover, as noted earlier, the NSR permitting process is one self-initiated by regulated entities. That is, facility operators decide whether emissions increases resulting in a modification have occurred; they decide whether a change qualifies for an exemption; they would decide if a change were "designed" to "reduce the amount of any air pollutant emitted by the source per unit of production," or "restore, maintain, or improve the reliability of operations at, or the safety of, the source." Accordingly, if a source were to decide it qualified for the (B)(i) or (B)(ii) exemptions, the EPA Administrator likely would never even learn about this, to even have the opportunity to determine if there were "an adverse effect on human health or the environment." And after those adverse effects had occurred, it would be too late to undo the damage.

Accordingly, the strawman safeguard in sec. 2(B) does not remedy the many damages actively created, and the adverse effects on human health and the environment authorized, by S.2662.

F. S.2662's "Clarification" Fiction.

Sections 2, 3 and 4 in S.2662 are titled "CLARIFICATION" in a patent and unsuccessful attempt to pretend that the loopholes and amnesty created therein are allowed under the current Clean Air Act. This is wildly false, as a direct comparison between the text in S.2662 and the text in Clean Air Act sections 111(a)(4), 169(2)(C) and 171(4) plainly show. One may wonder why the legislation resorts to such obvious fictions, but the answer is pretty clear: the Trump administration EPA has proposed regulations to roll back NSR safeguards for power plants, in a manner substantially similar to S.2662, especially section 2 of the bill.[41] The "clarification" pretense in S.2662 seeks to bolster the lawfulness of the Trump EPA regulatory attack on the Clean Air Act, to no avail.[42] Republican Senators co-sponsoring S.2662, and Republican House members co-sponsoring H.R. 1327 and 1328, understand that sweeping, detailed amendments to the Clean Air Act are necessary to weaken the statute as dramatically as these bills and the Trump EPA rulemaking proposal all would attempt.

III. The February, 2018 House Hearing & H.R. 1327 & 1328.

On February 14, 2018, the Subcommittee on Environment, for the House Energy and Commerce Committee, held a hearing entitled, "New Source Review Permitting Challenges for Manufacturing and Infrastructure."[43] I testified at that hearing,[44] opposing two House bills referred to the Energy & Commerce Committee: H.R. 3127[45] & H.R. 3128.[46] These are the House companion bills to S.2662. Another witness for today's Senate hearing, Mr. Jeffrey Holmstead, also testified at the February, 2018 House hearing.[47]

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[41] See "Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program," 83 Fed. Reg. 44,746 (Aug. 31, 2018).

[42] See generally, Joint Comments of Environmental and Public Health Organizations on the New Source Review Regulatory Changes Proposed With EPA's 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 (Oct. 31, 2018) (93-page comments, plus attachments, comprehensively demonstrating the unlawfulness of the August 31, 2018 EPA proposal), Docket No. EPA-HQ-OAR-2017-0355.

[43] https://energycommerce.house.gov/committee-activity/hearings/hearing-on-new-source-review-permitting-challenges-for-manufacturing-and.

[44] https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Testimony-Walke-EE-Hrg-on-New-Source-Review-Permitting-Challenges-for-Manufacturing-and-Infrastructure-2018-02-14.pdf.

[45] https://www.congress.gov/115/bills/hr3127/BILLS-115hr3127ih.pdf.

[46] https://www.congress.gov/115/bills/hr3128/BILLS-115hr3128ih.pdf.

[47] https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Testimony-Holmstead-EE-Hrg-on-New-Source-Review-Permitting-Challenges-for-Manufacturing-and-Infrastructure-2018-02-14_0.pdf.

A. The Claim that NSR Should Not Apply Unless Maximum Hourly Emissions Rates Increase.

Following the hearing, the Honorable Frank Pallone submitted several questions for me to answer. One asked about the written testimony of Mr. Holmstead, in which he testified that:

> the best approach would be to make clear that there is not a "major modification" under NSR if there is not a "modification" as defined under NSPS. Thus, companies (and EPA) would evaluate a project to determine whether it would increase the maximum hourly emission rate at the plant. If not, then the project does not trigger NSR.[48]

Congressman Pallone asked if I agreed. I explained that I did not. First, I made many of the same points that I do in Section II of today's testimony. I explained why the NSR safeguards are concerned with protecting Americans from significant increases in actual air pollution, while the NSPS program fails badly at that task, by allowing facilities to increase dangerous air pollution up to the worst polluting levels at which they possible could have polluted, in the previous 5-year period.

I noted further that I agree, instead, with the position and action taken by Mr. Holmstead and the Bush administration EPA in 2002, when Mr. Holmstead headed the agency's Office of Air & Radiation. There, EPA rejected use of a maximum hourly emission rate test for the NSR program because it "could sanction greater actual emissions increases to the environment, often from older facilities, without any preconstruction review." 67 Fed. Reg. 80,185, 80,205 (December 31, 2002). That approach allowed emissions increases to be calculated based on "the unit's pre-change and post-change potential emissions, measured in terms of hourly emissions." *Id.*. at 80,205. EPA's analysis "showed that typical source operation frequently does result in actual emissions that are below allowable emission levels," *id.*, meaning very significant increases in actual emissions could result without exceeding allowable emission levels. *See also, id.* ("actual emissions increases resulting from unreviewed projects could go largely undocumented until a [Prevention of Significant Deterioration/New Source Review] review is performed by a new or modified facility that ultimately must undergo review. By that time, however, a violation of an [air quality] increment could have unknowingly occurred."); *id.* ("We agree that a potential-to-potential test for major NSR applicability could lead to unreviewed increases in emissions that would be detrimental to air quality.").

Mr. Holmstead and the Bush EPA understood that these unreviewed emissions increases run counter to the purposes of the NSR program. In EPA's August 2004 response to the legal challenges to the 2002 NSR rule revisions, for instance, EPA concedes that "the purpose of the NSR provisions is . . . to limit emissions *increases* resulting from physical or operational changes." *See* EPA, Respondent Brief in *New York v. EPA*, D.C. Cir. Case No. 02-1387 (Aug. 9, 2004), at 73-74 (emphasis in original); *see also id.*, at 74 ("the purpose of New Source Review is to require that facilities making changes that increase their emissions meet emission limits that reflect state-of-the-art control technology, analyze the increased emissions from their facilities to ensure that they will not adversely affect air quality, and, in nonattainment areas, offset their

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[48] *Id.*, at 6.

emissions increases with emission reduction credits.") EPA "also expressed concern about the environmental consequences associated with [maximum hourly emissions rate] provisions. For one, you could modernize your aging facilities (restoring lost efficiency and reliability while lowering operating costs) without undergoing preconstruction review, while increasing annual pollution levels as long as hourly potential emissions did not change." 67 Fed. Reg. at 80,205.

Indeed, in the context of the 2002 NSR rulemaking, EPA itself recognized that focusing the program on increases in potential hourly emissions would not adequately protect co-called pollution "increments," as required by the Clean Air Act. For example, in the rulemaking proposal, the agency observed:

> Finally, one of the most troubling side effects of [a potential-to-potential hourly emissions test] is that it could ultimately stymie major new source growth by allowing unreviewed increases of emissions from modifications of existing sources to consume all available increment in PSD areas. After the minor source baseline date has been established in an area, all increases, whether subject to major NSR or not, consume increment. As illustrated in the example above, under the [the potential-to-potential hourly emissions] test an old grandfathered source could experience a "significant" net increase in annual actual emissions, yet it would not necessarily be subject to review. Since increment consumption after the minor source baseline date is calculated based on actual emissions increases, the "minor" modification of the grandfathered source would still consume increment. If a major new source with state-of-the-art emission controls proposes to locate in an area in which the increment has been consumed in this manner, it would be barred from building unless and until the increment problem was resolved. At the same time, older plants would continue to be able to make changes resulting in significant unreviewed, and possibly uncontrolled, actual emission increases.

61 Fed. Reg. 38,250, 38,270 (Jul. 23, 1996). And later, in its Technical Support Document for the 2002 NSR Rule, EPA continued in a similar vein:

> In the preamble, we discussed our concerns about the environmental effects that could result from the general use of an applicability test based on the CMA Exhibit B approach. We indicated that the approach, based on increases in hourly potential emissions, could result in unreviewed emissions increases on a tons per year basis from modifications of existing sources consuming all available increment in PSD areas. ... We continue to believe that the "actual-to-projected actual" test – and not the CMA Exhibit B test – is the more appropriate method for measuring actual emissions increases that result from a physical or operational change, while not counting for applicability purposes....
>
> With regard to the comment that the CMA Exhibit B approach would not have an impact on increment consumption because permitting, emissions inventories, and SIP's consider potential emissions, we believe that this conclusion overlooks the fact that the regulatory increment consumption process is based on changes in "actual emissions." PSD increment analyses performed with potential emissions tend to be screening analyses, which are accepted if the results show that no violations will result. Hence, while many analyses may be done initially with potential or allowable emissions, PSD applicants always have the

> ability to perform a more refined analysis should the initial analysis reveal problems meeting the increment. That is, actual emissions increases ultimately may need to be (and in some cases have been) used to determine whether an increment is being violated. This is one reason why we believe that it is important to retain an applicability process that triggers NSR on the basis of actual emissions increases.

Technical Support Document for the Prevention of Significant Deterioration and Nonattainment Area New Source Review Regulations, Nov. 2002, Docket No. A-90-37, at I-6-9.

It is also instructive to know about the emissions impact analysis that Mr. Holmstead and the Bush EPA included in the docket for the 2002 Bush EPA NSR rulemaking that rejected an hourly emissions test for NSR. There was no instance in EPA's analysis in which an electric generating unit ("EGU") would *not* have been allowed to increase its hourly or annual emissions by at least 50% under an hourly emissions rate test. Fifty percent increases were on the low end under EPA's study, however, with emissions increases over 100% and 200% more the norm.

EPA and Mr. Holmstead included this study in the docket for the 2002 NSR rulemaking, and offered no agency criticism of the data or its conclusions. The agency similarly relied upon the study to support its 2002 final rule, rightly rejecting a maximum hourly emissions rate approach. EPA provided no *other* data to contradict the emission's impact data or conclusions—either in the docket for the 2002 rulemaking *or at any time since then*. The only data in the possession of the agency thus belie any suggestion that emissions would not be allowed to increase very significantly, using a maximum hourly emissions rate test instead of the current PSD/NSR test, based on increases in actual, annual emissions to the environment. Allowing actual, annual emissions to increase by a factor of many times even the major stationary source thresholds plainly allows significantly greater environmental and public health hazards to occur than under the prevailing PSD/NSR emissions increase test for modifications.

B. The Claim That There Would Be No Increases in Air Pollution "Even if the NSR Program Disappeared Completely Tomorrow."

The Honorable Frank Pallone also asked me, following the hearing, about a claim that Mr. Holmstead made during his oral testimony, that "even if the NSR program disappeared completely tomorrow," that "there would not be any increase in air pollution at all." Congressman Pallone asked if I agreed.

I responded that Mr. Holmstead's claim was badly, demonstrably wrong. First, I reiterated the Bush EPA's acknowledgment, when Mr. Holmstead headed EPA's Office of Air & Radiation, that merely *weakening* the NSR program, much less eliminating it, would result in increased air pollution. In a 2002 Bush EPA rule issued by Mr. Holmstead's Office of Air & Radiation, EPA rejected use of a grossly weaker maximum hourly emission rate test for the NSR program because it "could sanction greater actual emissions increases to the environment, often from older facilities, without any preconstruction review." 67 Fed. Reg. 80,186, 80,205 (December 31, 2002). I went on to make many of the same points made above in sections II and IV.A, including the Bush EPA enforcement office's damning indictment of the maximum hourly

emissions increase test and the massive emissions increases that had resulted from power plants violating NSR.

I noted further that neither Mr. Holmstead's written or oral testimony explained what laws, regulations, emissions limits or standards would prevent any increases in air pollution from *every* emissions unit, or even *any* emissions units, at each major stationary source in the U.S. subject to the NSR and PSD programs. The burden lies with anyone making such a claim, erroneous as it is, to demonstrate with particularity, and comprehensively, what laws, regulations, emissions limits or standards would prevent increases in air pollution from every PSD/NSR-covered emissions unit "if the NSR program disappeared completely tomorrow." As noted, Mr. Holmstead's testimony during the House hearing did not even attempt to do so.

The reasons for this failure are obvious: the very structure and requirements of federal, state and local clean air laws do not restrict all increases in air pollution. Few if any emissions units at major stationary sources are subject to hard caps on total annual emissions tied to current emissions levels, in a way that would guarantee "there would not be any increase in air pollution at all" "even if the NSR program disappeared completely tomorrow." No federal Clean Air Act standards impose hard caps on emissions in the manner just described; to the extent that there are caps on annual emissions from individual major stationary sources under some federal standards, like the Cross State Air Pollution Rule, facility operators may purchase and trade allowances to exceed even those so-called 'caps' with actual emissions increases. Nor do State Implementation Plans or individual federal, state or local permits cap total emissions to prevent any and all increases in actual, annual air pollution above current levels. These regulatory tools generally limit emissions *rates,* rather than prohibiting any increases in air pollution, meaning that physical and operational changes would be allowed to result in significant emissions increases "if the NSR program disappeared completely tomorrow."

There are too many examples to show that increases in air pollution occur every day in the U.S., even with the NSR program in place. I will highlight just a few, to show how wrong any claim to the contrary is. In September of this year, EPA released emissions data for coal-burning power plants nationwide, showing that "nine of the top 10 emitters of sulfur dioxide (SO2) *increased* discharges last year, in several cases by double-digit percentages."[49] For example, Luminant's Martin Lake power plant in Texas "belched almost 56,200 tons of SO_2, up 54% from 2017."[50] The Gerald Gentleman plant in Nebraska increased SO_2 emissions by 31%, and the Independence power plant in Arkansas increased SO_2 emissions by 24%.

Second, the following graphs of NO_x emissions from five coal-burning power plant units owned and operated by Duke Energy belie any suggestion that there are other, adequate limits on air pollution increases, "even if the NSR program disappeared completely tomorrow." As these graphs show, there are wild swings in air pollution increases occurring at industrial facilities, today, with very significant emissions increases above a source's lowest observed rate. These lowest observed rates frequently correspond to full operation of air pollution control devices,

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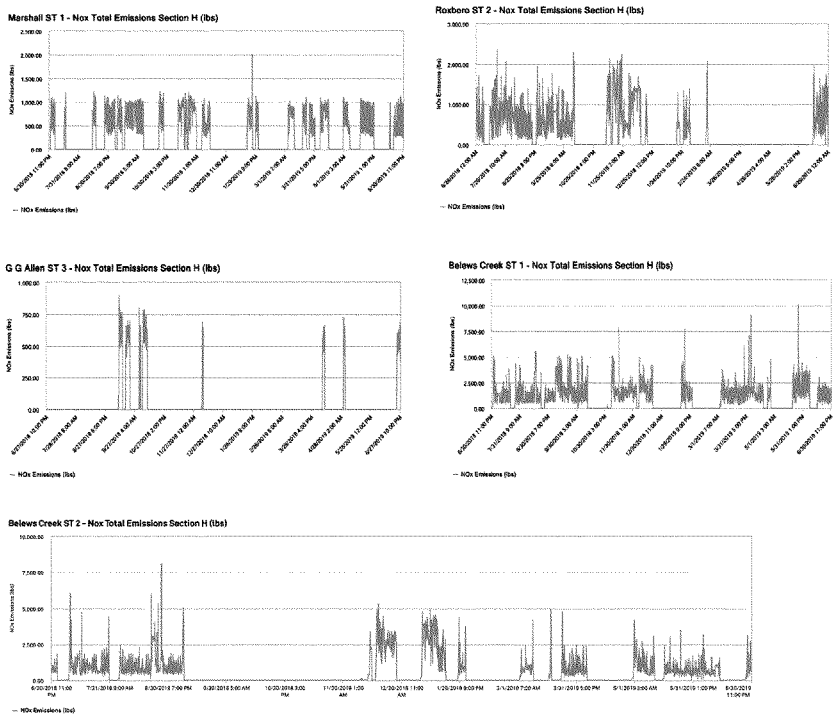
[49] Sean Reilly, "AIR POLLUTION: EPA about-face lets emissions soar at some coal plants," *Greenwire* (Sept. 26, 2019) (emphasis added).
[50] *Id.*

with pollution spikes often occurring when operators turn off pollution control devices. The reasons for the NO_x emissions spikes in these graphs are not known.



Source: S&P Global Market Intelligence, Power Plant Profile: Unit Hourly Operations, data drawn from U.S. EPA Continuous Emissions Monitoring System.

Finally, of course, the Bush EPA enforcement office's own experience with illegal and massive air pollution increases from a variety of industrial sectors squarely contradicts any suggestion that are other, adequate limits on any and all air pollution increases, "even if the NSR program disappeared completely tomorrow."[51] Similarly, House testimony by the former EPA air enforcement director under the Clinton and Bush administrations, soundly refutes industry

[51] EPA's national NSR enforcement initiatives have found widespread violations that resulted in significant air pollution increases among coal-burning power plants; petroleum refineries; plants that manufacture sulfuric and nitric acid, which are used in fertilizer, chemical and explosive production; glass manufacturers; and cement manufacturers. See generally https://www.epa.gov/enforcement/air-enforcement.

claims that "most of the things" required under NSR enforcement consent decrees are things the companies are required to do under other Clean Air Act programs, anyway.[52]

I have been a Clean Air Act attorney for nearly 25 years, representing private corporations, trade associations, the U.S. EPA, NRDC and other public health and environmental groups. During that time, I have never heard any government official, or attorney in private, public or public interest practice—prior to the February, 2018 House hearing—even suggest that there are "laws and regulations, in place, at the state and/or federal levels, that would prevent any and all stationary sources in the U.S. from experiencing 'any increases at all,' that would otherwise be regulated by NSR." I am not aware of any such laws or regulations, certainly not those that "would prevent any and all stationary sources in the U.S. from experiencing 'any increases at all,' that would otherwise be regulated by NSR."

I urge Senators at the hearing to ask the witnesses what *specific* laws, regulations, emissions limits or standards would prevent *any* increases in air pollution from *every* emissions unit at each major stationary source in the U.S. subject to the NSR and PSD programs. The plain truth is there are no such laws, regulations, limits or standards, and it is false to suggest otherwise.

IV. S.2662 & the Efficiency Fiction.

Proponents of H.R. 1327 and H.R.1328 at the House hearing, and co-sponsors of S.2662 in their press release accompanying the bill,[53] invoke "energy efficiency" as a justification for the bills' amnesty and loopholes from Clean Air Act safeguards. As used in this manner, however, "efficiency" is a seriously misleading label employed generally to mask higher air pollution levels that would be allowed to result, while escaping clean up, as a result of the bills' proposed amnesty and loopholes. The expression is being used as code for the following concept: an improved emissions rate of pollution per unit of fuel, raw material or output (*e.g.*, lbs/MBtu of SO_2, pounds of NO_x per widget).[54]

Under existing NSR rules, a facility modification that decreases its pollution rate (*i.e.*, becomes more efficient), does *not* require pollution controls so long as total actual emitted pollution levels decrease, are maintained, or even increase by no more than specified levels (*e.g.*, 40 tons per year). This is so, of course, because NSR requires pollution control measures only for activities that increase pollution levels above generous 'significance' threshold levels, like 40 tons per year. This is true efficiency, desirable efficiency, that should result in lower pollution rates *and* lower overall air pollution levels for Americans.

In stark contrast, S.2662 weakens the NSR safeguards to the point of meaninglessness, in order to allow higher air pollution levels (that may or may not result from improved emission

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[52] See Buckheit Testimony, *supra*, at 13-15.
[53] Senators Introduce Growing American Innovation Now (GAIN) Act, https://www.epw.senate.gov/public/index.cfm/2019/10/senators-introduce-growing-american-innovation-now-gain-act.
[54] See, *e.g.*, S.2662, sec.2(B)(i).

rates) to escape clean-up measures, under the guise of "efficiency." Cloaking this agenda in the garb of efficiency is not only objectionable,[55] it also contradicts numerous prior EPA understandings and court decisions on this very issue:

> Virtually every modernization or upgrade project at an existing industrial facility which reduces inputs and lowers unit costs has the concurrent effect of lowering an emissions rate per unit of fuel, raw material or output. Nevertheless, it is clear that these major capital investments in industrial equipment are the very types of projects that Congress intended to address in the new source modification provisions. … Adopting a policy that automatically excludes from NSR any project that, while lowering operating costs or improving performance, coincidentally lowers a unit's emissions rate, would improperly exclude almost all modifications to existing emissions units, including those that are likely to increase utilization and therefore result in overall higher levels of emissions.[56]

> The argument that only changes that increase a unit's emissions rate can trigger the NSR modification provisions has been rejected by two courts of appeals. As noted, see supra note 1, in *Puerto Rican Cement*, the First Circuit rejected a claim that modifications to a cement kiln, which made production more efficient and decreased the hourly emissions rate but could increase the plant's utilization rate, such that actual emissions to the atmosphere might increase, were exempt from PSD. The company argued that the project fell under the PSD regulatory exclusion for changes that result in an "increase in the hours of operation or in the production rate." See 889 F.2d at 298. Similarly, in *WEPCO*, where the company was making "like-kind" replacements of components to restore the original design capacity of the plant, there was no increase in emissions per unit of output; rather, for PSD purposes, the emissions increase was attributable to increased utilization. The Seventh Circuit rejected the company's reliance on the exclusion for increased hours of operation/rates of production. See 893 F.2d at 916 n. 11.[57]

For these same reasons, which EPA and federal courts have reaffirmed time and time again, as well as others discussed herein, the Clean Air Act should not exempt from NSR control measures, significant increases in harmful air pollution that result from marginal improvements in emissions rates, that occur with no increase in emissions per unit of output or that restore the original design capacity of a unit or plant. The obvious point in all these situations is that the air is getting dirtier by significant amounts, and pollution loadings are increasing to surrounding communities. The statutory purposes of the NSR program call for responsible pollution control measures to mitigate or offset these harmful pollution increases.[58]

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[55] It is objectionable, of course, because efficiency improvements that yield the expected, added benefit of reduced overall air pollution levels is what Congress and EPA should be promoting.
[56] Memorandum from John S. Seitz, Director, EPA OAQPS, to EPA Regional Air Directors, "Pollution Control Projects and New Source Review (NSR) Applicability," (July 1, 1994), at 11.
[57] Detroit Edison Applicability Determination Detailed Analysis, at 5-6, n.1, Enclosure to Letter from Francis X. Lyons, EPA Regional Administrator, to Henry Nickel, Counsel for the Detroit Edison Company (May 23, 2000), at 12, n.9.
[58] The first four purposes of the PSD provisions are (1) to protect public health and welfare from any potential adverse effect that EPA believes may reasonably be anticipated to result from air

V. S.2662 Allows Emissions Increases from *Single* Power Plants Greater Than Total Emissions From All Coal-Fired Power Plants in Many Individual States.

The significant air pollution increases authorized by S.2662 are so vast, and the universe of industrial facilities allowed to increase dangerous pollution so extensive, that the only way to put the damage in context is to use air pollution from entire states for comparison. I use the examples of coal-burning power plants that undertook illegal modifications; increased NSR regulated air pollutants by enormous amounts; evaded required air pollution controls, air quality analyses and other NSR safeguards; and were determined by EPA's enforcement office *not* to have exceeded maximum hourly achievable emissions rates, despite these enormous pollution increases. In other words, these examples are among the ones that S.2662—and the Trump EPA rollback of NSR—would allow to increase emissions and evade pollution controls. See, *supra*, at II.C.

In the following tables, I compare a 21,187 ton per year increase in smog-forming nitrogen oxides, NO_x, from a *single* power plant unit, TVA Unit 1, to the *total* nitrogen oxides emitted by *all* coal-burning power plants in all states represented on the Senate Environment & Public Works Committee. I also compare the 13,096 *increase* in sulfur dioxide from a *single* power plant unit examined in the EPA enforcement office case study, *supra*, at II.C, to the *total* sulfur dioxide emitted by *all* coal-burning power plants in all states represented on the Senate Environment & Public Works Committee.

Air Pollutant	Pollution *increase* from *one* actual coal-burning electric generating unit (EGU), in tons per year, allowed by bill's loophole	Total coal EGU emissions (tpy) in Alabama	% that one coal EGU *increase* due to bill = out of *total* Alabama coal EGU emissions	Total coal EGU emissions (tpy) in Alaska	% that one EGU *increase* due to bill = out of *total* Alaska coal EGU emissions	Total coal EGU emissions (tpy) in Arkansas	% that one coal EGU *increase* due to bill = out of *total* Arkansas coal EGU emissions	Total coal EGU emissions (tpy) in Delaware	% that one coal EGU *increase* due to bill = out of *total* Delaware coal EGU emissions
NO_x	21,187 tpy	18,127	117%	0	---	20,490 tpy	103%	132 tpy	16,050%
SO_2	13,096 tpy	10,552	124%	0	---	51,720 tpy	25%	441 tpy	2,970%

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pollution notwithstanding attainment of the NAAQS; (2) to enhance air quality in areas of special natural, recreational, scenic, or historic value; (3) to ensure that economic growth will occur in a manner consistent with the preservation of existing air resources; and (4) to ensure that emissions from any source in any state do not interfere with any other state's plan for preventing significant deterioration of air quality. 42 U.S.C. § 7470(1)-(4). This language reveals that Congress enacted the NSR & PSD provisions out of concern for air quality in each state, in each air shed within each state, and in each "special" area within each air shed, and the welfare (climate) across the country.

Air Pollutant	Pollution *increase* from *one* actual coal-burning electric generating unit (EGU), in tons per year, allowed by bill's loophole	Total coal EGU emissions (tpy) in Illinois	% that one coal EGU *increase* due to bill = out of *total* Illinois coal EGU emissions	Total coal EGU emissions (tpy) in Indiana	% that one EGU *increase* due to bill = out of *total* Indiana coal EGU emissions	Total coal EGU emissions (tpy) in Iowa	% that one coal EGU *increase* due to bill = out of *total* Iowa coal EGU emissions	Total coal EGU emissions (tpy) in Kentucky	% that one coal EGU *increase* due to bill = out of *total* Kentucky coal EGU emissions
NO_x	21,187 tpy	29,670	71%	64,598	33%	14,257	149%	44,856	47%
SO_2	13,096 tpy	57,287	23%	68,449	19%	18,384	71%	55,090	24%

Air Pollutant	Pollution *increase* from *one* actual coal-burning electric generating unit (EGU), in tons per year, allowed by bill's loophole	Total coal EGU emissions (tpy) in Maryland	% that one coal EGU *increase* due to bill = out of *total* Maryland coal EGU emissions	Total coal EGU emissions in Massachusetts	% that one coal EGU *increase* due to bill = out of *total* Massachusetts coal EGU emissions	Total coal EGU emissions in Mississippi	% that one coal EGU *increase* due to bill = out of *total* Mississippi coal EGU emissions	Total coal EGU emissions in New Jersey	% that one coal EGU *increase* due to bill = out of *total* New Jersey coal EGU emissions
NO_x	21,187 tpy	5,290	400%	0	---	6,158	344%	1,093	1,938%
SO_2	13,096 tpy	10,779	121%	0	---	3,078	425%	1,336	980%

Air Pollutant	Pollution *increase* from *one* actual coal-burning electric generating unit (EGU), in tons per year, allowed by bill's loophole	Total coal EGU emissions (tpy) in New York	% that one coal EGU *increase* due to bill = out of *total* New York coal EGU emissions	Total coal EGU emissions (tpy) in North Dakota	% that one coal EGU *increase* due to bill = out of *total* North Dakota coal EGU emissions	Total coal EGU emissions (tpy) in Oklahoma	% that one coal EGU *increase* due to bill = out of *total* Oklahoma coal EGU emissions	Total coal EGU emissions (tpy) in Oregon	% that one coal EGU *increase* due to bill = out of *total* Oregon coal EGU emissions
NO_x	21,187 tpy	582	3,640%	34,660	61%	11,464	185%	1,660	1,276%
SO_2	13,096 tpy	2,295	571%	40,785	32%	24,820	58%	2,308	567%

Air Pollutant	Pollution *increase* from *one* actual coal-burning electric generating unit (EGU), in tons per year, allowed by bill's loophole	Total coal EGU emissions (tpy) in Rhode Island	% that one coal EGU *increase* due to bill = out of *total* Rhode Island coal EGU emissions	Total coal EGU emissions (tpy) in Vermont	% that one EGU *increase* due to bill = out of *total* Vermont coal EGU emissions	Total coal EGU emissions (tpy) in West Virginia	% that one coal EGU *increase* due to bill = out of *total* West Virginia coal EGU emissions	Total coal EGU emissions (tpy) in Wyoming	% that one coal EGU *increase* due to bill = out of *total* Wyoming coal EGU emissions
NO_x	21,187 tpy	0	---	0	---	40,241	53%	33,508	63%
SO_2	13,096 tpy	0	---	0	---	45,818	29%	31,024	42%

Source for data: U.S. EPA, *Coal-fired Characteristics and Controls: 2018*, https://www.epa.gov/airmarkets/power-plant-data-highlights.

These data show that S.2662 weakens the Clean Air Act so severely that the bill's 'maximum achievable hourly pollution' approach would have allowed a *single* power plant modification to *increase* smog-forming nitrogen oxides, NO_x, by an amount representing 33% to 16,050% of *all* smog-forming NO_x emissions from *all* coal-burning power plants in each state represented on the Committee. 21,187 tons per year of NO_x emissions represents this percentage of total NO_x emissions from each Committee state with coal-burning power plants: Alabama (117%); Arkansas (103%); Delaware (16,050%); Illinois (117%); Indiana (33%); Iowa (149%); Kentucky (47%); Maryland (400%); Mississippi (344%); New Jersey (1,938%); New York (3,640%); North Dakota (185%); Oklahoma (185%); Oregon (1,276%); West Virginia (53%); and Wyoming (63%).

Similarly, these data show that S.2662 weakens the Clean Air Act so much that the legislation's 'maximum achievable hourly pollution' approach would have allowed a *single* power plant modification to *increase* sulfur dioxide pollution, SO_2, by an amount representing 19% to 2,970% of *all* SO_2 emissions from *all* coal-burning power plants in each state represented on the Committee. 13,096 tons per year of SO_2 emissions represents this percentage of total SO_2 emissions from each Committee state with coal-burning power plants: Alabama (124%); Arkansas (25%); Delaware (2,970%); Illinois (23%); Indiana (19%); Iowa (71%); Kentucky (24%); Maryland (121%); Mississippi (425%); New Jersey (980%); New York (571%); North Dakota (32%); Oklahoma (58%); Oregon (567%); West Virginia (29%); and Wyoming (42%).

Of course, these astounding emissions increases could have been even larger, depending upon the scale, extent and cost of presently illegal power plant NSR modifications that would be authorized by S.2662. Recall too, that sec. 2(B) of S.2662 dispenses with the 'maximum achievable hourly' emissions rate approach, and allows pollution increases *higher than* a facility's worst possible hourly pollution rate, if done in the name of reliability or safety.

The point here is not to say that any one power plant or industrial plant *will* increase emissions by these exact amounts under the bill's sweeping amnesty. Rather, the point is to demonstrate the sheer scale and magnitude of dangerous air pollution increases that the bill's amnesty would *allow*, based upon what we know already from actual examples analyzed by EPA. This alarming outcome happens because:

(1) Just *two* individual power plant units *have* increased dangerous NO_x & SO_2 emissions by 21,187 tons per year and 13,096 tons per year, respectively, without even increasing maximum hourly emissions rates over the prior ten years—comfortably qualifying for the bill's loophole that evades air pollution controls and damages air quality; and
(2) the bill's loophole extends to nearly 14,000 major industrial emitters across the United States.

Realize that these two power plant units analyzed by EPA violated the Clean Air Act by undertaking modifications that significantly increased harmful emissions, while evading

installation of modern air pollution controls and analysis of air quality impacts. Such modern air pollution controls typically reduced NSR regulated air pollutants by 95 to 99%. To a shocking degree, there are still very many coal-burning power plants in the United States, today, that lack modern air pollution control equipment for smog-forming nitrogen oxides, or sulfur dioxide, or both. I include six charts in an appendix to my testimony that show the locations and sizes of coal-burning power plants in the U.S. that lack advanced air pollution controls for these two critical air pollutants.

S.2662 would repeal the longstanding Clean Air Act safeguards that these two units violated. The bill's new amnesty would *authorize* the massive air pollution increases that these illegal activities caused. The bill would *sanction* these units' evasion of modern air pollution control & required air quality analyses. The bill would extend this amnesty to nearly 14,000 major industrial polluters across America, including hazardous waste and medical waste incinerators, oil refineries, chemical plants, iron and steel foundries, cement plants and more. And finally, the bill would create amnesty from air pollution control measures for dangerous pollution increases from *existing* facilities that far exceed the level of air pollution from *brand new* facilities that the Clean Air Act requires to be controlled. The 1977 Clean Air Act amendments' grandfathering would become grandfathering on steroids, with nearly 14,000 major industrial polluters across America granted congressional permission to increase harmful air pollution to a degree never contemplated by any previous legislation in this Committee.

VI. Critics Have Not Provided Independent, Empirical Proof that New Source Review Impedes Efficiency, Reliability or Safety Improvements.

To a remarkable degree, political and industry attacks on the NSR program have trafficked in rhetoric, assertion and anecdote, unsubstantiated by verifiable evidence or facts. I am aware of no peer-reviewed studies substantiating these attacks. This dynamic is especially true when critics and opponents assert that the NSR program discourages investments and activities that would result in net environmental benefits, compared to the status quo. The Trump administration has issued two deregulatory reports targeting the New Source Review safeguards. The Trump EPA's 13783 Report, for example, contends that "[i]n some circumstances, the NSR progress discourages the construction of new facilities or modifications of existing ones that could result in greater environmental improvements."[59]

There is not so much as a footnote or any other evidence to back this claim; it is raw assertion. The 13783 Report backs neither the 'discouragement' claim nor the 'greater environmental improvements' claim with any proof or verifiable facts. It is equally important to acknowledge that the 13783 Report credited only commenters that sought to weaken these public health and clean air safeguards. Numerous commenters opposed rolling back the safeguards, but the 13783 Report does not even deign to mention those objections and perspectives by ordinary Americans. *Id.* Surely the burden of proof should be on interests seeking to weaken clean air,

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[59] U.S. EPA, *Final Report on Review of Agency Actions That Potentially Burden the Safe, Efficient Development of Domestic Energy Resources Under Executive Order 13783* (Oct. 25, 2017), at 2-2 ("13783 Report").

public health and environmental safeguards, before amending the Clean Air Act or EPA regulations.

A Trump Commerce Department report targeting NSR suffers from the same lack of evidence or independently verifiable facts.[60] It is not so much a report as a compendium of complaints and demands for deregulation. It is a litany of assertions from industry comments that themselves are self-serving contentions rather than evidence. Neither of these Trump administration documents provides any factual basis for legislation, certainly none that weakens and worsens clean air, public health and environmental protections.

Leading industry complaints about NSR fare no better on the evidentiary score. In an article entitled *EPA's New Source Review Program: Time for Reform*, co-authored by one of my fellow witnesses, Mr. Holmstead, the claim is made that "recent changes in the NO_2, SO_2, fine PM, and ozone NAAQS have further complicated the NSR process, resulting in permitting delays and, in some cases, the decision by industry to defer or cancel projects."[61] Following this last inflammatory charge, the authors drop a footnote, which reads in relevant part: "For example, the Baton Rouge Area Chamber reported that four major industrial projects were either put on hold or redirected to another location after EPA proposed to revise the ozone NAAQS in December 2015."[62]

I read this claim when the Baton Rouge Area Chamber first made it, and invited the Chamber to substantiate that claim and to identify, publicly, the "four major industrial projects." They refused. After other industry lobbyists took up and used this same example, repeatedly, I challenged the Baton Rouge Area Chamber to identify the four projects. Again, they refused. I have reached the conclusion that there are no such projects or, if there are, there are other factors influencing the project decisions—location, general economic conditions, tax incentives, available labor, financing, the possible list is long—and the supposed project developers are unwilling to submit their accusations blaming the Clean Air Act to the most basic scrutiny, to the point of refusing to disclose the identity of the projects or the accusing companies.

A similar phenomenon—eschewing actual evidence, relying on assertion or speculation—surrounds industry suggestions that NSR has prevented greater emissions reductions and health and environmental improvements:

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[60] See generally, U.S. Commerce Department, *Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing* (Oct. 6, 2017).
[61] Art Fraas, John Graham & Jeff Holmstead, *EPA's New Source Review Program: Time for Reform* 47 Environmental Law Reporter 10026, 10031 (2017) (hereinafter, Fraas *et al.)*; see also, *id.* at 10028 ("discussions with industry sources suggest that the cost of emissions offsets effectively prohibits the siting of major new industrial plants in certain [nonattainment] areas").
[62] *Id.*, at 10031, n. 36.

- "Thus, it has arguably been more economic in some cases to continue to operate relatively old, inefficient, and high-polluting plants than to install new facilities or upgrade existing facilities with better pollution control technology."[63]
- "To the extent this has occurred, NSR review has had the perverse effect of delaying reductions in pollutants such as SO_2 and NO_X."[64]

"Arguably" and "to the extent this has occurred" provide no reasonable basis for legislation. Left unsaid in these criticisms, of course, is the reality that industrial facilities always may decrease emissions, and upgrade facilities with better pollution control technology to reduce emissions, so long as overall emissions do not increase significantly. Criticisms that lay blame with NSR for this not happening deserve to be looked behind; invariably one will find there an unmentioned objective to *increase* emissions of one or more regulated air pollutants by significant amounts, and to evade controls and other safeguards for those increases.

To its credit, the Fraas *et al.* article does not argue that the weakening reforms it advocates would achieve the same or greater health & environmental benefits. It says simply the regulatory program would still be allowed "to achieve significant environmental results,"[65] which of course is in the eyes of the industry reform beholders. Like many similar critiques of the NSR program, this article's reform proposals tend to gloss over the emissions increases that the proposed reforms would allow.

It's worth drawing attention to some of the internal inconsistencies and cross-purposes associated with competing NSR "reform" proposals. For example, the Fraas *et al.* article seeks to dispense with air pollution offsets within the same air shed—pointing to putatively more cost-effective opportunities to reduce air pollution transported from long distances—while rollback reforms such as H.R. 3127, H.R. 3128, and S.2662 would allow large industrial polluters like coal-burning power plants to massively *increase* air pollution transported over long distances.[66]

Finally, the former director of EPA's Air Enforcement Division has testified in the House about his extensive experience with NSR enforcement cases, and the dangers and abuses that S.2662 would produce by allowing safety and reliability projects to gain amnesty for unlimited emissions increases:

> For most sources subject to the NSR requirements an "intent of the operator" test is unenforceable. A refiner who adds 5 percent capacity may claim that the overall intent of the project was to improve reliability and safety, and the added capacity was incidental. Such a claim would be difficult, if not impossible, to determine objectively

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[63] Fraas, *et al.*, 47 ELR at 10030, n.27. This article cited "evidence" backing this claim in an EPA 2001 NSR report prompted by then-Vice President Cheney's energy task force. But that EPA report itself lacks evidence to support the claim, and is itself an example of a government report simply repeating self-serving industry assertions as evidence. See U.S. EPA, New Source Review Report to the President (2002).
[64] *Id.* at 10030.
[65] *Id.*, at 10027.
[66] Fraas, *et al.*, 47 ELR at 10035.

> and certainly could not be ascertained without highly intrusive investigations. For utilities, the reason they engage in life extension programs is **to restore, maintain or improve the reliability or safety of the source.** And so, this provision, as most of the discussion draft, is not a clarification of the modification rule, but a straightforward elimination of those parts of the modification rule that are most likely to impact aged and poorly controlled coal-fired power plants.[67]

No acceptable NSR "reform" should give an affirmative answer to the question posed at the top of this testimony: will it let industry pollute more? This Committee should reject S.2662 and any appeals for reforms that would let industries pollute more, by significantly higher amounts, and in the process, evade air pollution controls and pollution offsets in areas already experiencing unsafe air quality. Moreover, the large pollution increases authorized by the legislation would exacerbate worsening air quality in downwind states. This would make it impossible for these downwind states to deliver safe air to their citizens. These states would continue to violate health-based national ambient air quality standards for pollutants like ground-level ozone, or smog. This would compel the states to crack down further on in-state air pollution sources within their control that are not causing the problems, when the problems are caused by pollution increases from upwind states. S.2662 would severely and irresponsibly worsen these well-known problems. Americans deserve better. Americans deserve Senators rejecting this harmful legislation.

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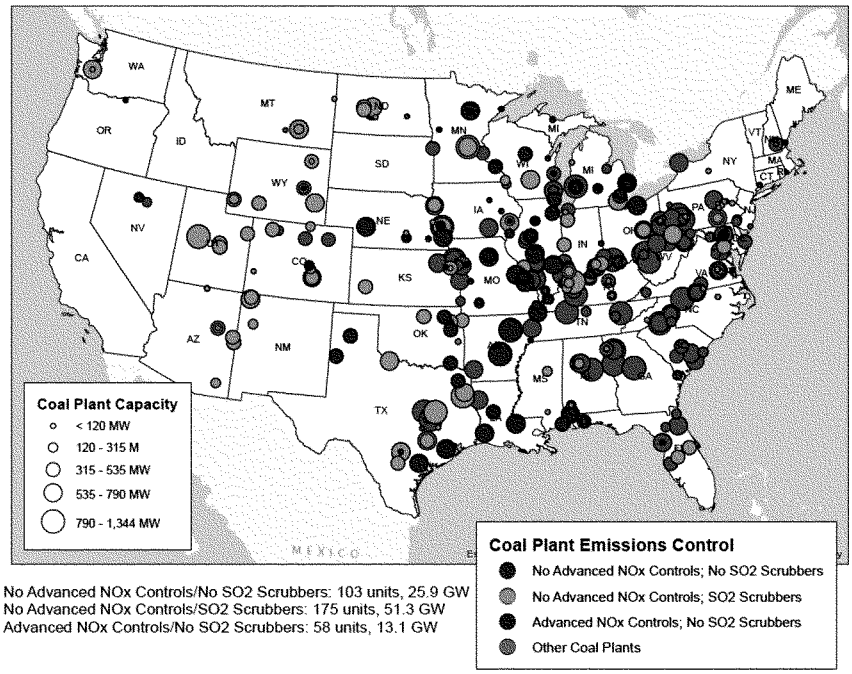
[67] Testimony of Bruce C. Buckheit, before the House Committee on Energy and Commerce Subcommittee on Environment, Hearing on Legislation Addressing New Source Review Permitting Reform (May 16, 2018) (emphasis in original) ("Buckheit Testimony"), https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Testimony-Buckheit-EE-Hrg-on-Legislation-Addressing-New-Source-Review-Permitting-Reform-2018-05-16.pdf.

Appendix A

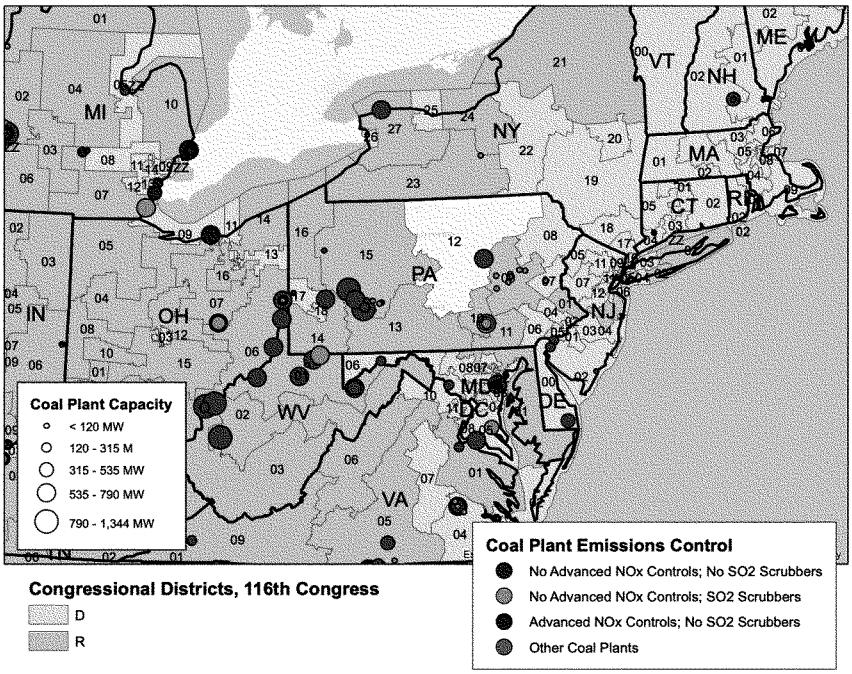
Coal-Fired Power Plants & Controls: 2018



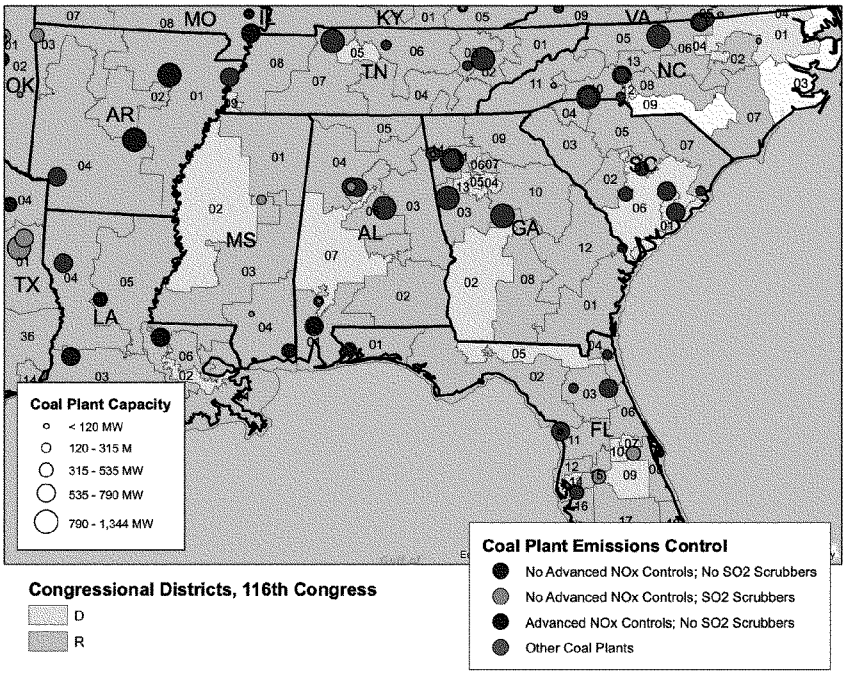
No Advanced NOx Controls/No SO2 Scrubbers: 103 units, 25.9 GW
No Advanced NOx Controls/SO2 Scrubbers: 175 units, 51.3 GW
Advanced NOx Controls/No SO2 Scrubbers: 58 units, 13.1 GW

Source for data: U.S. EPA, *Coal-fired Characteristics and Controls: 2018*, https://www.epa.gov/airmarkets/power-plant-data-highlights.

Coal-Fired Power Plants & Controls: 2018



Coal-Fired Power Plants & Controls: 2018



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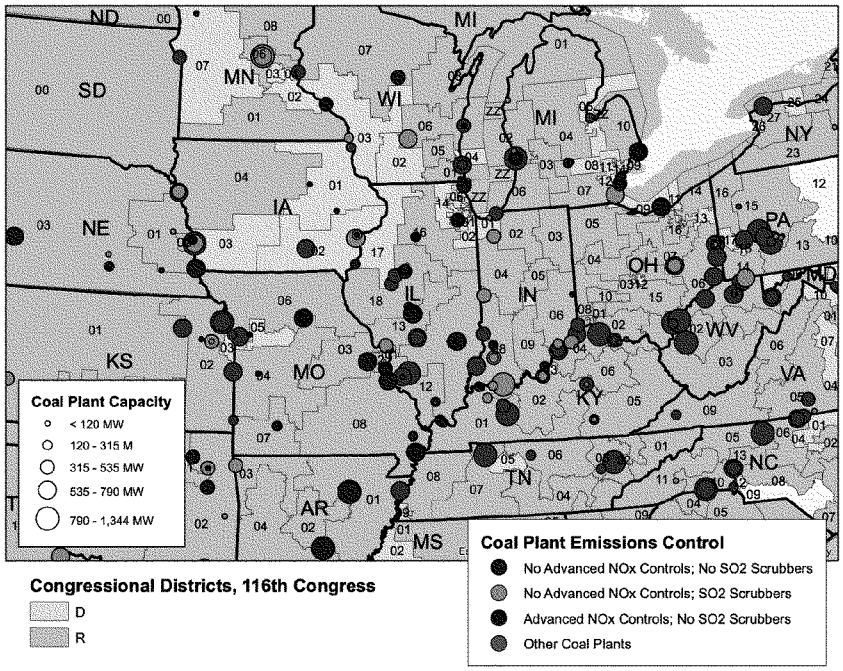

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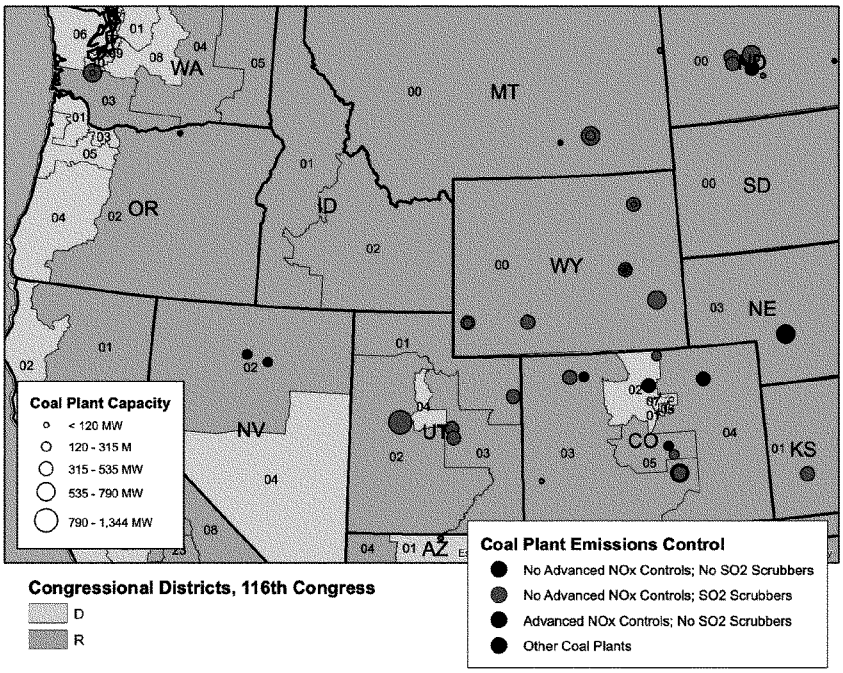

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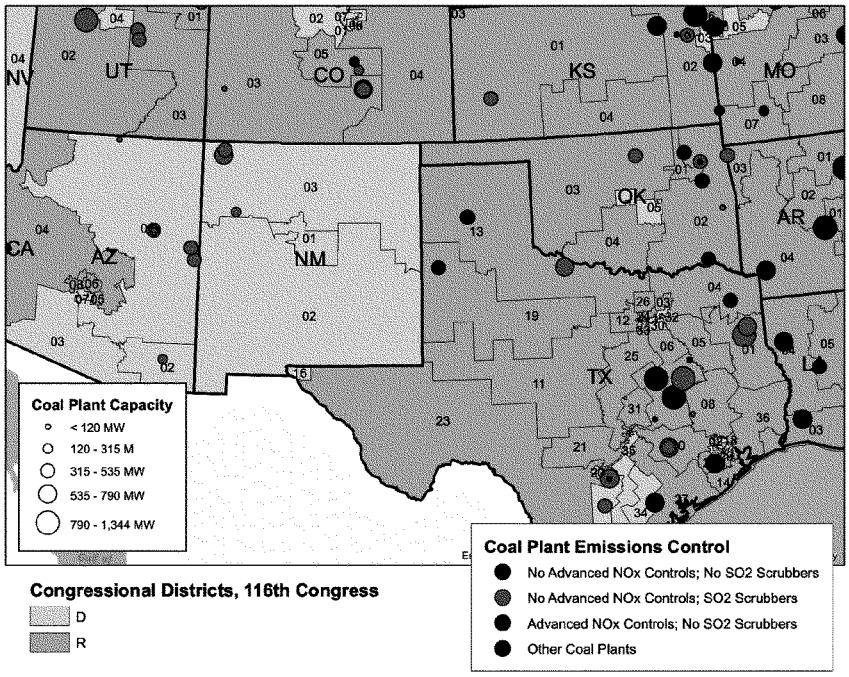

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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MEMORANDUM

To: William Harnett, Director
IPTID/OAQPS

From: Adam M. Kushner, Director
AED/OECA

Subject: Air Enforcement Division's Comments on the Draft New Source Review Clean Air Interstate Rule (August 24, 2005 draft)

Date: August 25, 2005

The Air Enforcement Division (AED) has reviewed the draft New Source Review Clean Air Interstate Rule (August 24, 2005 draft) and has significant concerns about the test proposed and the positions taken in this proposed rule. The proposed rule will adversely impact our enforcement cases and is largely unenforceable as written. AED's concerns are outlined in more detail below.

AED received the latest (and substantially revised) draft of the proposed rule on August 24th. The proposed rule represents a significant departure from heretofore applied New Source Review (NSR) emissions tests for electric generating units (EGUs). We are diligently working to assess the impact the proposed rule will have on both the filed cases as well as our ability to bring future enforcement actions, as appropriate. In addition, we are assessing the relative enforceability of the proposed rule as drafted. While we have completed a good deal of work (which we share below), our work to assess the impact of the rule continues. We will be certain to share with you the additional work we perform as it becomes available.

We will not restate our prior general comments on earlier drafts of the proposed rule as contained in our memoranda of June 30, 2005 and August 18, 2005. However, to the extent that the latest proposed draft of the rule does not reflect those comments, we again request that such comments be addressed in subsequent drafts of the proposed rule. Thank you for the opportunity to comment on this draft and I look forward to discussing these matters with you.

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The Emissions Tests

We stated in the draft rule that one of its purposes is to ensure that existing sources that increase their operating capacity be subject to major NSR permitting. In the section of the draft rule entitled "Significant Emission Rates," OAR states:

> By eliminating the use of a significant rate, we balance the differences in these tests, and focus permitting authority resources on reviewing all changes that result in increases in existing capacity. We believe that this result is consistent with our interpretation of Congressional intent in that it assures that, at a minimum, capacity increases undergo major NSR review.

See Draft Rule at p. 23.[1]

To assess whether the proposed alternative applicability test(s) in the rule in fact preserve EPA's stated intention to capture modifications that increase emissions as a result of an increase of capacity, AED analyzed emissions data obtained from EPA's Clean Air Markets Division from units with known capacity increases. AED evaluated such data both pre- and post-change. The changes selected for analysis were based on data availability. The results of our analysis are set forth in Attachment A to this memorandum.

As currently written, the draft rule sets forth two possible methods that an EGU could apply in assessing whether or not a change would trigger major NSR. As we understand the "achievable" emissions test proposal, an EGU must obtain a major NSR permit if the modification to be made increases the maximum achievable hourly emissions.[2] To apply the proposed test, an EGU would first select a maximum achievable hourly emission rate that could have been obtained within the five years before the change. It would then project what the maximum achievable hourly emission rate could be after the change. If the projection shows that the change would cause an increase in the maximum achievable hourly emission rate, the source would trigger major NSR and would need to apply for and obtain a pre-construction permit before performing the change.

AED believes that a utility would have many ways to show that a particular capacity is or was theoretically achievable, which makes analysis of the impact of the test difficult and application of the test largely unenforceable. Because most of the information and data that might inform application of the test would be solely in the possession of the EGU (under the draft

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[1] As noted elsewhere in this memorandum, AED believes that conflating the emissions test for triggering NSR with the NSPS emissions test is contrary to Congressional intent. See *State of New York v. EPA*, Slip op. at pp. 9-11, 24-26.

[2] Compare Definition of "major emitting facility" at CAA Section 169 (1) ("stationary sources which emit or have the potential to emit , one hundred tons per year or more."

proposal as written), a permitting authority would have exceedingly difficult time assessing whether or not a change at an EGU in fact triggered NSR. Thus, this theoretical achievable test creates a subjective test leading to a "battle of the experts," and consequently greatly handicaps the efficient administration of a meaningful pre-construction permitting program. The proposed test will make it difficult for both a utility and the regulators to assess the compliance status of an EGU.

An illustration of the problems associated with such a test is contained in our analysis of a project at Case Study # 2. See Attachment A page 12. See Attachment A. In this example, a reasonable theoretical "achievable" emission rate was calculated using the methodology described in this memorandum. Using this method, the achievable hourly emission rate was calculated to be more than ten times higher than the average hourly emission rate in the five-year period prior to the change. Comparison of this baseline to a calculated maximum achievable emission rate after the change would make meaningful analysis of the change impossible, because the achievable emission rate is not a clear indicator of capacity. Any increase in capacity or emissions caused by this change would not register because the comparison takes place at a level 10 times higher than representative emission rates of the unit.

In addition, because NSR is a pre-construction permitting program, the unit would retain the ability to apply for a limit at this achievable hourly rate. Since the rate is not based on representative emissions and is not indicative of capacity, a source could increase capacity significantly and still not exceed the limit. Because the analyses in the attachment were performed using actual operating data, and, presumably, the rule would not restrict the calculation of achievable emissions, we would expect a source to calculate achievable emission rates higher than those in these examples by using theoretical heat rates or emission rates, exacerbating the enforceability problem.

Because of the difficulties associated with anticipating all of the arguments which a utility could make as to what is or is not "achievable," AED used actual maximum historical emissions coupled with maximum heat rate data to analyze the "achievable" test. AED believes that this approach is more conservative, and consequently probative of the practical implications of the proposed "achievable" test (i.e., it has a better chance of triggering the NSR pre-construction permitting requirements) than applying the "achievable" test to determine what emission rates were potentially or theoretically "achievable.

For each case study, the baseline level is represented as a horizontal line across the graph. The maximum achievable hourly baseline represented in the attached case studies were calculated using the maximum heat rate, expressed in mmbtu/hr, multiplied by the maximum emission rate, expressed in lbs/mmbtu, within the years prior to the change, but no earlier than 5 years before the

modification.[3] Significantly, these two input values (heat rate and emission rate) may not have been (and are not typically in the real world) temporally coincidental. AED believes that the draft rule allows such an interpretation, although we strongly suggest that there would be no basis for characterizing such an approach as representative of operations of an EGU either prior or subsequent to a change.

AED further understands that we are proposing to seek comment on an alternative emissions test that would use an "achieved" baseline calculated by using the maximum hourly emission rate, in lbs/hr, in the 5 years prior to the change. As we understand this proposal, an EGU must obtain a major NSR permit if the change is projected to cause an emissions increase above an actually achieved maximum hourly emission rate. An EGU would first select a maximum achieved hourly emission rate that occurred within the five years before the change. It would then project what the maximum hourly emission rate could be after the change. If the projection showed that the change would cause an increase in the hourly emission rate, the source would need to obtain a major NSR permit before performing the change.

The achieved baselines represented in the attached case studies set forth in Attachment A, were selected as the maximum hourly emission rate, expressed in lbs/hr, within the years prior to the change, but no earlier than 5 years before the modification. No calculation of this baseline was necessary because the CAMD data contain these values.[4] As with our previous analysis, AED compared the baseline level to actual emission rates that occurred after the change to identify any hourly emissions rates which exceeded the baseline level.

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[3] Data collected by the Clean Air Markets Division's is available for the calendar year beginning in 1995. As a consequence, where a change occurred before 2000, less than five years of emissions data was available to be used in determining baseline emissions. Please also note that for some units, we have identified a very small subset of hourly data which is clearly outside a reasonable operational range, which we attribute to data substitution, continuous emission monitor malfunction or other reasons. There was probably no need for CAMD to address these data issues in that the acid rain program evaluates EGU performance on an annual, not hourly, basis. For this subset we have applied a data correction factor which eliminated the extreme 0.1% of heat rate data points only. After application of this correction factor, all the data seemed to fall within reasonable operating parameters. See e.g., Comanche analysis at Attachment A. As noted above and elsewhere in this memorandum, the proposed rule does not allow for any data correction nor does it have any requirement that the maximum achievable hourly rate or emission rate be representative of operating conditions.

[4] Note that the preamble states that these two baseline should be similar. As illustrated in the attached graphs, this is not the case. The analysis of this "achieved" proposal contains the same data limitations noted above.

The attached analysis shows that even where we have known capacity increases, the proposed test and the test for which EPA seeks comments, does not fulfill the stated intent of the proposed regulation. Consequently, one can only conclude from application of the so-called "achievable" test that no "change" causing an emissions increase (capacity or otherwise) at an EGU would trigger NSR requiring the source to seek a pre-construction permit from its permitting authority and install pollution controls. Moreover, one can only conclude from application of the so-called "achieved" test that only under the rarest of operational circumstances would a "change" causing an emissions increase (capacity or otherwise) at an EGU trigger NSR requiring the source to seek a pre-construction permit.

Specific Comments on Proposed Rule

The following are AED's specific comments to the August 24, 2005 draft rule:

Language: Pages 3, 11: "The revised applicability test is the same as that in the New Source Performance Standards Program under CAA Section 111."

Comment: We suggest that you modify the sentence as follows: "The revised applicability test is the same as that for the emissions test for the New Source Performance Standards Program." The modified sentence emphasizes that it is the emissions aspect of the new source performance standards (NSPS) program applicability test only that is being purportedly adopted for purposes of measuring emissions increases in the NSR program. Such an approach will give us a better chance of disentangling the proposed rule from the issues raised in the *Duke* and *New York* matters, while minimizing collateral and unintentional adverse impacts on the NSPS program for other non-EGU sources. We believe, however, a better approach would be to not tinker with the NSR test at all. Nonetheless, should a decision be made to alter the NSR applicability test for EGUs we suggest that a new and distinct NSR rate-based test be developed that, at a minimum, in fact captures emission increases that are the result of unit expansions and design changes. We suggest that the proposed rule be conformed in its entirety to conform to this recommendation.

Language: Pages 3 and 11: "we are proposing to compare the *maximum hourly emissions achievable* at that unit during the past five years to the maximum hourly emissions achievable at that unit after the change . . ." Compare to page 16: "by comparing the pre-change *maximum achievable actual hourly emission rate* to the post-change maximum achievable actual hourly emission rate assuming the source is operating at its maximum operating capacity.

Comment: The language used to identify the test should be referenced consistently

throughout the draft rule. Based on the language offered it is difficult to discern whether OAR intends to propose a "maximum achievable hourly emission rate" test or a "maximum achievable *actual* hourly emission rate" test. AED prefers the latter formulation.

Language: Page 12: "There is little additional benefit to be gained by applying the requirements of the major NSR program to existing sources that modify without changing their current operating capacity."

Comment: As discussed in detail above in the Section of this memorandum entitled "The Emissions Test," the "achievable" test offered by OAR in the draft rule is not triggered by an increase in "current operating capacity," and the "achieved" test is triggered only in rare instances.

Language Page 12: "We designed these regulatory systems [cap-and-trade] to encourage reductions from the higher, less efficient emitters . . . ." *See also* p. 37

Comment: While it may be true that the intent of EPA in fashioning the cap-and-trade programs over the years is to encourage reductions from the higher, less efficient emitters, and while in fact it may be the case that some utilities have elected to install controls on those dirtier plants, our experience demonstrates that in fact many "higher, less efficient emitters" have not been controlled.

Language: Page 11: "[f]or existing EGUs, we are proposing to compare the maximum hourly emissions achievable at that unit during the past five years to the maximum hourly emissions achievable at that unit after the change to determine NSR applicability.
Page 21: "As a practical matter, little difference exists between our proposed maximum achievable hourly emissions test and this [achieved] alternative. Both approaches provide a measure of a source's actual emissions."

Comments: As noted above in the Section of this memorandum entitled "The Emissions Test," it is unclear how a maximum hourly emissions achievable test would be applied in practice, as there are many ways one could formulate such a test or demonstrate what is "achievable." Consequently, it is difficult to compare the two tests and the question remains as to how either test measures actual emissions when neither consider hours of operation.

As written the draft rule would permit a utility to rely on *any* "maximum hourly achievable emissions" to both establish an emissions baseline and to project its emissions post change. This is problematic because the rule fails to proscribe that the maximum hourly achievable emissions be representative of typical operating conditions and be representative of good air pollution control practices. Failure to establish data standards will afford a utility an opportunity to rely on artificially high, non-representative emissions data. For this reason, application of any test should require that the data used by a utility be representative of typical operating conditions and good air pollution control practices.

The stated intent of the rule is to capture emissions increases that are the result of modifications that are caused by an increase in design capacity. We have two overarching concerns with these statements. First, an increase in achievable or achieved emissions is not in and of itself and indicator of an increase in capacity. Second, the emissions impact from recapturing lost utilization or through life extension projects are equal to (and in many instances) greater than emissions increases that may result from capacity and expansion projects. Thus, there is no rational basis for establishing a test that excludes emissions increases associated with boiler changes that are intended to recapture lost utilization or extend the life of a unit. Third, as proposed, and as demonstrated in Attachment A, NSR is not necessarily triggered where there *are* capacity increases, notwithstanding significant emission increases.

Language: Page 13: "Once the Court's opinion is entered into the record (what's correct terminology for this)"

Comment: There is no mention that EPA is seeking reconsideration of either or both the *Duke* and/or *New York v. EPA* decisions. In addition, the summaries of both decisions contained on pages 75-77 is inaccurate as it is incomplete. Given the pendency of both decisions, it is unwise to comment on either decision at this time in a way that may hurt our chances in either case, should an appeal be granted.

The discussion of the D.C. Circuit's decision in *Alabama Power* on pages 78-79 of the proposed rule also re-characterizes that decision in a way that is contrary to one of the central holdings of the D.C. Circuit in that case. In *Alabama Power*, the D.C. Circuit remanded an EPA regulation exempting changes below a certain size from PSD coverage, finding that EPA could grant only limited exemptions from the permitting requirements of the Act. *Alabama Power*, 636 F.2d at 400. The discussion of the *Alabama Power* decision on pages 78-79 of the proposed rule glosses over the fundamental point that exemptions to the term modification should be narrowly construed. The D.C. Circuit also noted that the Act would

clearly require "grandfathered" industries to undergo PSD review if they made modifications, even though this would be costly and inconvenient: "If these plants increase pollution, they will generally need a permit. Exceptions to this rule will occur when the increases are *de minimis*, and when the increases are offset by contemporaneous decreases of pollutants. . . ." 636 F. 2d at 400.

Language: Footnote 2

Comment: There are many instances in the draft rule (including footnote 2) where the drafting of the rule appears incomplete. AED reserves its comments on those portions of the draft until such language is offered for review.

Language: Page 15, "Unlike our NSPS regulations, our major NSR regulations do not contain a specific definition of the term "modification."

Comment: While perhaps technically correct, it is misleading to say that the NSR regulations do not contain a definition of "modification" when in fact we have been effectively arguing to the contrary in our briefs in the various court proceedings at which the issue has been joined. We suggest revising this statement to comport with what has been stated in our filed briefs, which reflects the consensus amongst all the interested EPA offices.

Language: Page 20 and the paragraph that follows: "[w]e are not proposing to change the types of physical or operational changes regulated by the major NSR program."

Comment: While it is true that the draft rule does not in fact re-define what physical or operational changes are modifications for NSR purposes, the effect of the rule is to make very few, if any, changes modifications that trigger NSR.

Language: Page 21: "The pre-change maximum actual hourly emission rate would be the *average rate* at which the EGU actually emitted the pollutant within the 5-year period immediately before the physical or operational change."

Comment: This language describes the "slightly revised" version of the proposed maximum achievable hourly emissions test, based on assessing an emission unit's historical maximum hourly emissions. First, "average rate" is a new term and needs to be defined to be enforceable. Second, see comments below regarding enforceability generally of these proposals (i.e., lack of record keeping/reporting requirements, discussion of prospective only effect of the new test). Third, see comments above, in the context of discussing the proposed "achievable" regarding the need to ensure that a source relies on data that is typical of its operations and representative of good

air pollution control practices. The same concerns are at issue with respect to the proposed "achieved" test.

Language: Page 21: "Both approaches provide a measure of a source's actual emissions."

Comment: The "achievable" test is a measure of the "potential" emissions of a source (and not an accurate one at that) in the classic and historic sense of the use of that term. Unless the draft rule incorporates standards regarding representativeness of data and data correction, neither the "achievable" or "achieved" test can be characterized as an accurate measure of actual emissions as a source would be able to inflate its baseline or change its practices to ensure that NSR was never triggered.

Moreover, the draft proposed rule should indicate explicitly that EPA is considering whether the NSPS test is an "actuals" test in the sense meant by the D.C. Circuit in NY v. EPA. The proposed rule should further highlight that EPA is taking comment on that particular issue. Doing so (rather than indicating or implying that EPA has already so decided) will (1) make the rule more defensible by defusing criticism that EPA without explanation (i.e., arbitrarily and capriciously) reversed course from the position expressed in the enforcement briefs (in Duke most notably) and (2) keep the Fourth Circuit (and other courts with pending enforcement actions) from accusing EPA of being duplicitous (or at least minimize that chance). Taking a definitive position in a proposal rather than in a final rule is not necessary, and we fail to see how it gains us anything rather than merely inviting attack in both the inevitable petitions for review and the pending enforcement actions.

Adjustments could be made in this vein to page 21 (for instance, taking out the sentence "Both approaches provide a measure of a source's actual emissions.") and the paragraph on pages 82-83 (the paragraph beginning "As we explained in the statutory and regulatory background section, we codified the maximum hourly emissions test in the NSPS program as a way of measuring actual emissions to the atmosphere."). We could there include a sentence or a footnote stating: "For such reasons, some parties have suggested that the NSPS test measures 'actual' emissions in the sense meant by the D.C. Circuit in New York v. EPA. We invite comment on that issue." Gratuitous references to the NSPS test being an "actuals" test (e.g., on page 16, in the repeated phrase "maximum achievable actual hourly emission rate") should also be removed.

Language: Page 22: We are concerned that adopting this alternative approach would undermine some of secondary policy objectives supporting this proposal. We stated that two of our goals for this proposal are to streamline the regulatory requirements applying to EGUs by allowing EGUs to apply the same test for

measuring emissions increases from modifications under both the NSPS program and NSR program, and to provide some nationwide consistency in the emissions calculation procedures in light of the Fourth Circuit's decision in Duke.

Comment: These goals are not met under either an achievable or achieved test because: 1) the proposed NSR emissions test does not accurately reflect the current NSPS emissions test; 2) the proposed NSR test and the current NSPS test are not the same because differences will still remain in application of the term "modification" as recognized on page 20 of the draft proposed rule; 3) the proposed new NSR emissions test and the current NSPS emissions test will still be different for PM and CO after promulgation of this rule.

Language: Page 23, and seriatim: The use of the term "significant rates," "significant emissions rate."

Comment: The draft rule is unclear by what is meant by "significant emissions rates." The discussion appears to distinguish between "significant rates" and significant thresholds" but the loose use of those terms causes the discussion to be confusing.

Consistent with the stated intent of the rule, in AED's view, no significance threshold (level) should attach to emissions increases associated with an increase in design capacity.

Language: Page 28: "We believe that implementing our proposed maximum achievable hourly emissions rate test for EGUs offers significant benefits over the existing actual-to-projected actuals emissions test" and the paragraph that follows.

Comment: Since as written NSR would never be triggered it is fair to say that the so-called "alternative applicability test" would reduce the administrative burdens.

Language: Page 29, "It reduces record keeping and reporting burdens on sources because compliance will no longer rely on synthesizing emissions data into rolling average emissions."

Comment: The referenced statement is unclear. This is the only instance in the entire proposal where either record keeping or reporting requirements are discussed. The proposal does not put any obligation on the source to maintain records to support a claim that it has not triggered NSR. Significantly, enforcement and enforcement impacts of the proposed rule are not addressed *at all* in the proposal. Absent record keeping and reporting requirements the rule is effectively unenforceable. *See State of New York v. EPA.* Further, the records that an EGU maintains that would bear on a

determination of whether NSR is triggered as a result of a change is no different under the current test than under the proposed test. Moreover, a sources obligation to maintain such records exists independent of the NSR program. For example, hourly data and annual emissions for SO2 and NOx are recorded and reported by a source to EPA in order to comply with Title IV and now CAIR. Similarly, records of changes made to a unit are recorded and reported independent of the NSR program -- i.e., for, inter alia, the IRS and public utility commissions.

Language: Page 29: The draft rule does not state that it is intended to apply to prospective conduct only.

Comment: We again urge you to include in the proposed rule the same language that was inserted into the equipment replacement proposal regarding enforcement and that the proposal does not affect past/future conduct (and associated liabilities) of the source. In addition, we must insist that we review the proposed language to ensure that it addresses our concerns. We recite some of the relevant ERP language below with conforming changes noted in brackets:

> Today's rule provides revisions to the major NSR program to specify [a new emissions test that will become applicable] in the future. As recognized by the U.S. Supreme Court, an agency may not promulgate retroactive rules absent express congressional authority. See Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208, 102 L. Ed. 2d 493, 109 S. Ct. 468 (1988). The CAA contains no such expressed grant of authority, and we do not intend by our actions today to create retroactive applicability for today's rule. 42 U.S.C. 7401 et seq. Today's rule applies only to conduct that occurs after the rule's effective date. None of today's rule revisions apply to any changes that are the subject of existing enforcement actions that the Agency has brought and none constitute a defense thereto. Furthermore, prior applicability determinations on major modifications that result in control requirements in an NSR permit that currently applies to a source remain valid and enforceable as to that source. [Once effective,] if you subsequently undertake an activity that does not meet the applicable provisions of these new [provisions] and do not obtain a preconstruction permit if you are required to do so, you will be subject to any applicable enforcement provisions (including the possibility of citizens' suits) under the applicable sections of the CAA. Sanctions for violations of these provisions may include monetary penalties of up to $27,500 per day of violation, as well as the possibility of injunctive relief, which may include the requirement to install air pollution controls.

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Language: Page 29: "The CMA Exhibit B Settlement Agreement" approach.

Comment: We have not reviewed the referenced settlement agreement and consequently we are unclear of its terms. Please forward a copy of the settlement agreement at the earliest possible opportunity.

Language: Page 41: "These analyses [by economists] assert that NSR requirements allow existing sources to operate under less stringent emissions standards than new sources."

Comment: Prior to EPA's coal-fired enforcement initiative few, if any, EGUs sought NSR pre-construction permits because of the industry-wide held view (rightly or wrongly) that changes to their boilers (no matter the magnitude) were routine and therefore exempt. However, in recent years many sources (both existing and new) have sought and obtained NSR permits. A review of those permits, the control requirements, and the emission limits required indicates that existing sources are operating under (in many instances) as, or more, stringent standards than new sources. We also note that much of the literature that is relied upon to support the efficiency and stringency arguments pre-date the coal-fired enforcement initiative.

Language: Page 54, Relationship of BART and CAIR, and discussion about non-CAIR units not subject to BART

Comment: There are several reasons why we believe that extending the alternative test to non-CAIR units and relying on BART to do so is misplaced. CAIR has a regional emission cap backstop for both NOx and SO2, BART does not. BART applies only to facilities constructed between 1962 and 1977, and only those that directly impact Class 1 areas. All non-CAIR EGUs constructed prior to 1962 or after 1977 would be receiving the benefit of the proposed new rule, but would not have the BART or CAIR backstop. BART applies to all major sources of NOx and SO2 (26 major source categories) and is not limited to just EGUs, creating arguments for other non-EGU sources to argue that the NSR alternative emissions test should apply to them. CAIR assumes NOx-controlled units will meet a presumptive limit of 0.05 lb/mmBtu and a regional limit of 0.125 lb/mmbtu in 2015. BART presumes that subject units will meet a presumptive limit between 0.15 - 0.62 lb/mmBtu for NOx and does not require a regional or national rate limit or ton cap. CAIR assumes SO2-controlled units will have removal efficiencies of approximately 98%. BART assumes SO2-controlled units will have removal efficiencies of between 90-95%, or even lower if using low sulfur coal. We have stated in the CAIR rule that BART is

not as effective as CAIR in obtaining emission reductions. Finally, NSR requires BACT or LAER at a source where there is a modification, but neither CAIR nor BART require the same.

Language: Pages 61-62, discussions about how CAIR and BART programs are expected to protect local air quality.

Comment: This issue is never really addressed. There is considerable discussion as to how CAIR will improve air quality throughout the Eastern United States, and there is little doubt that the emissions reductions that will be realized from implementation of CAIR represent a dramatic improvement from existing emissions levels. However, CAIR does not require a source to install BACT/LAER-type controls to meet its CAIR obligations (although out of necessity it may have to). Moreover, in the instance where a source might install BACT/LAER-type of controls there is nothing in CAIR that would require a source to operate those controls at BACT/LAER-levels or to even operate such equipment at all times. This is an issue because as we acknowledge in the CAIR rule making package and preamble some areas will remain in non-attainment even after full implementation of CAIR. Thus, we believe that NSR remains an important tool in ensuring that the Clean Air Act's air quality objectives are achieved, and once achieved maintained (as envisioned by Congress). For this reason, and as discussed above, we believe that so-called applicability test(s) as proposed does not comport with Congressional intent and should be revised consistent with the concerns reflected in the comments in this memorandum in the section entitled "The Emissions Test."

Language: Page 63, fn. 37: "As explained above, such new sources may take the form either of entirely new facilities or expanded or modified facilities, or of expanded or modified operations which result in substantially increased pollution. . . ."
Page 64, "we interpret the Congressional history to show that at a minimum, Congress was concerned about regulating new sources of emissions caused by expanding or modifying the existing capacity of operations, as the following two statements indicate . . . ."

Comment: This notion is fatal to our cases to the extent "expanded" is measured from design capacity or capacity at the time of original placement into service or original permitting. This also appears to be inconsistent with the D.C. Circuit decision in *Alabama Power*. This is Duke's, and every other Defendant's, favorite defense in the NSR enforcement cases: we have not expanded capacity and, consequently, NSR was not triggered. The views expressed in the draft rule are inconsistent with the D.C. Circuit's decision in *Alabama Power*, wherein the court rejected the idea that Congress intended to cover only physical changes that resulted in increased

operating capacity. The court noted that the legislative history indicates that one Senator thought this was the proper scope, but that Congress rejected this notion. The D.C. Circuit stated: "Describing the scope of the senate bill, Senator Buckley stated 'No significant deterioration' is a policy that has no effect on existing sources, unless a source undertakes a major expansion program. . . ." When this debate took place, the statutory language did not apply PSD preconstruction review to source "modification." In November 1977, the Senate and House passed technical amendments, one of which had the effect of defining "construction" to include "modifications." It was this new language that had the effect of overriding Senator Buckley's interpretation of the meaning of 'no significant deterioration.'" *Alabama Power*, 636 F.2d 323, 400 (D.C. Cir. 1979). We suggest that all references to expanded and congressional intent as to the NSPS be deleted.

Langauge: Page 68: "However, since the NSPS test is based on actual operating capacity rather than design capacity, we believe that the potential-to-potential terminology can be misleading, and prefer the name 'maximum achievable hourly emission rate' . . . ."

Comment: As demonstrated in "The Emissions Test" section of this memorandum, the proposed achievable test does not reflect emissions at operating capacity or even during typical operating conditions. Moreover, there is little ability for the permitting authority to meaningfully distinguish between operating and design capacity particularly where a utility conflates the two to support an inflated baseline.

Language: Page 76-77: *Duke Energy* discussion.

Comment: See discussion above regarding characterization of the status of the decision and EPA's request for rehearing *en banc*.

Language: Page 88, "In a 2003 (cite RMMR) rule, we articulate our position that activities designed to promote safety, reliability and efficiency of emissions units should not be subject to major NSR, yet it is often these types of projects that raise questions as whether post-change emissions are related to a change."

Comment: The ERP rationale should not be re-stated here without also acknowledging that the rule has been stayed. We suggest you delete this sentence altogether.

Language: "Major NSR Program"

Comment: Need to expressly and plainly state that the draft rule would be prospective only. As discussed above, we suggest lifting the "prospective only" language from the ERP and inserting it in the draft rule.

Enforcement Confidential and Deliberative
Privileged and Confidential

Conclusion

Thank you for the opportunity to comment on the draft rule. We believe that a good deal of additional work and analysis should be done before finalizing the proposed rule and making it available for public comment. Not only does the text of the preamble itself need to be revised to better identify what we are specifically proposing, but the impact of the proposed rule needs to be better understood. As you can see from our analysis, the proposed test(s) do not reflect the stated intent of the proposed rule -- *i.e.*, to have an increase in emissions associated with an increase in operating capacity trigger NSR pre-construction permitting requirements.

Attachment A
(Case Studies)

to

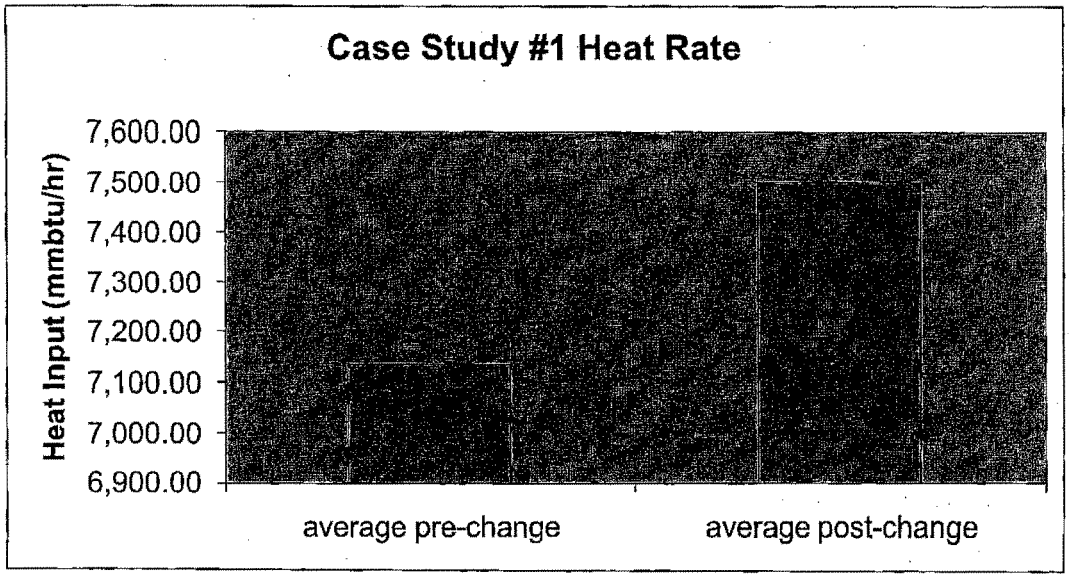
Air Enforcement Division's Comments
on the Draft New Source Review
Clean Air Interstate Rule
(August 24, 2005 draft)

August 30, 2005

Case Study #1

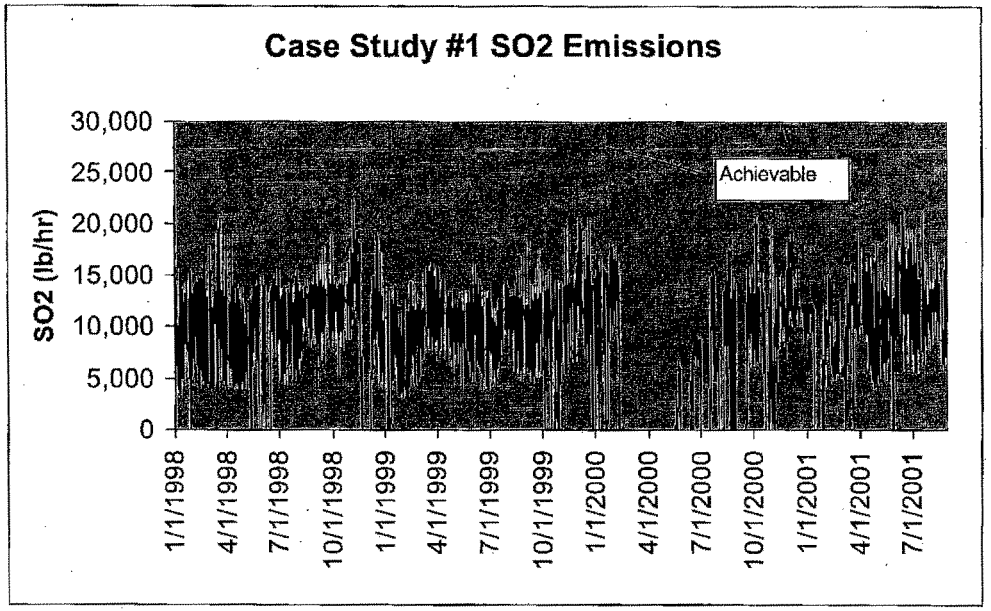
- 1,080 MW Unit.
- 2000 project -- redesign and replace economizer (increased surface area), replaced the horizontal reheater with upgraded material; and, replaced steam path.
- SO_2 emissions increased by 13,096 tons/year.

Was there an increase capacity?



Average Heat Input = Average hourly heat input available data from EPA Clean Air Markets Division (post 1994).

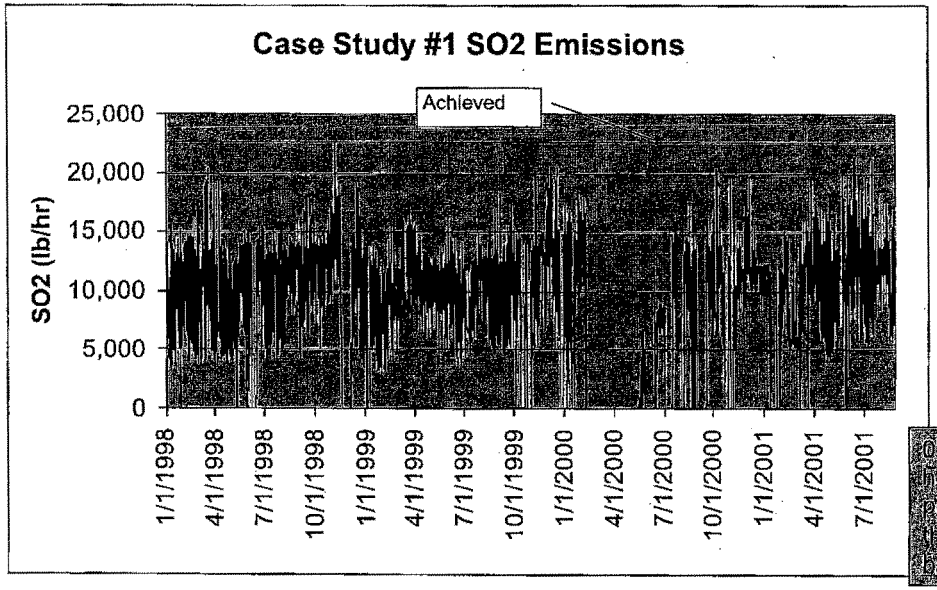
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division as reported.

Maximum Achieved – SO_2

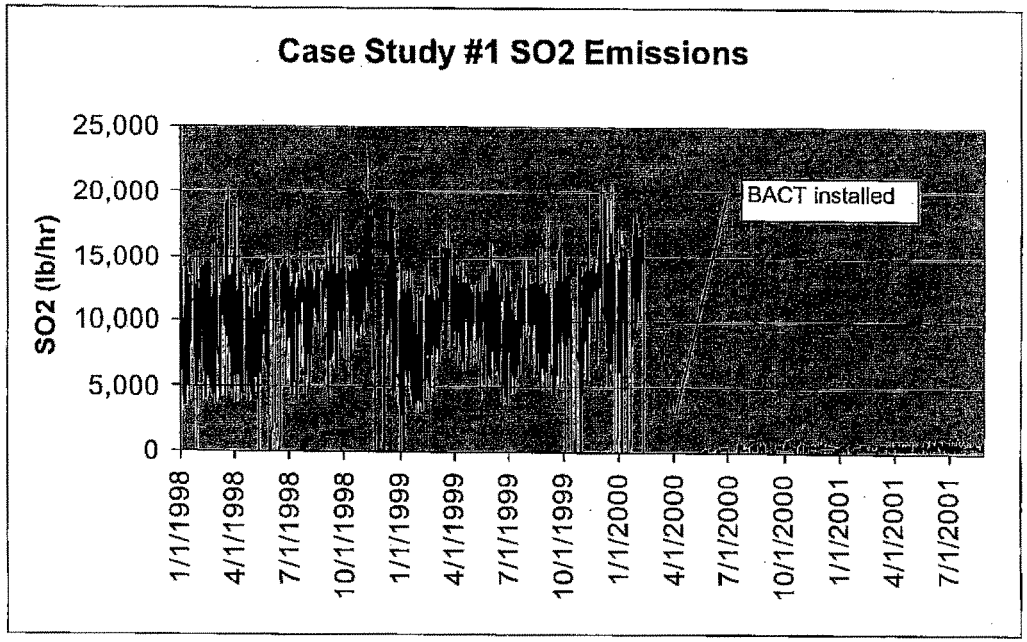


80% of hourly data points exceed the achieved baseline

Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

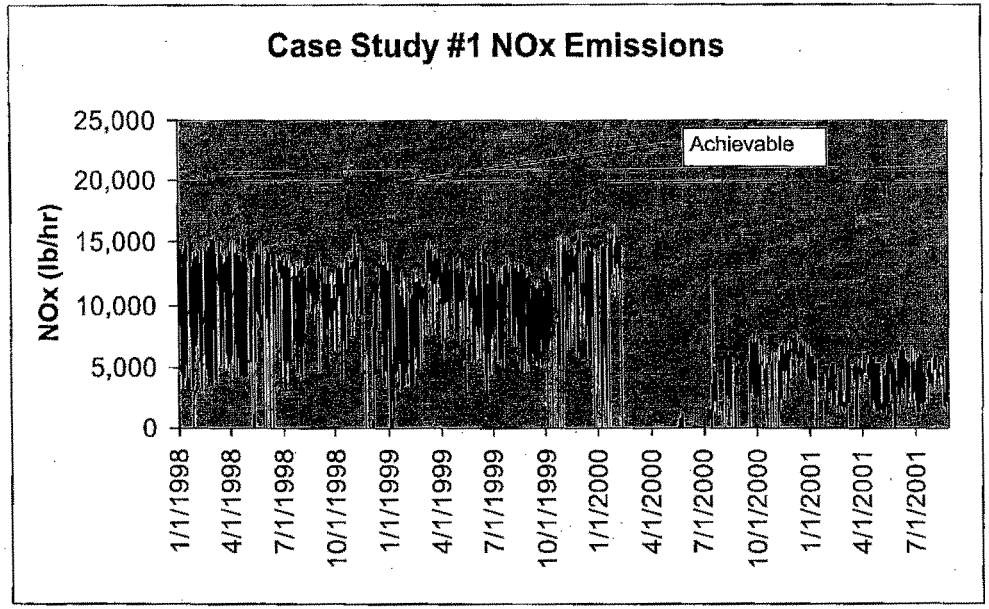
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

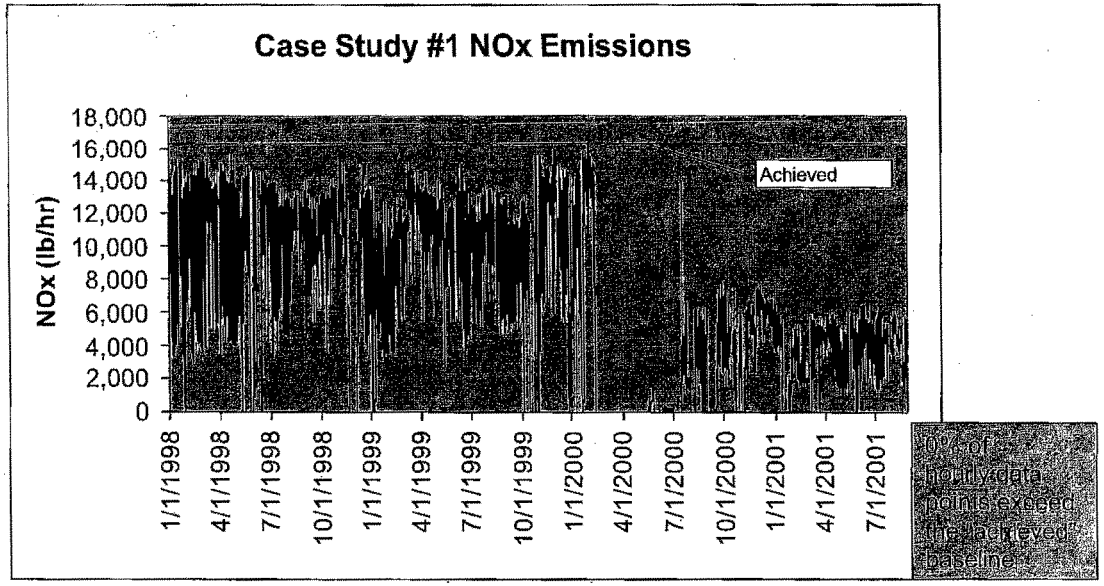
Maximum Achievable - NO_X



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division as reported.

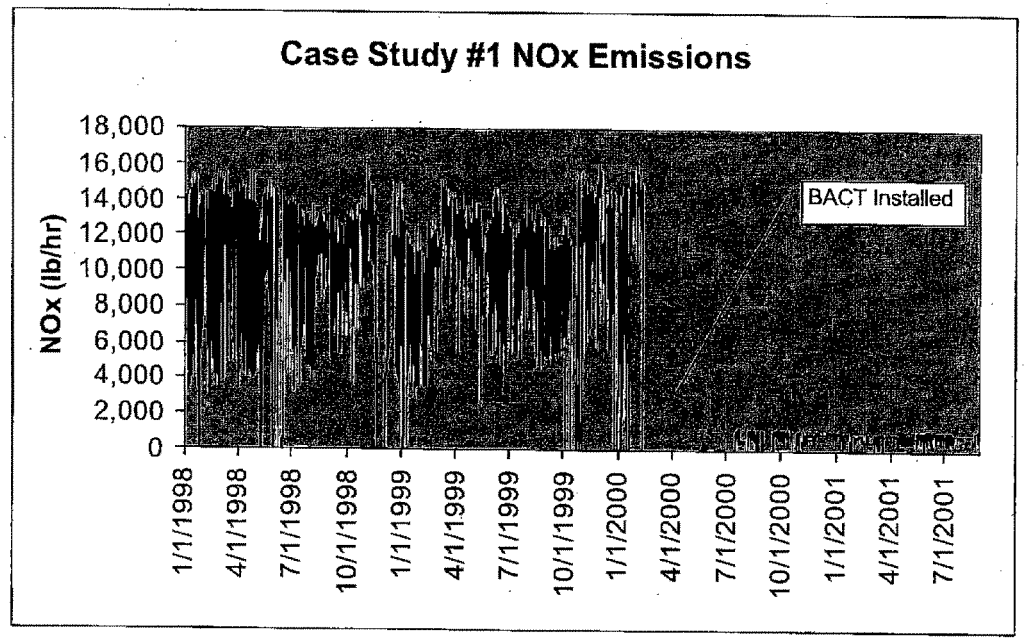
Maximum Achieved - NO_X



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

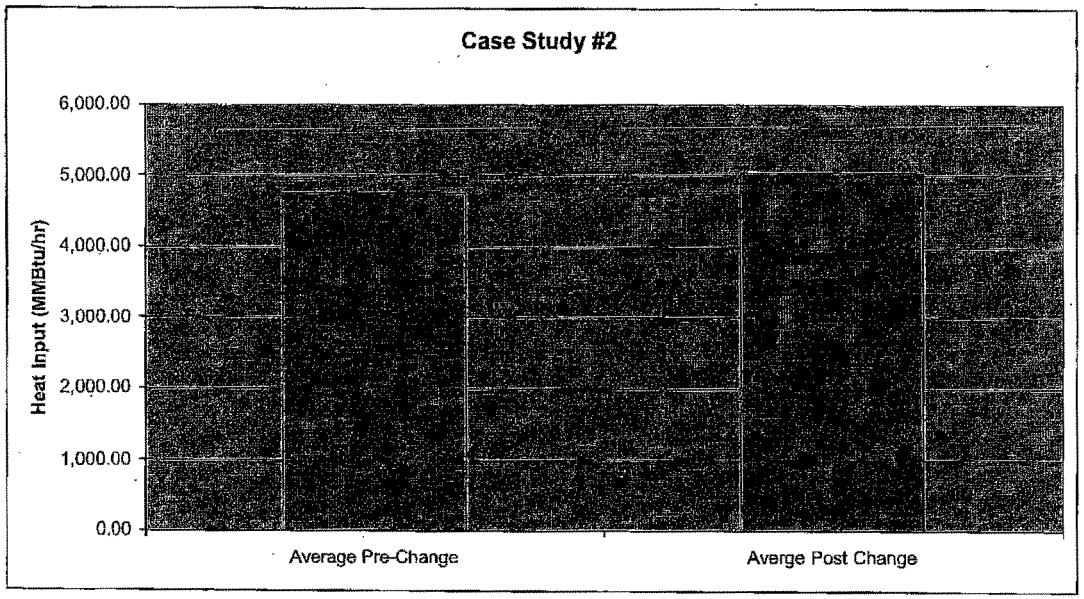


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #2

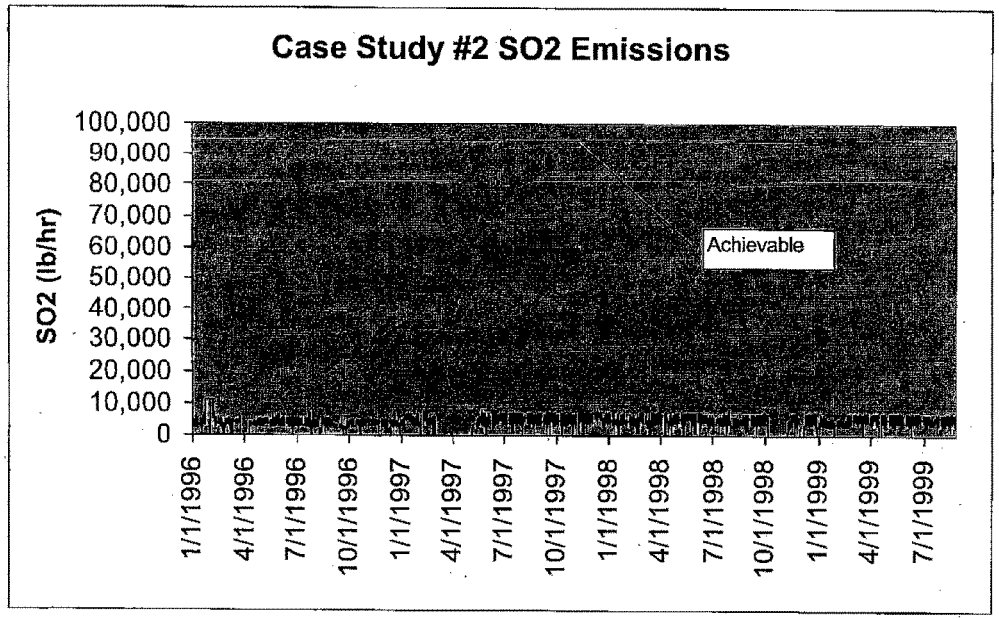
- 638 MW Unit.
- 1998 project -- redesign and replacement of reheater resulting in 10% increase in capacity of the unit.
- SO_2 and NO_X increased by 50 and 978 tons/year, respectively.

Was there an increase capacity?



?Average Heat Input = Average hourly heat input data available from EPA Clean Air Markets Division (post 1994).

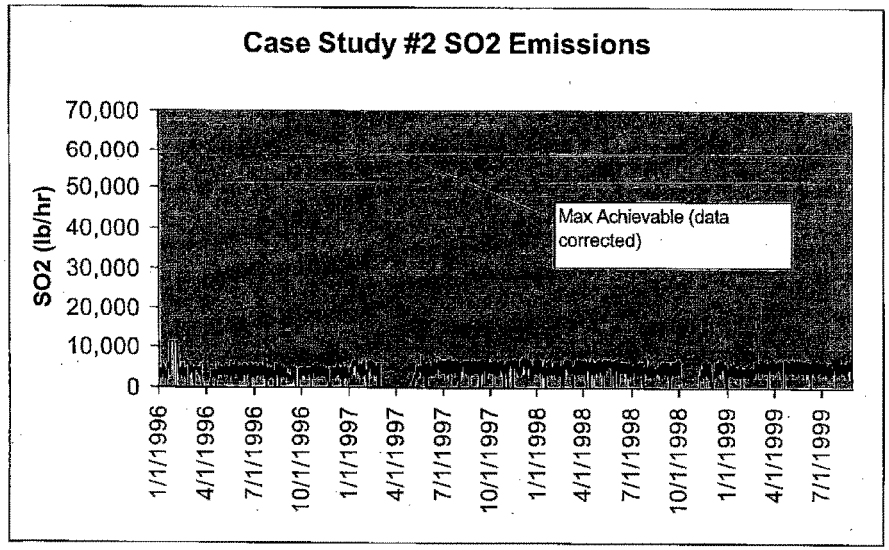
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achievable (Corrected) – SO_2

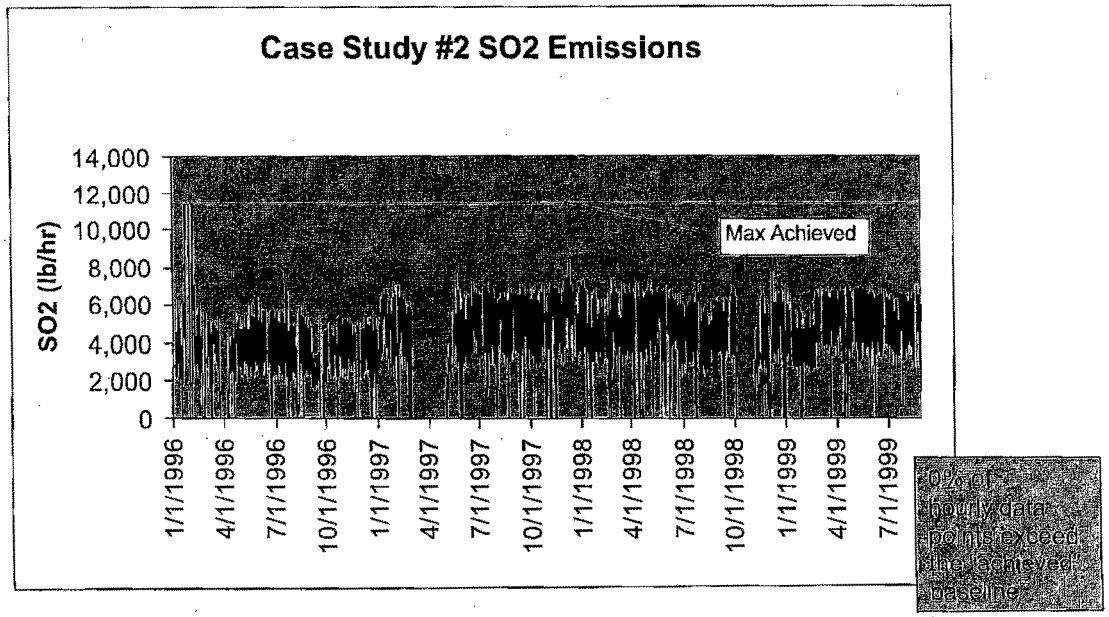


Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

Achievable baseline is corrected to eliminate 0.1% of outlying data points in the heat rate. Note: Proposed rule does not allow for data correction.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

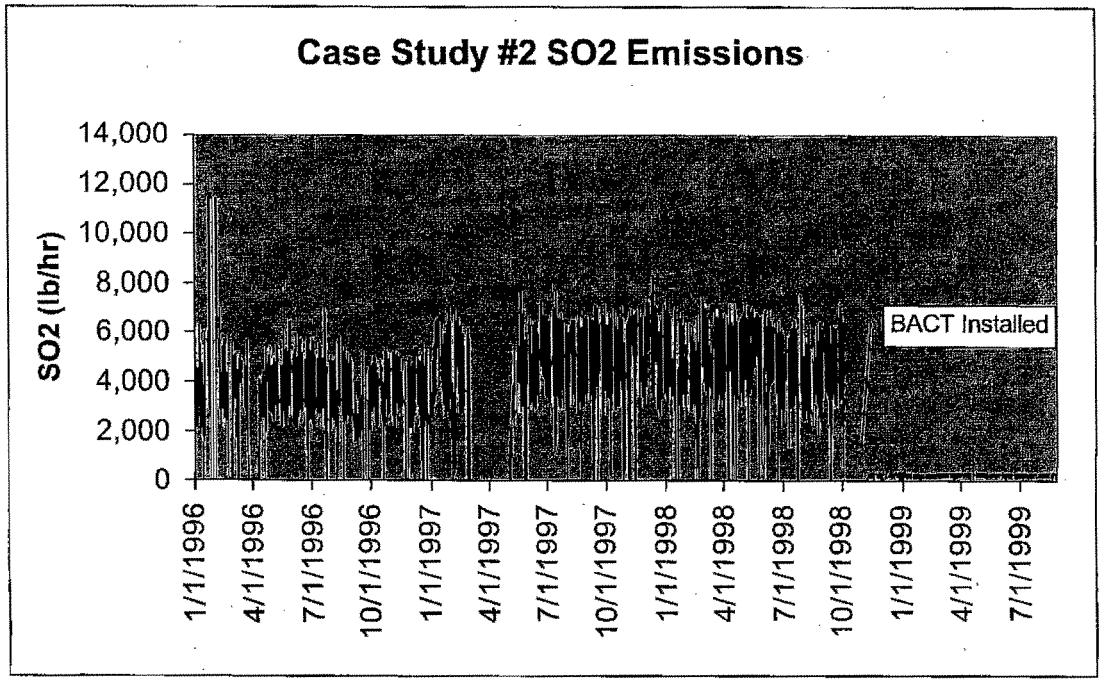
Maximum Achieved – SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

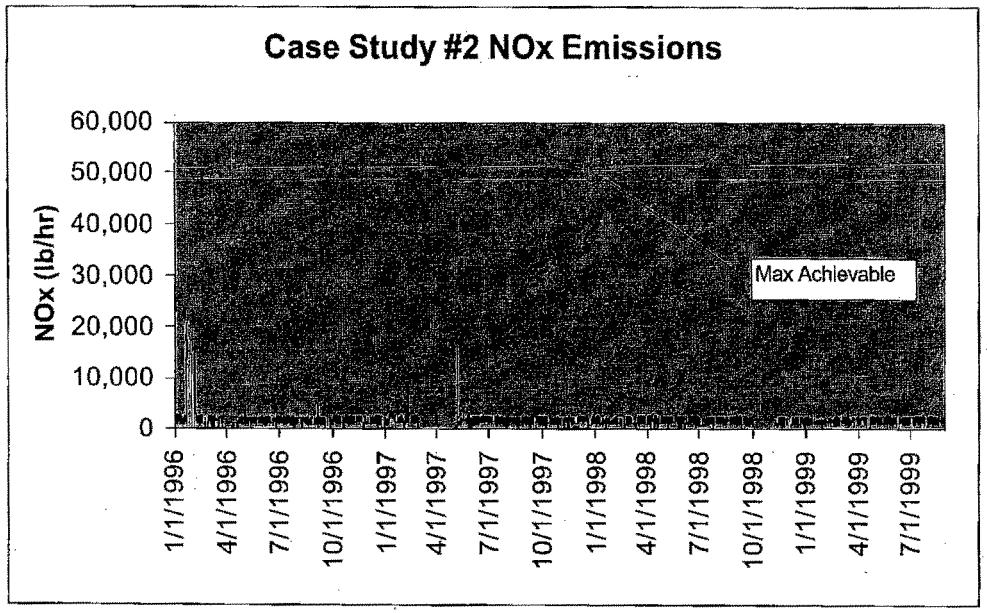
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

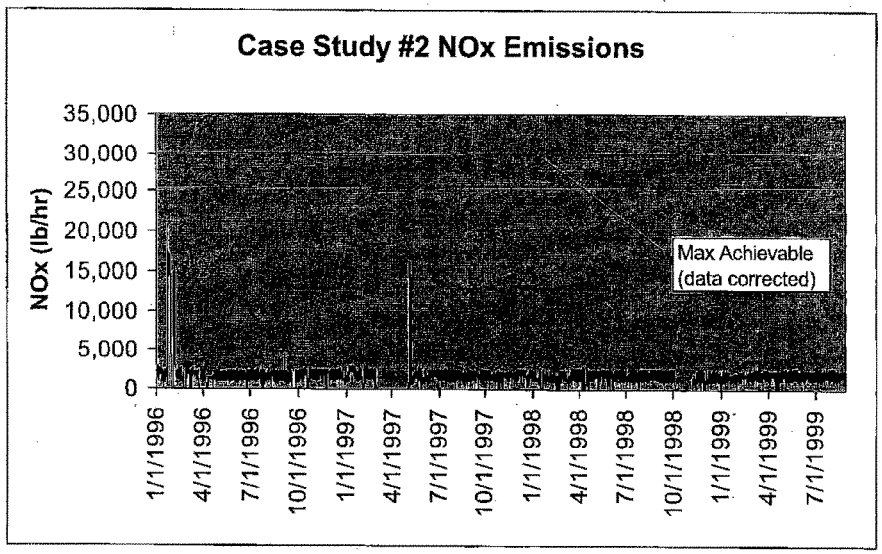
Maximum Achievable - NO_X



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achievable (Corrected) – NO_X

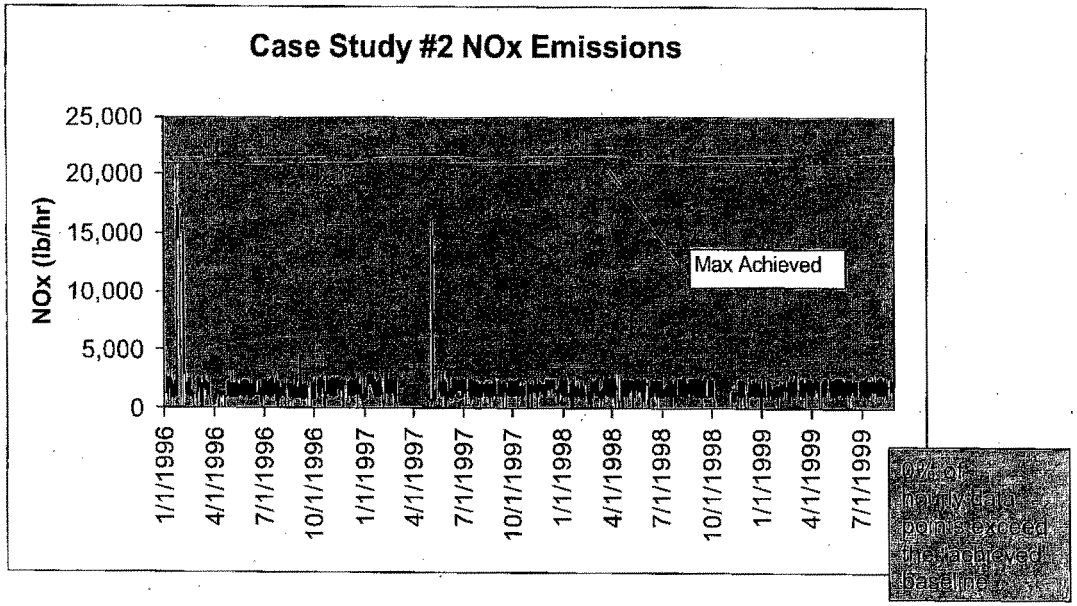


Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

Achievable baseline is corrected to eliminate 0.1% of outlying data points in the heat rate. Note: Proposed rule does not allow for data correction.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

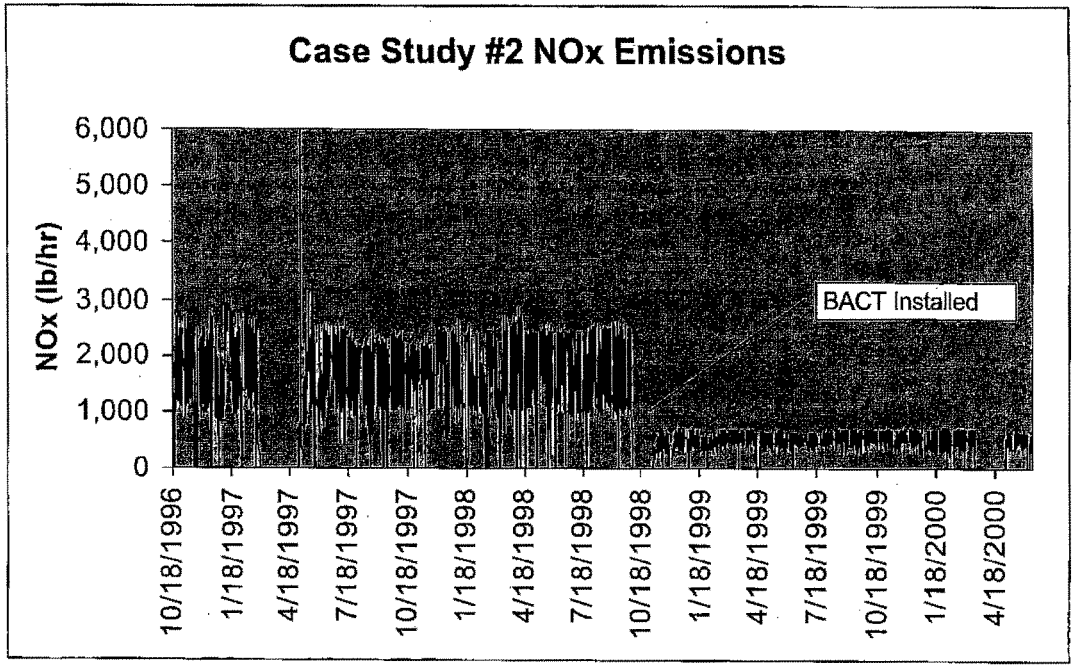
Maximum Achieved - NO_X



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

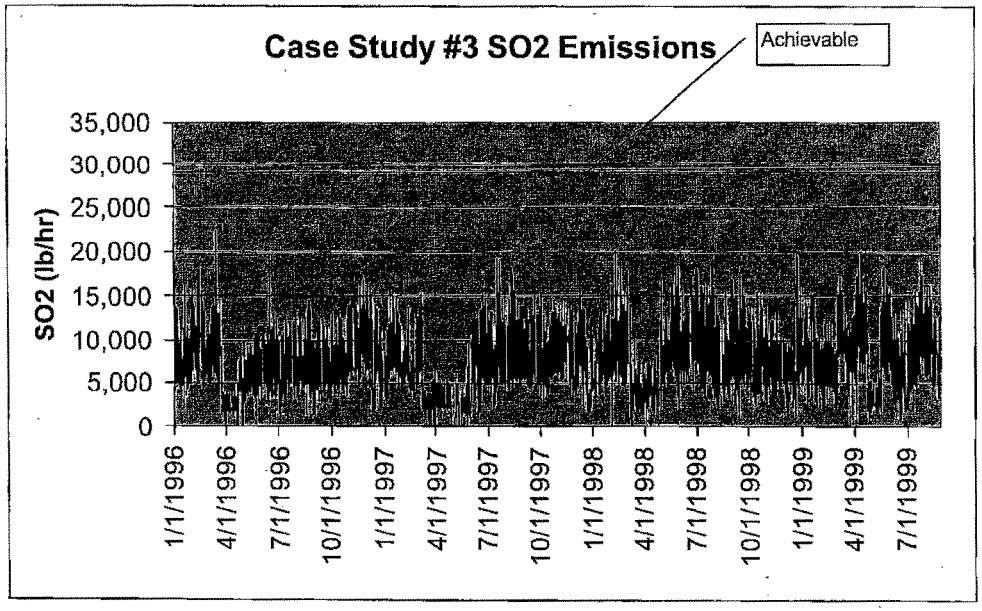


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #3

- 446 MW Unit.
- 1997 -- new, higher capacity turbines; new design reheater with 8% greater surface area; rear arch waterwall replacement; and, pulverizer upgrades.
- Capacity increase of 46 MW (Unit 3 previously rated at 400 MW).
- SO_2 and NO_X increased by 939 and 1,405 tons/year, respectively.

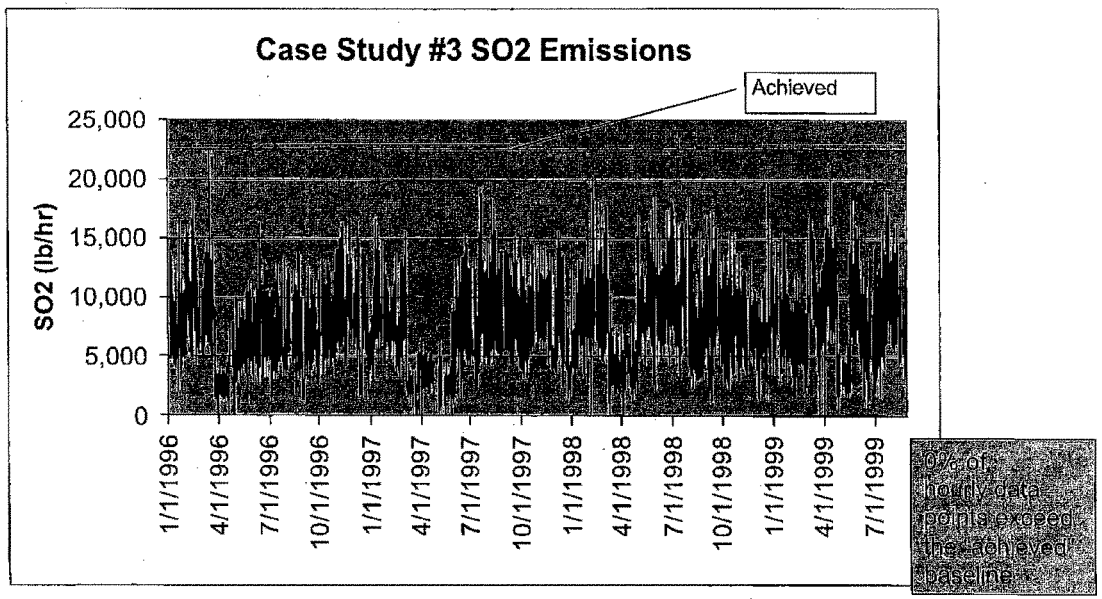
Maximum Achievable Test - SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

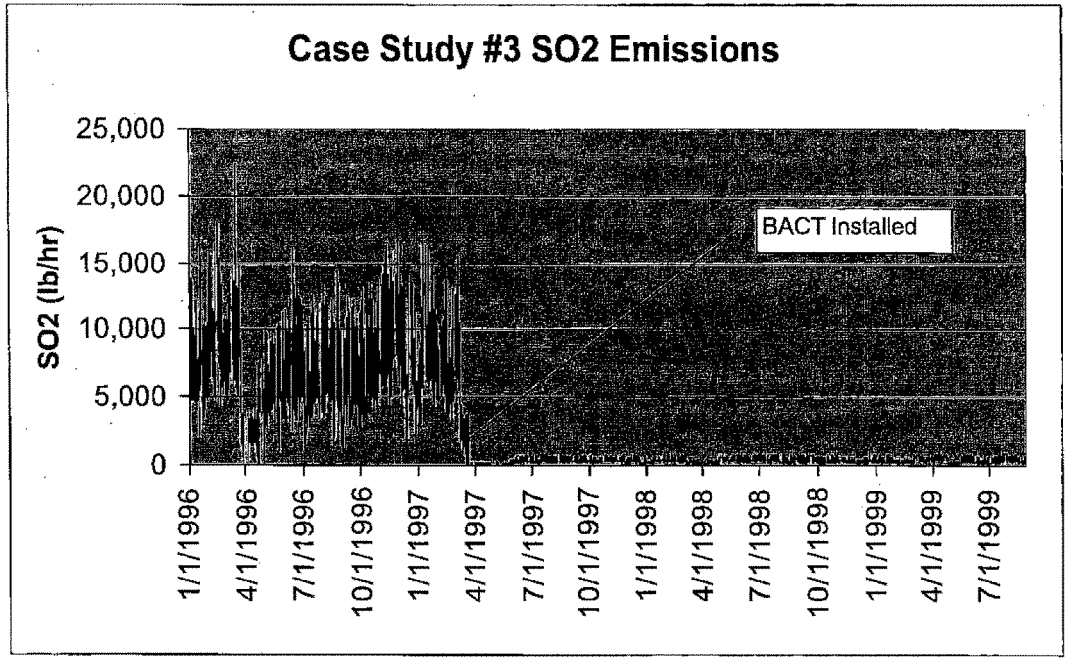
Maximum Achieved Test - SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

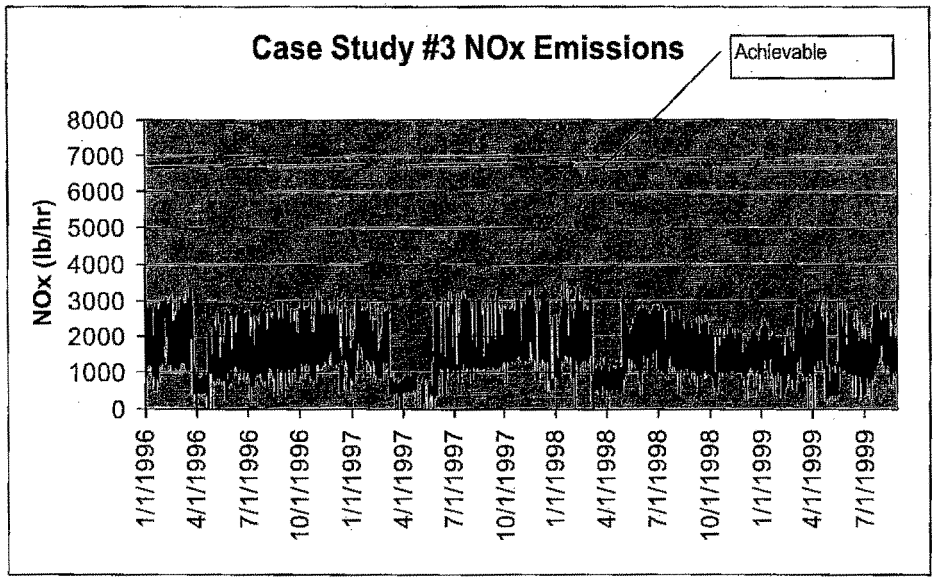
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

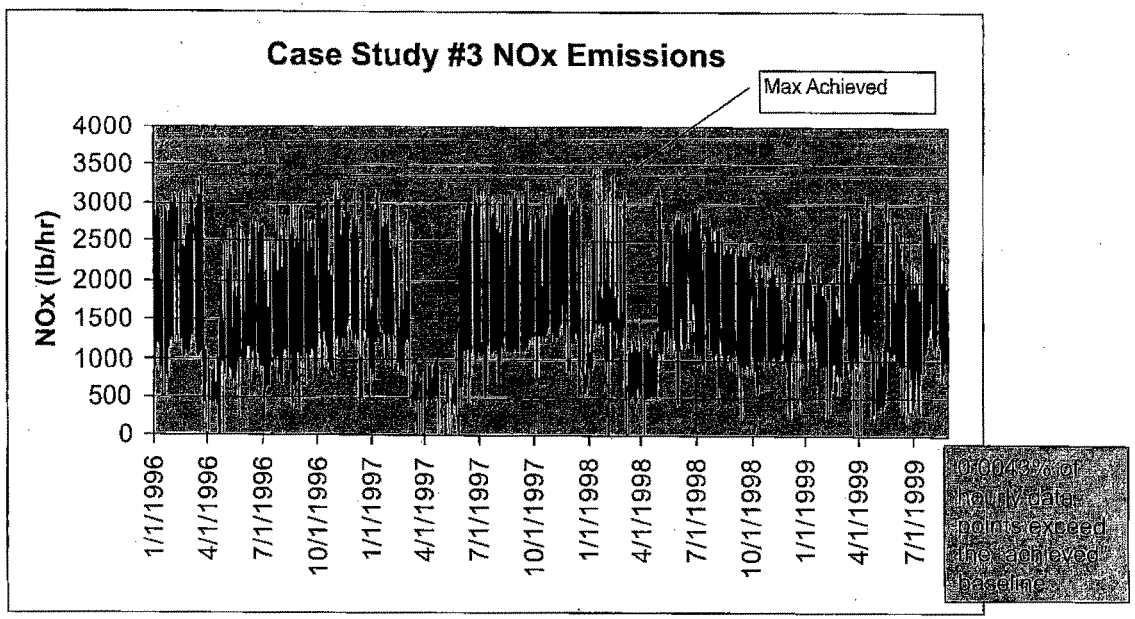
Maximum Achievable Test - NO_X



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

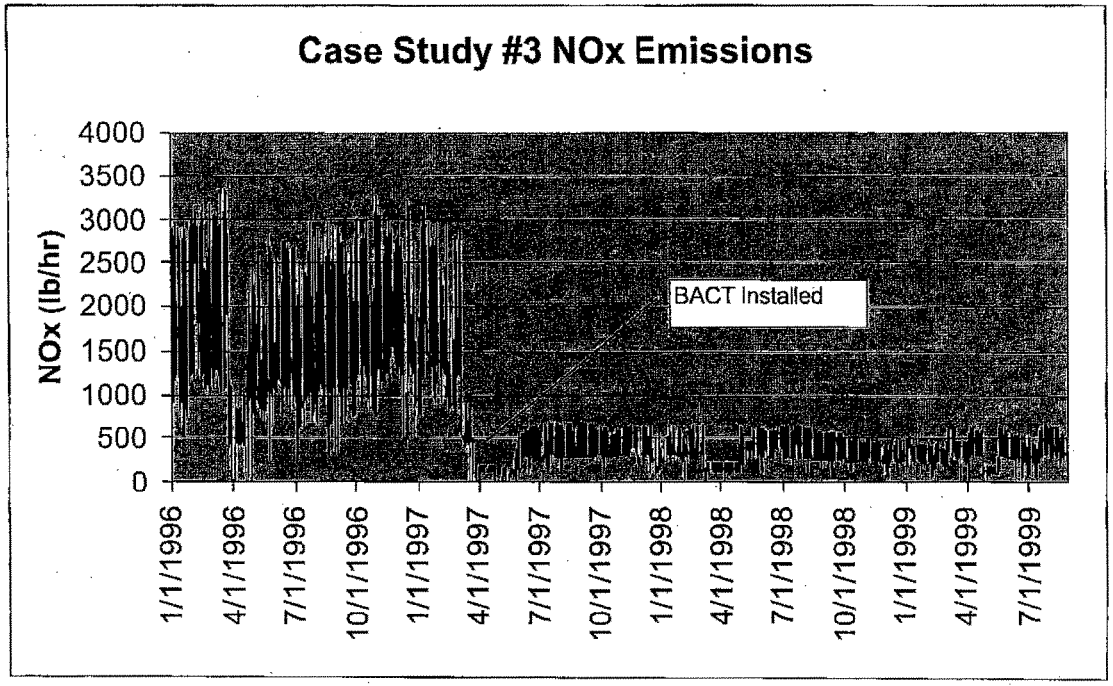
Maximum Achieved Test - NO_X



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

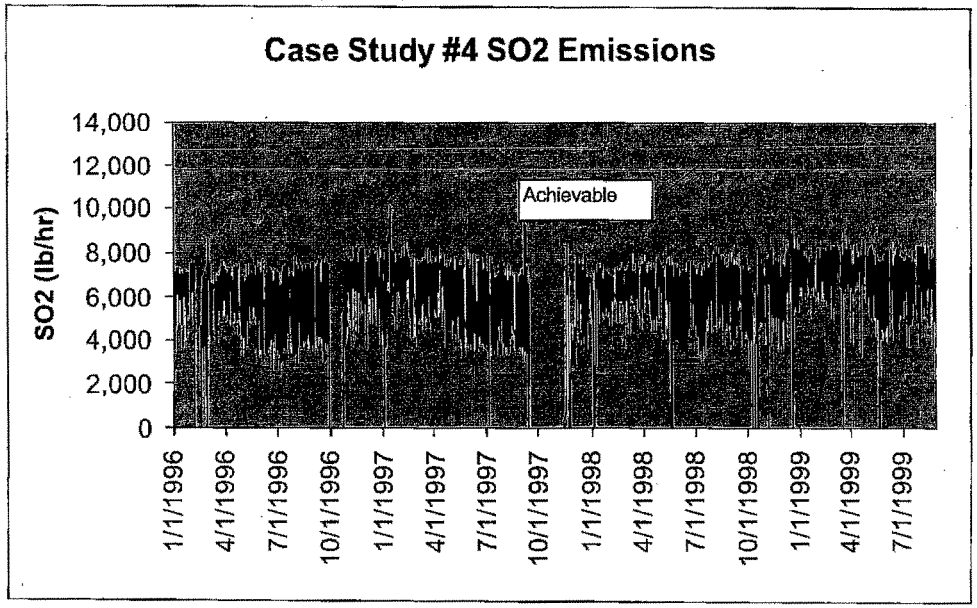


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #4

- 508 MW Unit.
- 1997 project -- Change in method of operation - EKPC installed a newly designed turbine. Increase in capacity of 77 MW (the rated generation of the unit went from 508 to 585 W).
- SO_2 and NO_X increased by 1,700 and 507 tons/year, respectively.

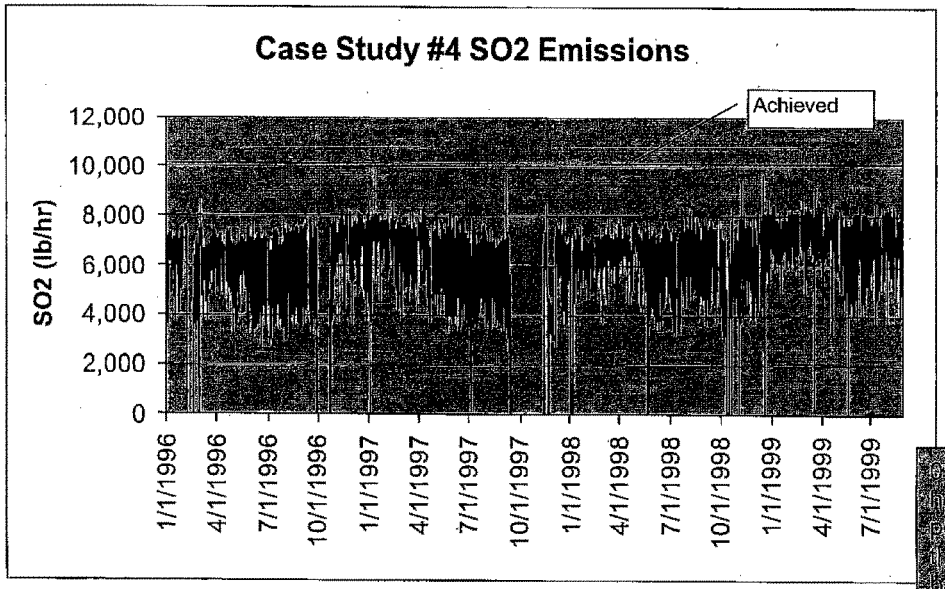
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achieved – SO_2

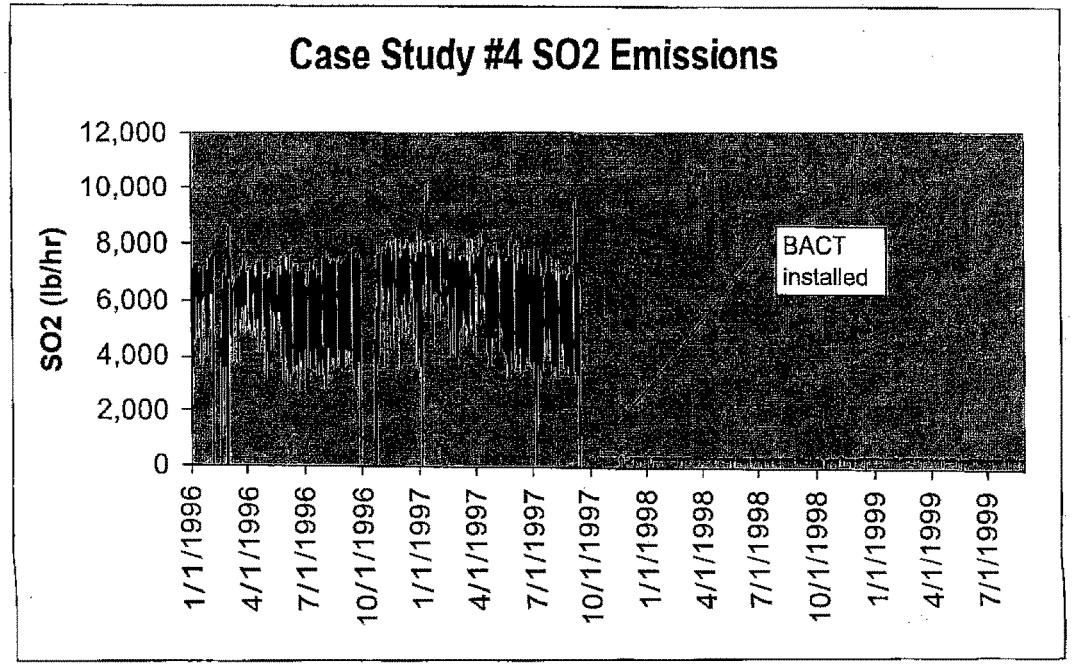


0% of hourly data points exceed the achieved baseline

Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

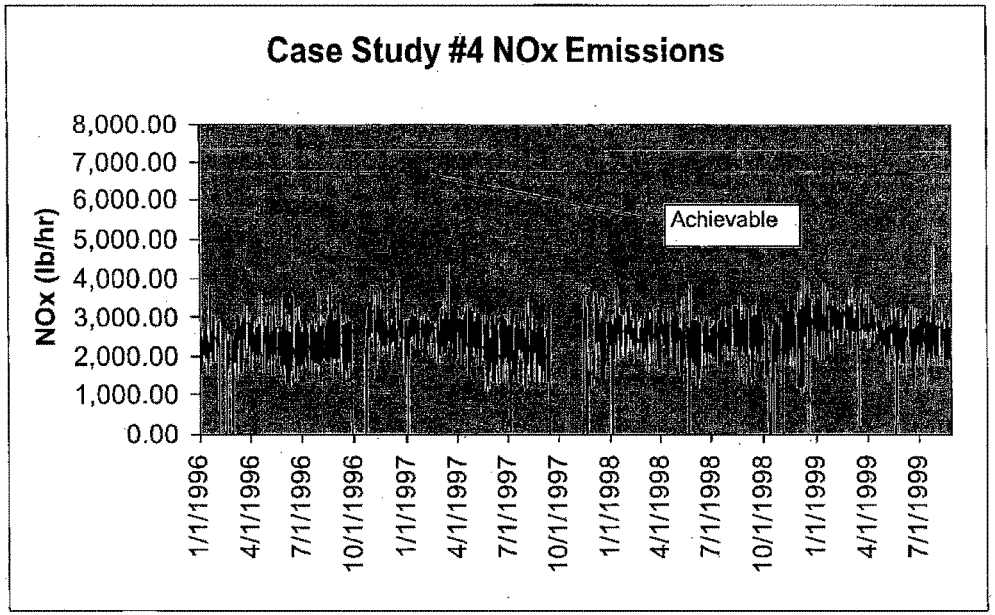
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

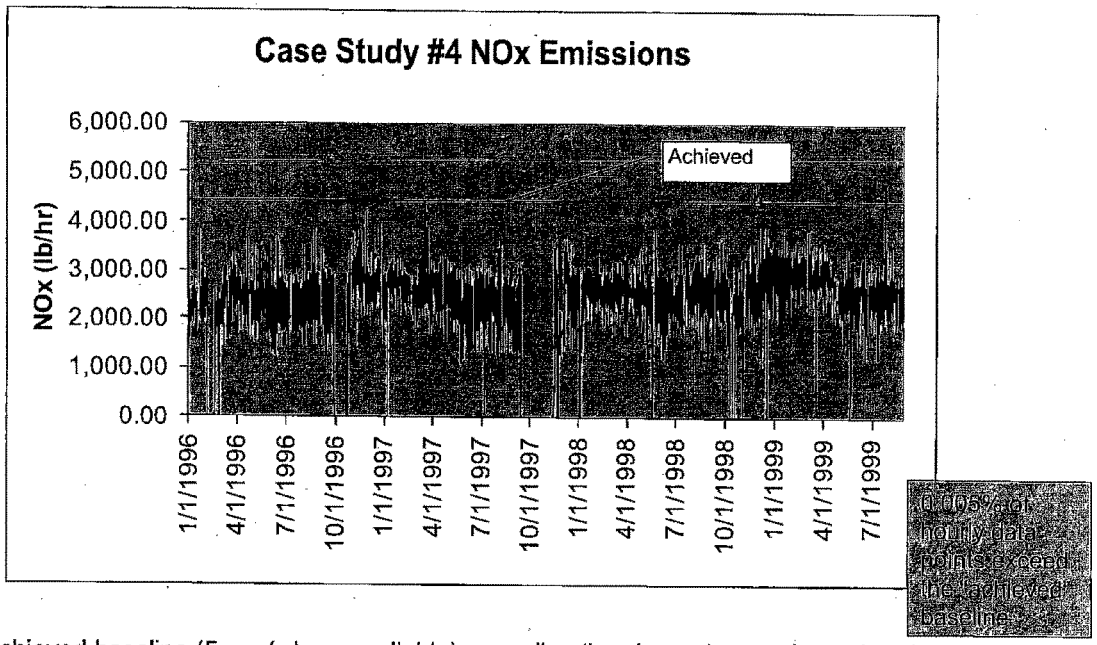
Maximum Achievable - NO_x



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

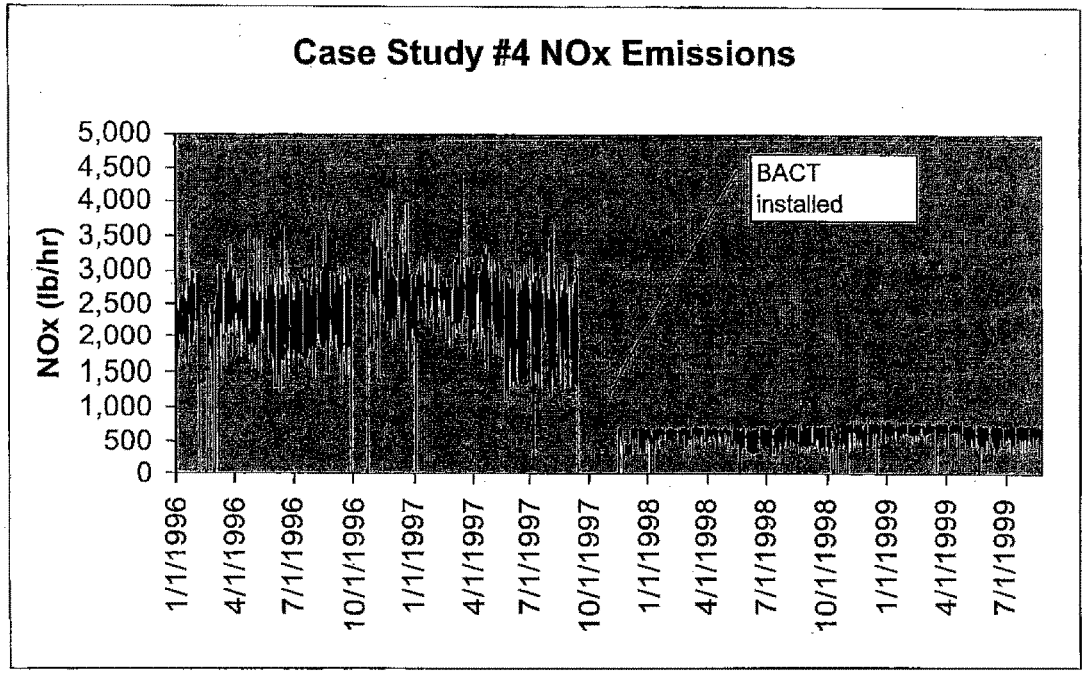
Maximum Achieved - NO_X



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?



NO_X BACT assumed 0.100 lb/mmbtu

Calculations

- All information calculated using acid rain data (1995-2004).
- "Achievable" baseline calculated using maximum heat rate (mmbtu/hr) multiplied by maximum emission rate (lb/mmbtu) in the 5 years prior (where available) to the change.
- "Achieved" baseline calculated by using the maximum hourly emission rate (lb/hr) in the 5 years prior to the change.
- "Achievable baseline with data corrections" was calculated by eliminating 0.1% of outlying data points in the maximum heat rate and then multiplying the corrected maximum heat rate (mmbtu/hr) by the maximum emission rate (lb/mmbtu).
- Heat rate before and after the change was calculated using the average heat rate within the period before the change and after the change.

Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing on S. 2662, the Growing American Innovation Now (GAIN) Act"*
Responses to Questions for the Record
John D. Walke
December 17, 2019

Questions from Ranking Member Carper:

Question 1: In Mr. Holmstead's written testimony, he states that he supports the GAIN Act's changes to the Clean Air Act New Source Review program in part because, "in terms of protecting human health, the maximum amount of a pollutant that a facility emits in one hour is generally more important than the amount it emits in a year." That thinking would seem to ignore all we know about chronic air pollution exposure, and ignores the fact that some of our air quality standards are based on annual exposures. Why is it important for federal officials to consider chronic exposure to air pollution when developing public policy?

Responses: As the former Assistant Administrator for EPA's Office of Air & Radiation, Mr. Holmstead should be well-versed in the harm that long-term exposure to air pollution causes. Contrary to Mr. Holmstead's suggestion, health impacts from long-term exposure are numerous and well-documented in the scientific literature. EPA itself has found chronic health hazards from long-term exposure to ozone and fine particle pollution, including during the time period when Mr. Holmstead headed EPA's Office of Air & Radiation.

For ozone, EPA has found there is "likely to be a causal relationship between long-term exposure to ozone and respiratory effects."[1] The 2013 EPA Integrated Science Assessment for Ozone devotes an entire chapter (chapter 7) to the harmful health impacts from long-term exposure to ozone. The document notes where studies on this exposure were completed or updated between 2006 and 2013, but also notes that much of the research in the 2013 ISA predates the 2006 ISA. EPA undertook

[1] See pages 1-7, 2013 Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants, *available at* https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492.

its 2006 ISA during Mr. Holmstead's tenure at the agency. To elaborate on one of the many agency findings on long-term ozone exposure in the 2013 ISA, EPA found that:

> respiratory health effects (including respiratory symptoms, new-onset asthma and respiratory mortality) combined with toxicological studies in rodents and nonhuman primates, provide biologically plausible evidence that there is likely to be a causal relationship between long-term exposure to O_3 and respiratory effects. The epidemiologic evidence includes studies that evaluate the relationship between long-term O_3 exposure and respiratory effects such as studies that demonstrate interactions between exercise or different genetic variants and long-term measures of O_3 exposure on new-onset asthma in children; and increased respiratory symptom effects in asthmatics. Additional studies of respiratory health effects and a study of respiratory mortality provide a collective body of evidence supporting these relationships. Studies considering other pollutants provide data suggesting that the effects related to O_3 are independent from potential effects of the other pollutants. Some studies provide evidence for a positive concentration-response relationship. Short-term studies provide supportive evidence with increases in respiratory symptoms and asthma medication use, hospital admissions and ED visits for all respiratory outcomes and asthma, and decrements in lung function in children. The recent epidemiologic and toxicological data base provides a compelling case to support the hypothesis that a relationship exists between long-term exposure to ambient O_3 and measures of respiratory health effects.

Pg. 7-36. Over the course of more than 100 pages, this chapter shows that epidemiological research from the last few decades soundly undercuts Mr. Holmstead's claim—one tellingly backed by no cited source in his written testimony.

Table 1-1 Summary of O_3 causal determinations by exposure duration and health outcome.

Health Outcome[a]	Conclusions from 2006 O_3 AQCD	Conclusions from this ISA
Short-term Exposure to O_3		
Respiratory effects	The overall evidence supports a causal relationship between acute ambient O_3 exposures and increased respiratory morbidity outcomes.	Causal Relationship
Cardiovascular effects	The limited evidence is highly suggestive that O_3 directly and/or indirectly contributes to cardiovascular-related morbidity, but much remains to be done to more fully substantiate the association.	Likely to be a Causal Relationship
Central nervous system effects	Toxicological studies report that acute exposures to O_3 are associated with alterations in neurotransmitters, motor activity, short and long term memory, sleep patterns, and histological signs of neurodegeneration.	Suggestive of a Causal Relationship
Total Mortality	The evidence is highly suggestive that O_3 directly or indirectly contributes to non-accidental and cardiopulmonary-related mortality.	Likely to be a Causal Relationship
Long-term Exposure to O_3		
Respiratory effects	The current evidence is suggestive but inconclusive for respiratory health effects from long-term O_3 exposure.	Likely to be a Causal Relationship
Cardiovascular effects	No conclusions in the 2006 O_3 AQCD.	Suggestive of a Causal Relationship
Reproductive and developmental effects	Limited evidence for a relationship between air pollution and birth-related health outcomes, including mortality, premature births, low birth weights, and birth defects, with little evidence being found for O_3 effects.	Suggestive of a Causal Relationship
Central nervous system effects	Evidence regarding chronic exposure and neurobehavioral effects was not available.	Suggestive of a Causal Relationship
Cancer	Little evidence for a relationship between chronic O_3 exposure and increased risk of lung cancer.	Inadequate to Infer a Causal Relationship
Total Mortality	There is little evidence to suggest a causal relationship between chronic O_3 exposure and increased risk for mortality in humans.	Suggestive of a Causal Relationship

[a]Health effects (e.g., respiratory effects, cardiovascular effects) include a spectrum of outcomes, from measureable subclinical effects (e.g., blood pressure), to more obvious effects (e.g., medication use, hospital admissions), and cause-specific mortality. Total mortality includes all-cause (non-accidental) mortality, as well as cause-specific mortality (e.g., deaths due to heart attacks).

Page 1-5, 2013 EPA Integrated Science Assessment for Ozone and Related Photochemical Oxidants, *available at* https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492

Long- term exposure to $PM_{2.5}$ is also linked to serious health impacts. EPA has even found a "causal relationship" between long-term exposure to $PM_{2.5}$ and *death* (total mortality), as well as cardiovascular effects, and a "likely to be a causal relationship" between long-term exposure to $PM_{2.5}$ and nervous system effects and cancer. See Table ES-1, below.[2] EPA also undertook work preparing for the eventual 2009 ISA for PM during Mr. Holmstead's tenure at the agency. Mr. Holmstead's written testimony excerpted in this question conflicts fundamentally with EPA's own Integrated Science Assessments for particulate matter pollution.

[2] Table ES-1, Integrated Science Assessment for Particulate Matter (External Review Draft) (Oct. 2018), *available at* https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=341593.

Table ES-1 Summary of "causal relationship" and "likely to be causal relationship" causality determinations for PM exposure and health effects from the current draft PM ISA and corresponding causality determinations from the 2009 PM ISA.

Size Fraction	Health Effect Category[a] and Exposure Duration	Causality Determination	
		2009 PM ISA	Current Draft PM ISA
$PM_{2.5}$	Respiratory Effects—Short-term exposure Section 5.1.12, Table 5-18	Likely to be a causal relationship	Likely to be a causal relationship
	Respiratory Effects—Long-term exposure Section 5.2.13, Table 5-28	Likely to be a causal relationship	Likely to be a causal relationship
	Cardiovascular Effects—Short-term exposure Section 6.1.16, Table 6-33	Causal relationship	Causal relationship
	Cardiovascular Effects—Long-term exposure Section 6.2.18, Table 6-52	Causal relationship	Causal relationship
	Nervous System Effects—Long-term exposure Section 8.2.9, Table 8-20	Not evaluated	Likely to be a causal relationship
	Cancer—Long-term exposure Section 10.2.6, Table 10-8	Suggestive of, but not sufficient to infer, a causal relationship	Likely to be a causal relationship
	Total mortality—Short-term exposure Section 11.1.12, Table 11-4	Causal relationship	Causal relationship
	Total mortality—Long-term exposure Section 11.2.7, Table 11-8	Causal relationship	Causal relationship

Table ES-1 (Continued): Summary of "Causal Relationship" and "Likely to be Causal Relationship" causality determinations for PM exposure and health effects from the current draft PM ISA and corresponding causality determinations from the 2009 PM ISA.

Size Fraction	Health Effect Category[a] and Exposure Duration	Causality Determination	
		2009 PM ISA	Current Draft PM ISA
UFP	Nervous System Effects—Long-term exposure Section 8.6.7, Table 8-34	Not evaluated	Likely to be a causal relationship

ISA = Integrated Science Assessment; PM = particulate matter; $PM_{2.5}$ = fine particulate matter; UFP = ultrafine particles.
Previous causality determinations taken from the 2009 PM ISA (U.S. EPA, 2009).
[a]An array of outcomes is evaluated as part of a broad health effect category: physiological measures (e.g., airway responsiveness), clinical outcomes (e.g., hospital admissions), and cause-specific mortality. Total mortality includes all nonaccidental causes of mortality and is informed by findings for the spectrum of morbidity effects (e.g., respiratory, cardiovascular) that can lead to mortality. The sections and tables referenced include a detailed discussion of the evidence that supports the causality determinations and the $PM_{2.5}$ and UFP concentrations with which health effects have been associated.

Moreover, as I outlined in my written testimony, S.2662 will lead to substantial increases in short-term (defined in the 2013 ozone ISA as "hours, days, weeks," pp. 1-4) exposure to air pollution as well. *See, e.g.,* NRDC Testimony at 10-11, 13. As noted in the tables above, the health impacts from short-term exposure are similarly severe. The 2013 ISA for Ozone found short-term exposure to ozone is linked to respiratory impacts, and is likely linked to both cardiovascular impacts and total mortality. Table 1-1, 2013 ISA for ozone. Short-term exposure to PM is linked to these health endpoints as well. Table ES-1, 2018 PM ISA.

Mr. Holmstead's written testimony says, "the maximum amount of a pollutant that a facility emits in one hour is generally more important than the amount it emits in a year." This notion of a "maximum" amount of pollution, however, bears no relation to the known health hazards associated with short-term and long-term exposures to ozone and $PM_{2.5}$ air pollution. Certainly, none of EPA's own ISAs nor NAAQS rulemakings credit or mention any *ad hoc* notion of industrial emitters' "maximum" emissions as a measure of harm to human health. Rather, the conception of a "maximum" hourly emissions rate raised by Mr. Holmstead is purely a legal construct, not health-based, arising out of the New Source Performance Standards' regulatory definition of modification.[3]

[3] 42 U.S.C §7411(a)(4) (definition of "modification" as " any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted."); For New Source Performance Standard purposes, the test for modification

Mr. Holmstead imports this legal notion of "maximum" hourly emissions rates because S.2662 (and NSPS program) are founded upon those concepts. This maneuver, however, ignores and contradicts the well-established human health hazards associated with both short-term and long-term exposure to air pollution. It ignores, equally, that the legislation allows very substantial increases in both hourly emissions rates and annual emission rates, as I explain at length in my testimony. These are due to: (1) the bill's selection of a pollution baseline rooted in an emissions unit's worst hourly emission rate in the past ten years; and (2) the bill's allowance for even this worst emissions rate to be exceeded in the name of reliability or safety. Mr. Holmstead's attempt to dismiss the adverse health impacts from long-term exposure to ozone and $PM_{2.5}$ is both unfounded and an irresponsible basis for legislation. Crediting such dismissiveness would allow extreme increases in both short-term and long-term air pollution, with corresponding harmful impacts to human health.

> **Question 2:** The Trump EPA has enacted a number of changes to EPA's New Source Review program. For example, the agency has stated that it no longer intends to "substitute [the agency's] judgment for that of the owner or operated [of a source] by 'second-guessing' the owner or operator's emissions projections."[4] Does this recent change make it more likely, or less likely, that a source that factually triggers New Source Review—under any test, including that embodied under S. 2662— might evade preconstruction permitting review requirements?

Responses: This recent change by the Trump EPA makes it significantly more likely that a source could increase regulated air pollutants by significant amounts, and evade Clean Air Act preconstruction permitting requirements, including modern air pollution controls and offsetting reductions in harmful emissions.

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is if there is an increase in the "emission rate" of any pollutant, determined in 40 C.F.R.§ 60.14(a) using an hourly, rather than annual, emission rate. Emissions increases are determined with a look to the maximum hourly emission rate just before and just after the change at issue to determine if there is a modification. *WEPCO v. Reilly*, 893 F.2d 901 (7th Cir. 1990).

[4] Memorandum from EPA Admin'r Scott Pruitt to Reg'l Administrators, *New Source Review Preconstruction Permitting Requirements: Enforceability and Use of the Actual-to-Projected Actual Applicability Test in Determining Major Modification Applicability* (Dec. 7, 2017), at 8, https://www.epa.gov/sites/production/files/2017-12/documents/policy_memo.12.7.17.pdf (Dec. 2017 Pruitt Memo).

It is important to emphasize the New Source Review program imposes requirements (for modern air pollution controls, offsets of any remaining emissions increases, air quality impact analyses, etc.) *only* when industrial facilities *significantly* increase emissions of regulated air pollutants like fine particulate matter ($PM_{2.5}$) pollution, sulfur dioxide (SO_2), or precursors to smog, such as nitrogen oxides (NOx) or volatile organic compounds (VOCs). In fact, EPA has established regulatory "significance thresholds"; increases of air pollutants below these generous levels are considered *de minimis* in nature, and do not require the suite of NSR requirements, including modern air pollution controls. See 40 C.F.R. § 52.21(b)(23)(i), (establishing 40 tons per year significance thresholds for NO_x and SO_2, for example). In *Alabama Power Co. v. Costle,* the D.C. Circuit Court of Appeals, while recognizing the NSR program's focus on minimizing actual annual emissions increases, indicated EPA could (upon making specified rigorous showings) define levels of actual (tons per year) emissions increases that would produce no regulatory benefit under the statute.[5] These generous *de minimis* levels are paired with numerous opportunities to avoid the NSR program by identifying contemporaneous emissions decreases to offset any emissions above *de minimis* levels, so there is not a significant "net" emissions increase.[6] Only after a source's emissions have surpassed these levels do the requirements that the Trump EPA is targeting even take effect.

The weakening changes in the Dec. 2017 Pruitt Memo would allow significant increases in emissions well beyond *de minimis* levels, even after accounting for net emissions. As a practical matter, these changes amount to sweeping amnesty from the legal requirements of NSR—requirements designed to help protect Americans, U.S. air quality and uphold the air quality health standards that are the very

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[5] See *Alabama Power*, 636 F.2d 323, 360-61, 400 (D.C. Cir. 1979) (describing that authority to craft de minimis exemption is potentially available "when the burdens of regulation yield a gain of trivial or no value. That implied authority is not available for a situation where the regulatory function does provide benefits, in the sense of furthering the regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs.")

[6] See 42 U.S.C. § 7511(c)(6)("increased emissions…shall not be considered de minimis for purposes of determining the applicability of the permit requirements established by this chapter unless the increase in net emissions of such air pollutant from such source does not exceed 25 tons when aggregated with all other net increases in emissions from the source over any period of 5 consecutive calendar years which includes the calendar year in which such increase occurred (emphasis added); 42 U.S.C. § 7511a(c)(7)(creating a "special rule for modifications of sources emitting less than 100 tons," which applies whenever such a source makes a change "except for a de minimis increase" as established in § 182(c)(6), 42 U.S.C. § 7511a(c)(6)).

foundation for the Clean Air Act. The Trump EPA announced this abdication of its authority in an "enforcement memo," wherein it reversed previously held implementation and enforcement positions that have been affirmed by numerous federal courts.[7] This indefensible retreat from enforcing the Clean Air Act allows industrial polluters to commit fraud and make false projections about their increased emissions, so long as those projections are "procedurally" adequate—even if they are substantively false and ultimately harmful to air quality and Americans' health.

The enforcement amnesty memo specifically notes that EPA "does not intend to substitute its judgment for that of the owner or operator by "second guessing" the owner or operator's emissions projections."[8] A federal court already had addressed and dismissed this straw man, writing that the "focus on so-called "second-guessing" is misplaced, because EPA may certainly bring enforcement lawsuits to challenge a company's improper emissions projections." *United States v. DTE Energy Co.*, 845 F.3d 735, 738 (6th Cir.). The court continued by noting "the EPA definitely is not confined to a 'surface review' or 'cursory examination.'" *Id.* The Dec. 2017 Pruitt Memo makes clear the Trump EPA will disregard this language, telling regulated entities that EPA "does not intend to pursue new enforcement cases in circumstances such as those presented in the DTE matter." Dec. 2017 Pruitt Memo, at 6. Short of failing to follow the bare *procedural* requirements of the statute, the memo announces that the Trump EPA will not investigate a company's permit application. In fact, the "intent of the owner or operator to manage emissions," *regardless of whether the emissions are in fact managed*, would suffice as "compliance" under the new "enforcement" regime announced. *Id.*, at 6.

Not only will such an abdication of EPA's enforcement authority sanction more air pollution; relinquishing enforcement of statutory obligations under the law "may erode the credibility of EPA's enforcement program by creating real or perceived inequities in the Agency's treatment of the regulated community,"[9] a warning

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[7] U.S. EPA, Memo from E. Scott Pruitt, Administrator, to EPA Regional Administrators: "New Source Review Preconstruction Permitting Requirements: Enforceability and Use of the Actual-to-Projected-Actual Applicability Test in Determining Major Modification Applicability," Dec, 7, 2017, *available at* https://www.epa.gov/sites/production/files/2017-12/documents/nsr_policy_memo.12.7.17.pdf (hereinafter "Enforcement Memo")

[8] *Id.* at 8.

[9] U.S. EPA, From: Courtney F. Price, Assistant Administrator for Enforcement and Compliance Monitoring, Memo re: Policy Against "No Action" Assurances, Nov. 16, 1984 *available at* https://www.epa.gov/sites/production/files/2013-10/documents/noactionass-mem.pdf

embodied in EPA's "Policy Against 'No Action' Assurances" dating to the Reagan administration. The Dec. 2017 Pruitt Memo signals to the regulated community that it may disregard the legal requirements of the New Source Review program; in so doing, EPA sanctions untold increases in emissions, while guaranteeing that it will not "second guess" claims by regulated entities that they need not undertake any preconstruction permitting review.

> **Question 3:** In Mr. Alteri's testimony, he testified that air pollution emissions in his state of Kentucky have gone down, not up, over recent years. Yet, Kentucky's coal facilities continue to pollute downwind, keeping states—like Maryland and New York—from meeting clean air standards. Mr. Alteri also testified—as did Mr. Holmstead—that this legislation is about providing more "certainty" for stakeholders. How does this legislation create more uncertainty for downwind states like Maryland and Delaware, and low income communities and communities of color that most often live near older, dirty uncontrolled sources?

Responses: Embedded in the fabric of the Clean Air Act is a recognition of the very concept that Mr. Alteri's testimony overlooks. Air pollution does not respect state borders; simply because one state's emissions may "go down," or simply waft out of the state's borders, does not mean that there is no longer an obligation to clean up that pollution. Statewide emissions may well decrease in a state like Kentucky, even while emissions from that state and others continue to blow into downwind states like Maryland and Delaware and contribute significantly to those states' nonattainment of national health standards, or interfere with those states' maintenance of attainment with health standards. In light of these truths, the Act prohibits emission activities in one state that contribute significantly to the nonattainment of or interfere with the maintenance of National Ambient Air Quality Standards (NAAQS) in downwind areas of other states. CAA §110 (a)(2)(D); 42 U.S.C.A. §7410(a)(2)(D).[10] The Clean Air Act also specifically

[10] A State Implementation Plan must: "contain adequate provisions—

(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—

(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or

empowers downwind states to petition the Agency should specific sources of pollution from outside their borders contribute to the downwind state's NAAQS violations. 42 U.S.C. §7426. Sections 176A and 184 create interstate transport commissions and the ozone transport region, respectively, both of which require regional planning in light of the transboundary nature of air pollution. 42 U.S.C.A. §7506a; 42 U.S.C.A. §7511c.

The GAIN Act's claim to provide "certainty" to large uncontrolled sources of pollution in knowing that they will not be required to control their emissions does not translate to certainty for downwind states left with increased pollution resulting from this "certainty." The only 'certainty' created by S.2662 for all parties is that current Clean Air Act safeguards would be eliminated and dramatically weakened to allow large sources of pollution to significantly increase harmful emissions; evade air pollution controls; avoid offsetting those emissions increases in the most polluted parts of the country and downwind from these polluting areas; and fail to require air quality impact analyses on surrounding communities, national parks and other protected "Class I" areas. 42 U.S.C.A. §§42 U.S.C.A. 7475(Prevention of Significant Deterioration Preconstruction Permit Requirements); 42 U.S.C.A. §7503 (Nonattainment New Source Review Permit Requirements).

As I discussed at length in my written testimony, the magnitude of these emissions increases, under the guise of "certainty," would be profound. The Bush administration EPA enforcement office, for example, estimated that emissions increases from changes like those contemplated in S.2662 would be "more than ten times higher than the average hourly emission rate in the five-year period prior to the change."[11] The more extreme ten-year period allowed in S.2662 would cause facilities' worst achievable pollution rates to be even higher.

(II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility,

(ii) insuring compliance with the applicable requirements of sections 7426 and 7415 of this title (relating to interstate and international pollution abatement);

[11] Memorandum from Adam M. Kushner, Director of EPA's Air Enforcement Division, Office of Enforcement and Compliance Assurance, to William Harnett, dated August 25, 2005, at 3 (hereinafter "EPA Enforcement Memo).

Examining actual emissions data for power plants from the Clean Air Markets Division, EPA concluded that the maximum hourly achievable emissions rate test proposed in 2005 would have failed to control actual annual emissions increases of 50 tons per year (tpy) of SO_2 and 978 tpy of NO_x in one case study (EPA Enforcement Memo attachment, at 10); 13,096 tpy of SO_2 in another case study (*id.* at 2); 939 tpy of SO_2 and 1,405 tpy of NO_x in another (*id.* at 20); and 1,700 tpy of SO_2 and 507 tpy of NO_x in a fourth case study (*id.* at 27). See also EPA Enforcement Memo at 3. Again, S.2662 is even more extreme; had it been at the law at the time, it would have permitted these same massive emissions increases, and even higher increases.

The Agency looked at a number of enforcement actions where specific projects were expected to improve unit availability or improve efficiency. It found that time and again, the projects increased annual tons of emissions well above the regulatory (*de minimis*-based) significance thresholds without undertaking NSR or applying the modern pollution controls represented by the Clean Air Act's Best Available Control Technology, or Lowest Achievable Emissions Rate provisions, to limit those pollution increases. *See also* NRDC Testimony, at 13-16. What's more, in some cases, tens of thousands of tons of illegal NO_x and SO_2 emissions increases were at issue, and all of those increases would have been permissible under maximum hourly emission rate approaches, like in S.2662.

The Bush EPA enforcement office also concluded that application of the maximum hourly achievable emissions rate test would be "largely unenforceable." Enforcement Memo, at 2. Their analysis found the baseline "achievable" level to be so high that very few changes increasing emissions substantially could possibly result in emissions levels that would surpass it. For example, the enforcement office's first power plant case study found the achievable hourly emission rate to be more than *ten times higher* than the average hourly emission rate in the five-year period prior to the change. *Id.* (emphasis added). Thus, unless the utility were to increase its actual emissions *by an order of magnitude*, it would not be considered a regulated modification under NSR. In the case study, even though sulfur dioxide emissions *increased by 13,096 tons per year*, the maximum achievable hourly rate did not increase. *Id.* Attach. A to EPA Enforcement Memo, at 2 (Case Study #1). Based on this analysis, the enforcement office found that "one can only conclude from application of the so-called 'achievable' test *that no 'change' causing an emissions increase . . . at an EGU would trigger NSR . . . .*"

Id. at 5 (emphasis added). Mr. Holmstead headed the EPA Office of Air and Radiation during this time, so is certainly aware of the harmful implications of an hourly test like that contained in S.2662.

Finally, the damaging changes to the New Source Review program that S.2662 contemplates, and the dramatic increases in harmful air pollution that would result, would guarantee debilitating, damaging *uncertainty* for residents and clean air officials in both upwind and downwind states, alike. For downwind states like Delaware and Maryland, air pollution from upwind states, out of the control of the downwind states, would waft into the latter states after S.2662 authorized major polluters in the upwind states to increase dangerous air pollution by huge amounts. This uncertainty would be added to the air pollution increases that the bill would authorize in the upwind states, too, creating the greatest uncertainty and hazardous health toll for ordinary Americans in upwind and downwind states, alike.

> **Question 4:** To clarify, is New Source Review triggered if a facility implements efficiency measures that lead to a decrease in annual emissions?

No. The co-sponsors of S.2662 in their press release accompanying the bill,[12] invoke "energy efficiency" as a justification for the bill's amnesty and loopholes from Clean Air Act safeguards. As used in this manner, however, "efficiency" is a seriously misleading label employed generally to mask higher air pollution levels that would be allowed to result, while escaping clean up, as a result of the bill's proposed amnesty and loopholes. The expression is being used to reflect the following concept: an improved emissions rate of pollution per unit of fuel, raw material or output (*e.g.*, lbs/MBtu of SO_2, pounds of NO_x per widget).[13]

Under existing NSR rules, the *only* time the NSR provisions require a facility to install pollution control equipment is when a facility change causes pollution to *increase significantly*. A facility modification that decreases its pollution rate (*i.e.*, becomes more efficient), does not require pollution controls so long as total actual emitted pollution levels decrease, are maintained, or even increase by no more than specified, *de minimis* levels (*e.g.*, 40 tons per year). This is true, of course, because NSR requires pollution control measures only for activities that increase pollution levels above generous 'significance' threshold

[12] Senators Introduce Growing American Innovation Now (GAIN) Act, https://www.epw.senate.gov/public/index.cfm/2019/10/senators-introduce-growing-americaninnovation-now-gain-act.
[13] See, e.g., S.2662, sec.2(B)(i).

levels, like 40 tons per year. Industry has the additional flexibility under the Act to ensure that there are no such *net* increases by undertaking offsetting emissions decreases elsewhere at their facilities and avoiding NSR. Industry can pursue these same activities even if they do cause significant pollution increases, so long as they control those increases. This is true efficiency, desirable efficiency, that should result in lower pollution rates and lower overall air pollution levels for Americans.

In stark contrast, S.2662 weakens the NSR safeguards to the point of meaninglessness, in order to allow higher *overall* air pollution levels (that may or may not result from improved emission rates) to escape clean-up measures, under the guise of "efficiency." Cloaking this agenda in the garb of efficiency is not only objectionable,[14] it also contradicts numerous prior EPA understandings and court decisions on this very issue:

> Virtually every modernization or upgrade project at an existing industrial facility which reduces inputs and lowers unit costs has the concurrent effect of lowering an emissions rate per unit of fuel, raw material or output. Nevertheless, it is clear that these major capital investments in industrial equipment are the very types of projects that Congress intended to address in the new source modification provisions. … Adopting a policy that automatically excludes from NSR any project that, while lowering operating costs or improving performance, coincidentally lowers a unit's emissions rate, would improperly exclude almost all modifications to existing emissions units, including those that are likely to increase utilization and therefore result in overall higher levels of emissions.[15]
>
> For example, assume the emissions unit at the widget factory that is emitting 10 pounds an hour but has historically operated at 40 percent capacity due at first to operating cost, but with age, reduced efficiency and reliability. Under the Exhibit B alternative, the owner could modernize the unit, thus lowering the operating costs and increasing efficiency and reliability. This change will allow the owner to use the machine at much higher levels (e.g., more hours per day or week) than it had in the past. As a result, actual emissions

[14] It is objectionable, of course, because efficiency improvements that yield the expected, added benefit of reduced overall air pollution levels is what Congress and EPA should be promoting.
[15] Memorandum from John S. Seitz, Director, EPA OAQPS, to EPA Regional Air Directors, "Pollution Control Projects and New Source Review (NSR) Applicability," (July 1, 1994), at 11.

(measured in tpy) could more than double due to the increase in utilization even though hourly potential emissions remain the same."[16]

The argument that only changes that increase a unit's emissions rate can trigger the NSR modification provisions has been rejected by two courts of appeals. As noted, see supra note 1, in *Puerto Rican Cement*, the First Circuit rejected a claim that modifications to a cement kiln, which made production more efficient and decreased the hourly emissions rate but could increase the plant's utilization rate, such that actual emissions to the atmosphere might increase, were exempt from PSD. The company argued that the project fell under the PSD regulatory exclusion for changes that result in an "increase in the hours of operation or in the production rate." See 889 F.2d at 298. Similarly, in *WEPCO*, where the company was making "like-kind" replacements of components to restore the original design capacity of the plant, there was no increase in emissions per unit of output; rather, for PSD purposes, the emissions increase was attributable to increased utilization. The Seventh Circuit rejected the company's reliance on the exclusion for increased hours of operation/rates of production. See 893 F.2d at 916 n. 11.[17]

For these same reasons, which EPA and federal courts have reaffirmed time and time again, the Clean Air Act should not exempt from NSR controls any significant increases in harmful air pollution that result from marginal improvements in emissions rates, that occur with no increase in emissions per unit of output or that restore the original design capacity of a unit or plant. Quite simply, activities that actually decrease emissions—or even fail to increase emissions above significance thresholds—do not and should not mandate NSR requirements. Conversely, activities that result in significant emissions increases should not evade NSR air pollution controls, offsets and other safeguards. The obvious point in all these situations is that the air is getting dirtier by significant amounts, and pollution loadings are increasing to surrounding communities. The statutory purposes of the NSR program call for responsible pollution control

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[16] Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR), Notice of Proposed Rulemaking, 61 Fed. Reg. 38,250, 38,269 (July 23, 1996) (emphasis added)
[17] Detroit Edison Applicability Determination Detailed Analysis, at 5-6, n.1, Enclosure to Letter from Francis X. Lyons, EPA Regional Administrator, to Henry Nickel, Counsel for the Detroit Edison Company (May 23, 2000), at 12, n.9.

measures to mitigate or offset these harmful air pollution increases.[18]

> **Question 5:** Do you agree that the EPA cannot make the New Source Review program changes prescribed within the GAIN Act without Congressional action? If not, why not?

Response: I agree that EPA lacks authority under the current Clean Air Act to adopt the hourly emissions increase test in S.2662, or similar variations on it. The bill harmfully amends the Clean Air Act by repealing the law's longstanding regulation of "modifications" that result in significant increases in *actual* emissions of dangerous air pollution. It does so by substituting a severely weakened definition of 'emissions increase,' addressing sources' increase only above their worst possible pollution rate in the past ten years; then, the bill eliminates the longstanding statutory definition of "modification" that is concerned with significant increases in actual emissions of dangerous air pollution. See S.2662, sec. 2 ("For purposes of the preceding sentence, ….").

The bill also adopts a new extreme and irresponsible definition of air pollution "increase." A "change increases the amount of any air pollutant" only if a facility's worst possible pollution rate after a change, today, is higher than the facility's worst possible pollution rate in the past ten years:

> a change increases the amount of any air pollutant emitted by such source only if the maximum hourly emission rate of an air pollutant that is achievable by such source after the change is higher than the maximum hourly emission rate of such air pollutant that was achievable by such source during any hour in the 10-year period immediately preceding the change.

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[18] The first four purposes of the PSD provisions are (1) to protect public health and welfare from any potential adverse effect that EPA believes may reasonably be anticipated to result from air pollution notwithstanding attainment of the NAAQS; (2) to enhance air quality in areas of special natural, recreational, scenic, or historic value; (3) to ensure that economic growth will occur in a manner consistent with the preservation of existing air resources; and (4) to ensure that emissions from any source in any state do not interfere with any other state's plan for preventing significant deterioration of air quality. 42 U.S.C. § 7470(1)-(4). This language reveals that Congress enacted the NSR & PSD provisions out of concern for air quality in each state, in each air shed within each state, and in each "special" area within each air shed, and the welfare (climate) across the country

S.2662, sec. 2. Under the bill, a "change" at an industrial facility could increase its actual air pollution in the real world by two times, five times, ten times or more above what the facility was polluting before the change—and the bill would not consider this to be an "increase," if that additional air pollution did not exceed the facility's *worst possible* pollution rate in the past ten years. The bill is more extreme than allowing a source to increase dangerous air pollution all the way up to its *worst actual* polluting level in the past ten years; instead, the bill lets polluting facilities increase dangerous air pollution all the way up to its *worst possible* polluting level in the past ten years. The bill does so with the term, "maximum hourly emission rate of an air pollutant that is *achievable* by such source," rather than "achieved" by such source. *Id.* (emphasis added).

Lastly, sections 2, 3 and 4 in S.2662 are entitled "CLARIFICATION" in a patent and unsuccessful attempt to pretend that the loopholes and amnesty created in the bill are already allowed under the current Clean Air Act. This is demonstrably false, as a direct comparison between the text in S.2662 and the text in Clean Air Act sections 111(a)(4), 169(2)(C) and 171(4) plainly show. This pretense that amendments to the Clean Air Act need not be made in order to accomplish the goals of S.2662 represents an after-the-fact effort to bolster the Trump EPA's 2018 rulemaking proposal to roll back NSR safeguards for power plants.[19] The Trump EPA NSR proposal attempts to rewrite the Clean Air Act, similar to S.2662, but without the requisite congressional amendment to the Act. This "clarification" pretense in S.2662 seeks to bolster the lawfulness of the Trump NSR regulatory attack, to no avail.[20] Republican Senators co-sponsoring S.2662, and Republican House members co-sponsoring H.R. 1327 and 1328, the companion bills in the House, understand that sweeping, detailed amendments to

[19] *See* "Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program," 83 Fed. Reg. 44,746 (Aug. 31, 2018) (Hereinafter "Trump EPA NSR proposal").

[20] See generally, Joint Comments of Environmental and Public Health Organizations on the New Source Review Regulatory Changes Proposed With EPA's 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 (Oct. 31, 2018) (93-page comments, plus attachments, comprehensively demonstrating the unlawfulness of the August 31, 2018 EPA proposal), Docket No. EPA-HQ-OAR-2017-0355-24416

the Clean Air Act are necessary to weaken the statute as dramatically as these bills and the Trump EPA rulemaking proposal all would attempt.

As NRDC & partner comments on the Trump EPA NSR proposal note at length, the rulemaking proposal violates the plain language and structure of the Clean Air Act, and court decisions interpreting that language, which require that the NSR program trigger be based on actual emissions.[21] The Trump EPA NSR proposal is arbitrary, capricious, and an abuse of the Agency's discretion.[22] EPA failed to undertake a reasoned explanation, supported by substantial evidence, with consideration of reasonable alternatives, for all aspects of the proposed NSR changes.[23] Nonetheless, the proposal aims to reverse 40 years of Agency practice and regulation, and as such is arbitrary and capricious. As noted here and throughout my written testimony on S.2662, both the Trump EPA NSR proposal and this bill attempt to incapacitate the New Source Review program, rendering it meaningless as a practical matter. These irresponsible efforts to undermine the Clean Air Act and its goals would have devastating consequences on air quality and public health. Both should be withdrawn.

> **Question 6:** Do you have any additional comments or materials that you would like to provide in response to testimony or questions raised during the hearing? If so, please respond here.

Response: I do not have additional comments or materials, at this time. Thank you for the opportunity to testify.

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[21] *Id.* at 17-21; 32-71.
[22] *Id.* at 73-91.
[23] *Id.* at 71-91.

Senator BARRASSO. Thank you for your testimony.

I would like to enter into the record a letter of support for today's hearing, for this bipartisan bill, to point out that this was bipartisan, submitted from the House of Representatives, the New Source Review Permitting Act, H.R. 172, the House companion to the GAIN Act.

I would encourage others, in a bipartisan way, to support the legislation.

[The referenced information follows:]

Congress of the United States
Washington, DC 20515

November 6, 2019

The Honorable John Barrasso
Chairman
Senate Committee on Environment
and Public Works
United States Senate
Washington, DC 20510

The Honorable Tom Carper
Ranking Member
Senate Committee on Environment
and Public Works
United States Senate
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

Thank you for holding today's hearing on S. 2662, the Growing American Innovation Now (GAIN) Act, the Senate companion to H.R. 172, the New Source Review Permitting Improvement Act. We appreciate your attention to this important issue and applaud the Committee's consideration of this key piece of legislation.

As we have learned from industry and labor organizations alike, the Environmental Protection Agency's current New Source Review (NSR) program has resulted in complex regulations and court decisions that have stifled investment in pollution control, energy efficiency, safety, reliability and other modernization projects. As a result, many environmentally beneficial upgrades have been left on the table to the detriment of our economy, environment, and public health. This legislation aims to bring greater certainty to the regulatory process in order to encourage companies to properly maintain and upgrade their facilities, not dissuade them from doing so.

Building upon progress the House Energy and Commerce Committee made last Congress, when the New Source Review Permitting Improvement Act advanced at the subcommittee level, this hearing will provide the Committee on Environment and Public Works a valuable opportunity to review the current challenges posed by the NSR program and examine common-sense improvements that will bring greater certainty to the NSR permitting process.

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We appreciate your work to improve the NSR permitting program and look forward to working with you to advance this bill as it moves through the legislative process.

Sincerely,

H. MORGAN GRIFFITH
Member of Congress

COLLIN C. PETERSON
Member of Congress

Senator BARRASSO. Let's go to questioning at this time.

I would like to start with Mr. Holmstead.

To understand how badly we need reform, and you touched on some of those things in your opening statement, I think it would be helpful for all the Committee to know the types of projects that the current New Source Review program complicates or discourages, makes it harder. Could you walk us through some examples of projects at a power plant or a factory that the current program discourages?

Mr. HOLMSTEAD. Sure, yes. I would love to do that.

So if you look at all the NSR enforcement cases that groups like John Walke's has brought, here is what you see. There is a power plant that has a component, and these components are called, like an economizer, it is a part of the power plant, it starts to wear out. And so they replace that component. They essentially just do the same thing that you would do if you replaced the water pump in your car.

They are not increasing the output; they are not increasing the capacity. They are returning the plant to its original design, to its original operations.

There are hundreds of those projects. That is what the NSR program has done.

So if you operate a power plant, you have to have teams of engineers and lawyers to make sure that somehow, you don't run afoul of this program. That is what all these NSR enforcement cases are about, is simply letting plants—well, efficiency improvements is another issue. But for the most part, these enforcement actions are about allowing plants to replace components that are part of the way they were originally designed.

Senator BARRASSO. Mr. Alteri, the Trump administration is pursuing a number of reforms to the New Source Review program through updated regulations, guidance, memoranda, different things. In your testimony, you note that the Commonwealth of Kentucky has supported regulatory reforms to the program. As a State regulator, who has implemented the Clean Air Act?

You are an administrator who has actually implemented the Clean Air Act. Can you talk about why legislation is also necessary?

Mr. ALTERI. In Kentucky, we are prohibited from regulating by policy and guidance. So it is always critical for EPA to go through the regulatory rulemaking process.

Also, as a regulator, and a former regulation supervisor, when you have clear statutory authority, then you don't have the risk of wasted effort when you do promulgate the regulations, and you can always point back that you have clear statutory authority.

Senator BARRASSO. Mr. Holmstead, back to you. You have heard the other witnesses testify. I know you read the testimony previously, and you made some comments about that. Anything else you have heard from the other witnesses in terms of things you would like to add to your testimony this morning?

Mr. HOLMSTEAD. Again, I would love to wager, Mr. Walke, I would wager a year's salary that if you pass this bill, there is not going to be an increase in pollution from power plants. Just think

about it. Power plants operate to provide electricity to people who demand it.

If you pass this bill, is demand going to go up that is going to make power plants increase their hours of operation? No. And all those power plants have limits in their permits, or because of allowances, that keep their pollution down. So that claim about these massive pollution increases, again, it is based on some theoretical world that is nothing like the real world.

The other thing I wish I could say quickly is, he claims in his written testimony that there is no evidence that the NSR program discourages efficiency improvements. I would just suggest that when Gina McCarthy takes over NRDC that he have a conversation with her about this. Because she has acknowledged that that is an issue.

There are dozens and dozens of cases where power plants have made energy efficiency improvements, and they have been targeted by NSR enforcement actions. So Mr. Walke claims that there is no peer reviewed studies to prove that it discourages energy efficiency projects. But all you have to do is look out there and see all the plants that have been subject to enforcement when they do that.

And I just think that is problematic. That is not the way the law should work.

Senator BARRASSO. Mr. Alteri, back to you. Twenty years you have been with the Kentucky Department for Environmental Protection, you have implemented a lot of different Clean Air Act programs. Beyond the New Source Review program that we are looking at today, could you discuss any other EPA programs that Congress ought to modernize?

Mr. ALTERI. I am always cautious, because I am a huge fan of the Clean Air Act. It has been successful legislation. But I think you need to look at it really thoroughly.

I think the way we handle non-attainment areas, and basically we have a provision where we would withhold transportation dollars if you don't achieve attainment within a certain time period, well, that is counter-intuitive to improving air quality in areas like Cincinnati, Ohio, Los Angeles, where you need the infrastructure dollars to open up some corridors, Washington, DC. All the non-attainment areas in the northeast are up I–95.

So I think that is one area where you want to be thoughtful and not restrict people from transportation improvements.

Senator BARRASSO. Senator Carper.

Senator CARPER. Sometimes we have hearings like this, and on other committees, too, where there are smart people on very different sides of an issue, and I will ask them to help the Committee think through where a principle of compromise lies.

I would ask, Mr. Walke, where do you think a principle of compromise lies in this area? One that is respectful of human health, clean air, and doing better. Thanks.

Mr. WALKE. Sure. We should be encouraging true energy efficiency improvements that cause us to burn less fuel, save industries money, reduce carbon pollution, and reduce air pollution. That is true efficiency. There are improvements that could be made to New Source Review to improve all of those fronts.

What this bill does, however, is allow air pollution to increase, to allow fuel consumption to increase, to allow carbon pollution to increase, while avoiding the installation of modern air pollution controls. That is not a reasonable compromise.

It is something that the Bush EPA rejected under Mr. Holmstead. It is something that the Bush EPA Enforcement Office criticized heavily in materials that I submitted to this record, showing that plants across the country were illegally evading pollution controls and increasing pollution by thousands of tons.

That is not the right answer. If we want real energy efficiency improvements overall, carbon pollution should go down overall, air pollution should go down, and businesses and can and will become more efficient.

Senator CARPER. Mr. Holmstead, same question, please.

Mr. HOLMSTEAD. I am encouraged by what John says. If there is a way to define, the way he defined energy efficiency improvements, or efficiency improvements, if those things could be, if you could know that those things wouldn't trigger NSR, let's work out a real definition of energy efficiency improvement. I think that would be a big step in the right direction. I think that would be a great idea. And I appreciate the opportunity to have that conversation with Mr. Walke.

Senator CARPER. All right.

Are you from Kentucky?

Mr. ALTERI. I am, born and raised.

Senator CARPER. Kentucky was in the news last night. My sister lives there.

Mr. ALTERI. We beat Michigan State.

Senator CARPER. There you go.

[Laughter.]

Mr. ALTERI. So I think both of these gentlemen touched on it; if a boiler or an electric generating unit replaces a turbine, and it goes from an efficiency of 38 percent to 43 percent, that should be celebrated by everybody.

However, by increasing that efficiency, it is going to dispatch more often. Then that goes to the annual increase in emissions. However, you are still making less pollution per megawatt hour.

Considering that we are a coal State, and affordable electricity, reliable electricity, is a focus, I think it only makes sense to improve the efficiency at those existing coal fired generating units.

Senator CARPER. Mr. Walke, do you want to respond to that?

Mr. WALKE. Yes, I touched upon this in my opening statement. Pollution going down per megawatt doesn't help people who are breathing dirtier air, it doesn't help that asthmatic child. That is not an improvement to the system; that is a severe weakening of the rules. It is exactly the type of thing that New Source Review is supposed to guard against.

Mr. Holmstead said something very interesting in responding to his question from Senator Barrasso. He said that allowances keep pollution down in the power sector. Now, allowances may not be a term familiar to all the Senators, but it is a pollution credit. In English, it is the permission to pollute.

In a cap and trade program, you buy and sell allowances, you buy and sell permission to pollute. Allowances don't keep pollution

down from the plant that bought the allowance. Allowances allow that plant to increase pollution.

There was a plant in Texas last year that increased its emissions by over 20,000 tons, by 54 percent over the year before. Why? It had bought allowances. Pollution got worse around that Texas town and downwind from that plant by 20,000 tons. Allowances don't keep pollution down.

Mr. HOLMSTEAD. John, the NSR program didn't stop that, either. The NSR program doesn't stop plants from increasing their hours of operation. And you talked about allowances, there is a limit on the number of allowances. It is a limit on pollution.

Mr. WALKE. If plants modify, and this bill modifies the definition of modification, and they undertake——

Mr. HOLMSTEAD. But that facility you are talking about had no modification.

Senator BARRASSO. Senator Carper, you have the floor.

Senator CARPER. I actually welcome the conversation, and probably would welcome it in other forums as well.

One of the concerns that was raised about the legislation is that it doesn't address pollution from coal fired utilities, but also from thousands of other emitters.

Mr. Walke, would you speak to that just briefly, please?

Mr. WALKE. Yes, sir. The Trump EPA rollback would just allow power plants to increase pollution. But this bill would apply to every major industrial facility in the United States. There are thousands and thousands and thousands of them that this bill would grant permission to increase harmful air pollution. It is hazardous waste incinerators, oil refineries, chemical plants, cement plants, you name it.

So that is what informs my statement, the top of my oral statement, that this is the most harmful Clean Air bill that would worsen air pollution more than any I have seen before.

We don't need to be going backward. This is dangerous air pollution. We know that it is deadly. We know that it causes heart attacks and strokes and asthma attacks.

Senator CARPER. I am going to ask you to hold it right there. Thank you.

Just a yes or no, the point that Mr. Walke is trying to make is that this goes way, way, way beyond the number of utilities that we are especially concerned about to touch on thousands of other emitters. Do you think that might be an area of some agreement?

Mr. HOLMSTEAD. Look, I think if we could do something for power plants, and if that was a compromise that we could reach, that would be great. I am not—I support the idea that you would have the same approach for other plants, because I don't think they would increase their pollution. What we are talking about is hours of operation here; hours of operation is determined by demand for product that goes up and down.

I don't think there would be an increase in pollution. But in the spirit of trying to find a compromise, if we could do it at least for power plants, that would be a step in the right direction.

Senator CARPER. All right, thank you both. Thank you all very much.

Senator BARRASSO. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman. Let me help Senator Carper out with his statistics. We have looked, and you have appeared before this Committee seven times, just during the years that I chaired the Committee. So maybe you weren't too far off. You are experienced here.

Let me just mention that, first of all, I thank the Chairman for hosting this hearing on the GAIN Act, important legislation we need to streamline regulatory overreach.

Now, regulatory overreach goes far beyond just the subject that we are talking about today. In fact, the fact that we have arguably the best economy that we have had in maybe even in my lifetime, two things precipitated that. One was that we lowered—the reduction, but also regulatory relief.

So this is something that we are very sensitive to. I can remember during the 4 years that you had the Office of Air and Radiation, we addressed this.

Let me ask you, Mr. Holmstead, we haven't really talked about job creation, which is one of the things that is supposed to be accomplished with the New Source Review. So respond to that, and then also how the GAIN Act reforms help job growth.

Mr. HOLMSTEAD. I think the best indication that this would be good for jobs comes from support from the labor unions. You mentioned, I think, that there were seven labor unions, and it is mostly the building trades that are supportive of this, because they do see the projects that they would be working on that companies don't do because of NSR. And so I think that in and of itself is pretty good evidence.

I think it is very hard to come up with numbers. But because you would reduce the threat of NSR, I think you would certainly unleash a lot of economic activity, making plants more efficient.

Senator INHOFE. Mr. Alteri, I came over to introduce myself to you so I could pronounce your name correctly, and I still haven't done it.

[Laughter.]

Senator INHOFE. But anyway, as you know, the States are the primary regulator of the New Source Review program. Your testimony highlighted that since 2008, Kentucky has issued more than 25 New Source Review permits.

But during that time, it appears you have also seen the program used by activists to delay important projects that would improve both environmental quality and modernization of facilities.

Mr. Alteri, would you agree that it is possible to protect air quality while also streamlining the NSR permitting? And would you agree that the GAIN Act balances those interests?

Mr. ALTERI. I think it does. But I think during this conversation, it has raised issues relative to who else it would affect. But I think if you have an opportunity to improve energy efficiency at existing coal fired units, I think you do have the opportunity to reduce pollution without triggering NSR and costly litigation.

Senator INHOFE. That is good.

Thank you, Mr. Chairman.

Mr. Chairman, I might also add, we are passing around something that can be signed by some of the members for an American

hero that Senator Carper had called to our attention. I will help pass that around.

Senator CARPER. Thank you.

Senator BARRASSO. Thanks, Senator Inhofe.

Senator Gillibrand.

Senator GILLIBRAND. Welcome.

The Trump administration's EPA has focused on repealing and replacing Clean Air laws with weaker standards. These rollbacks mean more, not less, air pollution falling upon communities throughout New York and the Adirondacks from coal fired power plants in the Midwest.

New York's 6 million acre Adirondack Park, its waters, forests, and communities have suffered the worst acid rain damage in the United States, including the chemical sterilization of hundreds of high elevation lakes and ponds.

A review of national emissions data provided by the USEPA and compiled by the Adirondack Council shows that between 2017 and 2018, emissions of sulfur dioxide increased by more than a thousand tons at each of the 16 coal fired power plants in 9 States whose emissions create acid rain and smog in New York.

First, Mr. Walke, what types of impacts would the GAIN Act have on air pollution levels in downwind States like New York?

Mr. WALKE. Thank you, Senator. As I testified, this bill would allow very significant air pollution increases. We know that the pollution is carried by wind to downwind States. The Trump administration has denied a pleading request from New York to protect the air quality in New York from upwind power plants.

My testimony has at the back maps of the really shocking, stunning number of coal fired power plants in this country today that still lack modern air pollution controls like scrubbers and those for smog. Those plants have been grandfathered, in many cases since the 1940s and 1950s. And it is in their economic interest to run longer and harder to increase air pollution and to continue to evade controls. That hurts downwind States like New York and Delaware and Maryland. It hurts the Adirondacks.

This bill would make air pollution worse, not better.

Senator GILLIBRAND. If enacted, will residents of New York have to worry about more frequent acid rain events in their communities?

Mr. WALKE. Yes, and the reason is that this bill increases long term annual air pollution levels of nitrogen oxides and sulfur dioxide, which contribute to and cause acid rain, as well as a number of chronic health problems from long term exposure to these pollutants, including cardiovascular and respiratory problems, and even premature death.

Senator GILLIBRAND. I would like to issue a standing invitation to my Republican colleagues on this Committee to spend some time with me in the Adirondacks, so you can see why these impacts would be horrible for that reason.

Mr. Walke, as you know, ground level ozone forms on hot, sunny days when pollution from cars, power plants, consumer products, and other sources react with sunlight.

Ozone is most likely to reach harmful levels in urban areas on hot, sunny days, and has known health effects. People most at risk

from breathing air containing ozone include people with asthma, children, older Americans, and people who are active outdoors, especially outdoor workers.

What effect does increased pollution from power plants have on ozone formation and other air quality problems in States that are downwind of the emitting source?

Mr. WALKE. Coal fired power plants are one of the largest sources in the United States of a smog forming pollutant called nitrogen oxides, which in addition to contributing to acid rain, causes respiratory problems and even premature deaths, we know from the latest literature on ozone.

We know that the downwind States are suffering from air pollution that they cannot control from big power plants in the Midwest and upwind in the southeast as well.

Another dirty little secret of the Clean Air Act, I am afraid, is that even plants that are equipped with these controls are allowed to turn them off after they are charging customers for these controls that they are allowed not to operate, including on summer days when there are very high ozone levels that hurt New Yorkers.

Senator GILLIBRAND. Can you expand on the public health implications for people in States like New York?

Mr. WALKE. Yes. Again, we know that some of these types of air pollution, fine particle pollution in particular, are unsafe at any level. So that even in areas that are nominally meeting these standards, people are dying, people are suffering heart attacks and strokes. Parts of New York have some of the highest asthma rates of anywhere in the country, which affects children in particular.

Then of course, we have a lot of very toxic pollutants like mercury and lead that come from these power plants that are landing in waterways. It is a full suite of health problems that Americans are still suffering, especially from these large, uncontrolled and poorly controlled coal plants.

Senator GILLIBRAND. Thank you, Mr. Chairman.

Senator BARRASSO. Thank you so very much.

Senator Braun.

Senator BRAUN. Thank you, Mr. Chair.

No. 1, I think the discussion we are having is pertinent in the sense that next to the cost of health care needing to be fixed in an industry that is digging in and fighting almost everything we are doing to try to help them fix themselves, I see a pattern of proactivity and interest among the industry.

I think this is a point that can be confusing the most, in the sense of, if you become more efficient, isn't it close to a zero sum game in the sense that in this one plant, if you are more efficient—and this is directed at Mr. Holmstead first, then I would like Mr. Walke's response.

Wouldn't you be at least holding your own in terms of emissions? Because demand has been relatively flat, given how fast the economy has grown for electricity anyway.

So I know that if you would run it more, that particular plant would be emitting more. But if you are running less efficient plants less, isn't it close to a zero sum game when it comes to emissions?

Mr. HOLMSTEAD. Thank you for making that point. As you say, the amount, the number of hours these plants run depends on the

demand for electricity, which has been very flat. So if one plant becomes more efficient and runs more hours, that means that another plant is going to run fewer hours. You would have to look at the emission rate of each plant to see. But in general, you would expect an overall reduction as you start to shift generation to more efficient plants.

Senator BRAUN. Mr. Walke.

Mr. WALKE. Senator Braun, that could be an area of reasonable compromise. If a plant is going to keep its production flat, there are mechanisms in the law where it can agree to do so, and it won't increase dangerous air pollution. That is a reasonable outcome.

If it doesn't increase dangerous air pollution, it won't require pollution controls, so it can become more efficient, as you posited. But it can also fail to increase dangerous pollution.

Unfortunately, that is not what this bill does. So if there was interest on your part in changing the approach in the bill to make clear that plants can become more efficient and not increase dangerous air pollution by agreeing to limits to the demand that you acknowledge has been flat, that is a very sensible outcome.

Senator BRAUN. I think that might occur somewhat naturally, even without a provision. Because I don't see utilities producing more than what the demand is. That has been relatively flat. So maybe that is something that would be a pleasant outcome without needing a requirement.

Next question. Regardless of what we do here, and anything impacting climate in the U.S., what do you see, and any of the panelists, feel free to jump in, what impact does this have on the world in terms of our impact and percentage, if India and China keep on the trajectory they are on?

So if we do things that cost a lot in the present, which is the biggest variable in any financial analysis, what you spend today, anything that you accrue in terms of benefits is somewhat of an estimate.

What is the best kind of number out there of how this impacts what happens around the world? Because we breathe an atmosphere that diffuses across the world.

Mr. ALTERI. In Kentucky, we are a manufacturing State. So if you drive up electric prices artificially, or through these regulations, then you would end up shifting that demand, that manufacturing to countries that do not have the environmental laws that we have. We have had significant emission reductions. I think you would lose that gain if you end up shifting jobs to even Mexico.

Mr. WALKE. Senator, I would make two points. In the mid-1970s, the United States was a world leader in removing lead from gasoline. That saved a tremendous number of lives and avoided misery in this country.

That U.S. leadership spread to countries around the globe. And now we don't have lead in gasoline in most countries in the world. That is the type of American leadership that we need to confront the climate crisis.

You are correct, if India and China do not reduce their emissions, then we are in big trouble. But America needs to get its house in order first, and address the problems that we have control over, and to negotiate and to work with other countries. That is what the

Paris Climate Accord was trying to do, and we know that this Administration has stepped away from that.

I support your call for American leadership and exporting American ingenuity to countries around the world.

Senator BRAUN. Very good. I do want to announce that I am the first Republican to join the bipartisan Climate Caucus. We now have three or four others as well. I think this encapsulizes really in a good fashion the discussion.

I believe if we are not having it, we have seen a little bit of commonality in terms of even the NSR and other discussion of how this is a global issue as well. I believe that it is going to be the driving issue over the next couple of decades. So I am glad to see folks of different points of view still seem to be zeroing in on the same outcome.

Thank you.

Senator BARRASSO. Thank you, Senator Braun.

Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman.

Thank all of you for your testimony today.

Senator Cardin and I are both from the State of Maryland. Maryland is a downwind State. We suffer from some of the same issues you heard from Senator Gillibrand.

In fact, in November 2016, Maryland filed a petition concerning air pollution generated by 36 power plants located in Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia. The point of that petition was that that pollution coming from those States was making it harder for Maryland to meet its air quality goals, and causing more health risks in the State of Maryland.

So we filed a petition with the EPA in September of last year. EPA denied Maryland's good neighbor petition. That has been appealed by our attorney general. So this conversation is important to Maryland, like other States as well.

Mr. Walke, I am trying to understand one thing. I understand that the NSR only applies to existing sources if a facility wants to make changes that will significantly increase its aggregate annual pollution. Is that right?

Mr. WALKE. Correct.

Senator VAN HOLLEN. So maybe I misunderstood you, Mr. Holmstead. I thought I heard you say that you would bet Mr. Walke that these changes would not increase the annual emissions at a plant that took advantage of the changes you are proposing. Did I misunderstand you?

Mr. HOLMSTEAD. What I said is, power plant emissions in the United States would not increase. Total power plant emissions would continue to decrease. At an individual power plant, emissions increase and decrease all the time, every year they increase and decrease.

Senator VAN HOLLEN. Right.

But the law here only triggers if there is a—let me just make sure I understand. As I understand it, this law only applies if air pollution generated at the particular plant in question will increase. Isn't that true, just yes or no? Is that true?

Mr. HOLMSTEAD. No.

Senator VAN HOLLEN. It is not true?

Mr. HOLMSTEAD. It is more complicated.

Senator VAN HOLLEN. Mr. Walke, could you——

Mr. HOLMSTEAD. If you would let me answer.

Senator VAN HOLLEN. I only have a certain amount of time. You said no; I want to hear what Mr. Walke has to say.

Mr. WALKE. The answer is absolutely yes, absolutely yes.

Mr. HOLMSTEAD. How many cases are there were there has been an NSR enforcement action against a plant that has reduced its emissions?

Senator BARRASSO. Senator Van Hollen——

Senator VAN HOLLEN. Mr. Walke——

[Simultaneous conversations.]

Senator BARRASSO. We will have a second round.

Senator VAN HOLLEN. Mr. Walke, could you explain your answer to that question?

Mr. WALKE. Yes, the law says exactly what you said, Senator Van Hollen, only if a change in a facility increases emissions significantly in tons per year from that plant.

What Jeff's answer reveals is that on balance across the entire United States, the power sector's pollution will go down. That is no consolation to someone living next to a plant that has its pollution increase by 10,000 tons per year.

Senator VAN HOLLEN. And it is no consolation, frankly, to Maryland, if the plants in question are the plants that are causing pollution to drift to Maryland and impact air quality in Maryland.

Mr. WALKE. That is correct.

Senator VAN HOLLEN. That is what I thought, which is why I thought the bet was a little strange; you are just betting that overall pollution from power plants will go down in the United States. There are lots of reasons for that. But the whole purpose of this law is directed at the particular power plant.

And as I understood Mr. Walke, if you want to do a deal with him where you can guarantee in advance that another power plant may be owned by the same company is going to reduce its air pollution by more than compensated, maybe that is a discussion we should have.

But let me just, I understood you earlier, Mr. Walke, to point out that, trying to frame this bill as a clarification of existing law obviously flies in the face of the facts, right? If EPA thought—this current EPA, the Trump administration EPA, thought that this was compliant with the law, wouldn't they have included this in their most recent revisions to the Obama Power Plant Rule?

Mr. WALKE. Yes, sir. They clearly failed to finalize that rule because they were getting advice from lawyers at EPA and the Justice Department that it was severely problematic.

The first half of this bill essentially kind of replicates what the Trump EPA is doing, and has just sentence after sentence after sentence that Congress is adding to the law to make clear that you can only change the law by amending the law.

The second half of this bill is frankly so extreme by allowing unlimited pollution increases in the name of reliability that not even the Trump administration was audacious enough to claim that that was allowed under current law.

Yet this bill calls that too a clarification of the law. Frankly, it doesn't pass the red face test.

Senator VAN HOLLEN. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Van Hollen.

Senator Capito.

Senator CAPITO. Thank you, Mr. Chairman, thank all of you for being here.

Mr. Holmstead, I am going to give you a chance to respond, because I understand it is more complicated. But I want to say a few things before I turn the floor over to you.

First of all, I am a cosponsor of the GAIN Act. I think because we have a bipartisan—we have several bipartisan pieces of legislation here that are incenting carbon capture and utilization with the dual purposes of preserving economy and also cleaning the environment at the same time.

I was going to ask you to respond to what Mr. Walke said. But the way I understand this is, if you add on and make a significant investment with the goal of reducing your emissions, and you are more efficient, that it would stand to reason that you would be more economical, and so your plant would be running more, more time, putting out more production. Therefore, maybe your per unit emission is less, but your overall emission may be more, because you are running more efficiently.

Wouldn't we rather have, since we are, like the Senator from Indiana said, you are only going to go to a certain demand, wouldn't we rather have the more efficient, cleaner plants going than having the less efficient plants keeping their steady production numbers, but adding to the emission count at the same time?

Am I understanding that right, and if you could——

Mr. HOLMSTEAD. No, no, absolutely. You have explained it better perhaps than I did, and that is yes, a more efficient plant would likely run more hours. But that would mean that other, less efficient plants run fewer hours. And so on an overall basis, you would expect pollution to decrease.

Now, as I stated before, plants increase and decrease their annual emissions all the time, based on demand, based on whether other plants in the area are out of service. And the NSR program doesn't stop that. But we have all kinds of other laws in place to make sure that those variations we see on a year to year basis don't adversely affect public health.

Senator CAPITO. OK. Another question I have, in your testimony, and this is conflicting, I think, information that we have heard in the testimony. You say emission reductions have dramatically improved the quality of the air that we breathe. Nobody is pro-pollution. Let's take that off the table. But according to the EPA's Air Trends Report, since 1990, national concentrations of air pollutants have improved 89 percent for SO_X, 80 percent for lead, 74 percent for CO_2, and 57 for NO_X and 21 percent for ozone.

So we are trending down. Is that a correct interpretation of what your testimony is?

Mr. HOLMSTEAD. Yes, no, absolutely. Air quality improvements over the last 30 years have been pretty dramatic throughout the

country. It has been really a remarkable achievement that is attributable to the Clean Air Act.

Senator CAPITO. Well, as for one of those States that the Senator from Maryland is, I guess he is downwind from West Virginia, and he is lucky to be there.

[Laughter.]

Senator CAPITO. But this is an argument, obviously, also being from a coal producing State.

So in order to get to that goal of keeping our coal miners working at least efficiently to get to that CCU goal, we have got to keep moving forward, I think, with encouraging the investments that are going to keep it, make it more efficient, No. 1, well, maybe not No. 1, they are tied. More efficient and more environmentally correct, and improving that and lowering the emissions. So that to me is the whole point of the GAIN Act.

I want to ask Mr. Alteri, from Kentucky, you highlight the fact that Kentucky was repeatedly sued regarding permits touched off by the NSR program over the past decade. Do you feel that uncertainty about the convoluted way that the NSR regulations and guidance are drafted is contributing to these lawsuits?

Mr. ALTERI. I think implementation of the rules and I think it has been highlighted. So if you were to replace a turbine and then you run the unit more, then you are going to increase more than 40 tons per year, and that would trigger NSR. And it is that improvement in energy efficiency of the turbines that has been the subject of the litigation between these two.

Senator CAPITO. But at the same time, while you are improving the efficiency of the turbine, I am going to assume that you are cutting emissions at the same time.

Mr. ALTERI. Per megawatt hour, yes, ma'am.

Senator CAPITO. Yes, all right.

Thank you, Mr. Chair.

Senator BARRASSO. Thank you.

Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman.

I also appreciate all the panelists and this hearing.

Senator Capito, our constituents breathe exactly the same air, our border is so intertwined. Sometimes I don't know whether I am in West Virginia or Maryland. So we share a similar goal.

I was intrigued by Senator Braun's questioning on trying to reach some agreement here. I think the confusion, as I understand it, is that yes, you can make an individual power plant more efficient as far as its production and pollution. But if the total mix in the region is increasing because that plant is not doing what it should be doing, the overall impact is dirtier air. That is how I understand the dilemma we are in.

So perhaps we have something going on an individual plan if it doesn't increase its capacity but reduces its emissions, that may be an area where we could reach some type of an accord, if I understand what Mr. Walke is saying.

I want to follow up, though, on the point that Senator Van Hollen made. That is, we are a downwind State, Maryland, there is no question about it. The Clean Air Act gives us the opportunity to challenge when there is pollution coming from a different State, it

affects our ability to comply with the National Ambient Air Quality Standards.

So my concern, and I want to get, Mr. Walke, your view on this, is that this legislation would make it more difficult for Maryland to challenge another State's activities in regard to Maryland's meeting our air quality standards. Is that a concern I should have?

Mr. WALKE. You should, because that is completely correct. This bill would authorize those pollution increases, and say they are just fine to occur under the law. Maryland is helpless to control that increased air pollution that is occurring in Indiana or another upwind State.

So the burden that falls on Maryland is to crack down on pollution sources inside Maryland's borders that are not responsible for the problem.

Maryland has turned to the EPA to plead for help, and they have consistently denied those requests. Now we have two court decisions just within the past 2 months that have struck down the Trump administration's approach to failing to protect downwind States. They have denied Maryland's petition based upon one of those faulty legal defenses that the courts have said is insufficient.

So we need leadership that will protect downwind States, because the current EPA is not doing so. The Trump EPA rollback will make things much worse, and this bill would as well.

Senator CARDIN. I appreciate that answer. We do have our challenges, there is no question, with the regulatory activities of the EPA. Giving legal justification to some of this through this bill will make it, as you say, more challenging.

I want to get to a statement that you made that really has me concerned. I looked at your map, I looked at all the coal burning plants. I saw how they are surrounding my State. Then you said many still don't have the scrubbers and the modern technology to make them as efficient as possible. You said that this legislation may even make it more challenging for those types of improvements to be made.

Can you just elaborate as to why you believe we haven't made more progress in cleaning up those plants?

Mr. WALKE. Sure. When Congress adopted this New Source Review program in 1977, older plants before that date were grandfathered. And they were only required to install modern pollution controls when they undertook modifications. That is the subject of this bill.

Not new plants; there is agreement that new plants have to install controls, and I think some of the challenges that Sean may have been facing were from challenges at new plants. That is not what this bill is about.

So what this bill does is say to those grandfathered power plants that still lack controls after being built in the 1930s, 1940s, 1950s, and 1960s, that you can continue to run forever without installing modern pollution controls. You can overhaul your facility and extend its life by 20, 30, 40 years without ever installing controls. That to me is just indefensible in America in 2019.

Then the bill extends it to every industrial facility in the United States. So again, it is going to make air quality worse and air pollution problems worse, not just in downwind States, but in the

States where these grandfathered plants are continuing to operate uncontrolled.

Senator CARDIN. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you.

Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman, very much.

The Clean Air Act has been cleaning up America's air since 1970, and we have cut down on dangerous toxins like lead and mercury and particulates in the air, improving the health of millions of people across the Nation.

The Clean Air Act's New Source Review program is key to improving our air quality standards. Any attempts to weaken the New Source Review pose a major threat to public health, but would be a big win for dirty coal and energy facilities that want to be able to put as much pollution into the air as they want.

Mr. Walke, does the New Source Review program successfully help to control emissions increases that threaten the health of communities around sources like power plants?

Mr. WALKE. It does. I want to make a point that the role of the New Source Review plays in the Clean Air Act is to serve as a sensible constraint on runaway pollution increases. If we can't agree that industry should not be able to increase air pollution wildly, then that is a problem.

So New Source Review, I think of it like an iceberg. Seven-eighths of an iceberg is below the surface. Seven-eighths of the benefits of New Source Review are preventing runaway pollution increases. That is what this bill is trying to attack.

Senator MARKEY. I agree with you. Unfortunately, the Growing American Innovation Now Act, the GAIN Act, would allow facilities to emit more dangerous pollutants and toxins, carbon monoxide, sulfur dioxide, even mercury and arsenic.

Mr. Walke, is it true that under the GAIN Act, a facility could essentially have an unlimited license to pollute?

Mr. WALKE. It is, under this bill. Mr. Holmstead is correct that there may be constraints on unlimited emissions increases in some cases. But there is nothing in this bill that limits air pollution at all, not even a comma.

Senator MARKEY. So I was trying to think of an analogy. Say you smoke one cigarette per day. So you smoke 365 cigarettes a year. And your doctor says, well, that is OK, one a day. Cigarettes are bad, but keep it to one a day, your health might be OK.

But you are physically capable of smoking 10 cigarettes an hour. Under the GAIN Act rules, applied to cigarettes, you would be able to smoke 10 cigarettes an hour, 365 days a year, 87,600 cigarettes in 1 year.

Mr. WALKE. That is correct.

Senator MARKEY. Not 365, but 87,600 cigarettes, before your doctor would be able to tell you to stop, the doctor here being the EPA. So if you can smoke 87,600 cigarettes a year, it is probably going to hurt your health.

Mr. WALKE. That is right.

Senator MARKEY. It is probably going to hurt your lungs.

Mr. HOLMSTEAD. I will agree with that one.

Senator MARKEY. Thank you, Jeff. And that is really what the problem is, that it just opens up this huge loophole. Unfortunately, smokers need some limits, because we know that it causes cancer. And the children of America, who could contract asthma; pregnant women, they need protections as well. So this just blows open all the protections.

The analogy with cigarettes is something that, from my perspective, is just so easy to understand, that instead it is just going to be going out of smokestacks into the lungs of people all across our country. And the bill would authorize that massive pollution increase.

We need a cleaner air future, not to go back in time. Four out of 10 Americans are living with unhealthy air right now. Minority and low income communities are disproportionately affected by air pollution. African Americans have a 54 percent higher health burden in areas affected by air emissions, like soot. The Trump administration's EPA has been hard at work trying to dismantle air quality protections across the board.

Mr. Walke, again, do you agree that the GAIN Act would mean that both new and old facilities, coal plants and other power plants, could emit more life threatening pollution?

Mr. WALKE. Absolutely. As Senator Van Hollen led Mr. Holmstead to acknowledge, individual power plants, individual facilities that number in the thousands across the United States would be allowed to increase pollution under this bill.

Senator MARKEY. So let me ask you one quick question, Mr. Walke. Massachusetts doesn't have any remaining coal plants operating. You testified to the downwind impacts of the GAIN Act in New York in response to Senator Gillibrand. Can you tell me what the impact of the GAIN Act would be on the air quality of residents of the Commonwealth of Massachusetts?

Mr. WALKE. Senator, if anything, it would be worse. New England, Maine, Massachusetts, are often referred to as the end of the tailpipe in the United States. So the wind patterns are carrying dangerous coal plant pollution from the southeast and the Midwest directly into the Commonwealth's back yard.

Senator MARKEY. Right. So if we weaken the Clean Air Act with legislation like the GAIN Act, existing facilities in every State could use loopholes to spew out 20,000 tons per year of nitric oxides, 200 times what is allowed for new facilities, and that pollution would be allowed in Massachusetts and would travel downwind to the Commonwealth of Massachusetts from other places, just blowing the smoke, blowing the smoke like a father smoking a cigar in the front seat, and it is just blowing to the three kids sitting in the back seat, but the father is going, Hey, I am not responsible for the impact on kids, in the car with the windows up.

Well, that is what happens with the wind blowing toward the East Coast, toward Massachusetts and other States. We are the ones that have to inhale this dangerous and unnecessarily permissive new law that is being proposed.

So I thank you, Mr. Chairman, thank you for the opportunity to be able to question the witnesses.

Senator BARRASSO. Thank you very much.

Senator Cramer.

Senator CRAMER. Thank you, Mr. Chair, and thanks to all of you for being here today.

I would ask your forgiveness for my tardiness. I preside over the Senate Wednesday mornings. I thought it seemed like a good idea when I picked that time. Unfortunately, I miss the first hour of some really good hearings. But thank you all for being here.

Absent that first hour, I am just going to throw a couple things out, maybe, to facilitate some discussion, if that is OK.

I think some of you know, maybe all of you know that I was a regulator for 10 years in North Dakota on the Public Service Commission where we had very broad as well as very deep regulatory authority over lots of things, not just economics, but environmental and siting and all of that.

One of the challenges, one of my frustrations with NSR has always been what seems to me to be a perverse incentive, away from innovation that would actually be applied, especially to existing facilities, in the form of modifications that would actually be cleaner, but the incentive is to not do it, as per the NSR. I am sure you have discussed some of that.

But let me just throw it out, along with that frustration. There has to be some bipartisan, wide ranging solutions that don't perversely incent the wrong activity. Assuming, and I think we can, that we all support cleaner energy development, and lowering of emissions, particularly pollutants of all types.

Do any of you or all of you have just an idea for us, whether it is the GAIN Act, and I support the GAIN Act; in fact I will be a cosponsor of it, to try and bring clearer definition to terms? But is there something we can be doing together that Senator Carper and I can agree on? Because we tend to agree more often than people might think.

What is the middle ground? What are some of your thoughts that anybody could share with us as to how we might be able to get to the goal that we all share? Is that fair?

Mr. ALTERI. Senator, in my testimony, I offered to narrow the scope even further to just existing coal fired generating units. That is a known universe; it is not going to grow. If they were to add a new unit at that existing plant, it would go through NSR.

And then do not ignore how beneficial the Cross-State Air Pollution Rule is. We are talking ancient history when we are talking about tailpipes and downwind States and this thing. Mobile sources are your problem, marine vessels are your problem in the northeast.

Kentucky, I don't know that air quality phenomenon that allows emissions from Kentucky to leap over West Virginia and then fall down in one concentrated are in Hartford, Maryland. I just don't know how that works. I really think that marine vessels, mobile sources, peak demand generators that are operated on high ozone days, those are the focus, and maybe we should focus in that arena.

But as far as narrowing the scope of this legislation, you can do it with existing sources. But do not ignore the great benefits. The Cross-State Air Pollution Rule, we talked about allowing areas that are more concentrated in pollutants.

Well, the 2017 update narrowed that to States. Those allowances are narrowed to the State. So Kentucky cannot emit more by buy-

ing allowances from Georgia or Indiana or somewhere else. That is old, ancient history.

Senator CRAMER. Mr. Holmstead, I know you are very familiar with Petra Nova, I think you referenced it in your testimony as well. That is one that we are fairly familiar with up in North Dakota as well. Is there a way to do this that we all——

Mr. HOLMSTEAD. So you raise an interesting point, that if we really do want coal fired power plants to install carbon capture and sequestration, coming up with some way to help them do that without having these regulatory hurdles, burdens like NSR, I think would be a good thing. And maybe that is an area where we could come up with some sort of an increase, because everybody, I believe, supports that kind of an approach. I know from the Petra Nova experience that NSR was a huge impediment.

The other thing I would offer, and we talked a little bit about this before you were able to get here, is defining energy efficiency improvements in a way that everybody would be comfortable with.

Boy, I just don't know why you would want to have this regulatory hurdle for people who want to improve the efficiency of their facilities. Sean mentioned an issue that has come up in a number of cases, that is, you can now buy more efficient turbine blades for coal fired power plants. But if you do, you trigger NSR.

Senator CRAMER. Yes.

Mr. HOLMSTEAD. So the cost and the expense of triggering NSR, no one wants to go through that, and as a result, you have people passing up these energy efficiency opportunities.

Senator CRAMER. I know my time is running out, but I would feel incomplete if I didn't hear from you, John.

Mr. WALKE. Thank you, Senator Cramer. That is very kind of you.

Senator, I don't have a specific idea, but I think most Americans think that there is a pretty simple, common sense question that should be answered: Will any reform let plants pollute more after the reform than they did before? And if the answer to that is yes, then maybe we should look for other solutions.

We are in agreement that greater efficiency is a good thing, less pollution, less carbon pollution is a good thing. But I think we need to look elsewhere for solutions, since the answers at this hearing are so clear today that this bill will let plants pollute more. So maybe that is just not the solution that we need to try to find a compromise around.

Senator CRAMER. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you very much.

Senator Carper.

Senator CARPER. I thank you.

Before my colleague is going to have to leave, I circulated earlier today a card to send to an Army Ranger who was almost killed in Afghanistan 2 months ago today. If you would have a minute to sign that before you go, that would be great. Thank you.

Mr. Chairman, as I mentioned to you, I have three unanimous consent requests to make here. I will just do it right now, if I may.

I would like to submit for the record data from this Administration that shows air pollution, including carbon pollution and energy consumption, in our country are increasing, not decreasing.

Senator BARRASSO. Without objection.

[The referenced information follows:]

Harvard Law School Environmental & Energy Law Program
October 29, 2018

Memorandum on EPA's Proposed Changes to New Source Review in ACE

INTRODUCTION AND OVERVIEW

The Trump administration's Affordable Clean Energy (ACE) Rule proposal to replace the Clean Power Plan (CPP) includes an amendment to the Clean Air Act (CAA) New Source Review (NSR) program that would significantly curtail the applicability of NSR permitting to power plants. In doing so it would weaken a program that the EPA and states have long relied on to ensure that when a new investment is made in a facility any emissions increases that may result are minimized.

Current NSR

Three steps currently determine when a project at a power plant, also called an Electric Generating Unit (EGU), is a "major modification" (triggering certain permitting and control requirements under current NSR regulations):

- Step 1: Is there a physical change or change in the method of operation?
- Step 2: Does the change result in a significant emissions increase? This is determined using the actual-to-projected-actual *annual* emissions test.
- Step 3: Will the change result in a significant *net* emissions increase?

Proposed Change to NSR

EPA's new proposal erects an hourly test between steps 1 and 2 as a gatekeeper or off-ramp in the NSR process before moving on to the existing annual emissions test for whether an emissions increase is "significant." If the change is not projected to increase hourly emissions, then it would not be subject to the major NSR permitting process. The revised steps for determining when a project at a source is a "major modification" subject to the major source NSR permitting process would be as follows:

- Step 1: Does the project cause a physical change or change in the method of operation?
- Step 2 [PROPOSED]: Does it result in an emissions increased based on an *hourly* (as opposed to total annual) emissions increase test? The Proposed Rule outlines three possible alternatives for this test:
    - Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis.
    - Alternative 2—Maximum achieved hourly emissions; one-in-5-year baseline; input basis.
    - Alternative 3—Maximum achievable hourly emissions; input basis.
- Step 3: Does the change result in a significant emissions increase as determined using the actual-to-projected-actual emissions test in the current NSR rules (the *annual* test)?
- Step 4: Will the change result in a significant *net* emissions increase?

Under the ACE proposal, the inquiry ends at Step 2 if there is not an increase in hourly emissions, even if annual emissions are projected to increase.

EPA's Rationale: Alleviating "Burden" without Accounting for Pollution Increases

The proposal states that its aim is to reduce the putative "burden" on plant operators, but pays only fleeting attention, at best, to the burden on local and regional air quality imposed by under-controlled emissions. In fact, the proposal acknowledges that as many as 80 percent of coal fired power plants currently operate with sub-optimal NOx and SO2 controls, below what would be required if they underwent NSR permitting. The proposal offers only a brief explanation as to why maintaining this level of emissions under-control is acceptable – notwithstanding the implied expectation that new investment in coal plants will increase their usage and extend their lives.

Specifically, the stated purpose of the proposal is to allow more power plants to make changes, like the heat rate improvement (HRI) projects contemplated by ACE, without having to also upgrade to modern standard emissions control equipment that would minimize increases in other pollutants like oxides of nitrogen and sulfur dioxide, which result in increased concentrations of ozone smog and fine particles in local and regional airsheds.

EPA observes that the projects envisioned under the ACE proposal would cause significant enough emissions increases to trigger the addition of modern pollution controls under the NSR program, or at least a permitting process to determine what, if any, additional controls are needed. Yet, its response is to weaken the trigger for the addition of such controls, allowing older coal-fired power plants to potentially extend their life and utilization without the added cost burden of modern pollution controls.

EPA acknowledges that this creates a more lenient NSR regime than current law but argues that alleviating the burden of New Source Review is critical to facilitating sources' adoption of the "candidate technologies" that states choose to adopt to improve plant heat rates as a result of ACE. Importantly, the proposal does not currently limit the revised NSR determination process to EGUs required to adopt a "candidate technology" as a result of ACE. However, EPA does state that it "is soliciting comment on whether to confine the applicability of the hourly test to a smaller subset of the power sector". 83 Fed. Reg. 44781. Should the final rule remain as written, it would apply the more lenient gatekeeping test to all modifications at all EGUs—potentially allowing operators to make significant life-extending upgrades to electric generating units while avoiding the costly addition of modern control technologies for pollutants like NO_x and SO_2.

Including the proposal as part of ACE all but explicitly concedes that the HRI measures expected as a result of the proposal will increase annual emissions. Without this "relief" from NSR, the plants installing "candidate technologies" would then need to install additional pollution controls for other pollutants like NO_x and SO_2, raising the overall compliance costs of the ACE program or dissuading utilities and states from adopting HRI measures.

Regulated businesses and prior Republican administrations have long sought an hourly rather than annual emissions test for determining when NSR permitting is required for plants that undertake modifications. Versions of the hourly test and other exclusions of power plant modifications from NSR pollution controls were proposed multiple times during the Bush administration. The current proposal reprises various alternatives proposed by EPA in 2007 that were never finalized.

This memorandum outlines in more detail below the primary arguments and justifications for this change to NSR regulations furnished by EPA in its Proposed Rule issued on August 31, 2018. While this document focuses exclusively on the portion of the proposal dedicated to the NSR change, our program has also prepared a summary of the primary arguments in the larger proposal that is available here and an extensive step-by-step lay-out of the legal arguments advanced in the ACE and the CPP repeal proposals available to download here.

UNDERSTANDING CURRENT NSR REGULATIONS AND THEIR RELEVANCE TO THE ACE RULE

Current New Source Review regulations subject an existing source to NSR permitting when it undergoes a "major modification." A major modification occurs when an EGU (1) undertakes a physical change or change in method of operation that would result in (2) a significant emissions increase from all emission units that are part of the project (determined by an annual emissions rate test) and (3) significant net emissions increase from the source (considering creditable emission increases and decreases at the source as a result of other projects over a 5-year contemporaneous period).

The emissions increase from a proposed project is currently calculated by comparing the "projected actual emissions" (PAE) with the "baseline actual emissions" (BAE). The PAE is the maximum *annual* rate the modified unit is projected to emit of a pollutant in any one of the 5 years (or 10 if design capacity increases) after the project, excluding any increase in emissions that (1) is unrelated to the project and (2) could have been accommodated during the baseline period. The BAE is the average *annual* rate of actual emissions during any 24-month period within the last 5 years (for electric utility steam generating units (EUSGU)) or within the last 10 years for non-EUSGUs.

EPA's proposed ACE rule designates heat rate improvements (HRI) as the best system of emission reduction (BSER) for existing coal-fired electric utility generating units for reducing CO2 emissions. EPA acknowledges that HRI projects adopted under the rule could trigger major New Source Review permitting. EPA highlights the likelihood that HRI projects could improve power plant efficiency in ways that result in improved economics of those units relative to others on the grid, leading to increased generation, and projected emissions, beyond historical levels as those more economic units would then be utilized more.

Pointing to these considerations, EPA included a proposal to revise NSR regulations such that they avoid triggering major NSR permitting. The proposal adds a preliminary hourly emissions rate increase test for all projects. The agency argues the cost burdens of the NSR process justifies the change and argues such a change in the calculation of what is considered a major modification under the NSR program is within the discretion afforded the agency under *Chevron* deference.

SUMMARY OF EPA'S 2018 NSR PROPOSAL

EPA's new proposal to add an additional gatekeeping step to the NSR regulations based on an hourly emissions increase test revives part of a 2007 proposal (as well as similar proposals put forth in various forms in the early 2000s). As was described in the introduction to this memo, after identifying a physical change or change in the method of operation (such as an HRI project), the proposal requires a new hourly emissions test before moving on to the current annual emissions test for determining if the change would result in a significant emissions increase requiring NSR preconstruction permitting. The proposed ACE Rule includes a narrower set of alternatives than those proposed in the 2007 Supplemental Notice of Proposed Rulemaking, which was never finalized. EPA includes only three alternatives of the twelve originally presented in 2007.

The existing language in the NSR regulations would not change. EPA proposes adding a new provision in Subpart I of Part 51—Review of New Sources and Modifications (§ 51.167) and a parallel provision (§ 52.25) in Part 52—Approval and Promulgation of Implementation Plans, which applies to any State Implementation Plan (SIP) disapproved for Prevention of Significant Deterioration (PSD) of air quality in any portion of the state in which the existing air quality meets the NAAQS.

The new § 51.167, titled "Preliminary major NSR applicability test for electric generating units (EGUs)," would set out the proposed *two-step* process for determining if a change to an EGU is a modification.

This 2-step process must be completed *before* determining if the modification is a *major* modification requiring NSR permitting in accordance with § 51.165 or § 51.166. The EGU owner or operator first confirms that the action is a physical change or change in the method of operation that does not fall within an exemption listed under § 51.167(e) **(Step 1)**. If it is, the owner must then determine if the change "increases the amount of any regulated NSR pollutant emitted to the atmosphere" by implementing an hourly emissions increase test defined in § 51.167(f) **(Step 2)**. The proposal includes three potential alternatives for the Step 2 hourly emissions test. One is based on a comparison of the emissions rate calculated using continuous emissions monitoring systems (CEMS) or predictive emissions monitoring systems (PEMS) data to a projection of the post-change maximum actual hourly emissions rate, another compares pre-change maximum hourly emissions rate calculated using one of a number of types of "best data available" listed in the proposal to a projection of the post-change maximum actual hourly emissions rate, and the third compares the maximum *achievable* hourly emissions rates before and after the change. (See the Appendix for additional details on these three alternative proposals)

Once the source completes these initial two steps, it then continues to the current annual emissions test **(Step 3)** and netting test **(Step 4)** to determine whether it requires a major NSR permit only if the new hourly test indicates the project will cause an hourly emissions increase. The proposal requires the source to maintain a file of all modification determinations made for five years after the EGU resumes regular operation or five years after the date of measurements, maintenance, reports, and records, whichever is later.

EPA JUSTIFICATIONS FOR AND ARGUMENTS IN SUPPORT OF THE NSR PROPOSAL

In the proposed ACE Rule EPA reviews prior efforts at reform intended to loosen NSR applicability in the early 2000s, 2005, and 2007. The agency argues that due to cost concerns it should return to options it previously considered to adopt an hourly emissions rate test for NSR applicability. 83 Fed. Reg. 44777. EPA says it will "help promote energy efficiency and the effectiveness of implementing the ACE rule, while at the same time being consistent with the NSR provisions in CAA and past judicial decisions interpreting those provisions." 83 Fed. Reg. 44778.

EPA refers multiple times to the 2007 Supplemental Notice of Proposed Rulemaking (SNPRM), incorporating by reference the legal analysis in that prior proposal. The 2007 SNPRM in turn refers in various places to the legal analysis in the 2005 Notice of Proposed Rulemaking (NPRM). These prior proposals are more carefully articulated, if not better supported, than the legal arguments presented in the ACE proposal and help explain the justifications provided in the 2018 preamble.

The primary justifications for the proposed NSR revisions are discussed below and include: (1) concern for the cost burden on power facilities (and to a lesser extent, permitting agencies), (2) the assertion that supposed system-wide emissions reductions justify emissions increases from specific power facilities, and (3) an argument that EPA has broad discretion under the *Chevron* doctrine to make such a change.

I. POTENTIAL COSTS TO POWER FACILITIES ARE EPA'S PRIMARY JUSTIFICATION FOR ADDING AN HOURLY EMISSIONS RATE INCREASE TEST TO NSR.

EPA's primary stated reason for its revision of NSR regulations is to avoid the additional costs and time imposed if a required HRI project triggers the NSR preconstruction permitting evaluation process. EPA expects HRI projects to result in greater unit availability and reliability, which would in turn result in lower operating costs, causing the unit

to be dispatched with increasing frequency. See 83 Fed. Reg. 44775. EPA notes the RIA showed that heat rate improvements would lead to increased generation beyond historical levels and associated increases in emissions potentially significant enough to trigger NSR requirements. *Id.* EPA's concern is that when an air agency requires an affected sources to undergo HRI projects to comply with the new emission guidelines such modifications could trigger major NSR requirements.

EPA repeatedly stresses in the preamble the "substantial extra time and cost of applying for a major NSR permit prior to undertaking the HRI project." 83 Fed. Reg. 44775. EPA argues that the required nature of the HRI projects means the NSR applicability concerns (and costs) "take on even greater significance" under the ACE rule than they did under the CPP because they "may not be as easily avoided." *Id.* Because "sources cannot choose to forego" a project required by a state's 111(d) plan, EPA says the need for NSR reform "takes on a new character" and that the CPP approach of providing flexibility to states to minimize triggering NSR "does not appear to be a sufficient solution." 83 Fed. Reg. 44777.

EPA observes that the projects envisioned under the ACE proposal would cause significant enough emissions increases to trigger the addition of modern pollution controls under the NSR program, or at least a permitting process to determine what, if any, additional controls are needed. Yet, its response is to weaken the trigger for the addition of such controls, allowing older coal-fired power plants to potentially extend their life and utilization without the added cost burden of modern pollution controls.

EPA cites a Nicholas Institute report concluding 80 % of non-retiring coal-fired units would have to install additional controls if HRI projects triggered NSR applicability. 83 Fed. Reg. 44775. The agency again highlights the substantial time, effort and money to comply with major NSR requirements, but does not discuss health impacts of allowing such additional emissions. The Nicholas Institute numbers cited by EPA could just as easily support an argument that EPA should *not* loosen NSR as it would allow a significant number of plants to avoid installing controls. EPA never acknowledges that the proposal amounts to a trade-off between facilitating HRI and requiring upgrades in pollution control equipment or attempt to justify the trade-off.

Instead, EPA simply acknowledges that its focus on NSR costs in the ACE proposal runs counter to how the agency has historically considered the impacts of its proposals. The agency acknowledges that it "has historically not considered the costs of complying with other CAA programs, like NSR, when determining BSER for a source category under section 111." 83 Fed. Reg. 44777. EPA explains away the break with past practice by arguing it is appropriate "due to the nature of the electric utility industry and the types of candidate control measures being considered in this proposal". 83 Fed. Reg. 44777.

It also explains the break with prior practice as being a necessary outgrowth of courts negating its prior policy of excluding pollution control projects from NSR. EPA attempted to turn what it described as an internal policy into regulation in a 2002 rulemaking that excluded all EGUs designated as "Clean Units" under the regulation from NSR review. The D.C. Circuit struck down the exclusion in *New York v. EPA*, 413 F.3d 3, 41 (D.C. Cir. 2005) (*New York I*) ("Absent clear congressional delegation, however, EPA lacks authority to create an exemption from NSR by administrative rule."). The D.C. Circuit found Congress intended that *actual emissions* serve as the basis for determining NSR applicability, although it did not dictate a calculation method. *See Id.* at 40 ("the plain language of the CAA indicates that Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions"). Allowing for exclusion of an EGU from NSR evaluation because of its status as a "Clean Unit" ran counter to the requirement that actual emissions determine NSR applicability. *Id.* (vacating the Clean Unit provision of the 2002 rule). The court determined 111(a)(4)'s reference to "the amount of any air pollutant emitted" "plainly refers to actual emissions" and cannot encompass potential emissions. *Id.*

BURDENS ON PERMITTING AGENCIES ALSO REFERENCED AS JUSTIFICATION, A SOMEWHAT DISENGENOUS CONCERN.

The NSR proposal limits states' flexibility and authority while expanding state control over environmental outcomes by not establishing firm emissions guidelines. In addition to the costs and burden on companies that EPA voices significant concern for in its proposal, EPA points to the potential for burdening permitting agencies by requiring them to conduct an NSR review for EGUs that initiate HRI projects due to ACE. *See* 83 Fed. Reg. 44776. The agency notes "it would likely be difficult for a state to adequately predict and quantify the effect of a HRI on an EGU's operational costs, change in dispatch order, and other variables that would factor into whether the source needs a major NSR permit or, perhaps, a minor NSR permit." 83 Fed. Reg. 44777. Even if a state reasonably predicts the emissions increase, EPA argues it would be "difficult to predict the expected permitting costs since the emission control and other permitting requirements are case-by-case determinations." *Id.* EPA argues "the case-by-case nature of the NSR program can lead to uncertainty for a state that is creating its 111(d) plan and wanting to ensure that the plan fully appreciates the projected compliance costs for its affected EGUs." *Id.* "While EPA supports states having the primary authority to implement the air programs, state agencies should not be burdened with having to determine a 'work around' for the NSR program requirements." 83 Fed. Reg. 44777.

The agency does not appear to show an equivalent concern for the EGU-by-EGU review the ACE proposal asks permitting agencies to pursue for HRI projects. On the one hand, the agency argues that states should make case-by-case determinations for each EGU regarding whether an HRI is warranted. On the other, it paints the current case-by-case determination for NSR applicability as too challenging for states. This argument is particularly interesting given that EPA is removing the flexibility the CPP offered states for implementation and NSR.

A MISPLACED FOCUS ON DISCRETIONARY PROJECTS BELIES TRUE INTENT OF THE PROPOSAL.

In an effort to support excluding more facilities from major NSR permitting requirements, EPA highlights stakeholder concerns that NSR discourages companies from undertaking discretionary energy efficiency improvement projects, resulting in what the agency describes as "less environmentally protective outcomes from a system-wide standpoint." 83 Fed. Reg. 44775.*d*. This focus on discretionary efficiency projects as a justification for limiting the applicability of NSR permitting underscores EPA's intention for this change to apply to all projects, not just those undertaken as a result of ACE. EPA notes "the prospect of a protracted permitting process and a possible requirement to install pollution control equipment at the emissions unit can create a disincentive for sources to voluntarily make energy efficiency improvements." 83 Fed. Reg. 44777-78. The NSR proposal as written applies to all EGUs, although the agency is requesting comments on whether it should limit the NSR change in some way.

Concerns about possible discretionary projects are misplaced because the NSR revisions are ostensibly intended to address burdens imposed by *required* projects. The ACE proposal expects that states will require EGUs to invest in HRI projects that could trigger NSR permitting and which are arguably not happening now because of the potential for additional costs due to NSR. Rather than harnessing the benefit of improved NO_x and SO_2 pollution controls as part of these efficiency upgrades, EPA is effectively sacrificing those improvements in favor of the efficiency upgrades themselves. At no point does the agency offer the argument that might be expected – that efficiency upgrades yield across-the-board pollution reductions.

EPA provides only a tenuous connection between the rest of the ACE proposal and the NSR proposal. This is a comprehensive change applicable to all projects, not just those initiated as a result of ACE. Ultimately, ACE serves as the vehicle for the broader goal of weakening NSR applicability in a manner that prior administrations have tried but not achieved.

II. EPA ARGUES SYSTEM-WIDE EMISSIONS REDUCTIONS JUSTIFY THE ELIMINATION OF NSR-TRIGGERED POLLUTION CONTROLS BUT DOES NOT CONSIDER LOCAL IMPACTS.

EPA points to supposed system-wide reductions due to efficiency projects to justify narrowing the NSR program's applicability. Although the proposal acknowledges that units adopting HRI measures are likely to increase emissions, EPA merely speculates that the increased use of a unit that has implemented an HRI project in the dispatch order could result in a system-wide emissions reduction because it would displace a less-efficient unit elsewhere. *See* 83 Fed. Reg. 44775. The proposal offers no analysis comparing projected emissions increases at units adopting HRI with avoided emissions from other units. Nor does the EPA consider the localized impacts resulting from increased emissions without pollution control upgrades.

In fact, the NSR program was created to help nonattainment areas achieve the National Ambient Air Quality Standards (NAAQs) which were developed to protect the public health and welfare. Pollution controls required by the NSR permitting program for pollutants such as NO_x and SO_2 provide significant benefits to local air quality around plants. Even if overall emissions in the system are reduced, air quality could degrade for communities around these plants if they are not required to make pollution control upgrades currently required by NSR regulations. Illustrating this concern and belying the agency's less-efficient unit offset theory is EPA's own analysis, which predicts that ACE will yield a reduction of only 0.7% of SO_2, only 1% of NO_x, and 0.5% of mercury emissions by 2030 as compared to doing nothing (no CPP) (Regulatory Impact Analysis (RIA), Table 3-9 at page 3-17).

Essentially, EPA is choosing to tolerate increased NO_x and SO_2 emissions at the local level for a potential, small emissions-wide reduction. The proposal's Regulatory Impact Analysis (RIA) projects a 7.1-9.2% increase in coal production for power sector use over that expected with the CPP by 2030 (RIA Table ES-16 at page ES-20) and an accompanying 45-53 thousand short tons of increased SO_2 emissions and 32-39 thousand short tons of increased NO_x emissions by 2030 over the CPP (Table ES-7 at page ES-9). The RIA also projects a 0.9%-4.0% increase in coal generation (RIA Table 3-19 at page 3-25) relative to *No*-CPP in 2030 along with a decrease of only 7-15 thousand short tons of SO_2 and 8-15 thousand short tons of NO_x by 2030 relative to No-CPP (Table ES-8 at page ES-10).

It is worth noting that the agency's highlighting a supposed system-wide emissions reduction, including for CO2, seems at odds with its position that the CPP's system-wide approach to BSER is outside the legal bounds of the Clean Air Act (CAA). EPA argues that BSER is limited to inside-the-fenceline reductions, yet it relies on system-wide changes to support its proposed changes to NSR.

EPA also reprises an argument found in its 2007 proposal that "proposed changes to the NSR emission/s test were in part justified by the substantial EGU emission reductions from other air programs enacted since 1980." 83 Fed. Reg. 44778. The 2007 SNPRM, in turn, refers to the earlier 2005 NPRM for a more expansive discussion of this argument. In the 2005 NPRM, EPA pointed to "emissions reductions we expect from the Acid Rain, NOX SIP Call, CAIR, and BART programs" noting "to any extent today's revised emissions test would lead to more growth in emissions . . . the emissions increases from that growth would be substantially less than the emissions reductions" from the aforementioned programs. 70 Fed. Reg. 61088. However, EPA does not address the current emissions regulation context. EPA notes this projection reflects expected continued progress on regional haze and ozone NAAQS implementation but does not mention other current regulatory initiatives likely to impact emissions nationwide. NSR is a local airshed NAAQS and PSD program. EPA does not provide an analysis in this or its prior proposals of how overall reductions (taken at face value) would address the needs of local air sheds.

III. EPA ARGUES THE *CHEVRON* DOCTRINE GRANTS IT BROAD DISCRETION TO REVISE ITS INTERPRETATION OF "MODIFICATION."

EPA'S ARGUES IT HAS BROAD *CHEVRON* DISCRETION TO INTERPRET WHAT IS A "MODIFICATION" FOR NSR PURPOSES THAT ALLOWS IT TO INSERT AN HOURLY EMISSIONS TEST.

EPA's overarching legal argument outlined in the proposal is that it has broad discretion to change the NSR process, short of evaluating a modification without considering actual emissions.[1] EPA points to *New York I* (*New York v. EPA*, 413 F.3d 3, 41 (D.C. Cir. 2005), discussed above) and *Chevron* to support this argument. 83 Fed. Reg. 44780. EPA notes the D.C. Circuit acknowledged in *New York I* there could be different interpretations of the term "increases" and that they may have different environmental and economic consequences, which EPA has the authority to balance in choosing an interpretation. *Id.* As EPA explains in the preamble:

> Because the CAA is "silent on how to calculate . . . 'increases' in emissions" for purposes of determining "modification," the court said, *id.* at 22, EPA has discretion to give meaning to that term by adopting a baseline period that "represents a reasonable accommodation of" the Agency's environmental, economic, and administrative concerns. *Id.* at 23 (quoting Chevron, 467 U.S. at 845).

83 Fed. Reg. 44780 (quoting *New York I*). The D.C. Circuit discussed this in the context of considering EPA's use of a five year (or 10 year in certain circumstances) look back period for its baseline calculations, which it upheld.

The current proposal also cites the 2007 SNPRM which relies heavily on *Chevron* discretion. EPA argues that the CAA leaves EPA the discretion to determine how emission increases are defined for NSR purposes. In addition to its reference to *New York I*, EPA points to *New York v. EPA*, 443 F.3d 880 (D.C. Cir. 2006) (*New York II*) for support. In *New York II*, the D.C. Circuit vacated a 2003 expansion of the "routine maintenance, repair, and replacement" (RMRR) exemption to NSR major modifications. The D.C. Circuit in *New York II* found that the phrase "any physical change" has broad applicability and only allows for *de minimis* exclusions. EPA points to language in the decision that contrasts the clear meaning of "any physical change" with the use of the word "increase" because the latter "necessitated further definition regarding rate and measurement for the term to have any contextual meaning." *New York v. EPA*, 443 F.3d at 888-889. As a result, EPA argues that *New York I* and *New York II* together grant it broad discretion in determining *how* emissions increases are defined for NSR modification purposes other than requiring that they be measured in terms of actual emissions. 83 Fed. Reg. 44779 (saying it "has broad discretion to propose a reasonable method by which to calculate the 'amount' of an emissions 'increase' for purposes of NSR applicability").

EPA ARGUES IT HAS THE DISCRETION TO INTERPRET "MODIFICATION" SIMILARLY FOR BOTH THE NSPS AND NSR PROGRAMS.

EPA also distinguishes its proposal to move to an hourly emissions rate pre-test from the outcome of a Supreme Court case that found the NSR use of the word "modification" was not required to be interpreted identically to its use in section 111(b) of the CAA, which establishes the New Source Performance Standards (NSPS). In a 2005 case,

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[1] It is also worth noting that EPA does not see its inclusion of a maximum achievable hourly emissions test alternative in addition to the two methods of calculating maximum actual hourly emissions as contrary to this requirement. In the 2007 SNPRM EPA argued a maximum achievable hourly emissions test is equivalent to an actual emissions test because the highest emissions occur during the period of highest utilization. 72 Fed. Reg. 26219.

the Fourth Circuit held that because the CAA cross-referenced to the NSPS definition of "modification" in the NSR regulations, Congress intended the definitions to be applied identically. *United States v. Duke Energy Corp.*, 411 F.3d 539 (4th Cir. 2005). In response, EPA proposed replacing the annual NSR emissions test with an hourly test like that used in the NSPS regulations. However, the Supreme Court reversed that decision two years later. *See Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561 (2007). SCOTUS held that a term used in two distinct sections of a statute does not have to be treated as *per se* synonymous, the context of the section in which it appears influences its interpretation.

In the NSR portion of the ACE proposal, EPA argues the Supreme Court's decision in *Environmental Defense v. Duke Energy Corp.* does not prevent it from once again trying to adopt an emissions test similar to that in the NSPS regulations. *See* 83 Fed. Reg. 44779. EPA says the *Duke* decision "left room for" a revised regulation if EPA has a rational basis for it, an argument it made in its 2007 SNPRM as well.[2] *Id.* EPA relies on an observation in dicta considering whether EPA could require a project to meet the definition of "modification" under the NSPS regulations before going through the "major modification" determination in the PSD regulations (essentially, what EPA proposes now). But the court did not endorse this approach. While it noted it "sounds right" it stated "the language of the regulations does not support it." *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561, 581 n.8 (2007). EPA argues that the court was considering whether it was a required interpretation, not whether it would allow (rather than direct) EPA to define modification in the same way under both the NSPS and NSR programs. 83 Fed. Reg. 44779. EPA relies on Justice Thomas's concurring opinion in which he argues that the cross-reference from the NSR section to the NSPS section signals more than the use of the same words ("carries more meaning than mere repetition of the same word in a different statutory context"). *Id.* At 583. This belief was not reflected in the majority opinion. *See Environmental Defense v. Duke Energy Corp.*, 549 U.S. at 563 ("Nothing in the text or legislative history of the statutory amendment that added the NSPS cross-reference suggests that Congress meant to eliminate customary agency discretion to resolve questions about a statutory definition by looking to the surroundings in which the defined term appears.").

FINAL THOUGHTS

EPA's primary legal argument is that adding an hourly emissions increase test to the steps required to determine if a project is a "major modification" under the NSR provisions is within its discretion under *Chevron* because Congress did not say *how* it should measure the amount of the increase in emissions. Prior case law has limited the agency to considering actual emissions and determined the language "any physical change" does not allow EPA to issue wholesale exclusions of categories of modifications without considering their actual emissions.

By requiring an hourly emissions test before the significant emissions and netting tests based on annual emissions, EPA acknowledges that many EGUs that would otherwise have to comply with major-modification NSR permits

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[2] An EPA proposal in 2007 proposed revising NSR provisions to include an applicability test based on maximum hourly emissions. This was an update to the more limited 2005 hourly emissions proposal and a response to the *Environmental Defense v. Duke Energy Corp.* case. The 2007 SNPRM proposed two options with multiple alternatives each. As EPA explains "[t]he proposal included emissions test alternatives based on EGU's maximum *achieved* hourly emissions rate—applying either a 'statistical approach' or a 'one-in-5-year baseline approach'—and an EGU's maximum *achievable* hourly emissions rate, which mirrored the NSPS modification applicability test." It proposed a new § 51.167 that "largely mirrored the NSPS modification provisions in § 60.2 and § 60.14." 83 Fed. Reg. 44778. The proposal included the option to replace the NSR annual emissions increase test with an hourly test as well as a proposal to keep the annual test but add an hourly test. That second option is what has been revived in the current proposal.

would not need to do so. In fact, that is the stated purpose of the change. Using the hourly test as a gatekeeping function in a preliminary determination of whether a change is a "modification" before considering whether it is "major" may run afoul, however, of the broadly interpreted "any physical change" language. This seeming sleight of hand also may amount to a categorical exclusion that inappropriately changes the meaning of "any physical change".

In the 2005 NPRM EPA noted "[i]n using our discretion for defining the component term ''increases in any pollutant emitted'' within the definition of 'modification,' we are mindful of Congress' directive that the major NSR program be tailored in such a way as to balance the need for environmental protection against the desires to encourage economic growth." 70 Fed. Reg. 61099. It argued this balance leaned in favor of a more lenient NSR standard because of the significant air quality improvements that other CAA programs were achieving. The current proposal, by contrast, speaks exclusively to the burdens on and costs to sources (and only briefly permitting agencies) of the program without discussing the air quality, health and environmental impacts on local communities affected by emissions from the facilities. Instead of discussing those impacts, EPA references its 2005 proposal which was prepared in a very different regulatory context. Relying on the balancing conducted in 2005 could be considered an inadequate balancing of these purposes.

EPA has revived its previously stand-alone proposal to relax pollution-control requirements and reincarnated it inside of the proposed ACE Rule—a proposal purportedly aimed at lowering the carbon-intensity of coal-fired power plants. Although the proposal is styled as responding to a need to facilitate compliance with HRI requirements of the ACE proposal, the justifications provided broadcast the agency's intent to make a change that extends beyond the sources covered by the ACE proposal. EPA's approach of relying on somewhat out-of-context references to proposals more than 10 years old, and the mismatch between its proffered rationale and the proposed remedy invites the suspicion that ACE is a classic "bait-and-switch". The proposal makes clear that the broader goal is to reduce the number of existing facilities required to undergo NSR permitting and incorporate modern pollution controls, regardless of whether they are initiating emissions-increasing projects as a result of ACE or for any other reason.

APPENDIX

Additional description of three alternatives for the hourly emissions rate increase test for Step 2 outlined in the proposal.

- Alternative 1—actual to projected using CEMS or PEMS (83 Fed. Reg. 44798-99): Compare pre-change maximum actual hourly emissions rate to a projection of the post-change maximum actual hourly emissions rate in lb/hr for each regulated NSR pollutant with hourly average CEMS or PEMS emissions data with corresponding fuel heat input data.
    - The pre-change rate would be calculated using a data set of hourly average CEMS or PEMS measured emissions rates and corresponding heat input data for a consecutive 365-days within the immediately preceding 5-years. After elimination of certain "unacceptable hourly data" the 10 percent of the data with the highest heat input rates of that period would be used to calculate an average emissions rate.
    - For post-change emissions projections the owner/operator must project the maximum emissions rate that the EGU will actually achieve for any NSR pollutant in any 1 hour in the 5 years following the date it resumes regular operation after the change. If this projection exceeds the pre-change maximum actual hourly emissions rate then there is an emissions increase.
    - Also, an emissions increase has occurred if the rate actually achieved in the 5 years after the change exceeds the pre-change rate, regardless of the preconstruction projections.
- Alternative 2—actual to projected using best data available (83 Fed. Reg. 44799-800): The second alternative would compare a pre-change maximum actual hourly emissions rate to a projection of the post-change maximum actual hourly emissions rate in lb/hr.
    - In this scenario, pre-change emissions would be calculated using the best data available. The pre-change emissions would be the highest emissions rate actually achieved for 1 hour during any time during the immediately preceding five years. The best data available would be the highest available source of data in the following hierarchy listed in the rule (unless the reviewing authority has determined a source lower in the list has better data for that specific EGU):
        - CEMS data
        - Approved PEMS data
        - Emission tests/emission factor specific to the EGU to be changed
        - Material balance calculations
        - Published emission factor.
    - The projected and actual post-change emissions rate provisions of this alternative are the same as for Alternative 1.
- Alternative 3—actual to actual using method of calculating modification under NSPS provision (83 Fed. Reg. 44800): This alternative would compare the maximum achievable hourly emissions rate before the change to that after the change and calculate the two emissions rates according to § 60.14(b) of the chapter, the provision for calculating emission rate under the NSPS regulations.
    - § 60.14(b) requires the rate to be expressed as kg/hr and use the emission factors in EPA's Compilation of Air Pollutant Emission Factors (AP-42 factors) or other factors the Administrator has deemed superior to EPA's AP-42 factors.
    - If the Administrator determines the emissions factors don't adequately demonstrate whether the change will clearly increase or not, or where there are reasonable grounds for dispute, material balances, continuous monitor data, or manual emission tests can be used.

The proposal excludes from use in calculating the emissions rate increase:

- emissions rate data from startups, shutdowns, or malfunctions;
- CEMS or PEMS data from out-of-control periods (periods when the monitory system fails to meet quality assurance criteria);
- Emissions rate data from periods of noncompliance (when the EGU was operating above a legally enforceable emission limitation); or
- Any data for a period in which the information is inadequate for determining emissions rates.

Senator CARPER. The second one, I would like to ask unanimous consent to submit for the record a letter opposing the GAIN Act by the Clean Air Task Force and the Sierra Club. The organizations caution that if this bill were enacted, it would, and I quote their letter, "allow enormous increases in air pollution, thereby seriously endangering public health and the environment," and completely eviscerating the Clean Air Act New Source Review.

Senator BARRASSO. Without objection.

Senator CARPER. Thank you, Mr. Chairman.

[The referenced information follows:]

Clean Air Task Force • Environmental Defense Fund • Environmental Law and Policy Center • League of Conservation Voters • National Parks Conservation Association • Natural Resources Defense Council • Sierra Club

November 20, 2019

The Honorable John Barrasso
Chairman
U.S. Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510-6175

The Honorable Tom Carper
Ranking Member
U.S. Senate Committee on Environment and Public Works
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RE: Environmental and Public Health Groups' Opposition to S. 2662 "Growing American Innovation Now Act"

Dear Chairman Barrasso and Ranking Member Carper:

We write today strongly urging you to oppose the "Growing American Innovation Now Act" ("S. 2662"), which would eviscerate the Clean Air Act's ("CAA") New Source Review ("NSR") program. If enacted, this bill would allow enormous increases in air pollution, thereby seriously endangering public health and the environment.

Congress has never intended the Clean Air Act to enable old, highly polluting sources of air pollution to have eternal life without modernized controls. But that is exactly what this bill would do. It is completely contrary to the purposes of the Clean Air Act, which include protecting public health through cleaning up existing sources by requiring modern air pollution controls at the time of significant industrial plant upgrades.

In particular, this bill's redefinition of "modification" to require a maximum achievable hourly emissions rate increase as an NSR program applicability trigger would allow major life-extension projects at old and inefficient industrial sources to escape the safeguards of the NSR program. The ten-year lookback for determining whether an hourly rate increase has occurred even further exacerbates the problem. The overall result would be to so change the test for NSR applicability (and the requirement to modernize controls) that it would write it out of the Act altogether.[1] Currently the test upheld by the courts is whether or not *actual emissions* will increase – the bill proposes instead a theoretical achievable emissions test based on historical emissions capacity. Because it is based solely on capacity, this test would allow most sources to

[1] In a 2005 memo, EPA's Air Enforcement Division ("AED") warned that a similar proposal for electric generating units would make "application of the test largely unenforceable" and would "make it difficult for both a utility and the regulators to assess the compliance status of an EGU." Memorandum to William Harnett, Director EPA IPTID/OAQPS from Adam M. Kushner, Director EPA AED/OECA, "Air Enforcement Division's Comments on the Draft New Source Review Clean Air Interstate Rule," Aug. 25, 2005 at 2-3. AED went on to state that "one can only conclude from application of the so-called 'achievable' test that *no 'change' causing an emissions increase (capacity or otherwise) at an EGU would trigger NSR*." *Id.* at 5 (emphasis added).

evade NSR review for projects that would cause an increase in both the source's actual hourly emissions rate *and* total annual emissions. Under this approach, major projects could escape the requirement to put on pollution controls when they undertake life extension projects, despite increasing total annual tons of emissions by orders of magnitude above currently acceptable levels for modified sources exempt from NSR, and even above the levels for brand new uncontrolled major sources.

Additionally problematic are the provisions of the bill's subparagraph (B), which would exempt from NSR those changes that are made at a source to decrease one air pollutant but have the effect at the same time of significantly increasing another. This is the same pollution control project exemption struck down as unlawful by the U.S. Court of Appeals for the D.C. Circuit, in *New York v. EPA,* 413 F.3d 3, 40-41 (D.C. Cir. 2005). Subparagraph (B) would also create a discretionary exemption for changes that increase a stationary source's total emissions *and* its maximum hourly emissions rate if they are supposedly designed to restore, maintain, or improve the reliability of operations. Thus, an administration hostile to the NSR program could essentially *never* require NSR review of modifications despite annual and maximum hourly emissions rate increases, as long as source owners claim their modifications are designed to reduce a single pollutant or to restore, maintain, or improve reliability of operations or safety at a source. In reality, any modification at a source intended to increase capacity is likely to be designed to maintain or improve reliability as well, and thus even modifications that increase production could be exempt from NSR.

The result of enacting either part of this bill will be serious impacts to air pollution and to public health. EPA has long recognized that pollution from these sources causes and exacerbates respiratory and cardiovascular diseases and can even lead to premature death.

For example, researchers at the Harvard T.H. Chan School of Public Health analyzed the NSR change proposed along with the Trump Administration's Affordable Clean Energy ("ACE") rule, which added an hourly rate trigger to NSR applicability. That proposal contemplated only one of the NSR changes in this bill and was limited only to heat rate improvement projects at power plants. For only that sector and those projects, the Harvard study concluded that significant emissions of various air pollutants would occur: a 148% increase in SO_2 emissions in 19 states, a 9% increase in NO_x emissions in 20 states and the District of Columbia, and an 8.7% increase in CO_2 emissions in 18 states and the District of Columbia. If the same exemption were to be extended to all sectors of the economy, much larger uncontrolled emissions increases would occur.

Make no mistake – this bill is not about "innovation" – quite the contrary. The entities standing to reap financial rewards from the so-called "GAIN Act" are industrial polluters who want to evade the requirement to invest in modern pollution controls. Removing the requirement to do so actually takes away incentives for innovation in newer and cheaper emissions controls.

S. 2662 would significantly impair, if not eliminate entirely, the NSR program's effectiveness at protecting and improving air quality and protecting public health. We strongly urge you to reject this attempt to undermine the NSR program and the public health and environmental protections it provides.

Clean Air Task Force
Environmental Defense Fund
Environmental Law and Policy Center
League of Conservation Voters
National Parks Conservation Association
Natural Resources Defense Council
Sierra Club

Senator CARPER. And one more, this is a broader request. I ask unanimous consent to submit for the record several materials, including studies, reports, letters, and more from the renowned public health organizations of former EPA officials that show how the GAIN Act and previous and current proposals by Congress and EPA actually weaken the Clean Air Act by attempting to completely restructure New Source Review, ultimately harming our health and the environment. That was a long sentence.

Senator BARRASSO. Without objection.

[The referenced information follows:]

HARVARD
LAW SCHOOL

ENVIRONMENTAL
& ENERGY
LAW PROGRAM

JOSEPH GOFFMAN, JANET MCCABE, AND WILLIAM NIEBLING

EPA's Attack on New Source Review and Other Air Quality Protection Tools

November 1, 2019

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Introduction

The purpose of the Clean Air Act (CAA) is to ensure that the quality of the air people in the US breathe does not threaten their health. Since its passage in 1970, emissions of air pollution have decreased, air quality has improved, and the national economy has moved forward, as illustrated in Figure 1.

Instead of celebrating and building on this success, EPA in the Trump administration has taken a series of actions to weaken a number of EPA programs instrumental to achieving air quality results. The CAA uses a variety of tools to achieve its purpose, ranging from broad multi-state "good neighbor" programs to reduce pollution that travels over long distances and harms air quality in downwind states, to permitting programs like New Source Review (NSR) that play a critical role in improving air quality.

EPA's "good neighbor" rules have produced large-scale reductions in pollution, improving air quality and critically assisting state and municipal efforts to achieve National Ambient Air Quality Standards (NAAQS). NSR permitting is the indispensable, community-level cornerstone of the CAA's strategy for preventing excessive air pollution and protecting public health and the environment as businesses and the economy change and expand.

First, the NSR program, which has borne the brunt of the EPA's weakening actions under the Trump administration, is designed to ensure that each new or expanding facility uses up-to-date air pollution control technologies and practices, meets all federal requirements, and does not emit pollution that would contribute to unhealthy air quality. This reflects a fundamental principle of the CAA: new construction should be cleaner than existing operations. By requiring more effective pollution control strategies, NSR often yields overall reductions in pollution even as facilities expand production.

Second, NSR is an important tool in helping communities meet the NAAQS and maintaining healthy air everywhere. Without proper implementation of NSR, new construction projects that increase emissions could increase NAAQS violations, endangering public health.

Third, the source-by-source permitting process is a public one, often one of the only ways residents, including people living in environmental justice communities, and businesses can be involved in developments affecting their air quality. Because NSR covers many types of facilities, the program is critical to the air quality of countless communities across the country.

Facility updating and expansion – that is, modifications – represent much of the capital investment that businesses make. Modifications can have significant impacts on local air quality while providing high-leverage opportunities for increasing pollution controls.

The changes the Trump EPA is making, however,

are largely about offering facilities early, easy off-ramps from NSR's coverage of modifications – and the pollution reduction obligations that come with them. Individually and in combination, these changes threaten to make NSR less effective in ensuring the protection of local air quality in several ways.

Most of these actions have been issued with little fanfare, often without analysis of their potential effects and without acknowledging or revealing clearly to the public that many of the actions have a cumulative or compounding effect on each other and thus on the effectiveness of NSR. In many cases, the agency has not used the formal rulemaking process, which would have allowed the public an opportunity to comment and the federal courts the jurisdiction to review EPA's action. Even so, many of these actions have drawn lawsuits, some of which we note below.

NSR's history has been marked by tension among businesses' legal obligation to limit pollution, EPA's obligation to enforce the law, and business imperatives to minimize costs and act quickly. Over time many industries have expressed concerns about aspects of the NSR permitting process and requested a variety of changes to it.[1] Concerns include the time, expense, and uncertainty of the permitting process, the cost of having to install state-of-the-art pollution control equipment, and the lack of timely or clear guidance from EPA.

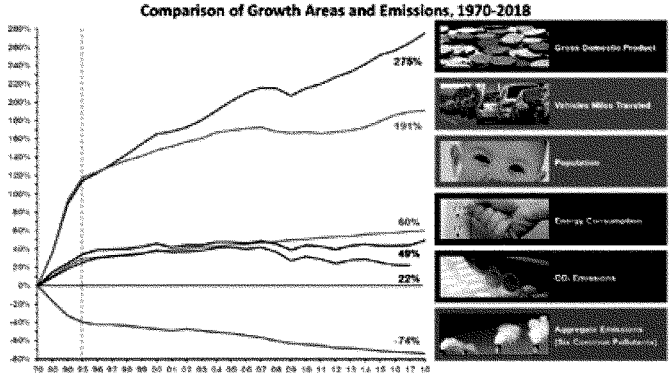

Figure 1, *Source: Air Quality – National Summary*, EPA, https://www.epa.gov/air-trends/air-quality-national-summary.

Other requests for change relate to the interplay between NSR and changes to NAAQS and perceived stringency or inflexibility of aspects of the program,

1 *E.g.* Art Fraas, John D. Graham, & Jeff Holmstead, *EPA's New Source Review Program: Time for Reform?*, 47 Envt'l L. Rep. 10,026, 10,023–34 (Jan. 2017).

such as modeling and emission offsets.[2] Sources have argued that companies' desire to avoid the NSR process has created incentives to continue operating older equipment and not make upgrades that would lead to greater efficiency and reductions in air pollution. Many of the specific changes requested by individual companies or industry groups would result in fewer projects being considered subject to the NSR requirements and thus in greater risk to communities facing potential increases in pollution.

The NSR changes that the Trump EPA is making reflect the complete credence it gives to industry's position and put all the weight on economic priorities, framing NSR as a regulatory burden to avoid regardless of impacts on air quality and public health. The NSR changes treat these competing imperatives as irreconcilable, privileging cost avoidance over air quality and public health (and the agency's statutory duty).

EPA's changes reduce NSR's coverage and effectiveness. The list of changes is lengthy, and some affect permitting in ways that are not strictly changes to NSR, but together they remove projects that had been subject to NSR. There are four ways in which this happens:

1) *Narrowing what counts as a source*

- Redefining "adjacency" so facilities that operate as one unit may still count as two sources if they are not physically contiguous
- Treating multiple modification projects at one facility as separate even when they are done at the same time
- Raising the bar for when sources are considered so related as to be under common control

2) *Limiting what pollution is counted*

- Changing the rules for power plants, and perhaps other sources, to avoid NSR if their hourly emissions decrease even if their annual emissions increase
- Changing the process for comparing emissions increases and decreases in a way that tilts the scales against finding increases
- Narrowing the definition of "ambient air" affected by a facility such that air pollution can exceed health limits in areas to which the public reasonably may have access
- Easing limits on when emissions from one state affect air quality in another state

3) *Undermining consistent and diligent application*

- Stepping back from scrutinizing permits carefully to ensure they are accurate
- Loosening monitoring requirements for certain large sources

4) *Weakening substantive requirements*

- Removing stringent limits on toxic air pollution in certain circumstances

2 In several recent NAAQS rulemakings, EPA provided a grandfathering provision so that businesses with NSR permit applications pending would not need to restart the process in light of the revised air quality standard. *E.g.*, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,292, 65,431 (Oct. 26, 2015); National Ambient Air Quality Standards for Particulate Matter, 78 Fed. Reg. 3086, 3252 (Jan. 15, 2013). The D.C. Circuit invalidated that approach in *Murray Energy Corp. v. EPA*, No. 15-1385, slip op. at 44 (D.C. Cir. Aug. 23, 2019), finding no ambiguity in the Clean Air Act that once a standard is revised, all new NSR permits must measure compliance against the current standard, and illustrating the importance Congress placed on the instrumental role NSR plays in attaining NAAQS.

Background

New Source Review – Purpose and Importance

The New Source Review program is a long-established set of Clean Air Act rules that safeguards communities from increases in pollution when a new facility is built or an existing facility is modified. The program achieves this through the issuance of permits that require facilities to install pollution control technology or operate their plants in ways that minimize air emissions. In most instances, state environmental agencies issue permits under programs that EPA has determined satisfy federal requirements, providing a model of "cooperative federalism" that allows local governments priority but retains a federal backstop to ensure that the Clean Air Act's requirements are being met. Historically, EPA has used a combination of rulemakings, guidance documents, and interpretative letters to help guide states on how to implement their programs. Through the steps it is taking to weaken NSR, however, the Trump administration EPA is both reducing protections afforded when EPA is the permitting authority and undermining states' ability to implement effective and protective programs.

Because NSR covers a variety of facilities, from paper mills and plastics production to power plants and automobile manufacturing, the program is critical to the air quality of communities across the country. When properly implemented, NSR ensures that new sources or sources that undertake major renovations will install pollution control equipment or take other steps to avoid increasing local pollution significantly. In some cases, by requiring more effective pollution control strategies, NSR can yield reductions in pollution even as facilities expand production. This is a fundamental principle of the Clean Air Act as Congress first established it in 1970 and then ratified in 1990: it is expected that new construction will be cleaner than existing operations, and integrating modern pollution controls is cheaper when companies are building new facilities or investing substantially in expanding or modifying existing ones.

Without proper implementation of NSR, businesses would be able to undertake construction projects that increase emissions without installing and operating emissions control technology. This could cause an increase in harmful pollutants in the air around the facilities, meaning dirtier air in nearby communities, with negative effects on people's health and the environment. Moreover, the permitting process is a public one, and may be one of the only ways community members can find out in advance what developments are proposed locally that could impact air quality, and to weigh in on those developments. Permits are the community-level cornerstone of the Clean Air Act's strategy for preventing excessive air pollution and protecting public health and the environment as businesses and the economy change and expand.

How NSR Works

NSR permitting is carried out in a series of steps that occur prior to construction, and begin with determining what type of permit a facility needs and whether pollution control measures are required. There are three types of NSR permits: 1) Prevention of Significant Deterioration (PSD) permits for new major sources or major modifications to sources[3] in areas where the air quality meets the NAAQS for the most common air pollutants; 2) Nonattainment NSR permits for new major sources or major modifications to sources in areas that do not meet those standards; and 3) Minor NSR permits for sources or modifications that have a pollution effect but do not emit pollution in a volume that rises to the "major" level. Sources may agree to conditions that legally and enforceably restrict the amount they can emit to a minor source permit amount in order to avoid having to obtain a major source permit with its more demanding requirements.

In order to determine whether NSR applies to a new construction project, the source and the permitting authority evaluate whether the facility will emit air pollution in excess of certain thresholds, since small increases don't require a permit.[4] While making this determination for new construction can be complicated, determining whether NSR applies when an existing facility is undergoing a modification can be especially difficult. A preliminary assessment is conducted to determine whether the change is considered a modification for NSR permitting purposes. Both physical changes to facilities and changes in how they operate are considered. Some changes are exempted from NSR if they are within the scope of Routine Maintenance, Repair, and Replacement[5] – itself a difficult term to define that has spawned rulemakings, policy documents, and litigation.

If the change is a modification, then two steps are used for determining whether the modification is considered "major":[6]

Step 1: Does the modification *by itself* result in a significant emissions increase?

Step 2: Will the modification result in a significant *net* emissions increase, given other, concurrent increases and decreases at the facility?

- "Netting" describes the comparison of emissions increases and decreases to determine whether increases are offset by pollution decreases achieved as part of the project or as a result of other changes at the facility.
- Netting encourages facility operators to make upgrades to reduce emissions.

If the answer to one or both of these questions is "no", the facility does not need a PSD or Nonattainment NSR permit for the modification. If the answer to both questions is yes, then the facility must obtain a permit. How EPA interprets the way these two steps should be applied can result in fewer

3 See below for discussion of what makes a source or modification major.

4 40 C.F.R. §§ 51.165–51.166.

5 40 C.F.R. §§ 51.165(a)(1)(v)(C)(1), 51.166(b)(2)(iii)(a).

6 40 C.F.R. §§ 51.165(a)(1)(vi)(A), 51.166(b)(2)(i).

sources being reviewed to determine their pollution control obligations, if any.

To obtain a permit, a source must provide the permitting authority, usually the state government, a detailed description of construction plans, with estimates of post-construction emissions, and commitments to limiting post-construction emissions. Depending on the type of permit, pollution control requirements vary. For PSD permits sources must limit emissions to levels achievable via Best Available Control Technology (BACT).[7] BACT is determined on a source-specific, case-by-case basis that accounts for the feasibility and cost of pollution control technology. BACT considers what other similar sources have achieved and what is reasonable for that specific source to implement.

If a permitted facility is in an area that has not attained the air quality standards, NSR requirements are more stringent in light of the area's need to make progress toward healthy air. In these areas, sources must meet the Lowest Achievable Emissions Rate (LAER), which is the lowest emissions level achieved by any similar source regardless of cost.[8] Regulators expect that new and expanding sources will apply the "best" approaches used elsewhere by similar sources to limit their emissions.

Nonattainment NSR also requires sources to offset their emissions increases by reducing their own emissions in other ways or by purchasing (or trading for) reductions created by other sources.[9] If the area's air quality problem is severe, the source may be required to offset their emissions at a greater than one-to-one ratio.

The result of this process is a permit that specifies all of the source's air quality obligations, including required pollution control technology and practices and offsets, so that the source will not emit pollutants that will cause or contribute to exceedances of air quality health standards and will be in compliance with all other applicable state and federal requirements.

Resistance and Enforcement

The NSR program is ambitious, requiring pollution reduction from facilities both as a physical matter and as a means to ensure that sources invest in air quality protection. Since this is an added expense to projects, source owners have incentive to estimate lower emissions from projects than what might actually happen. NSR must be rigorously implemented to counter that incentive.

The incentive to avoid NSR permitting is compelling, and EPA has brought several major actions to enforce NSR compliance. For example, in 1999, the Department of Justice initiated lawsuits against multiple utility companies, alleging that the utilities unlawfully undertook construction projects without obtaining NSR pre-construction permits. In 2007, American Electric Power (AEP) agreed to a record settlement that included $4.6 billion to upgrade pollution controls at 16 power plants,[10] $15 million

7 Clean Air Act § 165(a)(4), 42 U.S.C. 7475(a)(4).

8 Clean Air Act § 173(a)(2), 42 U.S.C. 7503(a)(2).

9 Clean Air Act § 173(a)(1)(A), 42 U.S.C. 7503(a)(1)(A).

10 *See American Electric Power Service Corporation*, EPA (Oct. 9, 2007), https://www.epa.gov/enforcement/american-electric-power-service-corporation.

in civil penalties, and $60 million to mitigate the environmental damage that resulted from the unlawful pollution (although AEP did not admit liability as part of the settlement). EPA estimated that the benefits from operating the pollution control equipment would include $32 billion annual avoided health-related costs. The AEP litigation and settlement were among a great many enforcement actions brought and settlements reached in the sweeping and high-profile 1999 NSR enforcement initiative. Even so, businesses' incentives to avoid NSR remain strong and EPA has brought additional actions in the years since.[11, 12]

To ensure that the NSR program protects the public from rising pollution levels over time, EPA must continually work to make sure that NSR rules make sense and keep up with advances in technology and analytical methods. To ensure a level playing field, given that permits are generally issued by the states, EPA must provide clear guidance and consistent scrutiny and oversight of state programs.

Instead, the Trump EPA is systematically undermining the program, as we describe in the following sections.

11 *See, e.g.*, United States v. DTE Energy Co., 845 F.3d 735 (6th Cir. 2017).

12 Further discussion will be available in a forthcoming work, expected to be published in 2020, which details how more than two thirds of the largest coal-fired power plants in the United States have been subject to enforcement actions that have collectively reduced over two million tons of air pollution per year. For those curious about this work prior to publication, please contact the authors to inquire about access.

The Trump Administration: Quietly Undercutting NSR

Under the Trump administration and the guise of "modernization," EPA is responding, one by one, to industry's complaints and is weakening the NSR program. The Trump EPA has said these "reforms" are designed to promote manufacturing, and makes no reference to protecting air quality and public health.[13] Promoting manufacturing is not the purpose of the NSR program; the Clean Air Act established the NSR program to ensure that investment in manufacturing included investment in pollution control. Instead, the Trump EPA is treating the competing incentives of profit vs. air quality as irreconcilable and is privileging businesses' preferences for avoiding costs.

EPA is pursuing these changes in ways that obscure their overall effect. The agency is masking the potential harms and circumventing the customary rulemaking process, which would keep the public informed and able to participate. EPA does this by taking many of these steps in ways that are not framed as rulemakings.

Many of the NSR dismantling actions are non-binding guidance documents, exchanges of letters with outside parties, or other means of changing policy that fall outside the rulemaking process.

13 News Release, EPA, EPA Celebrates One Year of New Source Review Modernization (Dec. 10, 2018), https://www.epa.gov/newsreleases/epa-celebrates-one-year-new-source-review-modernization.

Making these changes via individual discrete actions taken over time clouds the fact that the various components of NSR implementation function in concert. This makes it harder for the public to get a clear understanding of their overall impact. This approach creates several additional ill effects.

By avoiding public input, the Trump EPA can ignore dissent, and narrow the diversity of perspective and experience from which public rulemaking benefits. This feeds suspicion that EPA decided on a preferred outcome before doing analysis or seeking feedback and frees the agency from having to analyze the environmental consequences of its actions. The impacts of some actions may be analyzed individually, but not all, and there has not been a comprehensive review of what effects the entire suite of changes will have.

Finally, EPA's approach complicates the task of citizens who want to bring legal challenges and obtain judicial review to determine whether the actions comply with the substantive requirements of the Clean Air Act. By making policy changes while bypassing the rulemaking process, EPA is dampening the right of the public to seek relief from the courts from changes that defeat EPA's obligations under the law – meaning that EPA may be taking steps that are illegal but will not be held accountable for doing so in a timely way.[14]

14 Eventually, members of the public might have an opportunity to challenge these actions, but that opportunity will not arise until EPA or a state issues a permit pursuant to these policy changes.

The Steps EPA is Taking to Dismantle NSR

Category	Link	Date	Mechanism
(1) Not applying NSR consistently & diligently			
(A) Enforcement	Memorandum	12/7/2017	Policy
(B) Compliance monitoring	FR Notice	9/13/2018	Proposal
(2) Narrowing what counts as a source			
(A) Adjacency	Draft Guidance	9/5/2018	Draft Guidance
(B) Project aggregation	FR Notice	11/15/2018	Reconsideration
(C) Common control	Letter	4/30/2018	Letter
(3) Limiting what pollution is considered			
(A) Hourly emissions	FR Notice	8/31/2018	Proposal
(B) Project accounting	FR Notice	8/9/2019	Proposal
(C) Ambient air exclusions	Draft Guidance	12/14/2018	Draft guidance
(D) "Good neighbor" significance	Memorandum	8/31/2018	Policy
(4) Lowering substantive requirements			
(A) Once-In-Always-In	FR Notice	7/26/2019	Proposal

1) NOT APPLYING NSR CONSISTENTLY AND DILIGENTLY

The NSR program must be applied consistently and diligently to be successful. That means providing rules, policies, and decisions that apply equally to all parties, and monitoring compliance to prevent cheating. Sources speak of wanting a level playing field for all sources and a predictable system, but some of the NSR actions EPA has taken work against that.

A) Enforcement: informing industry that EPA will no longer scrutinize emissions estimates for accuracy

For years, EPA embraced its obligation to ensure that polluters estimated potential future emissions increases accurately, since those estimates are the cornerstone of the NSR program. In a 2017 memorandum,[15] it took a step away from that obligation.

15 Memorandum from E. Scott Pruitt, Administrator, EPA, to Regional Administrators (Dec. 7, 2017), https://www.epa.gov/sites/production/files/2017-12/documents/policy_memo.12.7.17.pdf.

The NSR process begins when a facility estimates its future air pollution emissions levels, and the permitting agency (state or EPA) reviews those estimates to ensure they are accurate. This task is essential to ensuring that the air quality protection objectives of the program are achieved. Recently, the US Court of Appeals for the Sixth Circuit vindicated that process. EPA had brought an NSR enforcement action against a power plant owned by DTE Energy in Michigan, and the company defended itself by saying that EPA had no right to review the substance of its emissions estimates to determine if they were accurate. The Sixth Circuit rejected that argument.

One of the first changes EPA made to the NSR program was to issue a memorandum embracing DTE's position and stating that the agency would no longer scrutinize a company's estimates of its own pollution. Going forward, facilities will enjoy the license DTE tried – unsuccessfully – to claim for itself: the ability to avoid both accountability for emissions estimates that prove to be inaccurate and responsibility for controlling pollution increases. All it takes, the memo implies, is filing the paperwork.

In a similar, unrelated action, EPA responded to a Title V permit petition by narrowing the scope of what those petitions might cover.[16] Since the inception of the Title V program, EPA had addressed shortcomings in the permits, including on issues where the Title V permit incorporated emissions limitations from an NSR permit. Under its new reading, EPA will no longer check that NSR permit limitations incorporated into a Title V permit are correct – just whether they were accurately copied-and-pasted from the NSR permit itself.[17]

The changes EPA has made subsequent to these are in keeping with this hands-off stance. The agency's approach signals deference to project operators in implementing the changes EPA has made, all of which put greater discretion in the hands of source operators.

B) *Compliance monitoring: a troubling precedent in the NOx SIP Call*

Monitoring is key in any pollution control program. It is how a source knows what it is emitting, and how regulators keep track of compliance. The Trump EPA is lowering the standards for monitoring in one of two attacks on the "good neighbor" provision.

The "good neighbor" provision is one of the Clean Air Act's protections against air pollution.[18] It requires that a state, as part of its plan to implement air quality standards, must ensure that its air pollution does not "contribute significantly" to unhealthy air quality in another state. The provision includes a mandate: when EPA determines that a state has not met its "good neighbor" obligations, the agency

16 Title V of the Clean Air Act provides for an operating (as opposed to construction) permit that sources must obtain. 42 U.S.C. § 7661a. A Title V operating permit does not itself impose new substantive limitations, as NSR construction permitting can, but rather includes various limitations from other sections of the act, including NSR, and mechanisms to ensure compliance. 42 U.S.C. §§ 7661a(a), 7661c(a). Title V also includes a provision allowing any person to petition EPA to object to the permit. 42 U.S.C. § 7661d(b)(2).

17 Pacificorp Energy, Order on Petition No. VIII-2016-4 (EPA Oct. 16, 2017). https://www.epa.gov/sites/production/files/2017-10/documents/pacificorp_hunter_order_denying_title_v_petition.pdf.

18 CAA § 110(a)(2)(D). 42 U.S.C. § 7410(a)(2)(D).

must issue a federal plan to achieve the needed "good neighbor" reductions. EPA has issued three multi-state federal "good neighbor" plans since, each of which achieved significant and cost-effective reductions. The Supreme Court upheld one plan and the D.C. Circuit upheld the other two.

> "EPA does not explain why facilities that currently use the best form of monitoring should be allowed to use other, less reliable methods, and there are no guidelines given to states to ensure that the replacement monitoring would be effective."

One of these plans was the NOx SIP Call, promulgated by EPA in 1998 to require some states to control emissions of oxides of nitrogen (NOx) that contributed to ozone formation in downwind states. While subsequent regulations have tightened controls, the NOx SIP Call was the first to establish what is in effect a cap-and-trade program giving sources flexibility in meeting their compliance obligations, and it is still in effect. One of its provisions requires that sources participating in trading use the best monitoring technology available, Continuous Emissions Monitoring Systems (CEMS). CEMS, as the name suggests, refers to technology, typically in-stack emissions monitors, that measures emissions continuously rather than merely relying on periodic tests or assumptions based on inputs like fuel. CEMS are highly accurate and considered best practices technology for determining actual emissions. In a system like the one under the NOx SIP Call, where companies buy, sell, and trade credits, it is essential that they know those credits in fact represent an increment of pollution reduction.

As part of a rulemaking proposal issued in September 2018, EPA is proposing to allow states to lower monitoring standards for some sources. Most of the sources subject to the NOx SIP Call are power plants, and are also required to use CEMS by other regulatory schemes,[19] but some of them are boilers and turbines used in industrial facilities. That means they are power plants for a single customer, with the same physical construction as a power plant, but the electricity or a steam heat they generate is used in a factory rather than delivered to the grid.

EPA's proposal would allow states to amend or revise permits so that those facilities could use an approach other than CEMS to monitor their NOx emissions, reasoning that the NOx emissions are much smaller than from power plants and thus not a big concern. EPA does not explain why facilities that currently use the best form of monitoring should be allowed to use other, less reliable methods, and there are no guidelines given to states to ensure that the replacement monitoring would be effective.

While this proposal covers a relatively small amount of NOx emissions, it sets a troubling precedent, and offers no guidelines for what will replace CEMS.

19 In fact, a substantial majority of the sources covered by the NOx SIP Call and its successor rules are separately required to install and operate CEMS and report their emissions results to EPA by the Acid Rain Program under Title IV of the Clean Air Act.

2) NARROWING WHAT COUNTS AS A SOURCE: MAKING IT EASIER FOR A SOURCE TO AVOID TRIGGERING NSR

Precisely categorizing a source and defining the scope of projects that affect that source's emissions are a big challenge under NSR. Industrial facilities often have many components spread across a large area, so defining what counts as a single source may determine whether that source is a major source, which in turn determines which permitting program and pollution control requirements to apply. Facilities may be subject to a range of construction activities at one time, so determining which activities are related to each other can define whether a project is a major modification triggering NSR. In three ways, the Trump EPA is making it easier for facilities to avoid being treated as a major source.

A) *Adjacency: constricting the definition*

The first of these is a policy change regarding the definition of the word "adjacent." The NSR implementing regulations require that pollutant-emitting activities be "located on one or more contiguous or adjacent properties."[20] "Contiguous" clearly means parcels of land that touch each other, but the meaning of "adjacent" has been debated. Since EPA began implementing NSR in 1980, physical proximity has been a factor in determining adjacency, so that two parcels of land that are near but not quite touching could be considered adjacent if, say, a public street or a waterway passed between them. In addition, since at least 1981 EPA has also considered "functional interrelatedness," as in the example from that year of two General Motors operations connected by a dedicated railway link and a shared production line.

In a draft memorandum issued for public comment on September 4, 2018, the Trump EPA suggested dropping the functional interrelatedness test and focusing solely on physical proximity.[21] The reason given for this change is that the analysis required is "burdensome" and "fine-grained" and that the test does not always result in clear answers. The proposed new interpretation would only be applied in future determinations, and not used to revisit previously made decisions. There is no bright line rule for what counts as physical proximity, however, so determinations will still be made on a case-by-case basis.

The effect of this proposed change will be to allow new facilities to avoid being considered as one source – and thus, potentially, avoid being treated as a major source – if they are not in close physical proximity, even if they are designed to operate as one. They might be connected by a dedicated rail line, as the in General Motors example, or a pipeline, or they might have business models that rely on each other exclusively, but EPA will now allow them to call themselves separate and try to stay under the major source threshold, thus avoiding NSR permitting.

20 40 C.F.R. § 51.165(a)(1)(ii)(A).

21 Memorandum from William L. Wehrum, Assistant Administrator, EPA, to Regional Air Division Directors, Region 1-10, https://www.epa.gov/sites/production/files/2018-09/documents/draft_adjacent_policy_memo_9_04_2018.pdf (On Oct. 9, 2019, EPA sent the adjacency guidance to the Office of Information and Regulatory Affairs for review, a required step prior to finalizing and publishing the guidance. As of the time of publication, EPA has not published the final guidance.).

B) *Project aggregation: viewing actions in a vacuum*

Similarly, EPA is proposing through rulemaking to relax the definition of when a modification to a facility triggers NSR. Because it can be difficult to determine where one construction project ends and another begins, or what parts of a project are normal maintenance as opposed to upgrades, EPA has rules regarding "project aggregation," or when discrete activities at a facility would be "aggregated" into one "project" for purposes of evaluating whether a modification triggers NSR.

In November 2018, EPA issued a Federal Register notice determining to retain a definition of project aggregation issued in the last few days of the Bush Administration. This narrow definition requires projects to have a substantial technical or economic relationship, where EPA had previously presumed that activities that occurred at the same time and that supported a source's overall purpose were related.

The result of requiring a substantial technical or economic relationship could be to allow a source to, in EPA's own words, "carve up a higher-emitting project into two or more lower-emitting 'projects' and avoid triggering major NSR requirements."[22] That is, a source could claim two construction projects that together would yield a significant increase in air pollution serve different ends and are unrelated, thus avoiding NSR permitting. Coupled with EPA's expressed intention to defer to the company's determinations of applicability, described separately in the section below, this is yet another guide to industry about how to avoid permitting requirements.

One example of this in practice comes in a letter regarding a refinery in the US Virgin Islands.[23] As part of restarting an idled refinery, the source solicited EPA's views on several NSR issues, including whether two contemporaneous projects should be combined for permitting purposes. In this instance, the source is intending to do two things: first, to restart certain refinery equipment to produce marine fuel that meets sulfur requirements due to take effect in 2020; and, second, to repurpose other parts of the refinery to produce renewable diesel fuel to satisfy federal and state renewable fuel requirements.

"[A] source could claim two construction projects that together would yield a significant increase in air pollution serve different ends and are unrelated, thus avoiding NSR permitting."

While these projects are happening at the same time at a single facility, the source asserts that they are intended to produce different products with different business cases and are not interdependent.

22 Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Aggregation; Reconsideration, 40 Fed. Reg. 57,324, 57,326 (Nov. 15, 2018).

23 Letter from William Wehrum, Assistant Administrator, EPA, to LeAnn Johnson Koch, Perkins Coie (Apr. 5, 2018), https://www.epa.gov/sites/production/files/2018-04/documents/limetree_2018.pdf.

Under the old test, looking at whether the projects are occurring at the same time and supporting the source's overall purpose, they likely would have been considered one project; they are unquestionably at the same time, and the overall purpose of a refinery is to produce fuel, even if it produces multiple varieties. But under the new test, EPA found that these actions lack the technical or economic relationship necessary to qualify as one project, because they are using different equipment and serving different markets. While the letter does not specify the emissions levels, this could allow the projects to avoid major source permitting they would otherwise have triggered.[24] This facility is adjacent to residential neighborhoods and about a mile from an elementary school, a reminder about the real effects these policy changes can have.

C) *Common Control: treating sources as unrelated*

Another way EPA has made it easier for sources to avoid triggering NSR is by narrowing the scope of one of the factors that makes up the definition of a source: common control, or being "under the control of the same person (or persons under common control)."[25] This ensures that facilities that are managed together are treated together for air pollution purposes, and facilities that are adjacent but independent are not.

Historically, EPA has considered common control to be a case-by-case determination because it is so fact-specific, and that has not changed. What has changed is that EPA has replaced its longstanding multi-factor test that weighed a number of relevant considerations for a narrower test. Instead of considering questions like shared workforces and management, shared equipment or materials, or interdependency, EPA will now look only at one question: whether either facility has the ability to direct the other facility's actions in a way that necessarily affects its air pollution permit compliance.

Rather than make a public announcement or seek public feedback, this policy change is accomplished by an attachment to a letter regarding two facilities in Pennsylvania asking for EPA's opinion on whether they were under common control.[26] This example covers a landfill and a gas-processing facility that will convert captured landfill gas into natural gas for transportation fuel. As trash decomposes, it produces significant amounts of natural gas that can be emitted as air pollution or captured and controlled in some way – including being repurposed as fuel. The captured gas will be transported by a pipeline

24 The letter addressed two other NSR issues, at the source's request. First, it applied the "reactivation policy" that governs when an idled source is considered a new source for NSR permitting. The policy applies a rebuttable presumption that a source idled for more than two years should be treated as a new source; in this instance, EPA affirmed the source's request to rebut the presumption by showing that it had continuous intent to restart the source over its seven plus years of idling. Second, the letter affirmed the source's request to treat an extension of its dock system for loading petroleum products as a modification of an existing emissions unit (the loading system) rather than a new one. This extension will allow deep-water loading and unloading of petroleum products, using a flexible hose system and underwater pipeline, meaning that the extension will conduct submerged loading rather than the above-water loading at the existing terminals.

25 40 C.F.R. § 51.165(a)(1)(ii)(A).

26 Letter from William Wehrum, EPA Assistant Administrator, to Hon. Patrick McDonnell, Secretary of the Pa. Dep't. of Envtl. Protection, (Apr. 30, 2018), https://www.epa.gov/sites/production/files/2018-05/documents/meadowbrook_2018.pdf.

from the landfill to the new processing facility, which has the contractual right to purchase all of the gas from the landfill.

Under the new interpretation of common control, these facilities are not considered together for permitting purposes. EPA's new interpretation holds that neither facility can dictate whether the other complies with its air pollution permit. The processing facility has the power to stop taking deliveries of the gas from the landfill, which then is required under its permit to dispose of its gas by flaring it (essentially, burning it). While this would change the amount of air pollution from the landfill, the landfill would still be in compliance with its permit and thus EPA does not think it sufficient control to consider the emissions from the two facilities together. The amount of gas that the landfill will deliver to the processing facility will definitely affect the latter's air pollution, but EPA does not find common control because the landfill lacks the legal authority to tell the processing facility what to do with the gas.

More insight on the agency's efforts to limit common control came in a letter regarding two similar facilities in Wisconsin.[27] In this instance, a landfill and landfill gas facility understood the Pennsylvania letter's new interpretation as placing them under common control, because one facility controls a process aspect that is the legal responsibility of the other under the relevant regulations. Instead, EPA inverted the typical meaning of common control, saying essentially that if the facilities have any activities that are separate, they should be treated separately.

This new test is much narrower and legalistic than the old one. Under the old test, EPA would have considered the practical consequences of how the facilities are designed and operated. Given that they are designed to operate together to dispose of air pollution from one, even if they have retained the theoretical legal right to stop cooperating, EPA likely would have concluded that their operations are so interdependent and mutually influencing as to consider them under common control.

3) LIMITING WHAT POLLUTION IS CONSIDERED

Even after the source has been defined, EPA is taking several actions that would limit what pollution is considered when determining whether NSR applies. These actions each provide an off-ramp for removing a new or modified source from NSR permitting;

A) *Hourly emissions: the ACE proposal*

In its Affordable Clean Energy proposal, EPA introduced a new definition for an emissions increase at the step of determining whether a change triggers NSR.[28] Even if a change would result in a source's polluting more annually, the source would avoid NSR if its emissions do not increase on an hourly basis. This is a potentially significant loophole. In the power sector and elsewhere, new investment in facilities of precisely the type ACE intends to promote

27 Letter from Anna Marie Wood, Director, EPA Air Quality Policy Division, to Gail Good, Director, Bureau of Air Mgmt., Wisconsin Dep't. of Natural Resources (Oct. 16, 2018), https://www.epa.gov/sites/production/files/2018-10/documents/ameresco_jcl_letter.pdf.

28 Under the proposal, this would apply only to electricity generating units (EGUs, better known as power plants). 83 Fed. Reg. 44,746, 44,781 (Aug. 31, 2018).

mean increased operations and increases in annual emissions. While EPA has finalized the main provisions of the ACE proposal, it did not finalize the NSR-related changes, stating that it will issue those changes in final form in a separate rulemaking.[29] If EPA finalizes the NSR changes it proposed, facilities destined to increase annual emissions in ways that would trigger NSR pollution control requirements under current law will be able to bypass NSR and operate more frequently, resulting in higher emissions, in turn leaving communities exposed to pollution increases but with little recourse.

To justify the proposal, EPA shifts its view of NSR and the purpose of its changes: to relieve sources of a "burden," not to enhance air quality or public health protection. The proposal repeats claims by power plant operators that they have refrained from investing in environmentally beneficial operational upgrades in order to avoid triggering NSR. The proposal offers no analysis to support these claims. However, operators have not foregone upgrades, but accomplished them in piecemeal fashion to evade NSR. A series of NSR enforcement actions brought by EPA against power plant operators over the past 20 years has targeted that behavior and, in some cases, resulted in settlements requiring significant investment in new pollution control measures.

The proposal does include data showing that approximately 80 percent of coal-fired power plants currently emit oxides of nitrogen and sulfur dioxide at levels greater than would be permitted under today's NSR, but the proposal does not include data to show that the plants have foregone upgrades. Instead, it suggests NSR would be a burden on those plants if they adopted the heat-rate improvement measures included in ACE. Yet, they beg the question if this is so, why is EPA not introducing provisions that would address those elevated emissions levels, which are likely to rise under the proposal? Using EPA's data, independent analysis shows that pollution would increase in 20 states as power plants responded to ACE with investments that would result in their emitting more.[30] Under current law, NSR would function to address the increases; under the proposal, NSR would no longer do so.

"If EPA finalizes the NSR changes it proposed, facilities destined to increase annual emissions in ways that would trigger NSR pollution control requirements under current law will be able to bypass NSR and operate more frequently, resulting in higher emissions."

Finally, the proposal justifies this change as relieving power plants of the burdens of NSR when they adopt

29 ACE Final Rule, 84 Fed. Reg. 32,520, 32,537 (Jul. 8, 2019) ("The EPA intends to take final action on the proposed NSR reforms in a separate final action at a later date.").

30 Amelia T. Keyes, et al., *The Affordable Clean Energy rule and the impact of emissions rebound on carbon dioxide and criteria air pollutant emissions*, 14 Envtl. Research Letters (2019). https://iopscience.iop.org/article/10.1088/1748-9326/aafe25.

the heat rate improvements identified in ACE. As drafted, however, the proposal would extend the change to all power plants including those making upgrades for other reasons. The proposal simply invites comment on whether the NSR change should be limited to power plants making ACE-specified changes. At no point here or elsewhere does the proposal argue or demonstrate that the change would yield lower levels of pollution.

B) Project Accounting: changing the process for comparing emissions increases and decreases

One of the most complicated questions in NSR is determining which changes to a facility qualify as major modifications – because it is a "major modification" that triggers the NSR permit process. Over the years, EPA has put much thought into the process of determining what changes constitute major modifications. This can be particularly complicated when a facility (for example an oil refinery) has several components that each emit air pollutants (for example storage tanks, pumps and pipes, boilers, or crackers). The current regulations require the facility to undergo the two-step "netting" process (described above) to determine if NSR applies.

Here's how it works now: under the first step, the source reviews the proposed project to determine whether it would increase emissions from the particular unit. If that project would not increase emissions, then the project does not trigger the NSR review process. If it does, then the source proceeds to step two. In step two, the source looks at emissions increases **and** decreases across the whole facility. Decreases only count if they are enforceable and occur, or occurred, within a particular window of time.

Here's how that might work in practice. In the oil refinery example, imagine that the facility was considering replacing one of its oil storage tanks; the liquid in these tanks can evaporate leading to emissions of methane, volatile organic compounds, and toxic substances like benzene. Under step 1, for example the new tank will be 25% better at controlling evaporation but will be twice as large. If so, emissions from the tank itself will go up (because 75% of 2x is greater than 100% of 1x). So, the refinery proceeds to step 2. Under step 2, perhaps the refinery is also going to replace several pumps and valves that are leaking, and that they are willing to commit to ensuring that the emissions decrease from those leaks offset the increase from the tank – and that no other projects are going to increase emissions at the refinery. In that case, the refinery can avoid triggering NSR. If not, the facility would trigger it, potentially requiring it to buy an even more efficient but also more expensive tank.

On March 13, 2018, Administrator Pruitt issued new guidance, without the opportunity for public comment, that changed how EPA will administer the NSR two-step process.[31] On August 9, 2019, EPA published a Notice of Proposed Rulemaking, entitled "Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Project Emissions Accounting.[32] The purpose of the

31 Memorandum from E. Scott Pruitt, EPA Administrator, to Regional Administrators (Mar. 13, 2018), https://www.epa.gov/sites/production/files/2018-03/documents/nsr_memo_03-13-2018.pdf

32 PSD and Nonattainment New Source Review: Project Emissions Accounting, 84 Fed. Reg. 39,244 (Aug. 9, 2019).

rulemaking is to "make it clear that both emissions increases and emissions decreases that result from a given proposed project are to be considered at Step 1 of the NSR major modification applicability test." The proposal argues that the more appropriate interpretation of the *existing* rule language would allow consideration of decreases that "occur within the scope of the project" to be considered in Step 1 along with increases, but this rulemaking would make the language more clear. Now, projects would only move to Step 2—considering all contemporaneous increases and decreases—if the project's increases and decreases net out as a major modification.

> "The purpose of the NSR program is to address emissions before construction, not to come back after the fact with a complex enforcement action – and the decreases relied on here will not be required to be enforceable anyway."

This proposal will weaken NSR. Aspects of this proposal that are concerning include the lack of clear guidance on what would be considered the "scope of the project," the fact that EPA says it will defer to companies' own determinations of project netting,[33] and the fact that decreases considered in Step 1 do not require enforceability (in contrast to how decreases have always been considered in Step 2). Given the financial incentive for businesses to avoid major source permitting and the complexity of the calculations and projections that are required to make these assessments, these changes will allow sources to define projects in expansive ways in order to claim decreases that keep the projects out of NSR. That would allow a company to define a project as including the real purpose of the project, plus any emissions decreases it can claim around the facility, without considering any contemporaneous *increases* – even when those decreases are only tangentially related to the project and are not actually enforceable. Given EPA's intention of deferring to companies' own judgments, this could very well be a loophole allowing the construction of air emitting facilities that turn out to be major. The purpose of the NSR program is to address emissions before construction, not to come back after the fact with a complex enforcement action – and the decreases relied on here will not be required to be enforceable anyway.

C) *Ambient air exclusions: removing some areas from protection*

When EPA analyzes air sources' emissions, it looks at what effect pollution will have on the ambient air. It excludes areas that Clean Air Act permitting does not cover, such as the air inside buildings or outdoor areas not open to the public. Ambient air is defined in Code of Federal Regulations as "that portion of the atmosphere, external to buildings, to which the

33 *Id.* at 39,250.

general public has access."[34] This has historically been interpreted to exclude the air over land that the source owns or controls and to which public access is precluded by a fence or other physical barriers. As part of its NSR "modernization" effort, however, EPA issued a draft guidance document for public comment expanding what may be excluded from ambient air.[35]

Instead of requiring a physical barrier to preclude access, EPA now proposes to consider other options. Fences still count – but so might surveillance cameras and no trespassing signs, without a fence. This change could reduce the expense of creating restricted access areas and allow sources to exclude larger areas for less money, but at a cost to public safety.

The Clean Air Act directs EPA to focus on the public's risk of exposure to pollution from ambient air, as opposed to air quality events that occur on, and remain confined to, private property. NSR permitting is one of the ways EPA does this – so if more areas can be excluded from NSR requirements then more air pollution may be allowed. Imagine standing downwind from a factory: emissions will be more concentrated, and more likely to be dangerous, closer to the factory. If the factory builds a fence over land it owns to prevent public access, it will help keep people from breathing the air. But if that measure is just a no trespassing sign, then people may be able to get closer to the pollution and be in more danger.

As part of permitting, sources are expected to model what air pollution consequences they will create. It is frequently the case that at or close to the "fenceline" of a source is where the air pollution is the highest, and so that area dictates what pollution reduction measures are necessary. In many instances, this policy will not change anything; sometimes there is a community or a business or a school or a farm right up against the fence. In other instances, this policy change will allow a source to claim that unhealthy pollution levels are acceptable in a larger area even if the public might in fact be able to access it.

D) *"Good neighbor" significance: easing limits on when emissions from one state contribute to air pollution in another state*

Implementing the "good neighbor" provision, introduced in the discussion of the NOx SIP Call in Section 1(B) above, requires determining what constitutes a state's "significant contribution" to a downwind community's air quality problems. This is a measure of what concentration of air pollution must end up in one downwind state for the upwind state to be expected to control it. The Supreme Court backed the agency's approach to making this determination, and the agency relied on this Court-backed approach in a subsequent "good neighbor" federal plan.[36]

34 40 CFR § 50.1(e).

35 EPA, Revised Policy on Exclusions from "Ambient Air" (Draft Nov. 2018), https://www.epa.gov/sites/production/files/2018-11/documents/draft_ambient_air_guidance_110818.pdf (On September 26, 2019, EPA sent the ambient air guidance to the Office of Information and Regulatory Affairs for review, a required step prior to finalizing and publishing the guidance. As of the time of publication, EPA has not published the final guidance.).

36 *See EPA v. EME Homer City Generation, L.P.*, 572 U.S. 479, 524 (2014); *see also Wisconsin v. EPA*, Docket No. 16-1406, slip op. at 5 (D.C. Cir. Sept. 13, 2019) (Reviewing the 2016 federal plan and leaving undisturbed EPA's four-step process for implementing the "good

The Trump EPA, however, has moved to alter this approach by raising the threshold for what emissions are considered to "significantly contribute" to downwind air quality problems.

EPA uses a four-step process for implementing the "good neighbor" provisions. First, EPA and states identify downwind areas that are projected to have unhealthy air quality; second, they identify upwind states whose air pollution significantly contributes to that downwind air quality problem; third, they identify what emission reductions would eliminate that contribution; and fourth, they adopt rules that would require those emissions reductions. Since at least 2008, EPA has considered a state's contribution to be "significant" if it was responsible for at least 1% of the standard at issue (e.g., 0.7 ppb of a 70 ppb ozone standard).

In August 2018, EPA broke with its own well-established (and successfully litigated) approach when it issued a memorandum providing guidance to states regarding the 2015 NAAQS for ground level ozone. For the two prior ozone standards, issued in 2008 and 1997, EPA had set the significance threshold at 1% of the standard itself. Because those standards were 75 ppb and 85 ppb respectively, the contribution thresholds were 0.75 ppb and 0.85 ppb. For the 2015 NAAQS (which was set at 70 ppb by the Obama Administration, pursuant to court-ordered deadline), the Trump EPA set the threshold at 1 ppb.

In the memo setting this higher level, EPA noted that it used the same historical approach of 1% of NAAQS, or 0.70 ppb, and found that it was "generally comparable" to its 1 ppb approach. Its analysis showed that 1 ppb would cover 70 percent of all the air pollution at targeted downwind areas, rather than the 77 percent that would be captured by using the historical approach. They acknowledge that this means less pollution reduction but claim the relaxed threshold "still generally captures a substantial amount" of transported pollution. Despite this claim and the seeming modesty of the 7% increment of pollutant concentration excluded from any "significant contribution" determination, this change will have consequences. By raising this threshold, EPA is taking away cost-effective reductions from the "good neighbor" program that would fall within the scope of a "significant contribution" determination had EPA maintained the approach used in the 3 previous rules.

4) LOWERING SUBSTANTIVE REQUIREMENTS

In addition to its actions to keep sources out of NSR, limit what pollution NSR covers, and undermine the consistency and integrity of the NSR program, the Trump EPA is also changing some of the substantive requirements that will go into NSR permit conditions.

A) *Once-In-Always-In: removing the most stringent limits on toxic air pollution*

As part of the Clean Air Act (CAA), EPA regulates hazardous air pollutants (HAPs). HAPs include benzene, metals like mercury, and other pollutants that are known to cause cancer and other serious health effects. A facility is considered a major source if it has the potential to emit 10 tons per year of any one HAP or 25 tons per year of any combination of HAPs. All other facilities are considered area sources. Major sources, such as

neighbor" provision).

power plants and petroleum refineries, are subject to Maximum Available Control Technology (MACT) standards for regulated pollutants. MACT standards are stringent pollution control requirements based on the technology used in the best-controlled sources in the industry.

MACT controls and operational practices reduce emissions of HAPS so much that the source's emissions drop below the 10/25 tons per year threshold to be considered a major source. Under current law, a major source remains a major source even after the application of MACT and the resulting achievement of emissions reductions. That means the source must continue to operate under the more stringent requirements that are applied to major sources and maintain MACT-level low emissions. This policy, dating to 1995, is known as "Once-In-Always-In."

> "Reclassification from a major source to an area source means it is subject to less stringent emissions control and compliance requirements."

In early 2018 EPA issued a memorandum to rescind the Once-In-Always-In policy.[37] While the rescission was effective as soon as the memorandum was issued, it quickly drew legal challenges in part because it was announced without public comment.[38] Subsequently, in June 2019, EPA proposed a rule that would codify the memorandum's policy change.[39] The replacement weakens the pollution control technology requirements for major sources of HAPs, if those sources commit to limiting their emissions to the less constraining threshold levels of 10 tons per year for any single HAP and 25 tons per year for any combination of HAPs. By amending its operating permit to incorporate those threshold HAP emissions levels, a major source can be reclassified as an area source. Reclassification from a major source to an area source means it is subject to less stringent emissions control and compliance requirements.

The new approach – allowing the source to be treated as an area source after it reduces its emissions below the threshold – has the effect of replacing the source's initial MACT requirements, and the greater level of emissions reductions achieved, with a limit of 10 and 25 tons per year. That means, for all practical purposes, the newly re-classified area source would be constrained by the *thresholds*, not by the more stringent MACT requirements.

The result could be a large increase in pollution. For

37 Memorandum from William L. Wehrum, EPA Assistant Administrator to Regional Air Division Directors (Jan. 25, 2018). https://www.epa.gov/sites/production/files/2018-01/documents/reclassification_of_major_sources_as_area_sources_under_section_112_of_the_clean_air_act.pdf.

38 After the proposal was issued, the D.C. Circuit ruled the memorandum was not a final agency action ripe for judicial review and dismissed the suit for lack of subject matter jurisdiction. *California Communities Against Toxics v. EPA*, No. 18-1085, slip op. (D.C. Cir. Aug. 20, 2019).

39 Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act, 84 Fed. Reg. 36,304 (Jul. 26, 2019).

example, after first applying the MACT, the source could switch to less effective pollution controls, or operate its controls less frequently or at lower removal efficiencies, and release more HAPs *up to the major source threshold amounts*. This increase could have significant health effects on local communities, especially those that are located near multiple major stationary sources of toxic air pollutants.

Allowing a major source to stop operating these stringent controls would be counter to the primary goal of the CAA and, especially its MACT provisions, of protecting public health and the environment by minimizing emissions consistent with standards such as MACT-based ones.

In a Declaration attached to California's brief as part of litigation over this change, an official from the California Air Resources Board identified 42 sources of air pollution that are emitting below the 10 ton or 25 ton limits and would be eligible to reclassify and increase their pollution.[40] According to California, this could mean up to 935 tons per year of additional toxic air pollution in California communities – this in the state that many consider as having the most stringent state standards. In states where federal regulations are not supplemented or backstopped by separate state regulations, the proportional increases could be even higher. In fact, the proposal was accompanied by a Technical Support Memorandum listing more than thirty sources that have already changed their permits in reliance on this policy.[41] In its Regulatory Impact Analysis accompanying the June 2019 proposal, EPA identified $169 million that sources could save in reduced monitoring, recordkeeping, and reporting.[42] That same analysis determined that, while the rule could allow as much as 1,140 tons more HAPs from one source category alone, that analysis was not certain enough to quantify *any* health effects.[43]

Conclusion

The NSR program plays a crucial role in state and community efforts to achieve and maintain healthful air quality by requiring that new construction be cleaner than existing facilities. Rather than fulfill its statutory duty to ensure that companies invest in pollution control when they undertake new

40 Brief for Petitioner, Decl. of Brian Clerico ¶ 23, Cal. Communities Against Toxics v. EPA, No. 18-1085 (D.C. Cir. Oct. 10, 2018) (Citing Union of Concerned Scientists, EPA Decision Increases Hazardous Air Pollution Risk, https://www.ucsusa.org/science-and-democracy/epa-decisionincreases-hazardous-air-pollution-risk#.W6AD2rpFyUm).

41 Technical Support Memorandum from Elineth Torres, No. EPA-HQ-OAR-2019-0282, (Draft Report May 2019), https://www.epa.gov/sites/production/files/2019-06/documents/mm2a_proposal_technical_support_memo_emissions_analysis_final.pdf

42 Office of Air Quality Planning and Standards, EPA, Regulatory Impact Analysis for the Proposed Reclassification of Major Sources as Area Sources under Section 112 of the Clean Air Act, 3-4 tbl. 3-1, 1-6 tbl.1-1 (May 2019), https://www.epa.gov/sites/production/files/2019-06/documents/mm2a_proposal_ria_final.pdf.

43 *Id.* at 4-7 tbl.4-1, 5-1.

projects, the Trump EPA is eroding the NSR program. Through a series of actions, EPA is curtailing the program's reach and effectiveness in four ways: narrowing what counts as a source of air pollution; limiting what pollution is counted; undermining the consistent application of the program; and weakening substantive requirements. By creating easy avenues for projects to avoid NSR or undercut its requirements, EPA is increasing the chances that projects that should include additional pollution control will be constructed without it. The piecemeal process EPA has followed in making these changes has masked their potential effect, leaving the public in the dark about the potential air quality effects of these changes and less able to hold the agency accountable for its actions.

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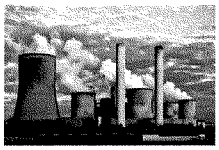
MEREDITH HANKINS August 21, 2018

The Clean Power Plan Replacement Comes With a Major Change to NSR (Part 1)

Important pre-construction environmental review for power plant modifications at risk

Last month, I discussed a proposal before the House Energy and Commerce Subcommittee on Environment to amend the Clean Air Act to weaken pre-construction review for modifications to equipment at large stationary sources. Since then, the Subcommittee voted H.R. 3128 out on a party line vote, and it's currently waiting for the full House Energy & Commerce Committee to take it up. Now, EPA has baked a very similar proposal into their Clean Power Plan replacement. This post borrows from my previous coverage to explain why this change matters, and provides additional context including EPA's own analysis released today. In a forthcoming post, I'll explore the specific legal questions raised by EPA's proposal to amend its interpretation of the Clean Air Act.

New Source Review (NSR) is the pre-construction review permitting program for air pollution from large stationary sources like power plants and petroleum refineries. New major sources of air pollution and existing sources making major modifications are required to submit applications to the relevant regulatory agency (usually a state or local agency – here in Los Angeles, it's the South Coast AQMD) before starting construction. The regulatory agency then reviews those applications and issues permits-to-construct requiring state-of-the-art air pollution controls to ensure that any potential increases in air pollution are mitigated to the maximum extent possible. The process on the ground is of course a bit more complicated, and differs depending on whether the area where the source is located is in attainment with the National Ambient Air Quality Standards (NAAQS) for the pollutant(s) being emitted. But it's not necessary to dive that deep into the weeds to understand why the proposed changes to NSR matter.



The House proposal would amend the Clean Air Act such that only those changes that increase the hourly rate of emissions from the source would be considered "modifications" subject to NSR. EPA is proposing to amend its regulations to allow states the option of considering hourly rates when evaluating modifications to power plants (known as electricity generating units, "EGUs"). These proposals contrast with the Clean Air Act's current definition of modification, which covers "any physical change in, or change in the

method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted," which EPA has interpreted in its regulations to mean any increase in actual annual emissions.

The potential changes are significant because they create a giant loophole for industry: sources can increase the hours of operation for existing sources (and thus the actual cumulative pollution emitted from the source) without undergoing NSR review — so long as the hourly average remains the same. This might seem like a minor change, but it has substantial implications due to one of the biggest weaknesses of the NSR program: its grandfathering problem.

Congress generally exempted existing stationary sources from meeting new standards under the Clean Air Act, assuming that pollution controls would gradually be phased in as old equipment was upgraded under a modification triggering NSR, or retired and replaced with new equipment subject to NSR. However, contrary to Congressional expectation, refineries and power plants have hung on to grandfathered equipment far beyond their expected lifetimes, indefinitely postponing modifications and upgrades in order to avoid being required to install expensive air pollution control equipment under NSR. The EPA has been trying to deal with this problem for decades, issuing an Enforcement Alert in 1999 that the agency believed regulated industries were misleading regulators to get out of NSR. (The EPA was, of course, correct — virtually all major US refiners would enter global consent decrees over the next decade accepting some applicability of "new source" standards to old equipment as a result of Clean Air Act violations.)

The NSR modification provisions are one of the very few openings to regulate emissions from grandfathered equipment, ensuring that at the very least existing equipment can't increase emissions without undergoing regulatory review. Now, EPA and the House GOP are proposing to significantly weaken even that regulatory hook by giving these grandfathered sources a window to increase emissions without any kind of environmental review.

EPA argues that changes to NSR are an integral part of their Clean Power Plan replacement in order to allow EGUs to update their equipment and meet inside-the-fenceline energy efficiency improvements deemed the Best System of Emission Reductions (BSER). (See Megan Herzog's excellent compiled resources for explanations of BSER and the Clean Power Plan). But this ignores the grandfathering history described above. EPA admits that its Clean Power Plan replacement is likely to result in emission increases on an annual basis that would normally trigger NSR:

> *As the EGU increases its generation, to the extent the EGU operates beyond its historical levels by a meaningful amount, it could result in an increase in emissions on an annual basis, as calculated pursuant to the current NSR regulations. (Proposal at p. 109)*

And the agency also admits that the majority of power plants are subject to weakened environmental standards, citing a study finding that **eighty percent** of coal-fired EGUs "have emissions rates for NOx and SO2 at levels that exceed those typically required under NSR" and

concluding that those EGUs "would have to install additional controls for NOx or sulfur dioxide (SO2) if these [energy efficiency] projects triggered the applicability of NSR." (Proposal at p. 112)

But instead of celebrating that these grandfathered sources might finally be subject to environmental review, EPA is seeking to allow these sources to once again escape NSR. These sources have delayed needed maintenance and upgrades for decades in order to avoid undergoing environmental review and being forced to install air pollution controls. That they might finally be forced to undergo environmental review is a net *positive* for public health and the environment, yet EPA describes it only as a negative:

> *Were such projects found to trigger major NSR permitting, the consequences would include an increase in the sources' compliance costs and time for project implementation, enormous new permitting burdens on state permitting authorities, and increased costs to consumers. Existing plants might therefore forego investing in efficiency improvement projects, rather than risk triggering NSR by undertaking such projects. Worst case, if compelled to undertake efficiency improvement projects in order to comply with state-developed standards of performance, some existing facilities might choose to shut down altogether, in advance of the end of their expected useful life. (Fact Sheet at p. 2)*

Oh no, a "worst case" scenario that involves the retirement of highly polluting equipment grandfathered from environmental regulation that's no longer economically feasible to maintain? What a terrible outcome for public health and the environment!

Without this proposal, it's likely these old coal-fired EGUs would continue to retire in the face of market pressures from cheaper natural gas. But this change to NSR may extend the life of equipment by allowing coal plants to upgrade without facing environmental review, forcing fenceline communities to bear the burden of increased hours of operation from highly polluting equipment spewing both toxic and conventional pollutants into their homes.

Clean Power Plan, coal, NSR, power plants, Trump, Wheeler

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United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

October 24, 2008

Hon. Stephen Johnson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Dear Administrator Johnson:

We are writing to express our grave concern that the EPA could be putting our nation's air quality at risk if the agency promulgates its currently pending New Source Review proposals incorporating "the EGU Hourly Test." Air pollution and poor air quality continue to threaten the health and quality of life of millions of Americans, especially those of children and older citizens. If the EPA moves forward with the New Source Review proposals, our nation's air and citizens will further suffer. That is why we request that you withdraw this dangerous proposal.

The flawed proposals in question are the: "Prevention of Significant Deterioration, Nonattainment New Source Review (NSR), and New Source Performance Standards: Emissions Test for Electric Generating Units," 70 *Federal Register* 61081 *et seq.* (October 20, 2005) and "Supplemental Notice of Proposed Rulemaking for Prevention of Significant Deterioration and Nonattainment New Source Review: Emission Increases for Electric Generating Units," 72 *Federal Register* 26,202 *et seq.* (May 8,2007) (collectively "the EGU Hourly Test" proposal).

If adopted as a final rule, the EGU Hourly Test proposal would result in substantially higher emissions of dangerous air pollutants, undermining the Clean Air Act's public health and environmental protections. The proposal would permit electric generating units (EGUs) to increase their operating capacity and annual emissions without prior review, without installation of air pollution controls, and without modeling of impacts on ambient air. This, in turn, would significantly increase the likelihood that i) National Ambient Air Quality Standards that protect public health will be violated, threatening the health of children and families across the nation; ii) limits that preserve air quality in clean air areas would be breached; and iii) Class I pristine air areas such as National Parks will be degraded.

In addition, a critical component of the EPA's justification for the EGU Hourly Test proposal has been negated by a recent decision of the United States Court of Appeals for the D.C. Circuit, which vacated the Clean Air Interstate Rule (CAIR). Under the proposed EGU Hourly Test rule, air pollution sources would be permitted to increase

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their annual emissions without triggering the protections required under the New Source Review (NSR) rules. The agency argued in its proposal, however, that any potential emission increases from the EGU Hourly Test rule would be mitigated or offset by emissions reductions mandated by CAIR. (*See* 72 Federal Register 26,208.) This purported reassurance is no longer available as a result of this summer's decision by the D.C. Circuit Court of Appeals vacating CAIR.

Because the CAIR rule was crucial to the agency's initial justification of the proposal, the vacatur of the CAIR rule throws into serious doubt the already questionable wisdom and legality of the promulgation of the EGU Hourly Test proposal.. At a minimum, the agency must re-propose the EGU Hourly Test rule, offering explicit analysis and justification of the proposal in the absence of CAIR, and then must invite and respond to public comment on the re-proposal. Promulgating the rule as proposed without following these steps would raise serious legal questions under the Clean Air Act and the Administrative Procedure Act. As noted, since the agency viewed the emissions reductions resulting from the CAIR rule as "greatly reduc[ing] the significance of hours of operations on actual emissions from the sector nationally", the vacatur of CAIR makes it imperative for the EPA to address the significance of increased hours of operation and increased annual emissions from the sector.

At the same time, the agency's reliance on the CAIR rule as justification for the Hourly Test is itself wholly unpersuasive, for the simple reason that this approach unacceptably forfeits prior review of potentially air quality-degrading emissions increases. The vacatur of the CAIR rule only compounds the underlying threat to air quality posed by the EGU Hourly Test proposal. Seventy-one percent of the nation's coal-fired capacity is between 27 and 57 years old. As EPA's proposal recognized, electric power companies are almost certain to extend the life of these plants through renovations. Once renovated, these plants can be expected to operate for longer periods of time without installing additional controls, which will result in their annual, actual emissions increasing significantly, degrading air quality to the detriment of human health and the environment.

In addition, these emissions increases will occur without the prior knowledge and analysis of state air quality officials, and without the installation of air quality controls needed to ensure that those emissions do not impede the attainment or maintenance of annual National Ambient Air Quality Standards. Planning and implementing control strategies to attain the more stringent particulate matter and 8-hour ozone standards will be significantly more difficult. In fact, the effect of the rule's *de facto* exemption of large utility sources from NSR will compel air quality officials to impose more stringent control requirements on a greater number of smaller sources of emissions, many of which are less well-positioned to bear the additional costs. Even then, there is reason to fear that additional requirements for small sources will fail to offset the emissions, since power plants generate thousands of tons per year of uncontrolled nitrogen oxides, sulfur oxides, and volatile organic compounds.

In sum, both the dangerous effect of the proposed rule and the vacatur of CAIR put EPA in an untenable position if it goes forward with promulgating the rule as initially

proposed without further procedural and analytical steps required by the Clean Air Act and the Administrative Procedure Act. Given the weight of evidence against the rule, if the EPA does promulgate the rule, this Committee may be compelled to undertake extensive investigation and oversight of the agency's and its officials' conduct and actions in connection with the promulgation of the rule.

For these reasons, we urge the EPA to abandon the EGU Hourly Test proposal. If you have any questions or desire further information, do not hesitate to contact Joseph Goffman of the of the Environment and Public Works committee at 202 224 8832 or Laura Haynes of Senator Carper's staff at 202-224-2441. Thank you for your consideration in this matter.

Sincerely,

Barbara Boxer
Chairman
Committee on Environment
and Public Works

Tom Carper
Chairman
Subcommittee on Clean Air
and Nuclear Safety

WORKING PAPER
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Carbon Standards Re-Examined

An Analysis of Potential Emissions Outcomes for the Affordable Clean Energy Rule and the Clean Power Plan

Kathy Fallon Lambert, Amelia T. Keyes, Charles T. Driscoll, Dallas Burtraw, Habibollah Fakhraei, Jonathan J. Buonocore and Jonathan I. Levy

I. The Context

On June 19, 2019, the U.S. Environmental Protection Agency (EPA) repealed the 2015 Clean Power Plan (CPP) and released the final Affordable Clean Energy rule (ACE rule). As part of their final rule package, EPA also released the Regulatory Impact Analysis (RIA), which estimates expected changes in emissions of carbon dioxide (CO_2), sulfur dioxide (SO_2), and nitrogen oxides (NO_x) between 2021 and 2050 for a reference case with no carbon standards, the CPP, and the ACE rule.

The final ACE rule is a limited "source-based" regulation that defines the "Best System of Emission Reduction" (BSER) as heat rate improvements (HRI) at individual coal-fired electricity generating units[1]. By contrast, the CPP is a "system-based" approach that defines the BSER based on how the electrical grid of interconnected generating facilities functions and the types of measures that have reduced emissions in the past; including renewable energy generation, fuel-switching, co-firing, demand-side energy efficiency, and emissions trading.

Our team previously analyzed EPA's 2018 draft ACE rule and RIA and published a peer-reviewed paper[2] showing that, by EPA's estimates, the draft rule could result in emissions rebound at the national, state, and facility levels with increases in emissions in up to 20 states and DC, and higher national CO_2 emissions in 2050 compared to no carbon standards. "Emissions rebound" occurs when a facility undergoes heat rate improvements to increase its efficiency and as a result operates longer and more often, leading to increased emissions[3]. The results of our paper were summarized in the fact sheet, *Carbon Standards Examined*.

For this current analysis we examined the underlying assumptions, emissions results, and conclusions in the 2018 draft RIA and the 2019 final RIA for the ACE rule. We also modeled an alternative reference case and analyzed several policy cases beyond those in the RIAs to evaluate a range of possible emissions outcomes. Our results shed new light on the potential magnitude of emissions rebound under the ACE rule, the emissions reductions that could occur under an updated version of the CPP, and the robustness of these divergent policy approaches under an alternative 'high reference case' with higher electricity demand, natural gas prices, and renewable energy costs than those assumed in the final ACE rule RIA.

II. The Bottom Line

There is considerable uncertainty in the assumptions associated with projections of "business as usual" as well as how a given policy will be implemented. These assumptions drive the resulting estimated emissions changes and associated climate and health outcomes. This uncertainty is particularly pronounced in highly dynamic systems, such as energy systems, that experience large fluctuations in response to unpredictable markets and evolving technology. Therefore, it is important to evaluate key assumptions when interpreting the results of RIAs.

The final 2019 RIA for the ACE rule estimates that establishing HRI as the BSER would result in a 0.7% decrease in national CO_2 emissions from the electricity generation sector in 2030 and increases in CO_2 emissions at roughly one-fifth of the regulated facilities.

Our analysis shows that:

- the final RIA for the ACE rule underestimates the magnitude of state-level emissions rebound for CO_2, SO_2, and NO_X;
- by underestimating emissions rebound the final RIA also underestimates the potential adverse air quality and health effects of the ACE rule in some state;
- an updated version of the CPP could achieve much larger emissions reductions than considered in the final RIA; and
- CO_2 emissions outcomes for an updated version of the CPP are estimated to be robust under an alternative future reference case and emissions outcomes for an ACE rule are not.

Our analysis shows that the final ACE rule would do little to address climate change and would likely have even greater adverse air quality and health effects in some states than EPA has projected. Our results are consistent with past research in showing that as heat rates improve, emissions and emissions rebound increase relative to lower heat rate improvements[4]. Further, our results show that the large CO_2 emission reductions that would be achieved with an updated version of the CPP would be robust under higher costs and electricity demand while emissions under the ACE rule would likely increase. Both the magnitude and the durability of emissions reductions influence future climate change, air quality, and human and ecosystem health.

III. The RIA Underestimates the Potential Magnitude of Emissions Rebound Under the ACE Rule

With updated assumptions in the final RIA, EPA estimates that the final ACE rule would achieve an average heat rate improvement of 1.2%, resulting in a 0.7% reduction in electricity sector emissions of CO_2 compared to the no-policy reference case in 2030. This change in CO_2 represents approximately a 35% reduction from 2005 levels, almost all of which is due to anticipated continued declines in emissions under the no-policy reference case. EPA further estimates that in 2045, national emissions of CO_2 could be slightly higher under the ACE rule compared to no regulation.

At the state level, EPA estimates that under the final ACE rule emissions of CO_2 would increase in 15 states plus DC compared to their no-policy reference case (Table 1, Case 1), representing an increase in emissions at 18% of regulated facilities in 2030. EPA further estimates that emissions of SO_2 would increase in 14 states and emissions of NO_X would increase in 13 states plus DC in 2030 compared to no policy. SO_2 and NO_X can adversely affect air quality by contributing to the formation of fine particulate matter ($PM_{2.5}$) and ozone. Based on our side-by-side comparison of several ACE policy cases, we conclude that the final RIA for the ACE rule underestimates the potential magnitude of emissions rebound for CO_2, SO_2, and NO_X.

The final 2019 RIA includes several notable assumptions about both the no-policy reference case and the ACE policy case that influence the emissions and health outcomes. The final RIA did not consider EPA's plan to change the New Source Review (NSR) provision of the Clean Air Act that had been a central element of the draft RIA. However, EPA has announced that it intends to finalize NSR changes in the coming months to reduce the likelihood that regulatory review would be triggered when facilities undergo physical or operational changes that may lead to increased emissions. The final RIA notes that the impact of NSR reform on the projected outcomes of the ACE rule will be analyzed at that time.

In addition, the ACE policy case in the final RIA analysis excluded two candidate HRI technologies (blade path upgrades and redesign/replace economizers) that are part of the BSER because it is assumed that they could trigger NSR. These two technologies have the greatest potential to improve heat rates of the six candidate technologies included in the final RIA and may become cost-effective when EPA modifies NSR. Biomass co-firing was also eliminated from the final ACE rule and not considered in the modeling of emissions impacts. Biomass has relatively high emissions factors at the source therefore emissions impacts should be evaluated if it is reinstated in the ACE rule. Notably, the reliance in the ACE rule on the criterion of "broadly achievable across the country" to determine eligible practices and technologies for the BSER runs counter to the wide variation in

facility types in the U.S. and rules out several widely available options for reducing CO_2 emissions, resulting in a low performance standard for emissions reductions.

The final RIA also excludes the Section 45Q tax credit for carbon capture in the ACE rule analysis. The Section 45Q amendment to the Internal Revenue Code was included in the Bipartisan Budget Act of 2018 and provides a tax credit for carbon capture, utilization, and storage (CCUS) to incent investment in CCUS technology at electricity generating plants and industrial facilities. While the RIA provides an alternative no-policy reference case with the Section 45Q tax credit, it is not included in the RIA ACE policy case. We modeled a reference case and an ACE policy case with 45Q to enable a more comprehensive comparison (Table 1, Case 4).

The overall effect of assumptions about NSR, HRI technologies, and the 45Q tax credit for CCUS in the final ACE rule RIA is to (1) reduce the number of candidate coal plants that would implement heat rate improvements compared to their draft RIA; (2) decrease the fleetwide heat rate improvement that is achieved by affected sources from 4.5% to 1.2%; and (3) eliminate carbon capture and other technologies from the modeling analysis for the ACE rule policy case. As a result, these assumptions minimize the estimated magnitude of potential emissions rebound at affected electricity generation facilities.

We conducted a side-by-side comparison of four different ACE policy cases to evaluate the potential for emissions rebound under alternative assumptions that bracket a range of options for how the ACE rule may actually be implemented given the anticipated NSR reform and implementation of 45Q (Table 1). Cases 1-3 are taken from EPA's 2018 and 2019 RIAs. Case 4 was independently modeled with the same Integrated Planning Model (IPM) that EPA used in this and other RIAs. The four cases suggest that (1) state-level SO_2 emissions rebound could be higher with an increase in HRI, even without NSR reform (Case 2 compared to Case 1); (2) state-level emissions rebound for all three pollutants could be higher with a HRI of 4.5% facilitated by NSR reform than with a HRI of 2% (Case 3 compared to Case 2); and (3) state-level emissions rebound for all three pollutants could be higher for a given heat rate improvement when 45Q is included, even without NSR reform (Case 4 compared to Case 3). Case 4 also demonstrates that the 45Q tax credit could exacerbate co-pollutant emissions rebound under ACE due to the substantial heat rate penalty that can be incurred by CCUS[5].

Table 1: Estimated Emissions Increases for States with Emissions Rebound Under Four HRI Policy Cases[‡]
(million short tons CO_2, thousand short tons SO_2 and NO_x)

	Case 1: EPA 2019 FINAL ACE RIA[6] 1.2%* HRI @ $29/kW No NSR reform			Case 2: EPA 2018 DRAFT ACE RIA[7] 2% HRI @ $50/kW No NSR reform			Case 3: EPA 2018 DRAFT ACE RIA[7] 4.5% HRI @ $50/kW NSR reform			Case 4: Our 2019 Case 4.5% HRI @ $50/kW with 45Q No NSR reform		
	CO_2	SO_2	NO_x	CO_2	SO_2	NO_x	CO_2	SO_2	NO_x	CO_2	SO_2	NO_x
# of states/DC	16	13	14	17	12	13	18	19	21	14	15	20
Total rebound	2.9	2.4	2.1	2.1	4.8	1.0	8.5	12.0	4.3	19.0	38.0	15.0
Min/Max state increase	<0.01 - 0.82	0.02 - 0.54	0.01 - 0.55	<0.01 - 0.60	0.01 - 0.90	0.01 - 0.49	<0.01 - 1.4	<0.01 - 2.4	<0.01 - 0.90	<0.01 - 4.32	0.03 - 11.5	<0.01 - 3.76

‡Results represent the difference between the policy case and its associated mid-range, no-policy reference case. Emissions from generation on tribal lands included. *Equivalent to a 1.5% average capacity weighted HRI for the subset of sources that implement HRIs.

EPA has announced its intent to promulgate NSR reform in a forthcoming rule, and the Internal Revenue Service is expected to finalize the 45Q tax credit. Given the results above, we expect that the magnitude of state-level emissions rebound of the ACE rule, and the resulting local air quality and health impacts, are likely to be larger than the magnitude estimated in the final ACE RIA. This finding is consistent with our previous analysis in suggesting that NSR reform is likely to lead to higher HRI, and higher HRIs can have worse emissions outcomes than lower HRIs[4].

IV. A Clean Power Plan Would Likely Achieve Larger Emissions Reductions Than Estimated by EPA

EPA repealed the CPP in June 2019, emphasizing the Agency's assessment that the CO_2 emissions outcomes of a 32% reduction from 2005 by 2030 would be achieved without its implementation. However, it is possible that the current, or an updated, version of the CPP would achieve additional emissions reductions either directly, by establishing a regulatory approach that controls leakage and allows for ratcheting down emissions over time; or indirectly, by sending a clear market signal that the standards will ensure a durable transition away from fossil fuel to cleaner energy sources.

The 2019 RIA concludes that the CPP will have no impact on CO_2 emissions compared to no policy, based on a set of modeling assumptions that depart from the original expectations for the implementation of the CPP. Specifically, the CPP scenario in the final RIA analysis does not require states to limit emissions leakage to mitigate the potential effects from new sources and interstate trading, nor does it account for the use of demand-side energy efficiency for compliance. The final RIA analysis also delays the implementation of the CPP until 2025 (referred to as tolling). The net effect of these modified assumptions is to depress the potential emissions benefits of the 2015 CPP.

In recognition of the inter-connectedness of the energy system and full range of measures that have been effective at reducing emissions, we modeled an updated version of the CPP to reflect what the CPP might achieve if it were established in 2019. Specifically, the mass-based caps have been updated to reflect more current natural gas prices and renewable energy availability as well as the emissions progress that has been made since 2015. This resulting 'Updated 2019 CPP' case lowers the 2015 mass-based emissions caps by half, applies the standards to all existing fossil-fuel-fired facilities, controls the potential for leakage by constraining the emission rate from new natural gas builds to 100 pounds per megawatt-hour, allows national trading, and assumes a 1.5% incremental annual increase in demand-side energy efficiency. The results show that the 'Updated 2019 CPP' could achieve an estimated 60% reduction in CO_2 emissions from 2005 levels by 2030, which is equivalent to a 37% reduction from the no-policy case (Table 2).

Under the 'Updated 2019 CPP', total national emissions of SO_2 and NO_x are estimated to decline by 47% and 40%, respectively, from the no-policy case in 2030 (Table 2). Further, large SO_2 and NO_x emissions reductions are projected for several states with high air pollution burdens including Ohio, Illinois, Pennsylvania, Florida, and Texas, which would result in air quality improvements and health benefits.

Table 2: Change in Electricity Sector Emissions for Policy Cases Compared to No-Policy Reference Cases* in 2030

Policy Case	CO_2	SO_2	NO_x
ACE rule (EPA 2019 model run)	-0.7%	-0.6%	-0.9%
2015 CPP (limited trading, EPA 2018 model run)	-3.5%	-3.6%	-6%
Updated 2019 CPP (new model run)	-37%	-47%	-40%

*The no-policy reference cases represent mid-range reference case conditions.

V. CO_2 Emissions Outcomes Would be Robust Under a Clean Power Plan and Not Under an ACE Rule

Given that energy markets are changing rapidly, and the future is extremely difficult to predict, it is useful to evaluate carbon standards under a range of plausible future energy scenarios, or reference cases. The draft and final RIAs evaluated the emissions consequences of ACE and the EPA's interpretation of the CPP under reference cases that represent mid-range assumptions for electricity demand, alternative energy costs, and other assumptions. We conducted new model calculations to assess the extent to which the estimated emissions outcomes from the ACE rule and the CPP would be robust under changing market conditions.

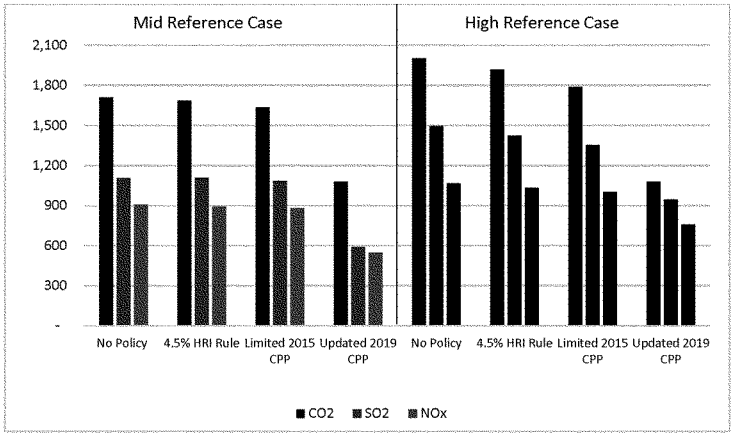
In this analysis, our 'Mid Reference Case' uses similar demand, natural gas, and renewable energy costs as the draft ACE RIA. Our 'High Reference Case' uses higher energy demand, natural gas prices, and renewable energy costs. The assumptions for the 'High Reference Case' are based on the Annual Energy Outlook (AEO) 2018[8] high

demand case; AEO2018 low oil and gas resource case (i.e., high gas price); AEO2018 energy storage costs; and the 2018 Annual Technology Baseline[9] high scenario for wind and solar costs from the National Renewable Energy Laboratory. Both of our reference cases include NSR and the 45Q tax credit for CCUS. The 45Q tax credit has the effect of lowering the total reference case emissions of CO_2.

For the ACE policy case in this comparison, we assumed a 4.5% average fleetwide HRI at $50/kW for regulated coal-fired utilities. We used two CPP policy cases in the analysis. The 'Limited 2015 CPP' case represents one example of an unlikely worst-case scenario that applies the 2015 emissions targets to existing coal-fired and natural gas-fired facilities with state trading but does not constrain emissions from new natural gas plants that are projected to be built. This approach is similar to how the CPP was modeled in the final ACE RIA and departs from how it was intended to be implemented. The 'Updated 2019 CPP' is described in section IV above.

Our modeling results show that all estimated emissions are higher under the 'High Reference Case' compared to the 'Mid Reference Case', except for CO_2 emissions in the 'Updated 2019 CPP' (Figure 1). Estimated CO_2 emissions for the ACE '4.5% HRI Rule' increase 14% under the 'High Reference Case' compared to the 'Mid Reference Case' due to a decrease in natural gas and increase in coal-fired generation. The emissions increases for the 'Limited 2015 CPP' demonstrate the role of controls on emissions leakage in securing emissions reductions under shifting baselines. The CO_2 emissions under the 'Updated 2019 CPP' remain unchanged between the two reference cases due to the existence of stringent mass-based emissions caps for all existing sources, rate-based controls on emissions leakage from new builds, and constraints that limit trading to within states.

Figure 1: Estimated Electricity Sector Emissions by Policy Case Under Mid and High Reference Cases in 2030



Notably, our modeling results also show that the implementation of the 45Q tax credit in the 'High Reference Case' induces an increase in coal-fired electricity generation with carbon capture. As a result, the emissions of co-pollutants increase and are higher relative to CO_2 emissions compared to the 'Mid Reference Case' due to the heat rate penalty that carbon capture technology can incur[5]. These results underscore the need to evaluate policy outcomes under a range of reference cases as well as the importance of explicitly modeling the cumulative effects of multiple policy changes on all pollutants when estimating costs and benefits. Overall, the results demonstrate the role that stringent emissions caps and leakage controls play in limiting emissions that affect climate, air quality, and public health.

About the Analysis

The analysis in *Carbon Standards Re-examined* is based on emissions outputs from the Integrated Planning Model (IPM) from EPA's Regulatory Impacts Analyses and from our own IPM model runs conducted by ICF International. The assumptions for the updated CPP case are based on a policy case defined by the Natural Resources Defense Council. The IPM model represents a state-of-the-art energy sector model used by EPA and others to forecast the consequences of changing market conditions and policy assumptions across the U.S. power sector.

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References

[1]U.S. EPA. 2019. Regulatory Impact Analysis for the Repeal of the Clean Power Plan, and the Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units. EPA-452/R-19-003. Page ES-1, 4-31.

[2]Keyes, A., K.F. Lambert, D. Burtraw, J.J. Buonocore, J.I. Levy, and C.T. Driscoll. 2019. The Affordable Clean Energy rule and the impact on carbon dioxide and criteria air pollutant emissions. Environmental Research Letter, 14:4.

[3]Driscoll, C.T., J.J. Buonocore, J.I. Levy, K.F. Lambert, D. Burtraw, S.R. Reid, H. Fakhraei, and J. Schwartz. U.S. powerplant carbon standards and clean air and health co-benefits. 2015. Nature Climate Change: 5, pages 535–540.

[4]Keyes, A. 2019. The ACE Rule's Surprising Result. Resources for the Future. May 15, 2019.

[5]U.S. EPA. 2018. Documentation for EPA's Power Sector Modeling Platform v6 Using the Integrated Planning Model. Air and Radiation (6204J). Page 6-3.

[6]Analysis of the Final ACE Rule. Documentation and IPM Run Files. https://www.epa.gov/airmarkets/analysis-final-ace-rule.

[7]U.S. EPA. 2018. 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. EPA-452/R-18-006.

[8]Annual Energy Outlook (AEO) 2018. U.S. Energy Information Administration. Low oil and gas resource availability and high economic growth side cases.

[9]National Renewable Energy Laboratory. 2018. Annual Technology Baseline. U.S. Department of Energy.

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US power plant carbon standards and clean air and health co-benefits

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Carbon dioxide emissions standards for US power plants will influence the fuels and technologies used to generate electricity, alter emissions of pollutants such as sulphur dioxide and nitrogen oxide, and influence ambient air quality and public health. We present an analysis of how three alternative scenarios for US power plant carbon standards could change fine particulate matter and ozone concentrations in ambient air, and the resulting public health co-benefits. The results underscore that carbon standards to curb global climate change can also provide immediate local and regional health co-benefits, but the magnitude depends on the design of the standards. A stringent but flexible policy that counts demand-side energy efficiency towards compliance yields the greatest health benefits of the three scenarios analysed.

On 2 June 2014, the US Environmental Protection Agency (EPA) proposed CO_2 emissions standards for existing power plants in the Clean Power Plan[1]. When finalized in summer 2015, affected states will use the federal standards to develop state implementation plans for decreasing CO_2 emissions from the power sector. As an abundant greenhouse gas, CO_2 is a major contributor to climate change. Power plants in the USA fired by fossil fuels emitted 2 billion tonnes of CO_2 in 2012[2], representing 39% of total national emissions — more than any other single source. Standards to reduce CO_2 emissions for existing US power plants can result in near-term public health benefits locally and regionally by decreasing emissions of co-pollutants, including sulphur dioxide (SO_2), nitrogen oxides (NO_x), mercury (Hg) and fine particulate matter ($PM_{2.5}$).

We linked power sector model results with air quality and epidemiological models to quantify the air quality and public health benefits of changes in emissions of co-pollutants under different scenarios for power plant carbon standards. The analysis is based on emissions estimates for each of the 2,417 fossil-fuel-fired power plants in the USA, from the Integrated Planning Model (IPM), for a reference case and three policy scenarios (http://www.icfi.com/insights/products-and-tools/ipm; Supplementary Information: Emissions modelling). These emissions estimates were used as inputs for the spatially explicit Community Multiscale Air Quality Model (CMAQ v. 4.7.1) to project resulting changes in air quality at a 12×12 km resolution for the continental USA (http://www.epa.gov/AMD/Research/RIA/cmaq.html; Supplementary Information: Air quality modelling). The CMAQ results for ozone (O_3) and $PM_{2.5}$ were used as inputs for the Environmental Benefits Mapping and Analysis Program-Community Edition (BenMAP-CE v. 1.08) to estimate public health co-benefits for each scenario compared to the 2020 reference case (http://www.epa.gov/airquality/benmap/ce.html; Supplementary Information: Health co-benefits modelling). We isolate the co-benefits attributable to the carbon standards by comparing changes in air quality and health co-benefits in the year 2020 for each scenario with a reference case that includes all existing and planned air quality policies for the power sector. The results show that, for two of the three policy scenarios, carbon standards for existing power plants can substantially decrease emissions of harmful co-pollutants, and improve air quality and public health beyond what would occur under existing air quality policies.

Scenarios for power plant carbon standards

To facilitate comparison with the goals of the Clean Power Plan, we report estimated changes in CO_2 emissions to 2005 levels, the baseline year used in the plan. The Bipartisan Policy Center (BPC) and the Natural Resources Defense Council (NRDC) developed the reference case that was used for our analysis. We selected two policy scenarios that were generated by BPC (scenarios 1 and 3) and one that was developed by NRDC (scenario 2). As we were interested in a wide range of policy approaches, researchable scenarios were selected that incorporate contrasting policy assumptions. The policy differences in the scenarios include different approaches to CO_2 emissions reductions, investments in end-user energy efficiency, and inclusion of options for compliance such as co-firing, fuel-switching and cross-state trading.

The reference case uses the energy demand projections in the Annual Energy Outlook for 2013[3] as the benchmark. Current EPA clean air policies are fully implemented under this scenario, including the Mercury and Air Toxics Standard (MATS) and the Clean Air Interstate Rule. Moreover, existing state-level requirements for power sector emissions reductions and renewable energy portfolio standards are implemented under this scenario. By 2020, minor changes in energy generation sources under the reference case result in an estimated decrease in annual CO_2 emissions of 15.2% compared with 2005 levels (Table 1).

Scenario 1 uses the potential estimated heat-rate improvements at individual coal-fired units to set unit-specific emissions rate standards. The stringency of the resulting CO_2 emissions standards under this scenario is low and the requirements for compliance are limited to operational changes 'inside the fence line' of existing affected power plants. The new-source performance standard

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Table 1 | Distribution of energy generation for 2005, for the reference case and three scenarios, and EPA estimates for the proposed standards in 2020 and 2030, and associated emissions.

		2005	Reference case 2020	Scenario 1 2020	Scenario 2 2020	Scenario 3 2020	EPA Clean Power Plan 2020 scenario*	EPA Clean Power Plan 2030 scenario*
Energy generation (TWh)	Total	4,055	4,213	4,212	4,227[†]	4,166	4,235[†]	4,565[†]
	Total fossil generation	2,909	2,770	2,770	2,362	2,614	2,681	2,630
	Combined cycle (gas)	761	1,030	1,001	1,013	1,297	1,281	1,313
	Combustion turbine (gas)	-	75	72	75	84	33	32
	Coal (no CCS)	2,013	1,639	1,671	1,217	764	1,335	1,246
	Coal (CCS)	0	7	7	38	443	2	2
	Nuclear	782	804	804	788	855	817	796
	Hydro	270	307	307	308	301	282	281
	Wind	18	227	228	230	284	233	259
	Biomass	39	39	40	39	46	27	27
	New energy efficiency	N/A	0	0	437	0	133	502
	Other non-renewables[‡]	135	19	19	19	26	30	37
	Other renewables[§]	37	66	63	63	66	62	70
Annual power sector emission (t)	CO_2 (million)	2,410	2,045	1,998	1,562	1,229	1,794	1,715
	SO_2 (thousand)	9,563	1,584	1,628	1,152	1,143	1,076	1,005
	NOx (thousand)	3,592	1,210	1,174	938	1,011	1,103	1,028
	Hg	47	5	5	3	4	6	6

*Based on IPM emissions estimates for EPA's option 1, regional illustrative compliance scenario in 2020. Full implementation occurs in 2030[3]. †New demand-side energy efficiency included in total generation. EPA estimate based on projected 3% decline in total energy demand in 2020 and 11% decline in 2030 from demand-side energy savings[3]. ‡Other non-renewables include generation from petroleum and other gases. §Other renewables includes generation from waste products, geothermal and solar/photovoltaic.

applies, but there are no new coal plants built under scenario 1. The national average CO_2 emissions rate for coal-fired power plants decreases modestly under this scenario to 907 kg MWh^{-1}. A 4% increase in fleet-wide average heat rate occurs for coal-fired power plants.

By 2020, energy generation from coal-fired power plants increases under scenario 1, but most other sources of generation remain similar to the reference case (Table 1). Scenario 1 results in an estimated decrease in annual CO_2 emissions of 2.2% from the 2020 reference case (17.1% from 2005), an annual SO_2 emissions increase of 3%, and a decrease in annual NO_x and Hg emissions of 3% (Table 1).

Scenario 2 allows numerous options for compliance and promotes large programme investments in demand-side energy efficiency. Scenario 2 uses emissions rate targets of 680 kg MWh^{-1} for coal and 453 kg MWh^{-1} for gas and the current generation mix to establish emissions rate performance standards and CO_2 emissions reductions for each state. The stringency of the CO_2 emissions standards under this scenario is moderate. Implementation of scenario 2 makes renewable energy and demand-side energy efficiency available for compliance. This scenario also allows the averaging and trading of emissions among all new existing and new fossil units in a state and between states.

By 2020, energy generation under scenario 2 results in markedly less power from existing coal plants and modest increases in generation from new coal plants with carbon capture and storage (CCS). Demand-side energy efficiency is greater under this scenario than the others considered (Table 1). Under scenario 2, annual estimated CO_2 emissions decrease by 23.6% from the 2020 reference case (a 35.5% decrease from 2005 levels), annual estimated SO_2 and Hg emissions decline by 27%, and annual estimated NO_x emissions decrease by 22% (Table 1).

Scenario 3 applies the social cost of carbon of US$43 t^{-1} to drive supply-side power sector emissions reductions in 2020. The scenario mimics a national tax on CO_2, requiring all existing and new power plants to implement pollution reduction measures that are less than or equal to the social cost of carbon[3]. This strategy results in high stringency of the CO_2 emissions standards under this scenario. Such a market-based approach also allows for a wide range of compliance options including heat-rate improvements, substituting or co-firing with lower emitting fuels (for example, natural gas, biomass), or increasing generation from lower-emitting sources such as new coal plants with CCS. Scenario 3 does not promote new policy-driven investments in demand-side energy efficiency. However, increases in electricity prices reduce demand and generation. Average national CO_2 emissions rates of 544 kg MWh^{-1} for coal-fired power plants and 385 kg MWh^{-1} for gas are achieved under scenario 3.

By 2020, generation from coal-fired power plants with CCS and natural gas increased markedly under the carbon tax approach used in scenario 3 (Table 1). Under scenario 3, annual estimated CO_2 emissions decrease by 39.8% from the reference case (a 49.2% decrease from 2005 levels), annual estimated SO_2 and Hg emissions decline by 27%, and annual estimated NO_x emissions decrease by 16% (Table 1). The outcome by 2020 may seem implausible, even if a carbon tax was introduced, in part because of lingering uncertainty about CCS technology and the ability to implement it on a large scale by 2020. However, this scenario reflects changes that occur five years after adoption of new standards and provides a useful bookend representing system response to a high stringency alternative, with insights that could apply beyond 2020.

While not intended to represent the EPA proposal, scenario 2 is most similar to the Clean Power Plan in terms of stringency of the CO_2 emissions targets, flexibility of the policy structure, policy-driven incentives for energy efficiency, and outcomes for future co-pollutant emissions. Specifically, the Clean Power Plan calls for a 30% reduction in CO_2 emissions from 2005 levels by 2030, compared with 35.5% by 2020 in scenario 2[1,4] (Fig. 1). Like scenario 2, the Clean Power Plan provides states with a flexible array of options across the power sector to achieve state-specific CO_2 standards. Compliance options include: (1) improved power plant

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efficiency (that is, heat-rate improvements); (2) replacing coal or oil with fuels that are less CO_2 intensive (for example, natural gas); (3) switching from fossil to renewable power (for example, solar or wind); and (4) adopting new demand-side energy efficiency measures[4]. EPA estimates that the standards will result in a 25% cut in emissions of SO_2 and NO_x from their reference case by 2030, compared with 27% and 22%, respectively, in scenario 2. The decrease in co-pollutant emissions of 704,000 t in scenario 2 (432,000 t SO_2, 272,000 t NO_x) from the reference case in 2020 is well within the range EPA estimates for the proposed standards compared to EPA's 2020 reference case based on their analysis of different implementation options (637,000 t in 2020 to 816,000 t in 2030)[4]. There are moderate differences in stringency between scenario 2 and the Clean Power Plan, but our results for scenario 2 show that policies with stringency, flexibility and programmatic support for energy efficiency can result in large changes in co-pollutant emissions. This is especially evident in contrast with scenario 3, which has greater stringency but a different structure and yields lower co-benefits (Fig. 1).

Changes in air quality

Detailed boiler unit-level IPM emissions were used for the reference case and the three scenarios as input to CMAQ to estimate anticipated changes in air quality associated with changing power plant emissions. We used CMAQ output to determine spatial patterns of expected changes in ground-level O_3 and $PM_{2.5}$ for 2020. These pollutants have well-understood health and environmental consequences that are documented extensively in the peer-reviewed literature[5,6].

Scenario 1 results in a modest increase in average annual $PM_{2.5}$ (Fig. 2a) and peak ground-level O_3 concentrations (Fig. 3a) compared with the reference scenario. This pattern of 'emissions rebound' at several coal-fired power plants occurs when facilities that exhibit high emissions are made more efficient and therefore run more frequently and for longer periods than in the reference case[7].

Scenario 2 results in lower average annual $PM_{2.5}$ (Fig. 2b) and peak ground-level O_3 concentrations (Fig. 3b) in all the lower 48 US states compared with the reference case. The largest decreases in pollution occur in the eastern USA, particularly in states in and around the Ohio River Valley. The stringent carbon emissions rate standard is flexible enough to allow fuel substitution, and yields a substitution away from coal to natural gas. The scenario also promotes a shift towards demand-side energy reductions.

Air quality patterns for scenario 3 are similar to scenario 2, despite greater CO_2 emissions reductions (Supplementary Fig. 1a,b). Fewer tonnes of SO_2 and NO_x are controlled per tonne of CO_2 controlled for scenario 3 than for scenario 2 and for the EPA proposed standards (Fig. 1). This pattern is due to continued reliance on fossil fuel sources, expansion of coal with CCS and the lack of new demand-side energy efficiency investments under this scenario.

Health co-benefits analysis

We used the $PM_{2.5}$ and O_3 concentrations from the CMAQ air quality simulations for the continental USA and compared them with the 2020 reference case to estimate and map the health co-benefits for each of the policy scenarios. These estimates do not include the direct health benefits resulting from mitigating climate change (for example, reduced heat-related illness). Concentration–response functions were derived for six health co-benefit outcomes, on the basis of extensive published literature on the health effects of air pollution. The six outcomes are: $PM_{2.5}$-related changes in premature deaths; myocardial infarctions (heart attacks); cardiovascular hospital admissions (excluding myocardial infarctions); respiratory hospital admissions; O_3-related changes in premature deaths; and hospital admissions associated with respiratory illness.

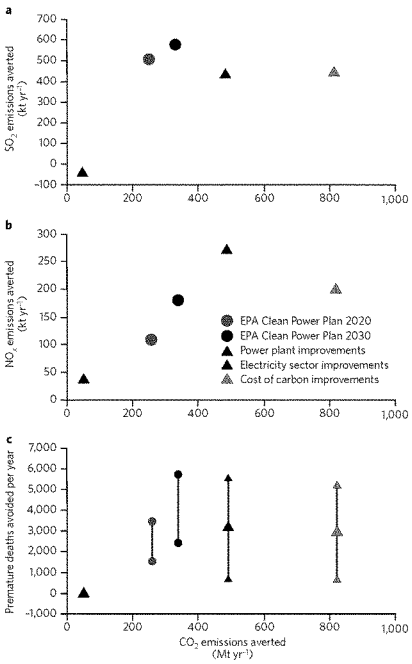

Figure 1 | Comparison of each scenario and the proposed US EPA Clean Power Plan by SO_2 and NO_x averted, and premature deaths avoided, per tonne of CO_2 averted. a, SO_2 averted; **b**, NO_x averted; and **c**, premature deaths avoided per tonne of CO_2 averted. Smaller symbols indicate uncertainty bounds and larger symbols indicate central estimates, where available, for premature deaths avoided.

We selected this subset of health outcomes from the numerous effects associated with $PM_{2.5}$ and O_3 because they are supported by concentration–response functions derived from investigations that examined populations from multiple cities simultaneously under different conditions across the USA, large cohort studies of residents from different locations, or meta-analyses of studies that have taken place in many different locations. These health outcomes contribute to most of the monetized benefits accompanying air quality management[1,8–11].

In BenMAP-CE, we linked data on population, age structure, baseline prevalence and incidence rates of the health co-benefit outcomes of interest to estimate changes in outcomes at the county and state levels for the continental USA for each of the three carbon standard scenarios, compared with the 2020 reference case. We report the central estimate and 95% confidence intervals for each health outcome, based on only concentration–response function uncertainties, given a lack of quantitative information on other model uncertainties. Population data are from Woods & Poole[12]; baseline hospitalization and myocardial

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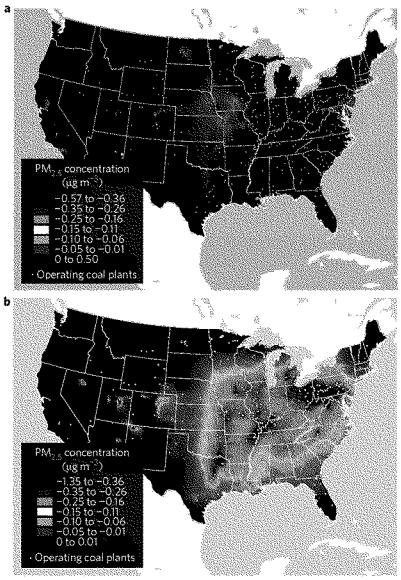

Figure 2 | Maps for the continental USA of difference in annual average concentrations of $PM_{2.5}$ in 2020 for scenarios 1 and 2, less the reference scenario. a, Scenario 1; and **b**, scenario 2.

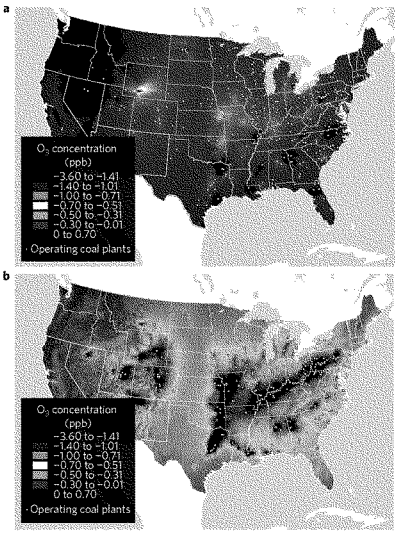

Figure 3 | Maps for the continental USA of difference in annual average concentrations of peak summertime O_3 in 2020 for scenarios 1 and 2, less the reference scenario. a, Scenario 1; and **b**, scenario 2.

infarction data are from the Healthcare Utilization and Cost Program[13]; and mortality rate projections for 2020 are from the US Centers for Disease Control and Prevention WONDER database (http://wonder.cdc.gov/natality-current.html).

The concentration–response functions we derived relate changes in air quality to changes in the rate of an adverse health outcome (Supplementary Information: Concentration–response functions). The functions are based on published epidemiological literature (Supplementary Table 1) and are expressed as a change in the risk of each outcome per unit concentration change of a given pollutant over a given time period. Unless indicated otherwise, we based all values shown here on central estimates.

Comparison of health co-benefits for the USA

Our results show that scenario 1 has the lowest health co-benefits in the continental USA of the three scenarios considered (Table 2). Under this scenario, estimated decreases in hospitalizations were modest and there was a slight increase in premature deaths and heart attacks from the 2020 reference case. This represents a negative co-benefit of 10 additional premature deaths per year (Table 2), which corresponds to −0.2 premature deaths avoided per million tonne decrease in CO_2 (Fig. 1). This pattern is likely to be due to the increase in SO_2 emissions and resulting $PM_{2.5}$ concentrations that are projected for this scenario.

The greatest health co-benefits occur under scenario 2, which results in 3,500 estimated premature deaths avoided annually by 2020 (Table 2). This corresponds to approximately 7.3 premature deaths averted per million tonne decrease in CO_2 emissions (Fig. 1). The national health co-benefits under scenario 3 are lower than those for scenario 2, although the spatial distribution is similar. We estimate a decrease of 3,200 premature deaths each year under scenario 3, corresponding to 4.0 premature deaths avoided per million tonne decrease in CO_2 emissions (Fig. 1).

To put the results in context, the health co-benefits estimated here can be compared to the health co-benefits estimated for the US EPA's MATS rule[11]. MATS results in greater co-pollutant emissions reductions and is estimated to decrease annual average $PM_{2.5}$ by 0.36 μg m^{-3} and annual average eight-hour O_3 concentrations by 0.2 ppb. It results in an estimated 7,600 avoided premature deaths per year (2.17 times the premature deaths avoided under scenario 2), 4,700 avoided non-fatal heart attacks, and other health co-benefits. Although a comparison of the monetized value of these health co-benefits to compliance costs is beyond the scope of this paper, we expect the value to be similar to that of the direct climate-related benefits valued at the social cost of carbon, which alone exceeds the expected cost of compliance[4,7].

Geographic distribution of health co-benefits

The estimated health co-benefits vary widely across the USA and under the three scenarios, with all states experiencing some benefit under scenario 2. For all three scenarios, areas with the highest health benefits have the greatest air quality improvements and large exposed populations.

Scenario 1 results in small changes in the number of premature deaths relative to the 2020 reference case for most counties (Supplementary Fig. 2a). At the state level, based on central

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Table 2 | Central estimates and 95% confidence intervals for the change in total national health co-benefits under the three scenarios from the 2020 reference case. All results are rounded to whole numbers with two significant figures.

	Pollutant	Scenario 1 central estimate (95% CI)	Scenario 2 central estimate (95% CI)	Scenario 3 central estimate (95% CI)
Premature deaths avoided (all causes)	$PM_{2.5}$	−44 (−79 to −9)	3,200 (680 to 5,600)	3,000 (650 to 5,400)
Respiratory hospitalizations avoided	$PM_{2.5}$	−5 (−7 to −2)	280 (150 to 420)	280 (140 to 410)
Cardiovascular hospitalizations avoided (except heart attacks)	$PM_{2.5}$	−6 (−7 to −4)	330 (230 to 440)	320 (220 to 420)
Heart attacks avoided (acute non-fatal myocardial infarction)	$PM_{2.5}$	−3 (−5 to −2)	220 (130 to 310)	210 (120 to 300)
Premature deaths avoided (respiratory causes)	O_3	34 (11 to 56)	300 (100 to 500)	200 (68 to 340)
Respiratory hospitalizations avoided	O_3	25 (9 to 41)	410 (150 to 680)	260 (94 to 430)
Total premature deaths avoided	$PM_{2.5}$ and O_3	−10 (−23 to 2)	3,500 (780 to 6,100)	3,200 (720 to 5,700)
Total hospitalizations avoided (respiratory and cardiovascular)	$PM_{2.5}$ and O_3	15 (3 to 27)	1,000 (530 to 1,500)	860 (460 to 1,300)
Total heart attacks avoided (acute non-fatal myocardial infarction)	$PM_{2.5}$	−3 (−5 to −2)	220 (130 to 310)	210 (120 to 300)

estimates, the health co-benefits include 21 to −33 premature deaths eliminated annually (Fig. 4a), 5 to −10 hospitalizations averted per year and 2 to −2 heart attacks avoided each year.

Scenario 2 results in a decrease in mortality risk compared to the 2020 reference case for most of the USA, as indicated by the wide geographic extent of premature deaths avoided (Supplementary Fig. 2b). Based on state-level central estimates, this scenario prevents between 1 and 330 premature deaths (Fig. 4b), up to 71 hospitalizations and up to 19 heart attacks per year. Except for New York, which has a large population and is downwind of many emission sources, the states with high health co-benefits are also those with a large dependency on coal-fired electricity. As a result, the co-benefits coincide spatially with areas where costs of the policy are likely to be greatest.

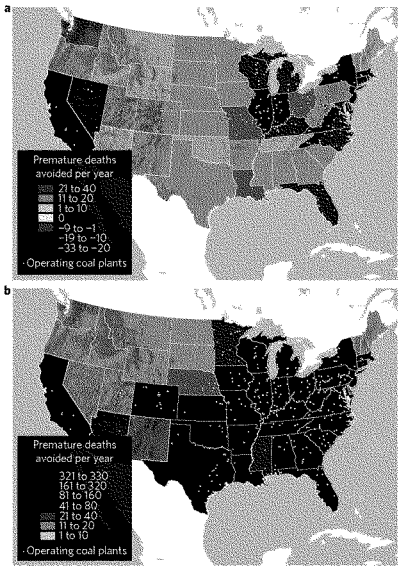

Figure 4 | Change in premature deaths avoided for states of the continental USA from the 2020 reference case for scenarios 1 and 2. **a**, Scenario 1; and **b**, scenario 2.

Scenario 3 results in widespread reductions in mortality risk compared with the 2020 reference case, but they are lower than in scenario 2. Based on state-level central estimates, this scenario prevents 1 to 260 premature deaths, up to 56 hospitalizations and up to 16 heart attacks annually.

Policy implications

Different policy approaches to US carbon standards for power plants produce markedly different changes in $PM_{2.5}$ and O_3, and associated health co-benefits. The magnitude and direction of the changes in health co-benefits parallel the changes in annual emissions of SO_2 and NO_x for each scenario (Fig. 1). In each scenario, the geographic distribution of state-level health co-benefits is consistent with air quality changes coupled with population distribution (Figs 2–4; Supplementary Fig. 2). Our analysis shows that the design of carbon standards for US power plants can have a marked impact on air quality and associated health outcomes for local communities and states. Scenario 2 — which is the most similar of our three scenarios to the Clean Power Plan proposal of the EPA in terms of stringency, policy structure and anticipated changes in power generation — results in the greatest estimated emissions reductions, air quality improvements and health co-benefits (Fig. 1). Its top performance is due to lower total fossil fuel generation, greater substitution of natural gas for coal and more new demand-side energy efficiency. In contrast, carbon standards that largely rely on retrofitting existing power plants, as illustrated in scenario 1, could increase SO_2 emissions from the power sector, resulting in potential increases in air pollution beyond what is expected to occur in the reference case. As illustrated by scenario 3, a lower ratio of health co-benefits per tonne of CO_2 emissions controlled can occur when the standards result in carbon pollution controls that continue or increase reliance on coal generation by means of CCS, and provide no new programmatic investment in demand-side energy efficiency.

Carbon standards implemented for existing US power plants that result in improvements in air quality can lead to immediate local and regional health co-benefits. For the USA and other countries with sizeable greenhouse-gas emissions along with air pollution challenges, the link between climate policy, air quality and public health could provide a key catalyst to act on climate change.

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References

1. *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units* 79 FR 34829 (US EPA, 2014); https://federalregister.gov/a/2014-13726
2. *National Greenhouse Gas Emissions and Sinks: 1990–2013* Publication No. 430-R-14-003 (US EPA, 2014); http://go.nature.com/GSeOar
3. *Annual Energy Outlook 2014 with Projections to 2040* (DOE/EIA, 2014); http://go.nature.com/BPZObe
4. *Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* Publication No. EPA-452/R-14-002 (US EPA, 2014); http://go.nature.com/M5JEzy
5. Jerrett, M. *et al.* Long-term ozone exposure and mortality. *New Engl. J. Med.* **360,** 1085–1095 (2009).
6. Fann, N. *et al.* Estimating the national public health burden associated with exposure to ambient $PM_{2.5}$ and ozone. *Risk Anal.* **32,** 81–95 (2012).
7. Burtraw, D., Linn, J., Palmer, K. & Paul, A. The costs and consequences of greenhouse gas regulation under the Clean Air Act. *Am. Econ. Rev.* **104,** 557–562 (2014).
8. Muller, N. Z. & Mendelsohn, R. Efficient pollution regulation: Getting the prices right. *Am. Econ. Rev.* **99,** 1714–1739 (2009).
9. Fraas, A. & Lutter, R. Efficient pollution regulation: Getting the prices right: Comment. *Am. Econ. Rev.* **102,** 602–607 (2012).
10. *The Benefits and Costs of the Clean Air Act from 1990 to 2020* (US EPA, 2011); http://www.epa.gov/cleanairactbenefits/feb11/summaryreport.pdf
11. *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards* Publication No. EPA-452/R-11-011 (US EPA, 2011); http://go.nature.com/6cBliV
12. *Population by Single Year of Age* (Woods & Poole Economics, 2008).
13. *HCUPnet, Healthcare Cost and Utilization Project* (Agency for Healthcare Research and Quality, 2007).

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Author contributions

C.T.D. conceived and designed the modelling scenarios/experiments, analysed data and co-wrote the paper. J.J.B. analysed data and co-wrote paper. J.I.L. derived concentration–response functions, contributed to health impact modelling and co-wrote the paper. K.F.L. conceived and designed the modelling scenarios/experiments and co-wrote the paper. D.B. analysed data and scenarios and co-wrote paper. S.B.R. conducted atmospheric modelling. H.F. analysed data. J.S. derived concentration–response functions, contributed to health impact modelling and co-wrote the paper.

Additional information

Supplementary information is available in the online version of the paper. Reprints and permissions information is available online at www.nature.com/reprints. Correspondence should be addressed to C.T.D.

Competing financial interests

The authors declare no competing financial interests.

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Testimony of Bruce C. Buckheit before the
House Committee on Energy and Commerce
Subcommittee on Environment

Hearing on
Legislation Addressing
New Source Review Permitting Reform
May 16, 2018

Chairman Shimkus, Ranking Member Tonko, and distinguished members of the Subcommittee, thank you very much for inviting me to participate in today's hearing. My name is Bruce C. Buckheit. I served in the Federal government's efforts in the management of environment and safety issues through the Administrations of Presidents Ford through George W. Bush. From 1984, when I filed my first action on behalf of EPA to enforce a New Source Review (NSR) violation until my retirement in 2003 I was directly involved in the administration and enforcement of the Clean Air Act, initially as a Senior Counsel in the Environmental Enforcement Section of the Department of Justice, then as Deputy Director and then Director of the Air Enforcement Division at the Environmental Protection Agency. Upon my retirement I served for four years as a member of the Virginia Air Pollution Control Board, which oversees the rulemaking, permitting and enforcement activities of the Virginia Department of Environmental Quality. I have also provided research and consulting services to a variety of corporations, state and Federal agencies, and non-governmental organizations, principally in the areas of energy and air pollution management in this country. In recent years I have also addressed such issues in a number of foreign countries including Armenia, the European Union, Israel, India, Indonesia, Kosovo, Myanmar, and Viet Nam. I appear today on my own behalf and without compensation.

In my judgment the discussion draft before the Committee today is not in the public

interest and should not be adopted. As I will explain in further detail below, the draft is not needed by the regulated community for any purpose and would not advance one of the fundamental purposes of the Clean Air Act – to eliminate, over time, the disparate treatment of new and existing sources. It would severely impair the ability of the modification rules to effect this purpose and would exacerbate the current barrier to investment in new manufacturing and electric generating facilities created by the difference in the treatment of new and existing facilities. Several of the provisions in the discussion draft pose significant policy issues and enforcement concerns including (1) the addition of the word "actual" in the revisions to sections 169(2) and 171(4) of the CAA; (2) the change in the baseline period for electric generating units; (3) the elimination of the annual emission increase test; (4) the "output" based test; (5) the "intent to restore, maintain or improve the reliability or safety of the source" test; (6) the safety valve for the "reliability" test and (7) the "savings provision" to ensure that there is no benefit to the environment from the draft.

In the course of preparing these remarks I reviewed some of the testimony presented at the February 14, 2018, hearing before this Committee. I will explain below why I disagree with a number of criticisms leveled at the current program during that hearing, specifically (1) the suggestion that the NSR program makes it difficult to maintain the reliability and safety of their facilities; (2) that only short term emissions of pollutants matter; (3) that "most of the things" required under NSR enforcement consent decrees are things the companies are required to do under other CAA programs anyway; (4) that over the past 15 years EPA enforcement officials have tried to expand the definition of modification; and (5) that companies are unable to determine whether a proposed modification will increase annual emissions and (6) that the NSR program, especially as it relates to modified facilities, is counterproductive and far less efficient

than other available CAA options.

BRIEF HISTORY OF NSR AND NSR ENFORCEMENT

The central legislative compromise of the 1967, 1970 and 1977 CAA amendments was an initial focus on new sources. This focus was based on the representation of industry advocates that one did not need to worry about existing sources, since they'd soon be retired, and so they were initially "grandfathered" out of an across the board obligation to install pollution controls. Thus, we have a program for "New Source Performance Standards", but unlike the European Union and a number of other countries, Congress did not impose across-the-board emission limitations for large combustion plants.

While air pollution controls are highly effective in reducing health care and lost productivity costs, and add only minimally to consumers' electric bills, Congress did recognize that these controls can add hundreds of millions of dollars to the cost of new large combustion plants such as power plants and aluminum smelters and impose operating costs that are not insignificant when a well-controlled facility is competing against a grandfathered, poorly-controlled factory. Understanding that this cost advantage would discourage investment in new factories and power plants that would have to use these controls, Congress adopted the NSR modification rules that are at issue today ***intending that these rules would, over time, require that existing sources add modern pollution controls***. The D.C. Circuit recognized this policy choice out 30 years ago in the Alabama Power case,

> "[t]he statutory scheme intends to 'grandfather' existing industries; but the provisions concerning modifications indicate that this is not to constitute a perpetual immunity from all standards under the PSD program."

In seeking a middle ground between perpetual immunity and immediate upgrading of all existing major sources, Congress could have considered a number of different options, including

the age of the unit (as several Canadian states and the EU have done). But, in the 1970s industry argued that, as an environmental program, the test should be whether there is an emissions increase. And now, having benefited for several decades from the exemption they sought, some in industry want to renegotiate the deal.

During my Federal service NSR enforcement actions were relatively rare. Enforcing these rules require a significant amount of information and resources, but, within stationary sources (as distinct from mobile sources), these violations lead to the greatest environmental harm – and so, where detected, are a priority. If a source exceeds an emission limit by 10 percent 800 hours per year, the excess emissions associated with the violation are less than one-percent of the source's permitted emissions. In contrast, enforcing compliance with NSR rules leads to emission reductions of up to 90-98 percent per year, (depending on the effectiveness of the controls for the pollutant at issue) each year thereafter. EPA has encountered several instances where there were sector-wide, gross violations of the NSR rules. And, in my experience, it is these enforcement actions, not the general experience of those who have complied, that have generated the hostility towards the NSR program that has been expressed to you.

In the wood products sector several dozen new factories were built by Louisiana-Pacific, Georgia Pacific and Weyerhaeuser on the assertion that no pollution would be emitted by those facilities. EPA's first knowledge of the existence of such facilities came when an EPA permit writer, on a back country vacation came around a bend in a stream and saw a facility which he would have been responsible for. In the refinery sector, there was a period where refining capacity had increased by fifty percent, even though the number of refineries had not changed. EPA enforcement's initial information on these plant expansions came about through reading

back issues of "The Oil and Gas Journal." The first information about the potential for large modifications at utilities came via an article in the Washington Post about how the process at the time of deregulating the power sector was prompting a resurgence in the use of coal-fired power plants. In each of these instances, significant investigative resources and extensive negotiations (at times after protracted litigation) were required to fully document the violations and subsequently compel the companies to comply with these rules. Since my retirement, EPA/DOJ has completed an additional sector wide enforcement effort involving the carbon black manufacturing sector.

Anticipating a large expansion in nuclear generation, operators of coal-fired power plants let existing units decline to the point where large component failures and lengthy forced outages became more common. Subsequently, when it became apparent that nuclear generation would not take over the sector, a number of companies went about what the industry termed "life extension programs", where major components costing tens of millions of dollars were replaced *in toto*, adding decades to the life expectancy of these units – and increasing annual emissions by thousands of tons per year. Rather than adding pollution controls as they refurbished and upgraded these old units with wholly new components – the analogy is replacing the engine in a car rather than the spark plugs and air filter - many in the sector simply got lazy and relied on an interpretation of the rules -- "the routine maintenance" exemption – promoted by several Washington-based law/lobbying firms. They did so even though there was clear precedent, commencing with EPA Administrator Reilly's interpretation under President George H.W. Bush Administration and the ensuing litigation in the WEPCO case, warning that the "routine maintenance" exemption was indeed limited to routine maintenance and not these large capital projects.

Power plants have an engineering useful life of 30-40 years, but their economic useful life may be longer. The vast majority of our coal-fired power plants were built before 1972 and so many are nearing at the end of their useful lives, unless they now undertake substantial, capital intensive, life extension programs. Ironically, the industry's unwillingness to comply with the modification rules (and EPA's inability or unwillingness to enforce them) - or retire - discouraged construction of new coal-fired power plants in the 1980-2010 time frame, when new coal-fired plants could have competed with natural gas fired units or renewables. Today's discussion draft is intended to largely, but not completely, reverse the 1988 WEPCO decision and allow these life extension programs to proceed, even where they increase annual emissions by thousands of tons per year. This would severely undermine earlier Congressional policy to gradually limit the competitive advantage that large polluters have over clean factories.

The NSR process is simply this -- you can modify your plant however you wish - without going through NSR permitting -- if you don't increase annual emissions by more than a nominal amount. There are many options for doing this -- one is to simply take an annual limitation on emissions that is only slightly above your highest emission rate in recent years. If the source operator wants make a modification that is going to increase emissions by 10 percent but does not want to constrain production, it can add some incremental pollution controls, such as low NOx burners or commit to use a slightly cleaner fuel such as natural gas or lower sulfur coal. Of course, the source also has the option to do the unthinkable and simply add modern controls as Congress intended. And so, while compliance, with some planning, is normally relatively modest, the consequence of a violation is not. Under the CAA, if a source makes a "major modification", "grandfathering" under the original legislative compromise is over and the source is treated as a new source. That means retrofitting with today's state of the art

controls. In the past, enforcing this obligation reduces SO2 and NOx emissions by millions of tons per year.

Maintaining the ability to enforce these obligations against the power sector is both good environmental policy and good economic policy. State and local air pollution control agencies need to find emission reductions to meet health based air quality standards, but utilities often can generate substantial political pressure in a state. Emission reductions from coal-fired EGUs are far, far cheaper than trying to get them from smaller businesses or individuals. And, unlike manufacturing, you can't "offshore" production of electricity. Approximately half of the existing coal-fired units do not have state of the art controls for SO_2 (FGD) and three-fourths of such units do not have the full suite of modern controls for oxides of nitrogen (NOx, SCR). There are a number of coal-fired power plants with extremely high emission rates that will effectively be exempted from these requirements per the discussion draft.

CONCERNS ABOUT SPECIFIC PROVISIONS IN THE DISCUSSION DRAFT

1. The addition of the word "actual" in the proposed revisions to sections 169(2) and 171(4) of the CAA.

The NSR program is a pre-construction program. Sources are currently expected to determine ***in advance of commencing construction of the project*** whether the project will need to undergo PSD review and install advanced pollution controls. Accordingly, the source and the permitting authority must each know (1) the baseline – *i.e.*, the emissions before the project and the post-project emissions and (2) the post-project emissions. At one point in time the post-project emissions were the "potential to emit"; *i.e.,* the maximum post-project emissions. For utilities, the WEPCO rule establishes a procedure for utilities that do not expect to run all of the time where, prior to commencement of the project the source would project future emissions. This test is known as the actual-to-projected-future-actual test and allows the utility to estimate

future emissions based, among other things, any increase in utilization that the project will allow. Some industry advocates have over the years pushed for a relaxation of this test so that NSR is only triggered if there is an actual increase in emissions in the first few years. This concept is unworkable for several reasons. A source can escape the obligation to install and thereafter operate pollution controls for decades thereafter merely by keeping emissions below the applicable threshold for a few years and thereafter increase emissions in an unlimited fashion. This, in itself is inconsistent with the notion of the modification rule being a rational way to gradually end grandfathering of poorly controlled plants.

This notion also reduces the ability of authorities to enforce the program and encourages gaming of the system. There is no way for regulators to contest, at the time of a project, a claim that actual emissions will not increase. Emission testing of sources is not conducted sufficiently frequently to allow authorities to know of an increase in emissions. I've recently reviewed the permitting file for a particular plant – prior to the entry of an EPA/DOJ consent decree a few years ago measurement of PM emissions from that plant had occurred only twice in 25 years – even though several large modifications had been undertaken. And since there would be no obligation to seek a permit at the time of the modification, authorities may not be able to tie an increase in emissions to a specific activity. Finally, Federal law in this area provides for a general five year statute of limitations for penalties for civil violations and several circuits have held that this limit applies to injunctive relief as well as civil penalties. In those circuits, if authorities do not bring an enforcement action within 5 years of when they "knew or should have known" of the violation, the source cannot be required to comply. Based on my experience as an enforcement manager, one cannot readily dismiss the possibility that some sources may file seemingly innocuous disclosures at random points in time to unsuspecting permitting authorities

to establish that the government "should have known" of the increase in emissions even though there has been no emission testing.

2. The proposed change in the baseline period for electric generating units.

In determining whether a contemplated project will increase annual emissions source operators and regulators need to have a common understanding of what the emissions of the plant were just before commencement of the project. Initially, this was determined by looking at emissions for the two years immediately prior to commencement of the project. Then, EPA adopted a test for utilities emissions during the highest two years in the last five years and subsequently, for other sources, the baseline period is the highest year in the last ten years. This latter decision was based on an argument that non-utilities needed a longer look back period because of swings in the business cycle. Now, the discussion draft proposed to extend this dubious option to utilities. There is no particular argument to support the notions of large decadanal swings in electric demand. Indeed, the data show a long, gradual decline in demand. Further, the rules provide that any increase in emissions that is associated solely with an increase in demand for the product (including electricity) that could have been accommodated before the project does not trigger the NSR obligation. The sole purpose of the proposed change in baseline is to allow for a greater increase in emissions ***occasioned by the project*** than would otherwise be allowed.

3. The proposed elimination of the annual emission increase test.

The elimination of the annual emission increase test will effectively shield old-coal fired power plants from most liability under the NSR rules and undercut the notion of a gradual phase out of old units. Here it should be noted that while, in today's market current coal-fired plants are highly challenged to remain competitive against natural gas-fired and renewable generation, they are also competing against other coal-fired plants for whatever market share is available to

coal generation. The proposed elimination of the annual increase test will continue to disadvantage well controlled coal-fired units in competition with poorly controlled plants for decades to come. Where power plants are regularly maintained, the annual increase test, which includes the demand growth exception discussed above, does not create a burden for utilities. But, when those plants are "shot" and are engaged in major capital investments to extend their useful life for decades, it is time for them to include modern controls in the program.

4. The proposed "output" based test.

The proposed "output" based test necessarily includes elimination of the annual increase test and for that reason should not be adopted. It is also unnecessary. If a project merely increases the efficiency of a unit, the annual "input-based" emission rate will go down just as the "output- based" emission rate declines. If a modification allows a plant to make the same amount of electricity while burning less coal, the SO_2, NOx and other pollutant emission rates will go down, not up. The discussion draft provides an option to increase the size of the unit (and associated hourly and annual emissions), recover lost utilization, and extend its useful life for decades, without adding modern controls as long as the output based emission rate ***for any pollutant*** declines. While it is not clear that the drafters intend that a minor decrease in, for example CO or CO_2 emissions per MWh, would allow unlimited increases in other pollutants, this appears to be allowed by the language of the discussion draft. Some advocates have in other settings put forth the "poster child" of one form of efficiency improvement – a particular design of turbine blade upgrade, where the major effect is to increase the power of the unit, along with an efficiency improvement, such that both hourly and annual emissions may increase. This particular design is not the only option for turbine upgrades, but those who want to employ it need only manage emissions by nominal upgrades to pollution controls or --- by fully controlling

their plants as initially intended by Congress. It should also be noted that in the utility enforcement actions some attempted to argue that simply putting in new economizers, boiler walls and other components of the original design would improve efficiency. On careful examination it was determined (and accepted by the courts) that this increase would only be true while those components were new and clean and that the benefit would decline after a relatively short period of operation.

5. The "intent to restore, maintain or improve the reliability or safety of the source" test.

For most sources subject to the NSR requirements an "intent of the operator" test is unenforceable. A refiner who adds 5 percent capacity may claim that the overall intent of the project was to improve reliability and safety, and the added capacity was incidental. Such a claim would be difficult, if not impossible, to determine objectively and certainly could not be ascertained without highly intrusive investigations. For utilities, the reason they engage in life extension programs is **to restore, maintain or improve the reliability or safety of the source.** And so, this provision, as most of the discussion draft, is not a clarification of the modification rule, but a straightforward elimination of those parts of the modification rule that are most likely to impact aged and poorly controlled coal-fired power plants.

6. The proposed safety valve for the proposed "reliability" test.

The discussion draft offers a proposed safety valve that would impose liability for a change that would otherwise be exempt because (1) it reduced the output-based emission rate of any air pollutant **or** (2) did not increase hourly emissions above the 10 year baseline *if the Administrator determines that such increase harmful to human health or the environment and that the change is not environmentally beneficial.* I cannot see how this provision would be of any significant practical utility. As drafted, the safety-valve provision refers to "such increase"

and does not directly refer to the output-based exemption. More importantly, this provision would seem to be unenforceable since a source would not know that its modification was subject to the NSR provision until after the "violation" had occurred. Further, the language of the safety valve – "harmful to human health or the environment" **AND** (not or) "that the change is not environmentally beneficial" is extremely vague, leaving the ultimate test for this retroactive liability in the Administrator's unfettered discretion. Note that the source would be exempt even though the Administrator determined that the modification is "not environmentally beneficial", as long as the Administrator did not also determine that the modification is "harmful to human health and the environment." One can imagine a scenario where, in some Administrations, all such changes would be exempt, while in another, no changes would be exempt.

7. The "savings provision" to ensure that there is no benefit to the environment from the discussion draft.

To ensure that there are only "winners" and no "losers" within the regulated community, the discussion draft provides a "rule of construction" that provides that the discussion draft does not accidentally create any additional liability for modifications. Thus, there can be no suggestion that, in "clarifying" the modification rule, the environmental benefits of the existing Clean Air Act are preserved.

RESPONSE TO CERTAIN COMMENTS RAISED DURING THE FEBRUARY 14, 2018 HEARING

1. The NSR program makes it difficult to maintain the reliability and safety of their facilities.

The NSR process has never been intended or enforced so as to interfere with true "routine maintenance" or with the ability of a facility to respond to increases in demand for its product that could have been accommodated without the modification. As expressed earlier an operator can modify its plant however it wishes, if it pays modest attention to the actual rules and avoids

risky legal theories. Most manufacturing sectors maintain high unit availability on a constant basis, and so, as a practical matter, compliance for these sources is simply a matter of not increasing capacity – or offsetting emissions elsewhere at your facility if you decide to increase the capacity (and associated emissions) of an individual unit. For a power plant, liability generally only arises if the operator **fails** to maintain the reliability of the unit over time. In either case, if the source operator wants make a modification that is going to increase emissions by 10 percent without constraining production, it can add some incremental pollution controls, such as low NOx burners or commit to use a slightly cleaner fuel such as natural gas or lower sulfur coal.

2. Only short term emission rates matter. $PM_{2.5}$ is the pollutant that creates the greatest public health risk and the greatest impacts from $PM_{2.5}$ are associated with *chronic, long term exposure* to $PM_{2.5}$. This pollutant is generated by direct emissions of very fine particulate matter and from secondary atmospheric reaction of SO_2 and NOx emissions. We do not even aspire to meet levels for *annual* $PM_{2.5}$ recommended by the World Health Organization and much of the population of this country lives in areas that do not meet the *annual* $PM_{2.5}$ standard that we have adopted.

3. "Most of the things" required under NSR enforcement consent decrees are things the companies are required to do under other CAA programs anyway.

I was in the negotiating room for many of the NSR consent decrees and can affirm that this is simply not correct. However, if it were true, there would then be no basis for the myriad other complaints lodged against the NSR program. If these companies were going to "put on these controls anyway" why didn't they just sign up to put on the controls when they were rebuilding their units and avoid all of the expense and irritation of litigation? And what would be the harm of continuing the program as it is?

Where there are upcoming regulatory programs that will require power plants to add pollution controls at the same time NSR enforcement proceedings are underway (often years after the modification), there may be some overlap, but this is not a bad outcome and, in fact, is routinely relied upon by the EPA air program office in developing and evaluating new programs. For example, in evaluating the potential cost for the Mercury and Air Toxics rule (MATS), the air program office included the NSR consent decrees in the "base case", thereby reducing the projected cost of that rule. Compliance with the MATS rule at certain plants was also facilitated by other EPA rules, including NSPS standards, dating back to 1979.

The NSR Consent Decrees are generally more stringent than the MATS rule and so, complying with the Decrees enabled those sources to meet the MATS rule with only minimal additional expenditures. However, those same sources could have complied with the MATS rule with far less protective measures than required by the NSR Consent Decrees.

Further, there are going to be periods where ongoing enforcement activities are not accompanied with new environmental regulation and there have been numerous NSR enforcement actions in other sectors where there were no upcoming additional regulations. Finally, I would note that the NSR consent decrees include provisions, often included at the request of the air program, that advance the overall objectives of that program. These include the adoption, for the first time in a given sector, of advanced pollution control technologies such as regenerative thermal oxidation (RTO) in the wood products sector, SCR and PM CEMs in the utility sector and advances in controls for fluidized catalytic cracking units (FCCU) and boilers and heaters in the refinery sector. These requirements were strongly opposed by settling companies, but paved the way for the air program office to incorporate these advances more broadly in subsequent rulemakings. It should also be noted that the NSR Consent Decrees

include provisions for surrender of allowances under the Acid Rain trading program so that, contrary to what had been represented to the Committee, the emission reductions from the NSR Consent Decrees do not "pop up" as additional allowable emissions from other facilities.

4. Over the past 15 years EPA enforcement officials have tried to expand the definition of modification.

There were no novel theories involved in the wood products and refinery NSR enforcement actions. These were straightforward matters. In the wood products cases new green field plants were constructed without permits or modern controls. In the refinery cases the capacity, hourly emissions and annual emissions of the plants increased and there were no issues of "routine maintenance." At the time of our initial filing of the early utility NSR cases, we asked ourselves whether we needed to file a test case in advance of the first wave of cases and decided that we would rely on the earlier WEPCO decision. I've not reviewed the briefs filed by DOJ over time, but I have had occasion recently to review one of the more recent judicial decisions concerning the "routine maintenance issue." In that decision the government made a slightly different argument than I recalled, but the Court relied on the WEPCO decision and the early decisions in our initiative that also relied on WEPCO. And so, irrespective of how DOJ or EPA may have attempted to argue the particular point the law as applied to utilities is as it was 15 years ago.

5. Companies are unable to determine whether a proposed modification will increase annual emissions.

I find this argument perhaps the least credible of any presented by the opponents of the NSR program. In the course of our investigations, we obtained the procurement documents where plant managers justified the expense of the proposed modifications. In those documents company officials set out data showing how many operating hours (and how much revenue) was being lost due to forced outages of specific components of the plant. They then forecast the

degree to which those forced outages would be reduced and the additional operating hours (and revenue) that would be realized by the proposed project. Such projects would only be approved where the increased revenues associated with the increased annual hours of operation were sufficient to pay for the investment in a relatively short period of time. Since we and they know the hourly emission rate of the unit, those internal company projections formed the basis of our proof of the violations and document that companies can and do know whether a project will increase annual emissions.

6. The NSR program is the least successful and most counterproductive of all the Clean Air Act programs. The benefits achieved by the NSR program can be preserved by relying on more effective CAA programs that regulate the same pollutants from the same facilities.

The NSR program has clearly not achieved the goal of leveling the playing field between "new" and "grandfathered" large sources over any reasonable timeframe. But that is an argument to strengthen, not weaken, the program. NSR permitting has replaced the NSPS program as the driver for better controls for new facilities; the latter program serves only as the "floor" for NSR limits for new sources. Through NSR and, in particular NSR enforcement at violating facilities new technologies, such as SCR, RTO and PM CEMS have been introduced into the toolbox for state and local permitting authorities. I know of no CAA program that regulates all of the same pollutants from the same facilities as are subject to the current NSR rules.

Within my community the lead phase-down program – an old "command and control" program is widely regarded as the most successful CAA program. While we have made substantial progress in reducing ambient concentrations of certain pollutants, we still have significant issues in several areas – notably $PM_{2.5}$ and ozone. After modest reductions for several decades, ozone levels are essentially unchanged over the past decade.

One can offer critiques of many of the other CAA programs. The SIP process has proven to be exceedingly slow, ineffective and politically charged; NSPS standards are woefully out of date; MACT standards are generally toothless, designed not to force all facilities to actually meet the level of the top 12 percent, but merely to force some reduction from the worst emitters, the Acid Rain Program was a one-shot effort that did not completely address the acid deposition issue, particularly in the Appalachian region and so on. But each of these programs moved the ball forward, so too, the NSR program is flawed as it is so easily evaded. Fifteen years ago I suggested a "birthday" provision, where a plant operator would have to make a decision as to whether to retire or control a facility on its 50th anniversary (or the 50th anniversary of the Clean Air Act). I suggest that one appropriate "reform" for the NSR modification rule is to create such an age test – a date by which certain very large emitters (similar to the EU's group of large combustion plants) must meet some level of additional control for key pollutants. Such an option would provide greater certainty to facility operators and provide a clearer path to eliminating one barrier to investments in new manufacturing facilities in this country.

BACKGROUND AND QUALIFICATIONS

I received a B.S. (Physics) from Manhattan College in 1969, a M.S. (Physics) from the College of William and Mary in 1971 and a J.D. (Law) from the College of William and Mary in 1974. From 1971 to 1974 I was employed at the Naval Logistics Engineering Center where, along with other engineering and testing matters, I researched seaborne solid waste disposal issues and potential solutions for the U.S. Navy. From 1974 until my retirement in 2003, I was employed by the Federal government in the administration or enforcement of Federal laws relating to the environment and safety. This service began in the Office of Chief Counsel with the National Highway Traffic Safety Administration (NHTSA), where I was responsible for a time with ensuring the agency's compliance with environmental matters and later investigated and prosecuted a number of substantial safety defect matters

In 1984 I transferred to the Environmental Enforcement Section of the Department of Justice (DOJ) and served in several positions, culminating as Senior Counsel. While at the DOJ, I served as lead counsel in a number of significant environmental cases, including Conservation Chemical (CERCLA), Marine Shale Processors (RCRA, CWA, CAA); Metro-Denver, St. Louis MSD and the Ocean Dumping cases (CWA) and the Louisiana- Pacific, General Motors, Bethlehem Steel and Kobe Steel cases (CAA). During this period I prosecuted a number of violations of the New Source Review provisions of the CAA and specialized in other highly technical cases, such as the GM "defeat device" matter. From August, 1996 to December, 2003, I was Deputy Director and then Director of the Air Enforcement Division in EPA's Office of Enforcement and Compliance Assurance. The Air Enforcement Division is comprised of a mix of attorneys, engineers and scientists and is responsible for major case development and prosecution as well as policy development and national program management respecting stationary sources regulated under the CAA. The Division is also directly responsible for mobile source and clean fuels enforcement under the CAA.

During my tenure at DOJ and EPA, I worked closely with the EPA Office of General Counsel, the EPA program offices responsible for developing regulations to implement the several regulatory programs of the Clean Air Act and with the Regional EPA offices responsible for day-to-day State Implementation Plan[1] (SIP) approval and enforcement activities. Based on information developed during serial investigations of PSD/NSR violations within the wood products industry that occurred while I was at DOJ, I instituted what we termed "investigations-based" enforcement at EPA, focused on environmentally significant violations to supplement the traditional "inspection-based" enforcement model. Investigations using this new approach were more technical and far more time-consuming than traditional inspections, but revealed widespread noncompliance with the NSR provisions of the CAA within the coal-fired utility, refining and pulp and paper sectors. Since the unlawful emissions and political issues associated with the PSD/NSR violations within the utility sector were so significant, I was directed by my superiors to personally manage the national investigations in the utility sector. Accordingly, I managed the development of the initial round of cases referred to DOJ for prosecution and the development of the EPA administrative action against the Tennessee Valley Authority (TVA). I

also managed EPA's involvement in settlement discussions[1] with a number of utilities, including Tampa Electric Company (TECO), Southern Indiana Gas and Electric Company (SIGECO), Virginia Electric Power Company (Dominion), Duke Power, Southern Company, TVA, and PSEG aimed at resolving these longstanding violations and personally attended many of those discussions. These discussions included issues respecting feasibility of construction schedules, potential performance of pollution control devices and cash flow and affordability issues.

Since my retirement from Federal service, I have occasionally been retained by business, states and environmental groups to provide advice, analysis or testimony on a variety of environmental matters. As relevant to this matter, I was retained by the National Association of Clean Air Administrators (NACAA), the professional association of state and local air regulators) to develop a model rule to assist state and local permitting authorities to develop "case-by-case" MACT limits for industrial, commercial and institutional boilers (ICI Boilers).[2] I have also been retained to review and develop comments on EPA's several rulemakings associated with development of the Mercury and Air Toxics Standards that are relevant to this matter. This effort included a detailed evaluation of EPA's MACT floor determinations, compliance demonstration procedures and overall regulatory structure and impact. I have also been retained by various clients to evaluate energy and energy policy issues, particularly those involving the development and control of new and existing coal-fired power plants in the European Union, Kosovo, Armenia, Myanmar, Viet Nam, Indonesia, India and Japan.

From 2006 to 2010, I served on the Virginia Air Pollution Control Board ("VAPCB"). The VAPCB is a statutory non-salaried citizen board that has the authority to conduct research into the causes and effects of air pollution, adopt regulations to prevent or control air pollution, and issue permits and enforcement orders to implement and enforce air pollution regulations and the Virginia air pollution control law. During this time a permit to construct what is today one of the last coal-fired power plants in the U.S. came before the VAPCB. I researched applicable BACT and case-by-case MACT requirements, leading the Board to adopt stringent, but

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[1] Not all of these discussions led to settlements prior to my retirement.

[2] Where EPA fails to meet a statutory deadline for issuance of a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to section 112 of the CAA for a sector, states are required to develop limits for covered sources on a case-by-case basis. The model rule set out relevant statutory guidance and data that allowed states to meet this obligation.

achievable SO_2 and mercury emission limits[3] for that plant.

Thank you for the opportunity to appear before the Subcommittee. I hope my testimony will be helpful to you as you review the New Source Review program and decide whether Congress should take action to modify it. Please do not hesitate to have your staff contact me if you need additional information.

[3] The operator has consistently demonstrated compliance with the more stringent limits.

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ARTICLES

EPA's New Source Review Program: Time for Reform?

by Art Fraas, John D. Graham, and Jeff Holmstead

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Summary

This Article examines the complex CAA program known as new source review (NSR), which affects virtually every major manufacturing facility and power plant in the United States. The NSR program provides important health and environmental benefits but has become a significant impediment to the growth and modernization of the U.S. manufacturing sector. Because of a new, more stringent air quality standard for ozone, the resulting changes in the NSR program may effectively prevent industrial development in some parts of the country. The authors propose administrative reforms that EPA could take to address some of the major concerns about NSR while still maintaining the environmental benefits of the program: (1) replace current deterministic, upper-bound modeling requirements with a probabilistic approach to air quality modeling; (2) expand the pool of emission reduction credits that may be used to offset emissions from new or expanded facilities; and (3) take actions to facilitate NSR permitting when there are changes to national ambient air quality standards. The authors also offer two potential statutory reforms.

The administrations of both George W. Bush and Barack Obama recognized that manufacturing is one of the most heavily regulated sectors in the U.S. economy. Since 1981, manufacturers have become subject to more than 2,200 unique regulations, almost one-half attributable to one federal agency, the U.S. Environmental Protection Agency (EPA).[1] Both administrations also sought to streamline existing federal regulations that apply to the manufacturing sector in order to reduce economic burdens that threaten the competitiveness of U.S. manufacturing. However, a recent report by the Regulatory Studies Center at George Washington University found that the retrospective reviews of manufacturing regulations under both presidential administrations have had limited impact. Indeed, some of the retrospective reviews appear to have led to greater rather than diminished regulatory burdens.[2]

EPA's new source review (NSR) program is of special interest because it affects virtually every major manufacturing facility and power plant in the United States—and any company that might want to build such a facility in the future.[3] In this Article, we discuss the major concerns about the NSR program that have been raised by industry and the policy community, and also highlight the expanding burdens of the program resulting from increasingly stringent national ambient air quality standards (NAAQS). However, since the NSR program is also recognized as a source of significant environmental benefits, the simple option of deregulation does not seem to be particularly promising. We argue that creative regulatory reforms can accomplish most or all of the anticipated environmental benefits at considerably reduced cost to the regulated industry and the U.S. economy.

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1. Paul Bernstein et al., Macroeconomic Impacts of Federal Regulation of the Manufacturing Sector (NERA Economic Consulting & Manufacturers Alliance for Productivity and Innovation 2012).
2. Sofie Miller, *EPA's Retrospective Review of Regulations: Will It Reduce Manufacturing Burdens?*, 14 Engage 4-14 (2013), *available at* http://www.fed-soc.org/publications/detail/epas-retrospective-review-of-regulations-will-it-reduce-manufacturing-burdens.
3. National Research Council, New Source Review for Stationary Sources of Air Pollution 68-76 (2006).

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We start with a brief summary of certain key features of the Clean Air Act (CAA) and a brief discussion of how the NSR program fits within the structure of the Act. We then identify aspects of the current NSR regulatory approach that are likely to impose increasing costs on manufacturers in the near future. We propose options for regulatory reform that are designed to streamline and modernize regulatory requirements and reduce regulatory costs, while still allowing the regulatory program to achieve significant environmental results. We recognize that reforms that can be adopted through executive action are more likely to occur than those that require new legislation by the U.S. Congress, but we also outline two variants of a potentially promising legislative reform that could replace the existing case-by-case NSR review process with a system of economic incentives.

I. Background

A. NAAQS

The CAA requires that EPA establish NAAQS for certain pollutants known as "criteria pollutants": pollutants that come from a variety of sources, are widespread in many geographic areas, and "reasonably may be expected to endanger public health or welfare."[4] EPA has identified and set NAAQS for six such pollutants, including ozone and particulate matter (PM). The statutory language requires primary health-based NAAQS to be set at levels "which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health."[5] This requirement has yielded an underlying health science based on an increasingly sophisticated set of studies focused on sensitive subpopulations and more subtle health endpoints.

The CAA also requires EPA review of NAAQS every five years.[6] Although EPA has not been able to meet the five-year deadline in recent years, environmental groups have used litigation effectively to force EPA into what amounts to almost continuous review of NAAQS, especially NAAQS for ozone and PM. The result has been a series of more stringent standards over the past decade. And given the focus on sensitive subpopulations and more subtle health effects, it appears likely that there will be continuing pressure to ratchet down NAAQS even further in future years.

Since 2009, EPA has set more stringent NAAQS for four of the six criteria pollutants: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM, and ozone. These NAAQS impose substantial costs on the U.S. economy and, in particular, on the manufacturing sector. For the recently revised ozone NAAQS, for example, EPA estimated annual costs of $1.4 billion (not including the cost in California, which faces a particularly difficult challenge in reducing ozone levels), but some experts believe that the cost will be much higher.

Some major metropolitan areas such as Los Angeles, Houston, and the East Coast megalopolis have had a continuous classification as "nonattainment" (NA) for the ozone and fine PM NAAQS.[7] These areas face continuing pressure to reduce emissions from the transportation and manufacturing sectors and severe restrictions on the siting of major new sources. Other large cities find that, with the lowering of NAAQS, they are in NA again (after spending years to meet an earlier standard) and must adopt even more stringent emissions controls for their manufacturing, commercial, and transportation sources.[8] In addition, as discussed below, the continuing ratcheting downward of NAAQS is making it increasingly difficult to site major new manufacturing sources.

Studies of the historical effect of the CAA on economic activity report significant economic costs in NA areas.[9] For example, Michael Greenstone estimated that, as compared to attainment counties in the United States, NA counties lost $37 billion in capital, $75 billion of economic production (in 1987 dollars), and 590,000 jobs during the period from 1972 to 1987.[10] In a more recent study, Greenstone et al. estimated a significant decline in total factor productivity for pollutant-intensive plants in NA areas.[11] They report that this decline in productivity translates into a loss of

4. 42 U.S.C. §§7401-7671q, §7408; ELR STAT. CAA §§101-618, §108.
5. 42 U.S.C. §7209. Secondary standards are required to protect welfare; EPA has generally set welfare standards at the same level as the primary health NAAQS.
6. *Id.*
7. While classified as nonattainment areas, the air quality in these areas is better than the NAAQS for a significant number of days in the year.
8. To be sure, additional health and welfare benefits are associated with more stringent NAAQS. In the case of ozone, EPA estimates that benefits increase significantly with successively more stringent standards. And even net benefits (benefits minus costs) arguably increase with the more stringent ozone standards. This result is largely driven on the benefit side by the substantial additional reductions in premature mortality with successively more stringent ozone NAAQS. On the cost side, EPA assumes that the cost of needed emissions reductions will be capped at $15,000 per ton, arguing that technological innovation and the ability of states and local governments to delay unreasonably costly measures will mitigate the cost of NAAQS.
9. Michael Greenstone, *The Impacts of Environmental Regulations on Industrial Activity: Evidence From the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures*, 110 J. POL. ECON. 1175-1219 (2002); J. Vernon Henderson, *Effects of Air Quality Regulation*, 86 AM. ECON. REV. 789-813 (1996). John A. List et al., *Effects of Environmental Regulations on Manufacturing Plant Births: Evidence From a Propensity Score Matching Estimator*, 85 REV. ECON. & STAT. 944-52 (2003).
10. Greenstone, *supra* note 9, at 1176.
11. MICHAEL GREENSTONE ET AL., THE EFFECTS OF ENVIRONMENTAL REGULATION ON THE COMPETITIVENESS OF U.S. MANUFACTURING (NBER Working Paper Series No. 18392, National Bureau of Economic Research 2012), *available at* http://www.nber.org/papers/w18392.pdf.

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$450 billion for manufacturing plants in NA areas during the 1972 to 1993 period of study.[12]

While these studies suggest a substantial shift of pollution-intensive industry away from NA areas in the United States, these studies may simply reflect a shift of activity within the United States from NA areas to attainment areas. In other words, although the CAA has clearly imposed significant economic costs on NA areas, it may have created commensurate economic gains in manufacturing activity and employment in attainment areas.

Unfortunately, relatively few studies in the economic literature evaluate the effect of environmental regulation on the competitiveness of the U.S. manufacturing sector as a whole. A variety of other factors likely play an important—even dominant—role in decisions on whether to locate in the United States versus another country. These factors include, for example, access to (and cost of) important factors of production, transportation costs, existing investment in facilities and infrastructure, tax considerations, and exchange rate effects.

Any empirical evaluation of the effect of environmental regulations is difficult to do because it must account for these other factors in teasing out any regulatory effect. Only a few studies have attempted to do it. This limited empirical literature suggests that environmental regulation has been a relatively minor factor in decisions as to whether manufacturing plants will be located in the United States or another country.[13] On the basis of this limited set of studies, Joseph Aldy and William Pizer have suggested that the adverse effect of CAA requirements in shifting economic activity and jobs away from NA areas to "clean" areas within the United States has been more important than the effects in terms of forcing this economic activity offshore to countries with less stringent environmental requirements.[14]

However, these economic studies have looked at the past history of the CAA in the decades before 2000. With the substantial tightening of NAAQS in more recent years, the difficulty of siting or expanding major manufacturing facilities in the United States may have created a more significant incentive to shift industrial activity to other countries with less burdensome regulatory requirements.

B. *New Source Review*

The CAA requires that, before a company can construct a new industrial facility or expand an existing facility in the United States, it must first go through the NSR permitting process and obtain a permit that, among other things, ensures that the new or expanded facility will employ up-to-date pollution control technology. The NSR program creates somewhat different requirements depending on whether the facility is located in an attainment area (an area that meets NAAQS or is unclassifiable due to the lack of data) or an NA area (an area that does not meet the NAAQS).

In NA areas, new plants and major modifications to existing plants are required to meet the lowest achievable emission rate (LAER), meaning that the plants must install state-of-the-art pollution controls in order to match or exceed the emission rate achieved by the lowest-emitting similar facility in the country. In addition, they must obtain pollution "offsets" from other facilities in the same area. These requirements reportedly make it difficult or even impossible to site new plants in certain NA areas.[15]

In particular, discussions with industry sources suggest that the cost of emissions offsets effectively prohibits the siting of major new industrial plants in certain NA areas. The idea behind offsets is that, in order to build a new industrial facility in an NA area, a company must pay someone else to reduce emissions in that same area by an amount that exceeds the emissions that will come from the new facility. Depending on the area, it must obtain offsets that are between 10% and 50% greater than the projected emissions from the new facility.

Not surprisingly, offsets cannot be created on the basis of actions already required by EPA or state regulations. To be counted as an offset, an emissions reduction must go beyond what is required by law. But for more than 40 years, EPA and states have been looking for every conceivable way to reduce emissions related to ozone. In many areas, all the cost-effective emissions reductions have been mandated by regulation. Where any reductions can be made, they are very expensive.

For example, the Houston area, especially near the Houston Ship Channel, has numerous industrial facilities, but they are generally well-controlled. Because there is so much industry, it is possible to purchase offsets, but they are very expensive. Houston-area offset prices vary from $150,000 to $200,000 per ton for volatile organic compounds (VOCs) and $80,000 to $100,000 per ton for nitrogen oxide (NO_x).[16] Even a relatively small facility with state-of-the-art controls will emit more than 100 tons per year of these pollutants. The so-called "offset ratio" in the Houston area is 1.4 to 1, meaning that the new facility would need to offset 140% of its projected emissions. Thus, even if the new facility will emit only 100 tons per year of NO_x and VOCs, the company trying to build it

12. Greenstone et al., *supra* note 11, at 2.

13. Adam B. Jaffe et al., *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, 33 J. Econ. Literature 132-63 (1995); Arik Levinson & M. Scott Taylor, *Unmasking the Pollution Haven Effect*, 49 Int'l Econ. Rev. 223-54 (2008).

14. Joseph E. Aldy & William A. Pizer, The Competitiveness Impacts of Climate Change Mitigation Policies (NBER Working Paper 17705, 2011), *available at* http://www.nber.org/papers/w17705. *See also* Bruce G. Carruthers & Naomi R. Lamoreaux, *Regulatory Races: The Effects of Jurisdictional Competition on Regulatory Standards*, 54 J. Econ. Literature 52-97 (2016).

15. Existing plants in these areas may also find it difficult to make major modifications.

16. Mike Taylor, Update on Scarcity of Houston-Galveston-Brazoria (HGB) Emission Reduction Credits (ERCs) and Allowances, and Use of NO_x ERCs for VOC ERCs (2014), *available at* http://www.awma-gcc.org/docs/Sept2014Presn.pdf; Texas Commission on Environmental Quality (TCEQ), Trade Report (2015), *available at* www.tceq.texas.gov/assets/public/implementation/air/banking/reports/ectradereport.pdf.

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would need to purchase 140 tons of NO_x offsets and 140 tons of VOC offsets. At current offset prices, this means an upfront cost of $32 million to $52 million just to purchase emissions offsets.

In the South Coast NA area in California, average offset prices in 2014 were $23,500 per ton for VOCs and $63,000 per ton for NO_x.[17] Table 1 provides reported prices and quantities for major areas in California. In addition, the quantities involved in these emissions offset transactions are relatively small compared with the emissions from a new major source coming into an NA area.[18] If the applicant does not have a facility in the NA area that it can readily control (or tear down) to provide offsets, then emissions offsets for five or more years in the future are reportedly hard or even impossible to find.

Table 1. 2014 California Offset Prices for Emission Reduction Credits ($/ton)

	VOC ($/ton)	VOC (tons)	NO_x ($/ton)	NO_x (tons)
Bay Area	$1,200-$9,500 [$6,196]	212	$14,500-$15,000 [$14,643]	73
San Joaquin	$900-$6,000 [$3,877]	255	$18,000-$44,000 [$36,519]	177
Santa Barbara	$125,000	0.06	$125,000	0.56
South Coast	$7,400-$32,880 [$23,462]	26	$63,014	5.5
Ventura	$15,000-$70,000 [$50,938]	21		

Source: California Air Resources Board (CARB), Emission Reduction Offset Transaction Costs: Summary Report for 2014 (2015), *available at* http://www.arb.ca.gov/nsr/erco/erc14.pdf.
Brackets denote average (mean) price.

More stringent NAAQS standards will also have an important effect on the siting of new sources in attainment areas. Under the "prevention of significant deterioration" (PSD) provisions of the CAA, new plants and major modifications in attainment areas must also go through a preconstruction permitting process. This process requires that these plants:

- Adopt the best available control technology (BACT) to control all pollutants (not just criteria pollutants) that are regulated under the CAA. BACT is sometimes no different from LAER but may be less stringent, and less costly, for certain types of facilities.
- Provide an analysis of the effect of anticipated plant emissions on ambient air quality, including both preconstruction monitoring of air quality in the area and air quality modeling of the effect of the plant emissions on ambient air quality.

To obtain a permit, the permit applicant must show, to the satisfaction of the permitting authority (generally the state environmental agency), that (1) projected emissions from the new plant will not result in changes in ambient air quality that would cause the area to exceed NAAQS for any pollutant; and (2) even if projected emissions will not violate NAAQS, they will not result in an increase in ambient concentrations of any pollutant that exceeds the allowable PSD "increments" set by the CAA.[19]

The requirement to show that emissions from a new facility will not "cause or contribute" to a violation of any NAAQS will be more challenging now that the ozone standard has been lowered from 75 to 70 parts per billion (ppb), because many areas of the country that have always been in attainment do not meet the new standard. Until these areas are designated as NA areas, a permit applicant would need to show that the proposed plant will not "contribute to" a violation of the new standard, which would appear to be impossible in or near areas that are already in violation of the standard. EPA has said that it intends to create at least two options that would address this concern: (1) by setting certain de minimis emissions thresholds below which a new facility would be deemed not to "contribute" to a violation of the NAAQS; or (2) by allowing the permit applicant to purchase offsets.

Given the history of CAA regulation, it is likely that these options, when finalized by EPA, will be challenged in court. Even if they pass muster in the courts, it remains to be seen whether either of these options will be practically viable—especially for large industrial facilities.[20] If not, it will not be possible to build or expand a new industrial facility in certain areas, even if the facility would use state-of-the-art technology to control its emissions and even if the local community desperately wants it to be built.

II. Analyses of the NSR Program

A. *Costs of the NSR Process and Permitting Delays*

In a 2001 report on NSR, EPA observed that the permit application process can involve up to five different stages: preparation of a permit application; agency determination of application "completeness" (a process that may include extensive discussion between the applicant and permitting officials and the preparation and submission of additional information); public notice and comment on a draft

17. California Air Resources Board, Emission Reduction Offset Transaction Costs: Summary Report for 2014 (2015), *available at* http://www.arb.ca.gov/nsr/erco/erc14.pdf.

18. NSR generally applies to sources emitting 100 tons/year of a precursor ozone pollutant.

19. The CAA established PSD increments for PM and SO_2 for the three classes of attainment areas: Class I (pristine), Class II (intermediate), and Class III (growth). EPA has established PSD increments for the other conventional pollutants through rulemaking.

20. For example, it appears that a number of rural areas may exceed the new 70 ppb ozone standard—not because of local emissions, but because of background ozone and pollution transported from distant sources. Some areas have no local stationary sources and thus no way to generate offsets that can be used by new plants. In such cases, the offset requirement will impose a de facto ban on most types of industrial development.

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permit; issuance of a final permit along with response to comments; and administrative and judicial appeals.[21] This same report notes that "most developers describe [NSR] permitting as an extremely complex and time-consuming process."[22] A recent comment filed by an industry coalition stated: "Sources generally invest years in engineering, design and assessment studies before submitting a permit application for a major source. Even under optimistic conditions, it can take at least two years from the beginning of the frontend engineering work until public notice of the draft permit is published."[23]

The NSR process imposes direct costs in terms of the time and resources required to prepare the permit application and to provide responses to questions and issues that arise in the permitting process. The uncertainty and delay that attend the permitting process may impose additional costs, including financial costs and penalties.[24] The opportunity costs associated with delays or cancellation of projects include the additional production forgone and, in some cases, forgone emissions reductions from retrofitted facilities. In addition, the potential for long delays and the uncertainty that attends the NSR process could lead to suboptimal decisions in upgrading existing capacity and installing new capacity.[25]

Some economists and industry representatives have argued that the focus of NSR on preconstruction review of new or modified plants, and the attendant significant costs associated with the NSR program, have penalized the construction of new plants and the retrofit of existing plants—resulting in a "new source bias."[26] Thus, it has arguably been more economic in some cases to continue to operate relatively old, inefficient, and high-polluting plants than to install new facilities or upgrade existing facilities with better pollutant control technology.[27] To the extent this has occurred, NSR review has had the perverse effect of delaying reductions in pollutants such as SO_2 and NO_x.[28]

B. *The Time Needed to Obtain an NSR Permit*

Under the CAA, EPA and other permitting agencies are required to either grant or deny an NSR permit within one year of receiving a permit application, but there is no practical way to enforce this deadline, and the permitting process often takes longer—sometimes much longer—than a year. A 2015 Resources for the Future discussion paper provides a snapshot of the NSR process from the date EPA or state authorities notify applicants that the NSR application is complete to the issuance of the final permit.[29] During the period from 2002 to 2014, the nationwide average time to obtain an NSR permit for coal- and natural gas-fired electric generating units (EGUs) and refineries was roughly 14 months.[30] This represents a substantial increase in average processing time for NSR permits compared with the reported permitting times for the 1997-2001 period. The distributions are skewed—median values are less than the mean—with some projects requiring substantially longer to obtain NSR approval.[31] In addition, there was a significant variation across EPA regions in the processing time required for approval of new natural gas-fired EGUs—from seven months for Region 7 (Iowa, Kansas, Mississippi, and Nebraska) to 19 months for Region 9 (Arizona, California, and Nevada).

The data also show substantial year-to-year variation in processing times, with markedly longer processing times during the 2003-2005 and 2009-2011 periods (Table 2). The increase in permitting time during the 2003-2005 period may reflect the uncertainty in the NSR program

21. U.S. EPA, NSR 90-Day Review Background Paper 5 (2001).
22. *Id.* at 11.
23. Shannon Broome & Bob Morehouse, Comments of the Air Permitting Forum: National Ambient Air Quality Standards for Ozone (2015), *available at* https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2008-0699-3578.
24. U.S. EPA, *supra* note 21, at 11. "Permitting (including required public hearings and comment processes) can be costly not only because of the time and human resources involved, but also because of uncertainty and delay." "Delay, for example, can cause a developer to miss advantageous financial circumstances when interest and equity costs are low." *Id.* at 11. In addition, the applicants may have penalty clauses associated with delays in the start of construction in their contracts with engineering and construction firms. According to industry sources, these penalties can be as much as $35,000 to $40,000 per day.
25. These time-cost considerations may be particularly important in the petroleum refining industry, where the National Petroleum Council claims that "the most critical factor in the U.S. refining industry's ability to meet new fuel requirements in a timely manner is the ability to obtain permits." *Id.* at 44. Archie W. Dunham et al., U.S. Petroleum Refining: Assessing the Adequacy and Affordability of Cleaner Fuels (National Petroleum Council 2000). EPA's 2001 background report also cites statements by several oil company executives claiming that the NSR process impedes the U.S. refinery industry's capacity to expand. *See* U.S. EPA, *supra* note 21, at 44.
26. Howard K. Gruenspecht & Robert N. Stavins, *New Source Review Under the Clean Air Act: Ripe for Review*, 147 Resources 19, 20-21 (2002). *See also* U.S. EPA, *supra* note 21, at 18, 29. The direct costs to add pollution controls at existing facilities are often significantly greater than the corresponding control cost for a new plant, because pollution controls can be incorporated in the initial design of a new facility, whereas compatibility problems and space constraints at existing facilities often complicate the retrofit of controls at these facilities.
27. EPA's 2001 NSR report found some evidence to support this argument, reporting that NSR for existing sources "has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency, and safety of existing energy capacity." U.S. EPA, New Source Review: Report to the President 1 (2002), *available at* https://www.epa.gov/sites/production/files/2015-08/documents/nsr_report_to_president.pdf (cited by National Academy of Sciences, New Source Review for Stationary Sources of Air Pollution 45 (National Academies Press 2006)).
28. U.S. EPA, *Clean Air Act Requirements and History*, https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history (last visited Nov 15, 2016). To be sure, supporters of the current NSR program argue that NSR review yields important reductions in the covered pollutants. For example, EPA's 2001 NSR report estimated that PSD BACT permitting during 1997-1999 avoided 1.4 million tons per year in conventional pollutant emissions (largely reductions in SO_2 and NO_x emissions). U.S. EPA, *supra* note 21, at 8. *See also* Richard L. Revesz & Jack Lienke, Struggling for Air: Power Plants and the "War on Coal" (Oxford University Press 2016).
29. Arthur Fraas et al., EPA's New Source Review Program: Evidence on Processing Time (Resources for the Future 2015).
30. The difference in processing times between NA and attainment areas was small and not statistically significant. These data are taken from EPA's RACT/BACT/LAER Clearinghouse (RBLC). EPA staff believe only one-half of the approved NSR projects are reported to the RBLC database.
31. However, the clearinghouse database had few entries for new plants in recent years—only one additional NSR permit for a new coal-fired plant in 2012 and no additional permits for coal-fired plants in 2013 and 2014.

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due to the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit review of EPA's 2002 and 2003 revisions to the program.[32] The longer processing times during the 2009-2011 period may reflect a transition as the Obama Administration put its climate policy in place (meaning that sources for the first time had to use BACT to control their carbon dioxide emissions) and as sources faced new air quality modeling requirements with EPA's revision of the NO_2, SO_2, and fine PM NAAQS. During the 2010-2014 period, for example, one-third of the combined cycle plants received NSR permits after processing delays by the state or EPA permitting authorities ranging from more than one year—the statutory deadline for action—to three years.[33]

Table 2. Average Permitting Time for Natural Gas EGUs (Including PSD and NA Areas)

	All natural gas		New permits		Additions		Modifications	
Year	Mean	Number	Mean	Number	Mean	Number	Mean	Number
2002	321	73	324	47	299	25	769	1
2003	379	64	362	36	406	27	267	1
2004	612	46	521	27	829	13	551	6
2005	463	27	665	15	124	3	241	9
2006	290	23	355	6	286	11	231	6
2007	343	24	371	16	393	3	223	5
2008	377	21	384	3	715	4	278	14
2009	409	33	439	25	364	5	233	3
2010	468	24	554	14	372	5	321	5
2011	436	21	587	8	415	5	297	8
2012	268	31	245	14	223	11	403	6
2013	225	26	270	11	228	7	161	8
2014	235	3	—	0	—	0	235	3
Average	384	416	411	222	391	119	293	75

III. Historical Concerns About the NSR Program

A. *Delays Caused by Regulatory Overlap*

For NSR, several different layers of government are likely to be involved. Where EPA has approved the state implementation plan (SIP) provisions for NSR, the state is the primary permitting authority. However, under EPA regulations, EPA retains authority over air quality modeling, and the states may be required to consult with the EPA region (and EPA headquarters in some cases) on modeling issues.[34]

In states that have not obtained EPA SIP approval for their NSR process, EPA is the permitting authority. In most of these states, EPA has delegated the NSR process to the states (meaning that state officials take the administrative steps to process permit applications) but retains ultimate permitting authority and must be consulted on all substantive issues, including modeling, the selection of BACT, emissions limits, and monitoring and recordkeeping requirements. In a relatively few cases, a state has refused to do NSR for one or more pollutants, and in these cases, EPA issues the NSR permit.[35]

B. *Changes in NAAQS: Problems in Transition and Lack of Timely EPA Guidance*

The recent changes in the NO_2, SO_2, fine PM, and ozone NAAQS have further complicated the NSR process, resulting in permitting delays and, in some cases, the decision by industry to defer or cancel projects.[36] New or revised NAAQS must be addressed immediately in the NSR permit process, even before EPA makes formal designations as to which areas of the country are in attainment or NA with the new standard.[37]

As a result, the new NAAQS can have an immediate impact on pending permit applications.[38] Even if a permit

32. The D.C. Circuit largely upheld EPA's 2002 revisions to its NSR program in June 2005. New York v. Environmental Prot. Agency, 413 F.3d 3, 35 ELR 20135 (D.C. Cir. 2005). On Dec. 24, 2003, however, the D.C. Circuit blocked the 2003 NSR rule revising the routine maintenance, repair, and replacement provisions from going into effect until the court reached a final decision. In *New York II*, the D.C. Circuit held that the 2003 NSR revision was invalid. New York v. Environmental Prot. Agency, 443 F.3d 880, 36 ELR 20056 (D.C. Cir. 2006).

33. Section 165(c) of the CAA requires completion of NSR within one year of the completeness determination. Combined cycle EGUs are the "cream of the crop" in terms of low-cost, efficient, clean generation of electricity. Arthur Fraas et al., *supra* note 29, at 2. *See also* Arthur Fraas & John D. Graham, Regulatory Reforms to Nurture the Resurgence of the US Manufacturing Sector 20 (working paper 2015), https://spea.indiana.edu/doc/research/manufacturing-initiative/fraas-graham-2015.pdf.

34. 40 C.F.R. §51 app. W (2005).

35. For example, EPA issued NSR permits for greenhouse gas emissions in Texas from 2010-2014, while the TCEQ issued NSR permits for the other regulated NSR pollutants.

36. For example, the Baton Rouge Area Chamber reported that four major industrial projects were either put on hold or redirected to another location after EPA proposed to revise the ozone NAAQS in December 2015. Baton Rouge has monitored ozone levels of 72 ppb, a level above EPA's revised standard of 70 ppb. Baton Rouge Area Chamber, BRAC Public Policy Commentary: Eighteen of Twenty Top-Performing Metro Economies at Risk From New Ozone Standards (Mar. 2, 2015), http://www.brac.org/brac/news_detail.asp?article=1947.

37. *See* Sierra Club v. Environmental Prot. Agency, 762 F.3d 971 (9th Cir. 2014).

38. In some cases, EPA has adopted a grandfathering provision that applies to permit applications that EPA or the state permitting authority found to be

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application has been pending for months or years and the permit applicant has shown that the new facility will not cause or contribute to the violation of any NAAQS, EPA has often required the permit applicant to redo its modeling analysis using the new standard.

In some cases, this has proven difficult, costly, and rife with delays because EPA's practice has been to adopt a revised, more stringent NAAQS and begin work on implementation and modeling guidance only after adopting the newly revised NAAQS. Although EPA staff have claimed that state environmental agencies know how to proceed when a NAAQS is changed, the state agencies have disagreed in comments to the Agency, and have sometimes delayed action on permit applications until EPA issues the necessary guidance.[39]

In the case of EPA's 2010 revision of the NO_2 NAAQS, for example, EPA adopted stringent one-hour primary standards—the 98th percentile one-hour daily maximum averaged over three years—to supplement the existing annual standard. Shortly after the one-hour NO_2 NAAQS was issued, EPA put out a memorandum stating that anyone with a pending permit application—even with applications that had been pending for several years—would need to redo a modeling analysis to demonstrate that projected plant emissions would not cause or contribute to a violation of the new one-hour NO_2 NAAQS.[40]

However, the adoption of the short-term NO_2 standard greatly complicated the air quality modeling that new sources were required to provide in obtaining an NSR permit. The standard air quality models in place incorporate overly conservative assumptions for modeling single source effects on ambient NO_2 levels. This over-conservatism was not a problem with the annual NO_2 NAAQS but, with the new, stringent one-hour NO_2 NAAQS, it effectively prevented showing that these new plants would not cause or contribute to NA.[41]

It appears that EPA did not fully anticipate these issues, but Agency officials have been working through the modeling issues raised by the short-term one-hour NO_2 NAAQS ever since it was adopted. A year after setting the revised NO_2 NAAQS, EPA provided initial guidance on some of the modeling issues (e.g., the treatment of intermittent, auxiliary sources) and additional flexibility in terms of modeling the cumulative effect of other sources within the region. But EPA still has not provided the modeling tools that, according to many state environmental officials, should have been in place before the new standard was adopted. EPA finally issued a notice of proposed rulemaking in July 2015 to address these remaining issues—five years after promulgating the one-hour NO_2 NAAQS—and a final rule is expected in the next few months.[42]

The Avenal Power Center, one of the combined cycle projects affected by the 2010 NO_2 NAAQS revision, provides a stark lesson in the obstacle course associated with the NSR permitting process. Avenal was a proposed state-of-the-art combined cycle electric generating project to be located in California, and an EPA regional office was the permitting authority. EPA's Region 9 notified Avenal that its NSR permit application was complete on March 19, 2008.

On February 9, 2010, EPA revised the NO_2 NAAQS by adopting a new stringent one-hour NO_2 standard to supplement the existing annual NO_2 NAAQS, and EPA took the position that the Avenal developers were now required to show that it would not cause or contribute to a violation of the one-hour NO_2 NAAQS. The developers submitted a new modeling analysis to demonstrate compliance with the new standard, but EPA said it could not determine whether it was acceptable because the Agency had not yet adopted a new modeling protocol for use with the one-hour standard.

On March 9, 2010, two years after Region 9 found that its NSR application was complete, Avenal filed suit in federal district court charging that EPA had failed to act within one year as required by §165(c) of the CAA.[43] The developers took the position that, because EPA had been legally required to take final action on the permit application well before the new one-hour standard was even proposed, it should not be required to redo its permit application to demonstrate compliance with the new standard. In January 2011, after briefing and oral argument on these issues but before the court reached a decision, EPA informed the court that it had decided to grandfather certain PSD applications, including the Avenal application, from the NSR requirement that projects meet the one-hour

"complete" before the new standard was established. U.S. EPA, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65291, 65431-34 (Oct. 26, 2015). In such cases, permit applicants are not required to redo their modeling under the new standard. Importantly, EPA did adopt this type of grandfathering approach under the new ozone standard—although not for the earlier revisions to the NO_2, SO_2, and PM standards.

39. For example, in the case of the proposed ozone NAAQS, the Association of Air Pollution Control Agencies (AAPCA) reports that 26 state agencies raised background ozone as an achievability or implementation challenge, and 21 of these states reported concerns and limitations with the tools identified by EPA for permitting or regulatory relief. AAPCA, State Environmental Agency Perspectives on Background Ozone Regulatory Relief (2015), *available at* http://www.csg.org/aapca_site/documents/AAPCASurvey-StateEnvironmentalAgencyPerspectivesonBackgroundOzoneandRegulatoryRelief-June201.pdf; Dylan Brown et al., *Air Pollution: Strong Opinions, Shaky Data in Arguments Over Permitting*, Greenwire, May 14, 2015, http://www.eenews.net/stories/1060018570. In the final ozone NAAQS, EPA acknowledges that it received comments from states and organizations requesting that the Agency issue implementation rules and guidance in a timely manner. 80 Fed. Reg. at 65435.

40. Memorandum from Stephen D. Page, to Air Division Directors and Deputies Regions I-X (Apr. 1, 2010) (on file with EPA), *available at* https://www.epa.gov/sites/production/files/2015-07/documents/psdnaaqs.pdf.

EPA identifies these de minimis levels as ozone significant impact levels and model emission rates for precursors.

41. Similar problems also arose with EPA's promulgation of a one-hour SO_2 NAAQS in June 2010. For a case study of one plant's problems with the SO_2 NAAQS, see Ashley Jones, Presentation at the 10th Modeling Conference, Challenges With Modeling for the 1-hr SO_2 NAAQS Standard: An Aluminum Plant Case Study (Mar. 15, 2012), *available at* https://www3.epa.gov/ttn/scram/10thmodconf/presentations/3-24-Challenges_with_Modeling_1hr_SO2_NAAQS-An_Aluminum_Plant_Case_Study_03-15-12.pdf.

42. EPA proposed its revisions to the guideline on July 29, 2015 (80 Fed. Reg. 45339, 45346-49). The existing guideline is published as 40 C.F.R. §51 app. W (2005).

43. Jeff Holmstead, one of the authors of this Article, represented the plaintiff in this case.

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NO_2 NAAQS, and explained that it would request comments on its grandfathering proposal.

On May 26, 2011, the court issued an order requiring EPA to take final action on the NSR permit within 60 days (i.e., by August 27, 2011). The EPA regional office issued the NSR permit to Avenal one day later, on May 27, but this did not constitute final action because of the possibility for opponents of the project to appeal the permit to EPA's Environmental Appeals Board (EAB). Project opponents did appeal to the EAB in early June, submitting four petitions seeking a review of the permit.

On August 18, 2011, the EAB issued its decision, declining to review the permit given the time constraints imposed by the district court order requiring the Agency to make a final permit decision by August 27. The environmental opponents of Avenal also filed suit with the U.S. Court of Appeals for the Ninth Circuit. The Ninth Circuit agreed with the environmental groups that Avenal must show that it would not cause or contribute to a violation of the one-hour NO_2 NAAQS.[44] It appears that, after the Ninth Circuit decision, Avenal decided not to go forward with the project.

IV. Heightened NSR Concerns Under the New Ozone Standard

The new ozone standard illustrates some of the difficulties that arise when EPA adopts a new standard before deciding how it should be implemented. There are several areas of concern with siting new sources under NSR given the interaction with the revised ozone NAAQS, including the effect of modeling requirements, the difficulty of securing needed emissions offsets, and the issues associated with the adoption of a standard at or near background levels of ozone.

A. *Modeling Requirements*

In the past, EPA's approach has been to "assess the ozone impacts of an individual source . . . on a case-by-case basis in consultation with the appropriate EPA Regional Office and/or permit reviewing authority."[45] There has not been a "preferred or recommended analytical technique or modeling system," and analyses of single-source effects for NSR have usually involved only a qualitative assessment (although in a few cases, applicants have been required to use sophisticated chemical transport modeling).

In its July 2015 proposal to revise its Guideline on Air Quality Modeling, EPA asserts that advances in photochemical modeling have reached the point where it is reasonable to identify specific air quality models appropriate for use in assessing the ozone effects of individual sources seeking an NSR permit. As a result, EPA states that it plans to require more rigorous single-source modeling for ozone under the PSD permitting program.[46] Thus, a qualitative evaluation will no longer be sufficient, and new sources must provide air quality modeling to show that the plant will not cause or contribute to a violation of the new ozone NAAQS.

If the final air quality modeling rule—expected in the next few months—retains a requirement for single-source modeling for the ozone NAAQS, nothing will be in place in terms of clear direction on the specific modeling required. New sources and the permitting authorities will face continuing uncertainty about the modeling required to demonstrate that plant emissions will not cause or contribute to a violation of the ozone NAAQS. Coupled with the more stringent ozone standard, the new modeling requirements for ozone will likely create a significant new challenge for many companies seeking to build new manufacturing plants or industrial facilities in the United States. The bottom line is that new sources will be in a kind of limbo.

EPA has suggested that it will address this concern in part by creating a new de minimis exemption for proposed sources whose emissions are too low to have a meaningful impact on ozone formation. However, EPA does not yet have anything in place to help identify de minimis sources that would be exempt from modeling requirements. Instead, in its recent air quality modeling proposal, EPA explains that it will undertake a new rulemaking that will provide a technical basis to identify emissions levels and ambient impacts that would not be expected to contribute significantly to ambient ozone levels.[47] EPA has set a schedule for this rulemaking that will take at least another two years—substantially lagging behind last October's change to the ozone NAAQS.

B. *Finding Emissions Offsets in PSD Areas*

As noted above, EPA policy allows new sources in PSD areas to use emissions offsets to address cases where the plant emissions would cause or contribute to a violation of NAAQS. In theory, this would provide an option for sources located in areas that meet the prior ozone standard of 75 ppb but have monitored levels that exceed the new 70 ppb standard. Until these areas are designated as NA (a process that takes several years), sources located in these areas will be subject to the PSD provisions for NSR, including the requirement that sources show that they will not cause or contribute to a violation of the new ozone NAAQS. Since monitored levels in these areas exceed the new standard, the only recourse these sources may have is to obtain emissions offsets.

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44. Sierra Club v. Environmental Prot. Agency, 762 F.3d 971 (9th Cir. 2014).
45. Memorandum from Tyler J. Fox, to the Proposed Regulatory Docket No. EPA-HQ-OAR-2015-0310 (June 30, 2015) (on file with EPA), *available at* https://www3.epa.gov/ttn/scram/11thmodconf/20150630-Ozone_Docket_Memo.pdf.
46. 80 Fed. Reg. at 45346. In 2012, EPA granted a Sierra Club petition and committed to undertake a rulemaking to evaluate whether updates to the guideline are warranted and, if so, to incorporate new analytical techniques in the guideline for ozone and fine PM.
47. Memorandum from Tyler J. Fox, *supra* note 45.

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The problem, however, is that these areas will not have the arrangements in place to generate offsets for several years. History has shown that it takes several years for an area to develop the institutional arrangements necessary for the generation of acceptable offsets. EPA does, at least in theory, allow offsets from other areas under certain circumstances, but the opportunity to use these "trades" across areas has historically been constrained by EPA. In particular, the applicant must demonstrate a "net air quality benefit" across the region—a showing that must be made through detailed computer modeling to EPA's satisfaction. Some commenters on the ozone NAAQS proposal highlighted the difficulty of obtaining EPA approval of such trades.[48] Finally, it should be noted that rural areas with ozone levels exceeding 70 ppb that do not have any other controllable sources may never be able to generate the needed emissions offsets. As a result, the recent ozone NAAQS may effectively ban the construction of new sources in these rural areas.

C. Dealing With Background Ozone

In the case of the recent ozone NAAQS, the new 70 ppb standard likely approaches background levels in some areas of the United States, leaving little "headroom" for new manufacturing facilities in terms of showing that their residual emissions, even after installing the best available pollution control technology, will not violate the ozone NAAQS. Recent research has found that stratospheric intrusions and long-range transport—particularly in western states—have resulted in daily maximum eight-hour ozone levels of 70 ppb or more.[49] With the ozone NAAQS at or below background, sources will find it impossible to show that they will not "contribute to" a violation of the standard.

EPA has argued that stratospheric intrusions can be dealt with through its exceptional events policy, which allows EPA to disregard exceedances of a NAAQS caused by certain types of exceptional events. However, states that have tried to use the policy in the past claim that it has been extremely difficult, costly, and time-consuming to get EPA recognition of any exceptional events—perhaps in part because EPA has established a high hurdle for accepting state claims of exceptional events. In any event, the existing rule sets restrictive requirements for such claims, in part by requiring the affected states to show a "clear causal relationship" between the measured level and the event that has affected air quality in the area.

This requirement necessitates extensive monitoring and modeling to establish a clear causal relationship in a context where there continue to be significant questions about the accuracy of ozone air quality modeling. Further, the state must show that the exceedance is in excess of normal historical fluctuations. It is not clear that states will be able to meet these restrictive conditions because little historical data exist on such intrusions. In the final ozone rule, EPA signaled that it intended to complete revisions to the Exceptional Events Rule and guidance document before October 2016.[50]

In October 2016, EPA issued revisions to its existing Exceptional Events Rule as promised. The rule addresses some of the issues raised by stakeholders since promulgation of the current rule in 2007, with the objective of providing clarity on the criteria needed to prove an exceptional event and increasing the administrative efficiency of the process. Unlike existing EPA policy, however, the rule restricts the scope of the Exceptional Events Rule to specific regulatory actions, such as the designation of areas subject to a NAAQS as attainment or NA and determinations of attainment of a NAAQS by NA areas. EPA explains in the preamble that it is preparing a guidance document to address the exclusion of data for other applications, such as NSR.[51] EPA has not announced a schedule for issuing such a guidance document and, if history is a guide, there may be uncertainty for many years about ways in which exceptional events will affect the NSR program.

V. Potential Administrative Reforms

Past efforts to reform the NSR program have largely focused on changes that would ease the burden on existing sources by reducing the number of projects and activities that would be treated as major modifications of an existing source that require an NSR permit. For example, the most recent changes—issued in 2002—allow the use of projected future actual emissions, rather than potential emissions, in measuring emissions increases; a longer look-back period in selecting the baseline against which future projected actual emissions are compared; and a new program referred to as the plantwide applicability limitations (PAL) program, which creates an incentive for sources to

48. For example, the South Carolina agency in charge of implementing the CAA commented:

> One result of recent emission control measures is that there are minimal potential offsets available for any potential major new source review projects in future nonattainment areas. Unless the EPA broadens its acceptance of offset opportunities, most, if not all future offsets may only be obtained from closed facilities. In practical terms, the opening of a new business means the closure of another business.

See Letter from South Carolina Department of Health and Environmental Control to U.S. Environmental Protection Agency (Mar. 17, 2015), http://www.scdhec.gov/HomeAndEnvironment/Docs/NAAQS/15_Ozone_Comment_20150317a_hp.pdf; Broome & Morehouse, *supra* note 23.

49. Meiyun Lin et al., *Springtime High Surface Ozone Events Over the Western United States: Quantifying the Role of Stratospheric Intrusions*, 117 J. Geophysical Res.: Atmospheres (2012), *available at* http://onlinelibrary.wiley.com/wol1/doi/10.1029/2012JD018151/abstract; Allen S. Lefohn et al., *Quantifying the Importance of Stratospheric-Tropospheric Transport on Surface Ozone Concentrations at High- and Low-Elevation Monitoring Sites in the United States*, 62 Atmospheric Env't 646, 646-56 (2012); Allen S. Lefohn et al., Background Ozone and Its Importance in Relation to the Health Risk and Exposure Assessment for Ozone Assessment Document 7 (2014).

50. U.S. EPA, *supra* note 38, at 80 Fed. Reg. 65437.

51. 81 Fed. Reg. 68229-30 (Oct. 3, 2016).

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reduce their emissions as a strategy for avoiding NSR in the future.[52]

There certainly is merit in exploring additional NSR reforms for existing sources, but this Article is primarily focused on the ways in which the current NSR program may impede construction of new facilities, even with state-of-the-art emission controls. Below, we discuss a set of reforms designed to address these issues and to make the NSR program more sensible when it comes to new sources.

A. *A More Realistic Approach for Air Quality Modeling*

EPA's current modeling guidance requires deterministic air quality models using the maximum allowable emissions rate and the maximum allowable operating conditions for each averaging time.[53] It also requires the use of modeling assumptions that yield the maximum impact on air quality in calculating background, including the effect of other sources in the area. However, sources typically operate well below their maximum allowable emission rates, and it would be highly unusual for all the sources in an area to be emitting at their highest allowable rates at the same time—and during a period when weather conditions would maximize the ambient impacts of their emissions. As a result, EPA's current modeling guidance substantially overstates the ambient air quality effects of a potential new source.

One solution to the over-conservatism of the current approach would be to adopt a probabilistic modeling approach. Adoption of probabilistic methods would allow the use of distributions to reflect the variability in actual emissions, meteorology, and background. One common approach is to use Monte Carlo analysis to combine the information from the various probability distributions to provide an estimate (in the form of a distribution) of the effect on air quality. Thus, probabilistic analysis provides information on the variability and uncertainty in the estimated air quality effects and on the extent to which current deterministic modeling requirements overestimate the actual air quality impacts of a new source.

Adoption of probabilistic air quality modeling approaches would be particularly appropriate with the statistical form adopted for the short-term NAAQS.[54] Where a short-term NAAQS has been established to protect a sensitive subpopulation, it might also be possible to use probabilistic modeling to predict the likelihood that a member of such a subpopulation might be present and potentially exposed to peak concentrations caused by unusual circumstances related to weather or emission events.

Obviously, in order for probabilistic modeling to be helpful, EPA must indicate a receptivity to such modeling. But the Agency should also provide guidance on what probabilistic cutpoint must be met when making a determination that a new source will not contribute to adverse air quality impacts. EPA is already using probabilistic modeling to various degrees in other programs, so it should be feasible to develop guidance for appropriate use of such modeling in the NSR program.

B. *Reforms to the Offset Program*

The statutory offset requirements for the NSR program were established in 1977 and were based on the assumption that, if an area was in NA, the problem was largely caused by local industrial sources that needed to install pollution controls. Therefore, if a company wanted to locate a new facility in that area, it could pay for pollution controls at another facility and thus obtain the emissions reduction credits it would need to offset emissions from the new facility.

Although this may be the case in some areas of the country, it is not the case in many others—especially when it comes to ozone. With the lowering of the ozone standard to 70 ppb, it appears that a number of rural areas will become NA areas, including areas that currently have no industrial facilities at all. In such areas, violations of the ozone standard are typically caused by a combination of natural background, motor vehicles that travel through the area, and pollution transported from long distances. Here, no offsets are available and, depending on how the offset program is implemented, the offset requirement may well serve as an effective prohibition on the construction of any industrial facilities.

The other scenario in which the offset requirement may effectively ban new industrial facilities arises from the fact that some areas of the country have been very aggressive over many years in their regulatory efforts to reduce ozone levels. It may be true, as some critics suggest, that some of these areas did not take aggressive regulatory action until passage of the 1990 CAA Amendments, but states with persistent ozone problems have spent the past 25 years looking for every conceivable way to reduce emissions related to ozone. In these areas, all the cost-effective emissions reductions (and some very costly ones as well) have already been mandated by regulation, and EPA does not allow such emissions reductions to be used as offsets. Where there are any offsets to be had in these areas, they are very expensive and often make it economically infeasible to locate any

52. 67 Fed. Reg. 80189 (Dec. 31, 2002). In 2005, the D.C. Circuit upheld these provisions—but rejected two other provisions intended to ease the burden of NSR for existing plants. New York v. Environmental Prot. Agency, No. 02-1387, 35 ELR 20135 (D.C. Cir. 2005) (*New York I*). The D.C. Circuit also turned down a separate 2003 EPA rule—the "Safe Harbor Rule"—in 2006. New York v. Environmental Prot. Agency, 443 F.3d 880, 883, 36 ELR 20056 (D.C. Cir. 2006) (*New York II*).

53. This means the modeling must reflect allowable operating conditions as set out by "federally enforceable emission limits, operating level, and operating factor" for each pollutant and averaging time. U.S. EPA, New Source Review Workshop Manual C.44-45 (draft 1990). Similar language in EPA's rule revising its Guideline on Air Quality Models requires the use of the operating conditions causing the "maximum ground-level concentrations." 70 C.F.R. §51.

54. The one-hour NO_2 and 24-hour fine PM NAAQS require areas to meet the 98th percentile averaged over three years; the one-hour SO_2 NAAQS requires areas to meet the 99th percentile averaged over three years. The ozone NAAQS requires that areas not exceed 70 ppb for the average fourth high eight-hour ozone level over three years.

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new industrial facility in the area, even a relatively small facility with state-of-the-art pollution controls.

Fortunately, potential administrative reforms would help address both concerns—rural areas where no offsets are available and heavily regulated areas where offsets, if they are available at all, are very costly. First, the CAA allows the developer of a proposed new facility to obtain offsets from another area (i.e., an area outside the NA area where the new facility will be located) as long as (1) the other area is also in NA and has "an equal or higher nonattainment classification" and (2) emissions from the other area contribute to NA in the area in which the new source will be located. Historically, it has been very difficult to obtain permission to use out-of-area offsets because EPA and states have required extensive modeling studies to show that emissions from the offset-producing area contribute to pollution levels that exceed NAAQS in the area in which the new facility is to be located. Industry representatives also report that, even where such modeling has been done, EPA has been reluctant to approve it.

However, advances in our understanding of air pollution have shown that ozone and fine PM (often referred to as $PM_{2.5}$) are more a regional issue than a local issue, and that elevated levels of these pollutants in a particular area are caused in part by emissions from many other areas, including some that are very distant. This finding—based on EPA modeling studies showing that there is long-range transport of emissions that contribute to ozone and fine PM NA—is the basis for EPA's recent Cross-State Air Pollution Rule. The Rule required substantial emissions reductions from power plants in 28 states because EPA has found that they contribute to ozone and fine PM NA in *other* states.

Thus, instead of requiring case-by-case modeling studies to justify the use of out-of-area offsets, EPA and states could in many cases rely on the long-range transport studies that EPA has already done to show that emissions from 28 states contribute to ozone and fine PM NA in many other states. Even where EPA has not already done such modeling, companies seeking to rely on out-of-area offsets should be able to employ similar studies to justify the use of such offsets. This reform would not address all the concerns about current offset requirements, but it would significantly expand the pool of potential offsets in many parts of the country (especially in rural areas) while still achieving the program's environmental goals.

Unfortunately, the use of out-of-area offsets may not be an option for some heavily regulated areas such as the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley in California because of the requirement that such offsets must come from an area that has "an equal or higher nonattainment classification." For the purposes of ozone, there are five different NA classifications—marginal, moderate, serious, severe, and extreme—and a developer who might want to build or expand a facility in an extreme area like SCAQMD would be able to use out-of-area offsets only from another extreme area, where offsets will also be very costly and may not be available.

Even in these areas, however, other reforms to the offset program may expand the pool of offsets and allow the development of some new manufacturing facilities. For example, EPA has historically insisted that emissions reductions required by regulation may not be used as offsets. This may be true when it comes to regulations promulgated by EPA, but states are also required to adopt their own sets of regulations, SIPs, to show how they will come into attainment. If an area wanted to preserve the option of attracting new manufacturing facilities, it could be allowed to set aside some of its SIP emissions reductions to be used as offsets, as long as the SIP shows that other reductions would allow the area to continue making reasonable further progress toward attainment.

As discussed above, a number of studies have shown that NA areas have lower levels of economic growth than attainment areas. This is likely caused, to a large extent, by current offset requirements, which have been developed over many years in a series of restrictive EPA policies and guidance documents. It may be time, especially in light of the new ozone standard, to revisit these requirements to ensure that they strike the right balance between improving air quality and allowing continued economic growth in NA areas.

C. *Adoption of a Consistent Treatment for Pending Permit Applications*

EPA has been inconsistent in its treatment of NSR permit applications that are pending when a new NAAQS comes into effect. Before 2010, it appears that such decisions were generally made on an ad hoc basis by individual state agencies. Some would require permit applicants to redo their air quality modeling to show compliance with a new standard, but others believed that this approach was not required. In their view, if an applicant had done the necessary modeling to show compliance with the standards in place when the permit application was submitted, no additional air quality modeling was required.

EPA did not address this issue when it adopted its one-hour NO_2 standard in 2010, but it became a point of contention between several permit applicants and environmental groups that were opposing their proposed projects. In response, EPA said that it did have authority to grandfather pending permit applications whenever a new or revised NAAQS was adopted, so applicants would not need to redo their air quality studies based on the standard. However, the Agency said, because it did not explicitly include a grandfathering provision as part of the new NO_2 NAAQS, all applicants with pending permit applications were required to do another air quality study to show that emissions from their proposed projects would not cause or contribute to a violation of the new standard.

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Perhaps, because of the problems that this created for many permits that were pending back in 2010, the Agency did include an explicit grandfathering provision as part of the 2015 ozone standard. The Agency could easily adopt this approach in connection with any future NAAQS revisions and grandfather those NSR applications that are reasonably complete before the new NAAQS comes into effect as a part of its final rule. In its ozone NAAQS proposal, EPA is already moving in this direction. It could also extend this approach to protect applicants for projects that are proposed for attainment areas, as long as their applications are complete before the area is designated NA.

Without this type of protection, project opponents will have an incentive to delay the permitting process as long as possible in the hope that the area will be designated NA before a final permit can be issued. A more consistent grandfathering approach would ensure that companies do not spend years trying to obtain a PSD permit, only to reach the end of the process and find they now need to get an NA NSR permit (with offsets that may not be available) rather than a PSD permit.

D. *Timely Issuance of Implementation Rules and Modeling Guidance*

As mentioned earlier, one of the most important reforms EPA could make is simply to make sure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect. This would require a commitment of EPA resources that the Agency has so far not been willing to make, but it certainly could be done.

Part of the problem may be that the nuts and bolts of implementing a new standard are not terribly "sexy." The most senior EPA officials, those who are politically appointed, understand that they will be in place for only a few years, and they generally want to spend their time and attention on higher-profile issues. When it comes to NAAQS, they receive praise from the environmental community for lowering the standards, but not for the difficult task of actually figuring out how a lower standard can be implemented. It is rare to have political leaders at EPA, either Republican or Democratic, who want to make their mark on the world by dealing with air quality modeling and the arcane world of offsets.

On the other hand, it would be relatively simple to address this issue with a basic structural reform at EPA. The Agency already has a well-established process for reviewing NAAQS—a process that normally takes several years. At present, this process does not involve key stakeholders involved in implementing the NSR permitting program. The NAAQS review process should be structured so that by the end of the process, the necessary implementation rules and modeling guidance have also been finalized. This simple step would address many of the concerns that have arisen over the past few years.

VI. Potential Statutory Reforms

A. *A Narrow Fix: Emissions Fees in Lieu of Offset Requirements*

Current modeling and offset requirements may be the most significant regulatory impediment to the development of new and expanded manufacturing plants in the United States. In attainment areas, more stringent NAAQS coupled with conservative models and modeling assumptions make it difficult (and sometimes impossible) for a permit applicant to show that a new facility will not "cause or contribute to" a violation of any NAAQS. Even where it may be possible to make such a showing, the process is uncertain, lengthy, and burdensome.

When a new or expanded source in an attainment area cannot make such a showing, it must obtain emissions offsets in order to obtain a permit. In this sense, it is treated just like a facility in an NA area. In either case, a new facility may not be built unless the permit applicant can obtain sufficient pollution offsets. However, as outlined above, offsets are not available in many areas, and in areas where they are available, they can be prohibitively costly.

We propose a narrow statutory reform that could address these issues while still obtaining most or perhaps even more of the environmental benefits of the current program: allow permit applicants to pay emissions fees in lieu of meeting the current offset requirements, and require the state or local environmental agency to use these fees to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.[55]

Depending on the size of the fee, states may or may not be able to obtain the emission offsets required by the current NSR program, but they may be able to obtain even more because they could seek emissions reductions from a much broader range of sources than allowed under the current program. Current EPA practice favors offsets that come from other industrial sources—not from "mobile sources" (including cars, trucks, and construction equipment) and not from "area sources" (such as dry cleaners, auto body shops, and other paint and coating operations). Our proposal would have emissions fees paid into a fund that would be under the control of the state or local environmental agency, which could use the proceeds to finance emissions reductions and other air quality programs. In some cases, this might include subsidizing diesel retrofits or other emissions reductions from mobile or area sources

55. Both California and Texas run Clean Air Investment Funds (the Carl Moyer Memorial Air Quality Standards Attainment Program and the Texas Emission Reduction Plan (TERP), respectively) that have proven effective in implementing novel emission reduction approaches. For example, the Carl Moyer Program provides grants to owners of heavy-duty vehicles to replace older heavy-duty engines with new and cleaner engines, and to install electric idling-reduction equipment. The TERP has funded alternative fuel and natural gas fueling stations, among other projects. *See* https://www.arb.ca.gov/msprog/moyer/moyer.htm and https://www.tceq.texas.gov/airquality/terp.

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that can be more important in terms of improving ambient air quality than traditional offsets.

In some cases, states could use their existing regulatory authority to obtain emissions reductions that could be used as offsets. Under current law, existing sources do not necessarily have an incentive to make even cost-effective emissions reductions because (1) they do not have to pay for their emissions and (2) they may want to "hoard" potential reductions to offset future emission increases.[56] As a result, existing plants have an incentive to retain any potential reductions to support their own plans for plant expansion, instead of generating emission offsets for a new plant.[57] States could use their existing regulatory authority to obtain such reductions and create offsets that could be used by anyone seeking to build a new source (or expand an existing one).

Under the approach that we are proposing, a new or expanded facility would still need to obtain a permit to ensure that it will be built with modern pollution control technology—BACT in attainment areas and LAER technology in NA areas—but instead of obtaining offsets, it would make a payment to the state or local environmental agency based on its projected emissions. We anticipate that such per-ton emissions fees would be different for different pollutants based on the "reasonable cost" of a technology-based level of control. Some examples of identifying a "reasonable" control cost include the following:

- Section 185 of the CAA (adopted in 1990), which established an emissions fee of $5,000 per ton adjusted annually by the Consumer Price Index. In 2013, the fee was $9,400 per ton for NO_x and VOC emissions for severe and extreme NA areas.
- EPA's regulatory impact analysis for the recently adopted ozone standard, which used a control cost of $15,000 per ton as a reasonable estimate of the highest per-ton cost that would be necessary for the cost of "unknown" controls required to meet the current ozone NAAQS.

We anticipate that these numbers ($9,400-$15,000 per ton) would be at the upper end of the range of potential emissions fees, since they reflect the projected cost of obtaining emissions reductions in the areas with the most serious air quality problems.

B. *Broader Structural Reform: Emissions Fees in Lieu of NSR*

A more sweeping statutory reform could replace the entire NSR permitting program with a system of industrial emissions fees. The fees could be based on the projected per-ton cost of controlling different pollutants, or they could instead be damage-based. Damage-based fees could vary based on geographic location, insofar as reasonable estimates of damages are available. Different fees would be applied to different pollutants, based on the best available knowledge of their relative toxicity to human health and the environment. Emissions near population centers would likely be assessed a higher fee than emissions in rural areas.[58]

A virtue of emissions fees compared with the NSR process is that companies can build the fees into their cost structures, creating a clear economic incentive to control or modify their production processes to reduce emissions. Because the fee is automatic, it circumvents all the costly preparations and delays associated with NSR and reduces the power of EPA and state officials over specific companies involved in new construction or in the upgrade or repair of existing facilities. With emissions fees, the company does not face any uncertainty about how the regulator will react to a facility that is new or undergoing repair and maintenance. With NSR, there is considerable uncertainty as to how state or EPA officials will define the NSR obligation for a specific facility. And it is this regulatory uncertainty that may discourage a company from making investments in new facilities. Note that an emissions fee could also be extended to apply to existing sources, removing new source bias.

However, there are important barriers and hurdles to implementing an emissions fee approach. First, a growing body of scientific evidence calls into question a key assumption of the CAA: that there is a "safe" amount of pollution that can be established by environmental science. While a threshold dose for adverse effects seems likely for each individual, there is a wide range of susceptibility to adverse effects, considering the differences among healthy adults, senior citizens, asthmatics, children, and people with cardiopulmonary problems. If the safe population dose threshold is defined as the safe dose for the most susceptible individual, then the population threshold may be very close to zero or background levels.

As a result, the environmental community may oppose the adoption of an emissions fee approach in place of NSR modeling requirements to ensure protection of air quality, out of their concern for the adequacy of protection of public health. On the other hand, some environmental groups are simply looking for the most effective way to reduce emissions, and they may see emissions fees as more effective than an NSR program that is politicized, fragmented, and under constant litigation.

56. Plants do pay nominal Title V fees based on their emissions.

57. This asymmetry between the grandfathering of emissions for existing plants while new plants must obtain emission offsets serves as an important wedge in terms of cleaner new firms buying out the dirtier existing plants in NA areas.

58. In fact, current estimates suggest a substantial variation in damages from one location to another. Further, the damage estimates even vary significantly across locations within the same urban area, by season, and even by time of day. Neal Fann et al., *The Influence of Location, Source, and Emission Type in Estimates of the Human Health Benefits of Reducing a Ton of Air Pollution*, 2 Air Quality, Atmosphere & Health 169, 169-76 (2009); Nicholas Z. Muller & Robert Mendelsohn, *Efficient Pollution Regulation: Getting the Prices Right*, 99 Am. Econ. Rev. 1714, 1714-39 (2009); Arthur Fraas & Randall Lutter, *Efficient Pollution Regulation: Getting the Prices Right: Comment*, 102 Am. Econ. Rev. 602, 602-07 (2012).

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To the extent that fees would be based on estimated damages, an emissions fee approach would require a rigorous benefit analysis. While EPA has developed benefit estimates for the ozone and fine PM NAAQS pollutants, debate is ongoing (and controversial) over the uncertainty in EPA's estimates of the health effects of ozone and PM exposure.[59] In particular, considerable uncertainty exists in the estimated health effects associated with exposures at the low ambient levels of ozone and fine PM that characterize U.S. air quality. Even EPA acknowledges significant uncertainty associated with mortality estimates for exposures at the low ambient levels of ozone and fine PM that are present in the United States.[60] Nonetheless, EPA knows how to use tools of uncertainty analysis and those tools could be applied to help develop appropriate emissions fees.

Second, current NSR requirements are designed to protect against short- and long-term violations of the several NAAQS. However, there is substantial seasonal, day-to-day (and even hourly) variability in the effect of emissions from a major plant on ambient air quality. This variability arises from variations in such factors as background emissions and meteorological conditions. As a result, a fixed emissions fee may approximate the effect of emissions in terms of long-term average ambient air concentrations of pollutants such as ozone and fine PM, but such fees would have to vary substantially on a day-to-day (and even hourly) basis across different locations within an urban area to track the daily effect of plant emissions on air quality and the associated air pollution damages.

Thus, a stable annual emissions fee would only rarely be "right" on a day-to-day (or hourly) basis in protecting against short-term violations of NAAQS and in reflecting the damages of plant emissions. A short-term, variable emissions fee responding to variations in meteorological and atmospheric conditions would more closely approximate (although still imperfectly) the damage effects of emissions from a major facility, but implementation of such a variable fee would be challenging. The variability in the fee would also give up some of the "certainty" advantages that would accompany a stable long-term emissions fee.

Nonetheless, with modern computer technology and "big data" systems, a variable emissions fee may be feasible and could prove to be less administratively onerous for industry and EPA than the current NSR program. Clearly, however, it would have to be structured in a way that provides certainty and predictability for source owners, perhaps by limiting the range in which the fee can fluctuate and setting the fee far enough in advance that they can plan their operations based on the amount of the fee.

The air chemistry associated with NO_x emissions is particularly complicated. The resulting non-convexity in the relationship between reductions in NO_x emissions and ambient ozone and fine PM levels yields negative benefits in some major metropolitan areas. In other words, reducing NO_x emissions can actually make air quality worse in some areas. As a result, it is not clear how best to implement an emissions fee program for NO_x emissions in these major urban areas.[61] However, such modeling difficulties are also a conundrum in the command-and-control approach to NSR that EPA is now implementing.

Third, an emissions-fee approach will require that covered facilities estimate or monitor their emissions of multiple pollutants on a continuing basis. Much of this information is already reported by companies to state environmental agencies, EPA, or both. Since companies would know that under this new approach, fees would be charged for emissions, they would have an additional incentive to understate their emissions to EPA. A rigorous EPA enforcement system—with substantial penalties for false reporting—will be required to ensure the integrity of reported emissions.

Although intensive monitoring and enforcement programs are feasible for major manufacturing plants (the kinds of sources subject to the NSR program), these intensive programs would not be feasible for the large number of smaller stationary/area sources and the transportation programs required to achieve and maintain air quality that meets NAAQS. Thus, for these smaller sources, something like the current CAA processes to implement NAAQS (e.g., SIPs) will continue to be necessary.

VII. Conclusion

The NSR program has become a significant impediment to the construction and expansion of manufacturing facilities in the United States. With increasingly stringent NAAQS, and especially under the new ozone standard, it may effectively prevent industrial development in some parts of the country. We have identified several administrative actions that EPA could take to address these issues while still maintaining the environmental benefits of the program.

We start with two reforms that would be beneficial even if none of the NAAQS is revised again. First, EPA could adopt a probabilistic approach to air quality modeling to replace its current deterministic, upper-bound modeling requirements. Such an approach would more

59. National Research Council, Estimating the Public Health Benefits of Proposed Air Pollution Regulations (National Academies Press 2002); Arthur Fraas, *The Treatment of Uncertainty in EPA's Analysis of Air Pollution Rules: A Status Report*, 2 J. Benefit Cost Analysis 1, 1-27 (2011); Kerry Krutilla et al., *Uncertainty in the Cost-Effectiveness of Federal Air Quality Regulations*, 6 J. Benefit Cost Analysis 66, 66-111 (2015); Neal Fann et al., *Letter in Response to Fraas & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 Risk Analysis 755, 755-56 (2013); Arthur Fraas & Randall Lutter, *Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 Risk Analysis 434, 434-49 (2013); Arthur Fraas & Randall Lutter, *Reply to Letter by Fann, Lamson, Anenberg, and Hubbell Regarding Fraas & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 Risk Analysis 757, 757-59 (2013).

60. Krutilla et al., *supra* note 59.

61. Fann et al., *supra* note 58; Muller & Mendelsohn, *supra* note 58; Arthur Fraas & Randall Lutter, *Do Some NO_x Emissions Have Negative Environmental Damages? Evidence and Implications for Policy*, 45 Envtl. Sci. & Tech. 7613, 7613-14 (2011); Fraas & Lutter, *supra* note 58.

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accurately predict the air quality impacts of a new or expanded facility and thus make it easier to obtain permits for new and expanded facilities in attainment areas. Second, EPA could adopt reforms that would expand the pool of offsets and allow more clean development in both attainment and NA areas while preserving the program's environmental benefits.

We also recommend two simple reforms that would explicitly address the NSR issues that arise when a NAAQS is revised. First, EPA should revise its regulation to clarify that permit requirements and standards will be based on the date a complete permit application is submitted (which is within the control of the permit applicant) and not on the date the permit is actually issued (which may be years later and is solely within the control of the permitting authority). Second, the Agency should adopt internal staffing reforms to ensure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect.

Additionally, we offer two potential statutory reforms. The first would be fairly narrow but would significantly improve the NSR program by allowing permit applicants to pay emissions fees in lieu of meeting the current offset requirements. These fees would go into a fund that the state or local environmental agency would use to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.

Finally, we note that a more fundamental reform would be to change the statute and replace the NSR program for major manufacturing facilities with a system of emissions fees for each of the NSR pollutants. By monitoring emissions, each company would know its financial responsibility for pollution and could take steps to reduce or prevent emissions and thereby avoid fees. Such an approach would eliminate the uncertainty and unpredictability of the NSR process and encourage the expansion of existing manufacturing plants and the construction of new ones.

Appendix: Chronology for PSD Application for Footprint Power Salem Harbor Development LP Gas-Fired Combined Cycle EGU (630 MW)

Initial application	Dec. 21, 2012
Additional information submitted	Apr. 12, 2013
	June 10, 2013
	June 18, 2013
	Aug. 6, 2013
	Aug. 20, 2013
	Sept. 4, 2013
	Sept. 9, 2013
Draft PSD permit issued for public comment	Sept. 9, 2013
Public hearing	Oct. 10, 2013
Public comment extended	Nov. 1, 2013
Revised General Electric (GE) guarantee	Nov. 1, 2013
Response to EPA & other comments; emissions update with additional GE guarantee	Dec. 11, 2013
Additional letter on startup/shutdown	Jan. 10, 2014
Additional air quality monitoring for PM, & updated emissions rates for carbon monoxide & sulfuric acid	Jan. 16-21, 2014
Draft final permit issued	Jan. 30, 2014
Petition submitted to EAB	Mar. 3, 2014
Petition denied	Sept. 2, 2014
Final permit issued	Sept. 11, 2014

Senator CARPER. Thank you.

A question, if I could; again, our thanks to all of you for being here, and some of you who have been here many times, for being here today.

Mr. Walke, if I could, Mr. Holmstead's testimony also says that the test for an increase in emissions would be the same for New Source Review as it is for the Clean Air Act's Section 111 New Source Performance Standards provision.

Would you take a moment and speak about the differences between these two programs, and describe why Congress found it necessary to add the New Source Review program in the Clean Air Act Amendments of 1977?

Mr. WALKE. Yes, Senator Carper. The New Source performance standard program that you are referring to was and is viewed to be unsuccessful at reducing pollution or even constraining pollution from individual plants. So Congress added the New Source Review safeguards in 1977 to complement the NSPS program.

The New Source Performance Standard program is focused on Federal technology standards, but it doesn't prevent wild increases in emissions that can hurt people from actual plants. So that is why we have New Source Review added to the law.

What this bill would do is effectively eliminate New Source Review and replace it with New Source Performance Standards that allows plants to increase pollution up to their worst possible polluting hour in 10 years, and obviously doesn't protect people living around specific plants or protect people living in downwind States.

Senator CARPER. All right, thank you.

Mr. Alteri, where do you live in Kentucky?

Mr. ALTERI. Lawrenceburg.

Senator CARPER. Where is that?

Mr. ALTERI. It is in between Louisville and Lexington; it is the home of Wild Turkey and Four Roses.

Senator CARPER. Are those dairy products?

[Laughter.]

Mr. ALTERI. They will make you feel better.

[Laughter.]

Senator CARPER. My sister lives just south of there, in Winchester. I will mention that you were here.

My question for you, I think it was in 2012; Kentucky's power plants were some of the largest emitters, as you will recall, of mercury and other toxic pollutions, I think, in our country. In your written testimony, you state that coal plants in Kentucky have greatly reduced their emissions, in part due to regulations promulgated under Section 112 of the Clean Air Act, also known as the Mercury and Air Toxics Standard rule, or MATS.

Would you oppose any efforts to undermine MATS today?

Mr. ALTERI. I would.

Senator CARPER. Thank you very much.

And Mr. Holmstead, a closing question, if I could, for you as well. In 2012, while you were running the EPA Air Office, EPA expressly rejected a change to NSR based on the maximum hourly emission rate. The George W. Bush EPA, I am told, warned that using such a test "could sanction greater actual emission increases to the environment, often from older facilities, without any preconstruction re-

view," and that such an approach "could lead to unreviewed increases in emissions that would be detrimental to air quality."

My question, Mr. Holmstead, is not a gotcha question, but I am just wondering, were you wrong then, or do you think you might be wrong today?

Mr. HOLMSTEAD. So let me be clear. We never rejected the, what, this approach. We didn't adopt it. But I have, and I have to say, I was amused to read Mr. Walke's quotes. What I will say is, you emphasized the right words there, that something like this could allow increases, or might allow increases.

What we know from the real world is that they would not. Or it is highly unlikely that they would. So if we lived in a world where NSR was the only regulatory program that applied to existing facilities, if that were the case, then I would agree that this bill could allow pollution increases. Although again, the amount of pollution is not a function of these.

What we are talking about is hours of operation. And hours of operation depends on demand for your product, right? Plants don't exist so that they can maximize their pollution; they exist so they can sell things to people. So whether you are talking electricity or widgets, that is ultimately what determines the hours of operations that people run. Whether or not you modify, whether or not you become more efficient, all those things, are constrained by demand.

Going back to your question, though, if the NSR program were the only program, and if demand were essentially unconstrained, then yes, this would allow more pollution. But we don't live in a world like that. We live in the real world.

And I have to say, I care a lot about air pollution. But I also care about doing it in the right way.

And we have learned a lot over the years. And the NSR program is just not a very effective way to reduce air pollution. It is good for new sources, because they are required to install pollution controls; that is what Sean said. It is good when someone is going to expand a source, because it is part of that process, you are required to install pollution controls.

But playing this game of gotcha with existing sources when they replace a component, and we try to get them to trigger NSR has proven not to be a very effective way. And it creates sort of the wrong incentives.

Senator CARPER. Thank you for that.

John, take just 30 seconds to close us out, please.

Mr. WALKE. Sure. Just two quick points. Despite these general reassurances from Jeff, let me emphasize that he has not identified a single law in the United States that would limit increases in actual emissions from thousands of plants that this bill covers the way that the NSR modification program does.

The second point I would make is that Jeff's enforcement colleagues down the hall in the Bush administration identified plant after plant after plant that had increased emissions under the test that EPA rejected. There was nothing theoretical about it. The air got dirtier, and people got sicker.

Senator CARPER. All right, thanks.

Mr. Chairman, this is not a new issue, as we said already. And it is one we have been talking about, arguing about, discussing for a long time.

Your legislation, if nothing else, sort of gives us an opportunity to revisit and maybe to have the start of a productive conversation. I am not sure, but we will see.

Thank you.

Senator BARRASSO. Thank you very much, Senator Carper.

Mr. Alteri, at one point, Mr. Walke was making an answer to something related to whether it was a new source or an old, and you shook your head no about what had happened in Kentucky. I don't recall the specifics of that. Is that something you would like to clarify?

Mr. ALTERI. Mr. Walke was absolutely correct on two new units, they were coal gasification projects, and they were located right there at the mines. So I think you are reducing your carbon footprint by having that direct access to local fuel sources.

The other actions related to improvements that exist in facilities. It also included when you put on a scrubber, and you have a selective catalytic reduction strategy with ammonia injection, it creates sulfuric acid mist. So that triggers NSR as well, even though you are having a 95-plus percent reduction of SO_2, just because of the chemistry and the atmosphere chemistry, you are going to increase sulfuric acid mist. There is no way to control it.

If you limit your sulfur content in coal, then I think that would be an opportunity to make NSR reforms where you are not going to cost litigation costs, as well as going through the permitting process for something that is a pollution control project.

Senator BARRASSO. Thank you.

Mr. Holmstead, Mr. Walke had described the GAIN Act as creating a license to pollute. Could you comment on the accuracy of that statement?

Mr. HOLMSTEAD. Well, you won't be surprised that I disagree. What this rule would do was remove the threat of triggering NSR that discourages a company from doing the things that we should want them to do. We should want them to maintain their facilities. If your boiler tubes wear out, you ought to be able to repair your facility and return it to the way that it was.

If you want to improve the efficiency of your facility, why in the world do you want to have this permitting requirement that is cumbersome, that takes a long time, that can be very expensive? Why do you want that?

We have all these other regulatory programs that protect air quality, and this one has just not worked very well when it comes to, if you are trying to get plants to actually reduce their emissions. It just hasn't worked.

And so I am frustrated because I see that we are, as a country, and this is a small part of our economy, but it is nevertheless very important. And you talk to manufacturing facilities, you talk to anybody, and they say, NSR is a significant problem. And I just wish that we had some way to fix it. I think this act would be a very sensible way to do that.

Senator BARRASSO. Well, thank you all.

The Committee has received a number of letters in support of the GAIN Act from a number of groups, including the National Association of Manufacturers, the Portland Cement Association, the American Forest and Paper Association, the International Brotherhood of Boilermakers, the Pennsylvania Chamber of Business and Industry. Without objection, I ask unanimous consent to enter these letters into the record.

And it is so done.

[The referenced information follows:]

November 4, 2019

The Honorable John Barrasso
Chairman, Senate Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member, Senate Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper,

I would like to thank you for holding the hearing on S. 2662 entitled, "Growing American Innovations Now Act" (GAIN Act) on November 6, 2019. This hearing provides an important opportunity for the Committee to examine the challenges posed by EPA's New Source Review Program (NSR) and how the GAIN Act can improve it -- consistent with the twin purposes of the Clean Air Act to promote public health and welfare, as well the productive capacity of the nation.

The American Forest & Paper Association (AF&PA) serves to advance a sustainable U.S. pulp, paper, packaging, tissue and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - *Better Practices, Better Planet 2020*. The forest products industry accounts for approximately four percent of the total U.S. manufacturing GDP, manufactures over $200 billion in products annually, and employs approximately 950,000 men and women. The industry meets a payroll of approximately $55 billion annually and is among the top 10 manufacturing sector employers in 45 states.

The American Wood Council (AWC) is the voice of North American wood products manufacturing, an industry that provides approximately 450,000 men and women in the United States with family-wage jobs. AWC represents 86 percent of the structural wood products industry, and members make products that are essential to everyday life from a renewable resource that absorbs and sequesters carbon. Staff experts develop state-

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of-the-art engineering data, technology, and standards for wood products to assure their safe and efficient design, as well as provide information on wood design, green building, and environmental regulations. AWC also advocates for balanced government policies that affect wood products.

EPA's complex NSR air permit program affects practically every major manufacturing facility in the United States, and unfortunately, it has become a significant impediment to the modernization and growth of the U.S. manufacturing sector. U.S. air permitting and regulatory requirements are out of date, overly conservative, rigid, and time-consuming. The air quality permitting process for new and modified facilities is slow and cumbersome and relies on unrealistic modeling and assumptions, resulting in unnecessary delays, costs and impediments for projects that would benefit both our economy and our environment.

This problem has become more acute in the last decade with substantial tightening of EPA's National Ambient Air Quality Standards (NAAQS) closer to ambient background levels. Simply put, when stringent NAAQS are combined with unrealistic air quality modeling and assumptions, there is little or no "headroom" for new or modified facilities in many areas to show that their residual emissions will not contribute to a violation of the NAAQS, even after the installation of the best available pollution control technology.

It doesn't make sense to discourage upgrading plants already subject to myriad other regulatory requirements, or to block beneficial projects using best controls simply due to unrealistic air quality modeling and assumptions. The reality is that energy efficiency and modernization projects for existing sources are delayed, modified or thwarted by complex NSR interpretations that have accumulated and evolved over time. The program requires expensive but unrealistic air modeling that frequently delays projects many months or more and can cost $100,000 or more to complete. Unreasonable permitting delays tie up investment capital and undermine the economic benefits from expansion projects.

AF&PA and AWC support the GAIN Act under consideration by the Committee, as it clarifies the definitions of "modification" and "construction." The Act takes important steps to reform the NSR program that ultimately can result in more efficient manufacturing while still achieving the goals of the NSR program. Among other things, the draft legislation would override past adverse Court decisions, including one invalidating an NSR exclusion for installing new pollution control equipment.

The NSR permitting program is broken and must be updated to allow for growth and innovation while promoting the best available technologies to protect our environment. The forest products industry is one of the largest manufacturing sectors in the nation, has invested billions of dollars on environmental stewardship and remains committed to innovative and sustainable business practices. Yet, an inflexible NSR permitting

program impedes beneficial projects and job creation and undermines paper and wood product manufacturers' ability to effectively plan for our future. Thank you for introducing S. 2662 and our industry looks forward to working with you and the Committee as the legislative process moves forward.

Best regards,

Paul Noe
Vice President Public Policy
American Forest & Paper Association
American Wood Council

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November 4, 2019

Senator John Barasso
Chairman
Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington DC 20510

Senator Thomas R. Carper
Ranking Member
Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington DC 20510

Dear Senator Barasso and Senator Carper:

I am writing to express support for S. 2662, the "Growing American Innovation Now Act" (GAIN Act) and to commend the sponsors of the bill. By way of background, America's Power advocates on behalf of the nation's fleet of coal-fueled power plants.

The GAIN Act would provide much needed clarity and certainty to EPA's New Source Review (NSR) program. Unfortunately, the NSR program has caused three decades of regulatory uncertainty and litigation, wasted resources, and impeded projects to improve power plant efficiency, reliability and safety. At the same time, the NSR program has yielded little in the way of benefits. We are hopeful that EPA will reform the NSR program over the coming months, but the most effective way to remedy the problems with NSR is to enact the GAIN Act.

The nation's coal fleet helps maintain the reliability and resilience of the electricity grid, produces affordable electricity, contributes to fuel diversity, and provides fuel security. By enabling more efficient, reliable and safe operation of the fleet, the GAIN Act will allow the coal fleet to continue to provide these benefits.

Sincerely,

Michelle S. Bloodworth

Michelle Bloodworth
President and CEO

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November 6, 2019

The Honorable John Barrasso
Chairman, Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

The Honorable Thomas R. Carper
Ranking Member, Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

Subject: Hearing on S. 2662, the Growing American Innovation Now (GAIN) Act

Chairman Barrasso, Ranking Member Carper and members of the Senate Committee on Environment and Public Works:

On behalf of the members of the American Petroleum Institute (API), I appreciate the opportunity to submit comments on the November 6th hearing on S. 2662, the Growing American Innovation Now (GAIN) Act and respectfully request that this letter be entered into the formal record.

API is the only national trade association representing all facets of the oil and natural gas industry, which supports more than 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 600 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 47 million Americans. API was formed in 1919 as a standards-setting organization. In its first 100 years, API has developed more than 700 standards to enhance operational and environmental safety, efficiency and sustainability.

New Source Review (NSR) rules discourage industries, such as the refining and petrochemical manufacturing industry, from exercising the discretion to undertake energy efficiency improvement projects. The major NSR permitting process is time consuming and resource intensive, and – including pre-permit application work – can take three years or longer. The

uncertainty of permit timing can hinder investment decisions as much as the actual permit schedule delays. As such, NSR applicability determinations and the threat of triggering time-consuming and costly NSR permitting requirements have caused refiners and other manufacturers to forego plant changes that could improve the efficiency, reliability, and capacity utilization of their units.

For these reasons, API has for many years, and in multiple contexts, supported efforts to better clarify the definitions and procedures for determining applicability of the major NSR program. Balanced, effective NSR regulations would allow the oil and natural gas industry to invest in new facilities and energy infrastructure in ways that improve environmental performance. Further, reforming permitting can help unleash more than a trillion dollars in private sector investment, critical to ensuring that Americans benefit from increased domestic production, reduced global emissions, and lower energy costs that meet the needs of a dynamic and growing economy.

API applauds efforts by the Senate Committee on Environment and Public Works to hold a hearing to discuss the GAIN Act. Our industry supports legislative changes that reinforce that there is no modification to an existing source when there is no increase in the source's emissions of an air pollutant. This clarification has the potential to increase innovation at existing sources, which would no longer need to undergo a review of NSR applicability. API also supports the addition of an hourly emissions test that would provide a simpler way of prospectively identifying whether a project will result in an increase of emissions that triggers NSR.

API appreciates the opportunity to provide these comments and looks forward to working collaboratively with the Committee on this and other important issues. Should you have any questions, please contact me at (202) 682-8340.

Sincerely,

Howard T. Feldman

International Brotherhood of

BOILERMAKERS • IRON SHIP BUILDERS **BLACKSMITHS • FORGERS & HELPERS**

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DIRECTOR OF GOVERNMENT AFFAIRS
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November 5, 2019

The Honorable John Barrasso
Chairman
Environment and Public Works Committee
410 Dirksen Senate Office Building
Washington, D.C. 20510

Senator Thomas R. Carper
Ranking Member
Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510

RE: S. 2662 – GROWING AMERICAN INNOVATION NOW ACT

Dear Chairman Barrasso and Senator Carper:

The International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers, AFL-CIO (IBB) is writing to express its strong support for legislation recently introduced to improve the New Source Review (NSR) permit program under the Clean Air Act. Referred to as the "Growing American Innovation Now Act" or "GAIN Act" (S.2662), this legislation would eliminate many of the existing NSR regulatory barriers to improving the efficiency and productivity of the existing electric utility and industrial facilities, while ensuring the continued protection of the environment.

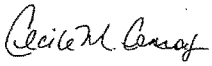
There is a great need to make targeted improvements to the NSR permit program. Congress enacted into law the NSR permit program over 40 years ago in order to ensure that major stationary sources of emissions are installed with state-of-the-art emission control technologies and assure the protection of air quality throughout the country. While the NSR program has generally worked well for achieving these objectives in the case of new electric utility and industrial sources, the overly complicated NSR regulatory scheme has posed many problems for assuring the efficient operation and reliability of such existing sources. These problems include the creation of major impediments to the implementation of plant modernizations that are needed to enhance the efficiency and productivity of existing major industrial facilities. In addition, they

have even resulted in creating significant disincentives to undertake many maintenance, repair, and replacement projects that plant operators must routinely perform to assure the reliability and safety of such existing facilities.

The NSR permitting barriers to plant maintenance and modernizations have significant adverse consequences for American workers. They create strong disincentives to improve the competitiveness of our economy by limiting the efficiency and productivity of existing electric generating fleet and industrial plants, ranging from steel and chemicals to refineries. In addition, they pose significant threats to the jobs of American workers, including IBB members who perform major construction projects and other services needed for maintaining and repairing the boilers and other equipment at these existing facilities.

Over the years, the IBB has worked with the Environmental Protection Agency (EPA) to adopt reasonable regulatory reforms that would improve the workability and effectiveness of the NSR program. While we are hopeful that EPA will still adopt such reforms over the next year, the most effective and durable way to remedy many of the core problems with the NSR permit program is to pass the GAIN Act. We believe that this legislation, if enacted into law, would establish common-sense, simplifying rules that will assure the onerous NSR permitting requirements are not inadvertently triggered by many projects to improve the efficiency, reliability and safety at existing electric utility and industrial facilities. In particular, these reforms will facilitate job-creating investments in our existing industrial infrastructure that are critically important to modernizing and enhancing the competitiveness of our industrial infrastructure for the benefit of the American workers and general public. Furthermore, it will do so without jeopardizing the air quality and environmental protections afforded under the Clean Air Act.

Sincerely,



Cecile M. Conroy
Director, Government Affairs

cc: Newton B. Jones, International President
William T. Creeden, International Secretary-Treasurer
U.S. International Vice Presidents

The International Brotherhood of Boilermakers is a diverse union representing workers throughout the United States and Canada in industrial construction, repair, and maintenance; manufacturing; shipbuilding and marine repair; railroads; mining and quarrying; cement kilns; and related industries. With its headquarters in Kansas City, Kansas, the International Brotherhood of Boilermakers unites over 250 local lodges throughout North America, providing numerous services for local lodges and individual members and uniting all our members in our common endeavor to improve the lives and lifestyles of our members.

Ross E. Eisenberg
Vice President
Energy and Resources Policy

November 6, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and
Public Works
United States Senate
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member
Committee on Environment and
Public Works
United States Senate
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

The National Association of Manufacturers (NAM), the largest manufacturing association in the United States representing small and large manufacturers in every industrial sector and all 50 states, supports S. 2662, the Growing American Innovation Now (GAIN) Act. The GAIN Act would ensure that the New Source Review (NSR) permitting program does not act as a barrier to installation of equipment that improves efficiency or reduces air pollution.

The purpose of NSR, according to the EPA, is to require industrial facilities "to install modern pollution control equipment when they are built or when making a change that increases emissions significantly." In practice, however, NSR often stands in the way of efficiency upgrades and the installation of modern pollution control equipment. NAM members in aerospace, insulation, pulp and paper, hard rock mining, iron and steel, clean energy power generation, boiler manufacturing and many other sectors have identified NSR as a serious regulatory impediment in recent years. S. 2662 addresses their concerns.

S. 2662 clarifies the types of facility modifications that require an owner to obtain an NSR permit. The bill also includes provisions that make it easier for facility owners to carry out pollution control projects and projects designed to improve, restore, or maintain the safety or reliability of a facility. Taken together, the changes to NSR proposed by S. 2662 will provide more certainty to companies seeking to invest in and improve existing facilities.

The NAM supports the GAIN Act and strongly recommends that the Committee move this measure forward.

Sincerely,

Ross Eisenberg
Vice President
Energy and Resources Policy

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RICH NOLAN
President & CEO

November 5, 2019

The Honorable John Barrasso
Chairman
Senate Environment and Public Works Committee
410 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

The National Mining Association (NMA) urges passage of S. 2662, the "Growing American Innovation Now (GAIN) Act" to bring commonsense reform to the U.S. Environmental Protection Agency's New Source Review (NSR) program. Enactment of this legislation will remove existing impediments to investments in technology that would improve the efficiency and emissions profile of coal-fired power plants.

The GAIN Act brings needed reform by encouraging, rather than deterring, projects that improve energy efficiency, reduce hourly emissions and enhance grid reliability. An August 2017 Department of Energy staff report to the Secretary found that "the uncertainty surrounding NSR requirements has led to a significant lack of investment in plant and efficiency upgrades, which would otherwise lead to more efficient power generation, benefits to grid management, and reduced environmental impacts." The report recommended that "EPA allow coal-fired power plants to improve efficiency and reliability without triggering new regulatory approvals and associated costs." Similarly, in October 2017, the U.S. Department of Commerce issued a report on streamlining permitting and reducing regulatory burdens for domestic manufacturing, highlighting the need for reform of the NSR program.

This legislation executes on these recommendations and will help ensure that NSR no longer stands in the way of upgrades that will improve environmental performance at coal-fired power plants.

NMA urges favorable consideration of the legislation.

Sincerely,

Rich Nolan

National Mining Association 101 Constitution Avenue, NW | Suite 500 East | Washington, DC 20001 | (202) 463-2600

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Nov. 4, 2019

The Honorable John Barrasso, Chairman
Environment and Public Works Committee
United States Senate
Washington, DC 20510

The Honorable Tom Carper, Ranking Member
Environment and Public Works Committee
United States Senate
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper,

The Senate Environment and Public Works Committee meets this week to hold a hearing on S.2662, the Growing American Innovation Now (GAIN) Act. On behalf of the Pennsylvania Chamber of Business and Industry, the largest, broad-based business advocacy organization in the Commonwealth, I am writing to express our support for this legislation, which provides crucial and much needed reforms to New Source Review permitting provisions of the federal Clean Air Act. By providing more certainty and clarity to the regulated community, these reforms will allow our member companies the opportunity to improve efficiency, reduce emissions, and increase their competitiveness.

The 2017 Tax Cuts and Jobs Act is providing an opportunity for industrial and manufacturing facilities to deploy capital in order to expand in an effort to capture rising economic growth. Improved economic conditions and sound tax policy are also paving the way for facility improvements that will further improve environmental performance, provided the regulatory climate affords management the opportunity to do so. We must also note, however, that manufacturing activity in Pennsylvania has slightly contracted over the past 12 months, while all other sectors have shown growth. It is imperative Congress enact policy that allows all of our sectors to grow and compete.

The GAIN Act provides for reforms which we have, on several occasions, advocated for in testimony delivered to the House of Representatives Committee on Energy and Commerce. Those testimonies are appended to this letter as a reference. In brief, while EPA guidance and policy memoranda issued by this administration have been encouraging, statutory and regulatory changes are needed for long-term certainty. The NSR permitting process discourages improving the efficiency of manufacturing, industrial and certain power generation facilities in Pennsylvania and other states, and has resulted in our members reporting having shelved projects which would have resulted in reduced emissions.

Further, hundreds of thousands of workers in Pennsylvania rely on the continued vitality of these manufacturing and industrial sites, as do hundreds of thousands of more in neighboring states where tens of billions of dollars of goods manufactured in Pennsylvania are sent for sale. In addition, Pennsylvania is the largest net exporter of electricity in the PJM grid, which provides power to more than 60 million Americans in 13 states and the District of Columbia. Reform to NSR was also a key policy reform identified in a joint policy report, Forge the Future, which identified barriers to growth to achieving the estimated potential for 100,000 new jobs in the energy and manufacturing space in Pennsylvania.

Reform to the New Source Review program can and should be done in a manner that allows for continued economic growth and the furtherance of the significant progress made with respect to improving our

country's air quality. As the GAIN Act will help us achieve both these aims, we encourage members of the committee to vote in support of this bill.

Sincerely,

Kevin Sunday
Director, Government Affairs

Enclosure

Testimony

Submitted on behalf of the
Pennsylvania Chamber of Business and Industry

New Source Review Permitting Challenges for Manufacturing and Infrastructure

Before the:
United States House of Representatives
Committee on Energy and Commerce
Subcommittee on Environment

Presented by:
Kevin Sunday
Director, Government Affairs

Washington, DC
February 14, 2018

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Testimony of Kevin Sunday, Pennsylvania Chamber of Business and Industry
Before the House Energy and Commerce Committee Subcommittee on Environment
New Source Review Permitting Challenges for Manufacturing and Infrastructure
Feb. 14, 2018

Good afternoon Chairman Shimkus, Ranking Member Tonko, and members of the committee,

My name is Kevin Sunday, director of government affairs for the Pennsylvania Chamber of Business and Industry. The PA Chamber is the largest, broad-based business advocacy organization in the Commonwealth. Our nearly 10,000 members are of all sizes, crossing all industry sectors throughout Pennsylvania. All of our members are committed to the stewardship of our state and nation's land, air and water, and we seek to provide a thoughtful and balanced approach on ways we can continue to reduce our environmental impacts and grow the economy.

It is an honor to appear before you this afternoon to discuss the challenges our members, particularly those in the manufacturing and energy space, have faced in terms of securing permitting and authorizations under the New Source Review (NSR) program. NSR reform can and should be done in a manner that allows American businesses to re-establish their competitive advantage without regressing on the significant progress the country has made in reducing criteria pollutants in the past several decades. We applaud the Trump administration and EPA Administrator Pruitt for taking steps towards instituting thoughtful reform to this program – a program that to date has held back companies from growing their business, shoring up their competitiveness and even reducing their environmental footprint.

PA Chamber members have reported that the current process is an impediment to investing in the efficiency of their operations and improving their ability to compete abroad. Because of the costs associated with crossing NSR thresholds, companies have shelved projects that would have reduced emissions, lowered operating costs and provided an overall benefit to public health and the environment. Disputes between state and federal regulators over interpretation and application of regulatory criteria result in sizeable legal and engineering costs and leave projects in limbo for months, or years. Lenders will not sign off on financing until the revolving door of lawsuits from third-party groups over the perpetually changing universe of Best Achievable Control Technology (BACT) and Lowest Achievable Emissions Rate (LAER) controls stops spinning. Economic growth and environmental progress depend upon a well-functioning and rational regulatory system; the NSR program shows signs of being neither.

We also applaud the members of the United States House of Representatives and Senate for taking a bold stand for economic growth by sending the Tax Cut and Jobs Act to the President's desk for his signature late last year. In particular we thank Senator Pat Toomey for his leadership in getting the bill through the Senate. In the short time since the enactment of this legislation, employers across the country have announced plans

to increase investment, hiring and wages. It is expected that in the short term, consumer spending and economic growth will increase considerably so – 4.0% in GDP growth on an annualized basis, according to the Federal Reserve Bank of Atlanta. As the economy grows, capital is repatriated, and rates on employers are reduced, manufacturers and businesses have a generational opportunity to secure a competitive advantage by re-investing into their facilities, enhancing their sustainability profiles and expanding to capture a share of the growing economy – provided, of course, that regulatory obligations do not present unnecessary obstacles.

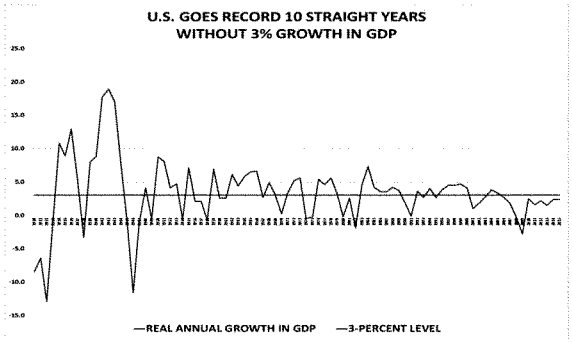
Paired with tax reform, the unprecedented output of our nation's natural resources and the strength of its diverse power generation portfolio of nuclear, coal, gas, oil and renewables has positioned this country to return to levels of GDP growth unseen in more than a decade. An energy-focused economic development strategy, as outlined in a recent report entitled Forge the Future, for Pennsylvania has the potential for to bring an additional $60 billion in state GDP and more than 100,000 jobs to our state. The Appalachian region, including Pennsylvania, Ohio, West Virginia and Kentucky, could become a petrochemicals and plastic manufacturing hub – according to the American Chemistry Council, more than $28 billion in economic expansion and more than 100,000 jobs could be created should the region capitalize on an ethane storage project and secure the construction and operation of several petrochemical plants.

We can ill afford to waste this opportunity by leaving up barriers to growth, such as unnecessarily burdensome permitting requirements as existed under previous administrations' implementation of NSR regulations. Instead, let us pursue stewardship of our natural resources and secure economic growth in a thoughtful, responsible manner.

Testimony of Kevin Sunday, Pennsylvania Chamber of Business and Industry
Before the House Energy and Commerce Committee Subcommittee on Environment
New Source Review Permitting Challenges for Manufacturing and Infrastructure
Feb. 14, 2018

Tax Reform, Energy Infrastructure and the Expanded Use and Production of Domestic Natural Resources are Creating Generational Opportunity for Pennsylvania, the Appalachian Region and the United States

In an increasingly competitive global environment for capital investment, the United States' corporate tax rate increasingly became a drag on investment decisions, prior to the historic reforms made with the Tax Cut and Jobs Act of 2017. Since the previous comprehensive tax reform took place in the mid-1980's, the rest of the world spent much of the past thirty years lowering their corporate tax rates to an average considerably lower than ours, while ours stayed the same. As a result, the United States didn't just lose a competitive edge – it lost out on real growth. From 2006 to 2015, the United States achieved a dubious historic record – going ten straight years without a single year of 3% real GDP growth. The country is in need of strong economic growth in order to provide opportunity for all.



Source: U.S. Chamber of Commerce

Fortunately, the Tax Cuts and Job Act is expected to yield a boost to growth. While there are a multitude of variables impacting the nation's economic output, lowered rates for businesses and individuals is expected to result in a more productive economy. The Tax Foundation's preliminary analysis of the new tax law finds that over the next decade, GDP will increase by an average of 0.29% each year, at a total average annual rate of 2.13%, compared to an expected baseline of 1.84%.[1] While this additional 0.29% may not seem like a high number to a casual observer, even small improvements in GDP result in massive positive impacts for our nation's economy. The standard rule of thumb applied by the Congressional Budget Office is that a mere 0.1% increase in GDP yields an aggregate $273 billion in increased economic activity over ten years.[2]

Another credible analysis, which incorporates the impact of international trade and global flow, anticipates the tax reform framework will raise GDP by between 3 and 5 percent and real wages by between 4 and 7 percent, which translates approximately to $3,500 annually for the average American working household.[3] Finally, most recently, the Atlanta Federal Reserve announced, in its latest forecast for the first quarter of 2018, the economy is expected to grow by a very strong 4.0% on an annualized basis.[4]

Tax reform is not the only catalyst for economic growth in Pennsylvania or the nation. The increased development and use of oil and natural gas promises significant economic gains as well, including in some sectors that are not traditionally associated with these fuel sources. Industries such as additive manufacturing, data centers, fabricated materials, glass, electronics, fiber optics, concrete, nanofibers, steel, cement, advanced manufacturing and robotics, in addition to traditional manufactured use of petrochemicals, such as ethane, polyethylene, ammonia and inorganic chemicals, all face the opportunity to secure a global competitive advantage through the use of natural gas in their fuel source for heating, power and feedstock. To what extent was in part the subject of a recent econometric study, Forge the Future. Aggressive pursuit and use of domestic natural gas results could result in an additional $60 billion in state GDP for Pennsylvania, as it positions itself to be a national leader in manufacturing. More than 100,000 family sustaining jobs could be

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[1] Preliminary Details and Analysis of the Tax Cuts and Jobs Act. Tax Foundation, Dec. 18, 2017. https://taxfoundation.org/final-tax-cuts-and-jobs-act-details-analysis/
[2] The Budget and Economic Outlook: 2017 to 2027. Congressional Budget Office, January 2017. https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/reports/52370-outlook_0.pdf
[3] Simulating the Republican "Unified Framework" Tax Plan. Seth G. Benzell, Laurence J. Kotlikoff, and Guillermo Lagarda, Oct. 17, 2017. https://kotlikoff.net/sites/default/files/Simulating%20the%20Unified%20Framework%20Tax%20Reform%20Plan_0.pdf
[4] GDPNow Forecast. Federal Reserve Bank of Atlanta, Feb. 6, 2018. https://www.frbatlanta.org/cqer/research/gdpnow.aspx

created, as well as hundreds of thousands of Pennsylvania families saving considerable amounts of money in home heating and electric costs.[5]

Another report, commissioned by the Pennsylvania Department of Community and Economic Development and the Team Pennsylvania Foundation, forecasted the potential for nearly $4 billion in investment in additional opportunities for ethylene cracker plants and plastics manufacturers.[6] These are industries that are very sensitive to both commodity price and consumer demand. As consumer spending increases domestically and abroad, and as sustained development of natural resources provides a stable, low-cost feedstock, these industries have a generational opportunity to capitalize on recent trends and to establish a global competitive advantage.

Pennsylvania is not the only state with the opportunity to see significant investment into new and expanded petrochemical and plastics manufacturing. A study conducted by the American Chemistry Council examined a hypothetical scenario in which the Appalachian region – Kentucky, Pennsylvania, West Virginia and Ohio – in total saw the build out of five ethane crackers and two propane dehydrogenation facilities, supported by a regional ethane storage hub in the next decade. The result: a total of $36 billion in investment, more than 100,000 jobs and $28 billion in economic expansion.[7]

Tax reform, the nation's vast energy resources, increased growth, and higher consumer spending are laying the foundations for a successful resurgence of manufacturing and for capturing a global leadership position in a wide variety of industries. However, as new facilities seek to be built and as existing facilities seek to capitalize on domestic resources or invest capital into improving the efficiency of their plants, the complex array of environmental requirements, including permitting under the New Source Review regulations, could present a barrier. Thoughtful and creative reform to NSR is needed to realize the full economic potential available to our nation; indeed such reform can and should take place in a manner that doesn't diminish the significant progress made with respect to improving air quality across the country in the past several decades.

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[5] Forge the Future: Pennsylvania's Path to an Advanced, Energy-Enabled Economy. July 2017. http://www.paforgethefuture.com/pdf/PA-Forge-the-Future.pdf

[6] Prospects to Enhance Pennsylvania's Opportunities in Petrochemical Manufacturing. IHS Markit, March 2017. https://teampa.com/wp-content/uploads/2017/03/Prospects_to_Enhance_PAs_Opportunities_in_Petrochemical_Mfng_Report_21March2017.pdf

[7] The Potential Economic Benefits of an Appalachian Petrochemical Industry. American Chemistry Council Economics & Statistics Department, May 2017. https://www.americanchemistry.com/Appalachian-Petrochem-Study/

The New Source Review Program Is In Need of Reform

When a new industrial facility is seeking a permit to be built, or when an existing facility is seeking to expand, the project must go through the NSR and Prevention of Significant Deterioration (PSD) permitting process. The backbone of these programs are the National Ambient Air Quality Standards. NSR was established as part of the Clean Air Act to ensure that counties and regions can progress towards attaining and maintaining air quality that is protective of public health while new facilities are built and existing facilities are modified and expanded.

In practice this regulatory construct discourages expansion of existing manufacturing (and the attraction of new facilities) in non-attainment areas, despite historic improvements in air quality. In many cases, the NSR rules as applied don't allow for significant improvements to existing facilities, as they require application of the highest Clean Air Act standard, rendering projects uneconomic due to compliance costs. Most large-scale manufacturing and industrial facilities will trigger NSR thresholds for one or more NAAQS pollutant. When these facilities seek to expand their operations, they must calculate, per NSR regulations, if there will be a significant net emissions increase as a result of the modification, compared to recent operational profiles, and EPA has established that such a calculation must assume that a source will produce its maximum possible emissions every hour of every day for the duration of its existence (referred to as "potential to emit" or PTE), even though such a calculation is not representative of any facility's actual operations. Companies must then account for these emissions that will never be emitted by accepting a more stringent limit and installing costly control technology than would be necessary had the calculation on future net emissions be representative of actual future operational practice. In practice, this has discouraged companies from investing in installing cheaper and cleaner-burning burners in their boiler systems or other on-site heating and power units. In other words, modifications that increase a facility's output per unit of fuel can trigger NSR thresholds, even if the overall impact is a net environmental gain.

The costs of compliance with NSR are significant – for nonattainment areas, sources must deploy Lowest Achievable Emissions Rate (LAER) technology, which are the most expensive type of control, and/or obtain Emission Reductions Credits (ERCs) – credits which have become increasingly expensive and in short supply as NAAQS requirements have been ratcheted down in recent years. In addition to these costs, the penalties for non-compliance are massive, and the costs to defend litigation against citizen suits and environmental NGO's are also punitive. Perversely, the NSR construct encourages the wasting of resources by not encouraging facilities to make changes to become efficient.

Regulators Are Not Applying NSR With the Flexibility that the Law Provides to Account for Changing Market Conditions

In the NSR process, an existing facility's recent output is compared to the hypothetical, 24/7 output resulting from a modification (potential actual emissions). This comparison penalizes facilities that have not been running at full capacity in the years running up to submitting its plans for NSR review. Importantly, the text of the Clean Air Act and NSR regulations allows applicants a so-called "demand growth exclusion," which allows applicants to exclude a portion of the difference between actual baseline emissions and potential actual emissions by subtracting out emission that would have been generated but for a lack of market demand. This is a useful, common sense and necessary component of a well-functioning regulatory program to allow for operational flexibility – however, during the Obama administration, the EPA took a severely restrictive view of when the demand growth exclusion can be utilized.

As a real world example, one major manufacturer in southeastern Pennsylvania saw its operations reduced over a period of a few years due to economic challenges and fuel supply issues, even to the point of being idle for a year. This period of scaled-back operations resulted in an emissions profile that became the line that, if crossed due to almost any facility modification, will trigger NSR. When new ownership took over the facility, and macroeconomic conditions changed to the benefit of the facility, management sought to make improvements to the facility to increase output and maintain viability of the facility. Such improvements would not only allow the company to increase its output and retain its workforce, but to do so in a more efficient manner with fewer emissions. The company was able to make the business case to invest in the facility and go through, at great expense, the NSR process; but for other companies in different circumstances, NSR encourages retirement and divestment from plants that could be made more efficient and productive – and keep their workforce employed.

To cite another of many examples, one PA Chamber member has reported that they cancelled a planned fuel switch to a cleaner burning fuel at their manufacturing facility because low production rates during the recession resulted in low baseline emissions. This company operates in an industry heavily exposed to construction activity. The cleaner fuel would have resulted in lower real-world emissions compared to when the facility was running full tilt prior to the recession, but because of how NSR emissions methodologies are applied, it looked like, on paper, a significant emissions increase was going to be occurring, as compared to the temporarily low production rates that occurred during the recession. This would not have been a project-driven emissions increase, and air quality and public health would have seen a net benefit from the fuel switch.

Permit Review Times and Intragovernmental Disputes over Regulatory Interpretations Add Costs and Jeopardize Projects

The time to secure permitting through NSR is extremely lengthy. PA Chamber members report a fast-tracked process takes at minimum a year. Further, the permitting process does not allow for much operational flexibility. Too often, the business world and market conditions change faster than the NSR process is able to accommodate. If operational conditions at a facility changes, the permit may need to be modified, resulting in a long period where it is unclear if the facility is in non-compliance. Administration of the NSR program has, over the past several decades, been in constant flux as various EPA Administrators issue interpretative memoranda and regional offices make different conclusions on projects with fairly similar characteristics. PA Chamber members report this has resulted in a significant amount of regulatory gray area where it is unclear if the project will be vulnerable to enforcement by federal regulators. Companies are averse to deploying the significant amount of capital to upgrade and keep viable an existing facility if the regulatory risk is too uncertain.

There is often disagreement on interpretation of NSR requirements between state and federal regulators, putting project applicants in a bind when, fairly late in the game, EPA delivers a series of comments and questions to the state on a project. Compliance with NSR and other environmental requirements has a major impact on the business planning and operational design of facilities. Financial viability of a project depends on getting timely approvals. PA Chamber members have reported that this tension between state and federal regulators, and the lack of communication to project applicants about that tension until several months into permitting discussions, is not only extremely frustrating, but costly. What may seem like a minor dispute over the calculation of future versus actual emissions can result in tens of thousands of dollars in engineering and legal fees and a resubmitted application.

Another PA Chamber member has reported that a project to switch to a cleaner burning fuel at its manufacturing facility is in jeopardy because of how regulators are interpreting NSR requirements. The project will result in considerable reductions of one criteria pollutant (SO2), but the fuel change is triggering NSR due to a relatively small amount of increase in another criteria pollutant (NOx). The overall public health and environmental benefits from the fuel switch are clear: there will be an overall improvement in air quality as a result. But the costs involved in complying with NSR as a result of the fuel switch may render the project uneconomical, and the company has been negotiating with regulators for more than a year.

In most cases, lenders also will not sign off on financing a new or expanding facility until all permits are issued and all appeals are resolved. Not only can there be a protracted dispute between state and federal regulators regarding interpretation and application of regulatory criteria, but citizens' suits from third-party NGOs are common. Once this potentially multi-year process of intragovernmental disagreement and litigation with third-parties concludes, the universe of what constitutes BACT or LAER for such a project may have shifted – requiring the company to change its plans, affording NGOs the opportunity to file suit again and restricting the lenders to make a final decision on financing. This is an unfortunate and unwelcome result, given that the company proposing the new build or expansion has done everything in its power to comply with the regulations from the outset. There is room within the existing regulatory and statutory framework to provide certainty to applicants by limiting the universe of relevant BACT and LAER as it existed when a final and complete application was submitted.

Administrative Determinations Regarding Single Source Can Shunt Projects into NSR, Jeopardizing Otherwise Viable Projects

Over many years, EPA has built up a substantial body of guidance and applicability determinations that address the circumstances under which two or more facilities must be considered a single source for purposes of air permits issued under the New Source Review and Title V programs. Far from providing clarity and consistency, these determinations have created substantial uncertainty for permitted entities and in many cases have discouraged advantageous commercial relationships and new investment.

EPA purports to base its guidance on the relevant regulatory definitions, which use a three-part test consisting of whether two facilities are in the same industrial grouping, located on contiguous or adjacent properties, and are under common control. However, because adjacency and common control are not defined in the regulations, EPA guidance has established a long list of factors that it considers relevant in determining whether two otherwise separate facilities or entities must be aggregated. One of the sectors particularly affected by these determinations is the landfill sector, which has been unduly burdened by EPA's focus in recent years on the aggregation of landfills and nearby landfill gas-to-energy facilities. By their very nature, gas-to-energy facilities are entirely separate operations, with the landfill engaged in the management of waste and the gas-to-energy facility engaged in the production of energy. However, in order to be economically and operationally viable, gas-to-energy facilities must be located at or near the landfill facility. In some cases, EPA has pointed to the use of a pipeline for the conveyance of gas from the landfill to the energy facility as an indicator of adjacency. Additionally, EPA has created a presumption of common control for co-located entities, even where the two entities are not commonly owned. In support of this presumption, EPA has often concluded that the existence and terms of gas purchase agreements between the landfill and

gas-to-energy facility are indicators of common control. Chamber members have also seen regulatory determinations to aggregate sources in the oil and gas sector in the context of permitting compressor stations, dehydration facilities, and other associated infrastructure that is not adjacent or under common control. EPA's analysis ignores the fact that an arms-length, mutually beneficial commercial contract should not be a basis for determining that two parties are under common control.

Over the past several years, there have been efforts in EPA Regions 1, 2 and 3 (and perhaps others) to push delegated state permitting agencies to evaluate whether landfills and gas-to-energy facilities should be aggregated. In most cases, the facilities were initially permitted and have been operating for many years as separate facilities (many under Title V permits). Most often, the issue comes up at Title V renewal, rather than in response to any modification at either facility. These efforts upset the settled expectation of the parties long after initial investments have been made, with the specter of future New Source Review permitting burdens applying in the future. These re-evaluations cause administrative burden and cost for permittees and no immediate benefit to the environment – in fact, single source determinations can serve to discourage future investment for fear of triggering New Source Review obligations. Further, these cases often highlight differences in approach between the EPA regions and delegated states within those regions, with EPA pressuring state agencies to carry out these evaluations which can take years to play out and may involve litigation at the state and federal level. Finally, when a single source determination is made (most often over the objection of the permittees), state permitting agencies often struggle to structure operating permits in a manner that accomplish the goals of Title V by providing compliance certainty – instead, two otherwise unrelated entities are forced into an unnatural joint permitting arrangement in which they share responsibility and risk for each other's operation. In the landfill sector, these determinations threaten to discourage the beneficial use of landfill gas as an energy resource.

Federal Agencies Have Also Pointed to NSR as a Significant Challenge to Manufacturers and the Energy Economy

PA Chamber members and the manufacturing industry writ large are not the only ones calling for reform to NSR. In a 2002 report to President George W. Bush, EPA noted that:

As applied to existing power plants and refineries, EPA concludes that the NSR program has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency and safety of existing energy capacity. Such discouragement results in lost capacity, as well as lost opportunities to improve energy efficiency and reduce air pollution.[8]

In the Department of Energy's "Staff Report to the Secretary on Electricity Markets and Reliability," staff noted that, among the many pressures to power generation, the NSR had a significant impact:

The retrofit-or-retire decision for owners is also impacted by EPA's New Source Review (NSR) regulations that can affect owners' ability to enhance plant efficiency due to the delay, cost, and uncertainty associated with obtaining an NSR permit. The NSR permitting program requires stationary sources of air pollution—including factories, industrial boilers, and power plants—to get permits before construction starts, whether the unit is being newly built or modified. This is an important concern for owners considering retrofitting an existing power plant with carbon capture equipment to reduce CO2 emissions, or adding new components to improve operating efficiency. These upgrades could trigger the NSR requirements of the Clean Air Act because they would constitute a "physical change," or lead to a designation of the change as a "major modification," subjecting the unit to NSR permitting requirements.

The uncertainty stemming from NSR creates an unnecessary burden that discourages rather than encourages installation of CO2 emission control equipment and investments in efficiency because of the additional expenditures and delays associated with the permitting process. Ironically, the uncertainty surrounding NSR requirements has led to a significant lack of investment in plant and efficiency upgrades, which would otherwise lead to more efficient power generation, benefits to grid management, and reduced environmental impacts.[9]

Our energy assets are providing the opportunity for many companies to improve their sustainability footprint and reduce costs via projects like distributed solar, combined heat and power (CHP), microgrids and fuel cells. Policy barriers should not impede the deployment of these technologies, nor for potential technologies such as small modular reactors (SMRs) making use of nuclear energy on a smaller scale. However, while our energy picture continues to shift, as American ingenuity and resourcefulness is put to use, the backbone of our grid remains large-scale, centralized power plants. The PA Chamber is a supporter of markets and we believe competitive energy markets have been good for consumers. We also recognize the need to ensure

[8] New Source Review: Report to the President. U.S. Environmental Protection Agency, June 2002. https://www.epa.gov/sites/production/files/2015-08/documents/nsr_report_to_president.pdf
[9] Staff Report to the Secretary on Electricity Markets and Reliability. U.S. Department of Energy, August 2017. https://energy.gov/sites/prod/files/2017/08/f36/Staff%20Report%20on%20Electricity%20Markets%20and%20Reliability_0.pdf

adequate capacity is available. We appreciate the Trump administration has begun a conversation, and that the independent Federal Energy Regulatory Commission and regional grid operator PJM Interconnection has continued that conversation as it relates to market design, to ensure that there are not policy barriers at work in the energy markets contributing to the premature retirement of baseload generation – nuclear, coal and otherwise.

The Recent Pruitt Memorandum is an Important First Step to Reforming NSR

On Dec. 7, 2017 EPA Administrator sent a memorandum to all regional administrators provided guidance on how sources may conduct emissions projects when going through the NSR program, and how EPA staff should evaluate those projections and handle enforcement.[10] The memo is significant in that it returns application of NSR requirements closer to the plain language of the Clean Air Act and NSR regulations. It allows applicants to account for how they will actively manage future emissions and provides for more use of the demand growth exclusion, provided the applicant has complied with regulatory criteria regarding evaluation, documentation and notice without a "clear error." The memo also includes an express prohibition on EPA staff second-guessing these analyses. EPA staff will, however, continue to evaluate if significant thresholds were crossed during five- and ten-year periods, post-project. States are free to implement a more stringent NSR program, and the memo makes clear that EPA staff should defer to state regulators' judgments.

It is important to note that none of the contents of the memo will inhibit states' ability to progress towards achieving and maintaining attainment of NAAQS, nor are individual companies relieved of their regulatory obligations. What the memo does do is provide more regulatory certainty to sources and to states. Less dispute between state and federal regulators means not just a streamlined permitting process for applicants, but that less public resources are being expended on intra-governmental in-fighting; more high-efficiency modifications at existing facilities also means less natural resources are being expended to produce greater economic output.

It is the sincere hope of the PA Chamber that this memo is the start of further reforms to NSR in administrative, regulatory and statutory contexts. If we a have a regulatory process that could be made more efficient, so that our plants and facilities can become more efficient, and we don't – that is a failure. Such a result is not only bad for business, it's bad for the environment.

[10] New Source Review Preconstruction Permitting Requirements: Enforceability and Use of Actual-to-Projected-Actual Applicability in Determining Major Modification Applicability. Administrator Scott Pruitt, Dec. 7, 2017. https://www.epa.gov/sites/production/files/2017-12/documents/nsr_policy_memo.12.7.17.pdf

A year ago, the PA Chamber delivered testimony to this same subcommittee, identifying a number of recommendations to the nation's air regulatory framework that will boost the productivity and competitiveness of domestic manufacturers, and, more broadly, the economy. We are pleased that a number of these recommendations have been adopted, including the rescission of the long-standing and illogical "once in, always in" HAPS guidance and rescinding the CEQ guidance on NEPA and greenhouse gas emissions. We applaud these changes, and we look forward to working with this body and the administration on the adoption of additional pro-growth policies that do not sacrifice environmental quality.

Testimony

Submitted on behalf of the
Pennsylvania Chamber of Business and Industry

Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing

Before the:
United States House of Representatives
Committee on Energy and Commerce
Subcommittee on Environment

Presented by:
Kevin Sunday
Director, Government Affairs

Washington, DC
February 16, 2017

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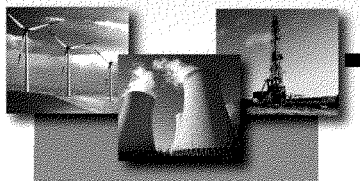
Challenges to Energy, Infrastructure and Manufacturing

Energy Production and Power Generation



- Distorted playing field for power generation
- States, not federal government, should lead on regulating energy development
- Source determination and aggregation guidance
- Carbon emissions and the Clean Air Act

Pipeline and Electric Infrastructure

- NEPA Process
- Wetlands Mitigation Requirements
- CEQ GHG Guidance
- US Army Corps consistency
- Water Quality Certifications

Manufacturing and Refining

- Regulatory uncertainty
- PSD and NSR Program
- NAAQS implementation
- Major Modification requirements
- Startup, Shutdown and Malfunction Rule
- BACT/LAER Determinations
- Once-in, Always-in HAPS Guidance

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of Business and Industry

Testimony of Kevin Sunday, Pennsylvania Chamber of Business and Industry
Before the House Energy and Commerce Committee Subcommittee on Environment
Regarding Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing
Feb. 16, 2017

Good morning Chairman Shimkus, Ranking Member Tonko and members of this committee,

My name is Kevin Sunday, director of government affairs for the Pennsylvania Chamber of Business and Industry. It is an honor to appear before you this morning to discuss the challenges our state faces with respect to attracting new manufacturing and building the necessary infrastructure to deliver energy to market, in part due to the current air quality regulatory construct. It is our sincere hope that the challenges and ideas we bring before you today encourage you to be bold in your efforts to modernize our nation's approach to environmental protection in a way that continues to improve the quality of our environment while also promoting economic growth. We must also be faithful and look to set policy that encourages the retention and expansion of existing manufacturing and industry.

The PA Chamber is the largest, broad-based business advocacy organization in the commonwealth. Our members are of all sizes, crossing all industry sectors throughout Pennsylvania. All of our members are commited to the stewardship of our state and nation's land, air and water, and we seek to provide a thoughtful and balanced approach on ways we can continue to reduce our environmental impacts and grow the economy. Pennsylvania and this country have been afforded the opportunity of a lifetime to grow the economy in a way not seen in decades, so long as every facet of the energy value chain is allowed to flourish: the energy production and generation industry, the pipeline and electric transmission sectors, and manufacturing and industrial production. Modernizing our nation's approach to environmental regulation can help us realize this opportunity without sacrificing environmental quality.

Infrastructure and Domestic Energy Production are Creating New Opportunity for Pennsylvania

Pennsylvania is well-poised to grow every industrial sector, not just manufacturing, given our abundant natural resources and leadership in the electric generation sector. Indeed, we have already seen a number of manufacturing success stories in Pennsylvania thanks to the increased production of domestic energy resources and the build-out of pipeline infrastructure. These include:

- Access to natural gas helps a leading pharmaceutical company's manufacturing facility reduce emissions and costs to remain competitive
- A leading pulp and paper manufacturer turning to natural gas for on-site heat and power to reduce cost and emissions
- Three soon-to-be shuttered refineries in southeast Pennsylvania finding new life thanks to access to domestic fossil fuels

- A global integrated oil and gas company selecting southwestern Pennsylvania to site a multi-billion petrochemical facility
- A leading consumer products company harnesses local gas reserves to provide all of its heating and power needs and send power back out to the grid
- A financial institution turns to an on-site natural gas combined heat and power system to reduce costs and ensure reliability for its computing systems
- A dormant steel mill will soon be restarted due to pipeline projects increasing the demand for rolled steel
- A shuttered coal-fired power plant in the mid-state will run on natural gas thanks to a greenfield pipeline project

These success stories demonstrate just a fraction of the renewal of opportunity that can be achieved in part through policy that allows all segments of the energy value chain to flourish. These segments include the development of our natural resources, power generation from a diverse portfolio of fuel sources, expanded oil, gas and electric infrastructure, and the use of those commodities in manufacturing and industry. The American economy stands to benefit tremendously as energy is developed and moved through infrastructure for final use in a home or business; we can also continue to secure additional improvements in air and water quality as we develop this value chain.

It must be noted that, for the projects referenced above, the financial considerations involved, such as access to low-cost energy and access to markets for produced products, were enough to overcome the substantial regulatory hurdles that state and federal environmental law present. However, for many projects, the regulatory structure becomes so burdensome on top of difficult economic conditions that shutting down the facility becomes the only option. Such has been the case for many of Pennsylvania's coal-fired power plants and heavy industry. The lack of infrastructure and burdensome regulatory requirements has also discouraged new investment into our state. Pennsylvania also recently lost out on a $500 million investment in a petrochemical facility in southeastern Pennsylvania due to a lack of pipeline infrastructure and regulatory delays.[1] This is not the only situation where we have lost investment due to delays getting infrastructure permitted; an untold number of other projects have been lost in response to a combination of regulatory obligations that continually increase and a lack of certainty regarding the implementation of these obligations.

[1] Pa. business leaders: Shale-gas pipeline build-out needs to step up. Philadelphia Inquirer, Nov. 1, 2016. http://www.philly.com/philly/business/Pa-biz-leaders-Shale-gas-pipeline-build-out-needs-to-step-up.html

The Current Regulatory Construct Presents Substantial Challenges to Industry and Is Reducing Economic Opportunity

Despite the significant opportunities energy development can bring to Pennsylvania's businesses and industries, our unemployment rate has climbed by nearly a full point over the past year, from 4.7% in December 2015 to 5.6% in December 2016.[2] Our unemployment rate is now higher than the national average of 4.9%, and the sectors which have shed the most jobs over the past year are in industries which are most exposed to impacts from environmental regulation: trades, manufacturing, mining, and construction.

Twice as many PA Chamber businesses say environmental regulations have a negative impact on operations compared to a positive.[3] While our companies remain optimistic, expecting to see an increase in sales and workforce in the near future, it is apparent that we are not fully capitalizing on the opportunities before us.

The current regulatory approach presents a major challenge for every segment of the energy value chain, and as a result we are unnecessarily limiting economic opportunity. Businesses seeking to invest in new or expanded operations need clear direction from regulators on what compliance obligations are and will be in the future. Unfortunately, at the present time, regulatory requirements, particularly those in air and water, are changing faster than it takes to get a permit.

Despite Nationwide Progress with Air Quality, the Cost of Compliance Continues to Mount

Air quality issues present a particular challenge for industry. The current construct under the Clean Air Act unnecessarily inhibits investment and expansion of facilities. Hundreds, if not thousands, of man-hours and untold sums of capital are required to secure initial permits and ensure on-going compliance, consuming an ever-increasing share of companies' budgets that could otherwise be spent in expanding the workforce or investing in research and development. It is becoming increasingly costly and more difficult to integrate a management team's intent to expand production or otherwise execute a competitive vision for growth with mounting compliance obligations As an example, one energy-intensive manufacturer in southeast Pennsylvania spends more per year in annual air quality compliance obligations than it cost the current ownership to buy the entire facility a few years ago for $180 million. This facility is a key economic driver in the region, with a workforce of nearly 500 employees and several hundred contractors, many of them in the

[2] Pennsylvania Unemployment Rate Falls to 5.6% in December. Pennsylvania Department of Labor and Industry, Jan. 20, 2017. http://www.media.pa.gov/Pages/Labor-and-Industry-Details.aspx?newsid=224
[3] 26th Annual Pennsylvania Economic Survey. Pennsylvania Chamber of Business and Industry, October 2016. http://pachamber.org/pdf/2016_Economic_Survey.pdf?1478794849

building and construction trades. Any layoff that occurs at this facility or the others like it will cost the region 18 jobs, the state 22 jobs and the country 61 jobs.[4] Another manufacturer was required to spend $100 million to install pollution control equipment to control emissions that the facility will never produce. This is the product of EPA's so-called "once-in, always-in"[5] guidance memorandum for major sources of hazardous air pollutants (HAPs), which requires facilities to install and use extremely costly control equipment compliant with Maximum Achievable Control Technology standards for HAPS even if the HAPs emissions of a facility are reduced to below major source thresholds (even to zero) due to changes in processes and operations.[6]

The Consequences of Non-Attainment and Ozone Transport

The current construct of the Clean Air Act presents an immediate discouragement to any company looking to build or expand in Pennsylvania or other fellow Ozone Transport Region states (a group of northeastern states from Virginia to Maine), as well as in any area of the country that has been designated as non-attainment. Generally speaking, EPA sets a National Ambient Air Quality Standard for a particular pollutant (such as ozone or SO2) and works with states to designate counties or metropolitan regions of the country that are not meeting the standard. Facilities in these "non-attainment" areas are then required to comply with emissions limits that are more stringent than areas in attainment. Once the region meets attainment, the burden on facilities is eased somewhat. However, by virtue of how the Clean Air Act has been written and amended, Ozone Transport Region states must continually impose the more stringent, "non-attainment" emissions rules for ozone on their companies even after the states attain the already rigorous federal NAAQS for ozone in all areas within their own borders. In addition, EPA's continual lowering of NAAQS for other pollutants and the process it has used to characterize air quality has resulted in an increasing number of counties and regions being placed into "non-attainment," despite an overall improvement in air quality. The CAA's so-called "anti-backsliding" provisions[7] prohibit EPA from easing regulatory requirements on sources even if EPA establishes a less stringent NAAQS.

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[4] Re-employment Assessment and Economic Impact of ConocoPhillips and Sunoco Closings. January 9, 2012.Pennsylvania Department of Labor & Industry Center for Workforce Information & Analysis. https://www.doleta.gov/performance/results/AnnualReports/PY2012/PA_Impact_Conoco_Sunoco_Closings.pdf

[5] This policy was instituted in a May 1995 memorandum, entitled "Potential to Emit for MACT Standards – Guidance on Timing Issues." See https://www.epa.gov/sites/production/files/2015-08/documents/pteguid.pdf

[6] The Environmental Council of the States, a national non-profit association of state environmental officials, has repeatedly affirmed (six times since 2000) a resolution for EPA to change this policy. See http://www.ecos.org/wp-content/uploads/2016/02/Resolution-00-12-Once-in-2015v.pdf

[7] Clean Air Act Section 172(e): If the Administrator relaxes a national primary ambient air quality standard after November 15, 1990, the Administrator shall, within 12 months after the relaxation,

The negative economic consequences of a non-attainment designation for a county or multi-county region are significant. Research by Michael Greenstone, who was chief economist for President Obama's Council of Economic Advisors from 2009 to 2010, demonstrates that in a fifteen-year observation period non-attainment counties lost 590,000 jobs and $75 billion in economic output.[8] Another report by Greenstone and his colleagues shows that productivity of manufacturing facilities falls significantly following a non-attainment designation.[9] Research by W. Reed Walker, a professor at UC Berkeley, found a 15% decline in employment in the 1990's in sectors affected by the 1990 Clean Air Act amendments.[10] It should be noted that EPA is not required to consider economic impacts at all when making changes to NAAQS requirements. For other Clean Air Act requirements and environmental regulations that are required to account for economic impacts, the comprehensive cost of job losses are significant and not properly recognized, as noted by Jonathan Masur and Eric Posner, who conservatively estimate that the lifetime loss of income for one unemployed worker is $100,000 throughout the worker's lifetime. By requiring federal agencies, such as EPA, to account for this lifetime loss of earnings, the agencies would set regulatory policy in a more balanced manner.[11] In a separate paper, Masur and Posner note that traditional cost-benefit accounting ignores employment impacts in large part by relying on the faulty assumption that all workers who lose jobs as a result of the regulation will quickly regain them at equal wages.[12] It must also be noted that Clean Air Act Section 321[13] obligates EPA to conduct a continual evaluation of job loss or employment shifts as a result of the administration and enforcement of the Act; Congress should ensure that EPA is in fact carrying out this obligation.

Beyond the issue of non-attainment, the current ozone transport and NAAQS construct contained within the Clean Air Act also require states to enforce "over-control" of emissions at sources beyond what is necessary for that state to attain full compliance of NAAQS within their own borders. In the case of the recent Cross-

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promulgate requirements applicable to all areas which have not attained that standard as of the date of such relaxation. Such requirements shall provide for controls which are not less stringent than the controls applicable to areas designated nonattainment before such relaxation.

[8] The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufacturers. Michael Greenstone, September 2001. www.nber.org/papers/w8484.pdf

[9] The Effects of Environmental Regulation on the Competitiveness of U.S. Manufacturing. Michael Greenstone, John A. List and Chad Syverson, September 2012. http://www.nber.org/papers/w18392.pdf

[10] Environmental Regulation and Labor Reallocation: Evidence from the Clean Air Act. W. Reed Walker, February 2011. http://faculty.haas.berkeley.edu/rwalker/research/w_reed_walker_paper_pre_publication.pdf

[11] Unemployment and Regulatory Policy. Jonathan S. Masur and Eric A. Posner, December 2012. http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1605&context=law_and_economics

[12] Regulation, Unemployment and Cost-Benefit Analysis. Jonathan S. Masur and Eric A. Posner, August 2011. http://www.law.uchicago.edu/files/file/571-359-jm-eap-regulation.pdf

[13] 42 USC §7621.

State Air Pollution Rule (CSAPR) update,[14] which EPA finalized only last fall but is part of its implementation plan for the 2008 ozone rule, Pennsylvania's power generators will be required to over-control their emissions by more than 30% during ozone season in 2017, as noted by the Pennsylvania Department of Environmental Protection[15] – despite the fact that all monitoring points in the state demonstrate attainment of the 2008 standard, almost all monitoring points in the state are demonstrating attainment of the 2015 standard, and monitors are showing a reduction of ozone concentrations by as much as 10 ppb since 2011.

Recent Regulatory Changes Are Disruptive to Business Planning

Last year's CSAPR update is one example of a federal agency finalizing new and extremely stringent regulatory obligations that afford industry extremely short periods of time to comply and that disrupt business planning. EPA finalized the CSAPR update with a purported aim to help Ozone Transport Region (OTR) states meet the 2008 ozone standard by lowering emissions budgets for electric generating units in Pennsylvania and other OTR states during the ozone season of May 1 through September 30, 2017. However, the rule was not published as final in the Federal Register until Sept. 7, 2016, giving affected units less than eight months to develop and implement a compliance strategy. Pennsylvania's final ozone season budget for 2017 is about 67% smaller than established in past years.[16] This budget allocates a given amount of NOx allowances to each state and particular units in the state, and allowances may be bought, sold, traded or banked for use in future compliance periods. While units are allowed to surrender NOx allowances to comply for this year's ozone season under CSAPR, should emissions from units in state as a whole exceed the ozone season budget by more than 121% (which is a probability), units must surrender allowances at an extremely punitive ratio of 3:1. Eight months is simply too short a runway for a facility to alter its production schedule to allow for installation of new controls, and some facilities are not in a position where there are enough allowances to run during the entire season. As a result, some facilities are in a position where they will have to

[14] Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS. Environmental Protection Agency, Sept. 7, 2016. https://www3.epa.gov/airmarkets/CSAPRU/Cross-State%20Air%20Pollution%20Rule%20Update%20for%20the%202008%20Ozone%20NAAQS%202060%20AS05%20FRM.pdf

[15] Comments on EPA's Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS. Pennsylvania Department of Environmental Protection, Feb. 1, 2016. http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Current%20Events/Comments_on_CSAPR_Update_Rule_EPA-HQ-OAR-2015-0500.pdf

[16] Cross-State Air Pollution Rule (CSAPR) Update: Final Rule. Pennsylvania DEP, Dec. 8, 2016. http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2016/12-8-16/CSAPR_(Update)_AQTAC_Presentation_for_December_2015(4).pdf

curtail operations during the spring and summer – which historically have been the season when demand for electricity generation is at its highest. As a direct result of regulation, some power generation facilities will lose market share.

Our members have also reported that the final Startup, Shutdown and Malfunction Rule,[17] finalized in 2015, poses a substantial challenge to their operations and risk profiles. The SSM rule requires states to eliminate or drastically alter their approach to handling emissions from facilities during startup, shutdown and malfunction – approaches that had been on the books for decades and that had shielded facilities from being penalized for emissions exceedences that cannot be physically avoided. The rule impacts facilities across all industrial sectors, and many facilities affected by the rule are physically unable to meet the emissions restrictions the rule imposes. The rule, which is under litigation, was the product of a settlement arrangement between EPA and the Sierra Club.

The Need for Reform in the Offsets and Permitting Programs

There is a need to reform the offset program in its entirety. While sources in the Ozone Transport Region can secure NOx and VOC emissions reduction credits from sources in OTR states that have reciprocity agreements, new or expanding facilities located in non-attainment areas for other NAAQS criteria pollutants are not afforded the same flexibility –these sources must secure ERCs only from within the same non-attainment area, which can be as small as one county. With NAAQS for all pollutants continually being ratcheted downward, facilities seeking to make changes to their facilities to stay competitive may run into a situation where there are no affordable ERCs for the relevant pollutants. Widening the geographic area in which facilities may sell, trade or bank credits would be a potential solution but will require a legislative change. In addition, regulatory requirements have outpaced technological development, and as a result many companies are unable to make an economically rational decision to over-control emissions in order to bank and sell ERCs. Instead, facilities are more and more relying on ERCs from retired facilities, which the Clean Air Act does authorize. But it should be apparent to even the most casual observer that an emissions control construct that relies on an ever-increasing number of facility shutdowns and retirements in order that new or surviving facilities may operate is not good for our economy. Further, the cost of these credits have gone up over time, consuming increasing shares of companies' compliance budgets, due in part to a trading market

[17] State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction. Environmental Protection Agency, June 12, 2015. https://www.gpo.gov/fdsys/pkg/FR-2015-06-12/pdf/2015-12905.pdf#page=2

that is continually distorted by EPA regulations and implementation guidances that state ERCs for the same pollutant can be used for compliance with certain emission control requirements but not for others.

The current Non-attainment New Source Review construct also discourages expansion of existing manufacturing (and the attraction of new facilities) in non-attainment areas. Most large-scale manufacturing and industrial facilities will trigger NSR thresholds for NAAQS pollutants. When these facilities seek to expand their operations, they must calculate if there will be a net emissions increase as a result of the modification, and EPA has established that such a calculation must assume that a source will produce its maximum possible emissions every hour of every day for the duration of its existence (referred to as "potential to emit" or PTE), even though such a calculation is not representative of many facility's actual operations. Companies must then account for these emissions that will never be emitted by accepting a more stringent limit and installing costly control technology than would be necessary had the calculation on future net emissions be representative of actual future operational practice. In practice, this has discouraged companies from investing in installing cheaper and cleaner-burning burners in their boiler systems or other on-site heating and power units. EPA has the discretion to make a change to permitting facility expansions based on expected future actual emissions, but has decided not to, as described in a guidance memo to the Indiana DEP.[18] Such a change would still require offsets and controls, but would be based on actual facility operations. As a result, this change would not impair states' ability to continue to make progress with respect to attaining NAAQS. The Clean Air Act could also be amended to encourage facility modifications by recognizing the inherent emissions reductions and expressly authorizing such changes, instead of applying new source technology restrictions that disincentivize efficiency improvements at facilities, as discussed in the recommendations section of this testimony.

In addition, the current permitting process allows for a revolving appeals process that has killed numerous projects. To move forward with a new facility, applicants must work with regulators to establish what controls (and/or the appropriate amount of offset credits) are needed on the project. Industry must work with regulators at the state and federal level as to what is the appropriate Best Available Control Technology[19] (or BACT, applied to facilities in attainment areas) or Lowest Achievable Emissions Rate[20] (or LAER, applied to facilities in non-attainment areas). These evaluations examine controls technology employed at constructed facilities throughout the country. Before beginning construction, a facility needs to obtain a pre-construction

[18] Letter from U.S. EPA Region 5 to Indiana Department of Environmental Management. U.S. EPA, April 4, 2011. https://www.epa.gov/sites/production/files/2015-07/documents/atpanet.pdf
[19] 42 USC § 7479.
[20] 42 USC § 7501.

permit, which establishes what appropriate controls are needed based on presumed impact. A pre-construction permit has a lifespan of 18 months. Too often, however, third-party NGO's challenge the permitting agency's conclusion in the pre-construction permitting process, and the litigation hangs the project up in years of delay. Even if the applicant and agency are successful in court, EPA policy (and the lifespan of the preconstruction permit) requires agencies to do another determination on impacts and appropriate technology. Third-party NGO's can then appeal again that the agency's determination was flawed, the process repeats itself and the project never gets off the drawing board – not for an actual lack of being able to comply with the relevant requirements but because there is no clear process to get to a "yes."

There must be a clear path to "yes" so that projects can be planned and financed appropriately. Such a path can be made by establishing that BACT/LAER evaluations should be conducted only within the universe of what controls are employed at facilities that have actually been constructed and that are in the same industrial category as the proposed project. A cement kiln has significant operational and technical differences from a compressor station, a gas-fired power plant or an oil refinery and these differences should be accounted for when evaluating what technology should be considered in a BACT or LAER evaluation. It must be noted that should EPA change its policy in accordance with our recommendations there will not be an adverse environmental impact – facilities will still have to operate in a manner that allows non-attainment areas to make improvements in air quality, and facilities in attainment areas will have to operate in a manner that does not deteriorate the local air quality. The difference is that these facilities will actually be allowed to operate thanks to a streamlined permitting process. Efforts to streamline the process should be welcomed by all, given that a recent analysis demonstrated projects being permitted through the PSD program are taking more time.[21] By the same analysis, review times for all projects in the EPA region that includes Pennsylvania are among the highest of any region in the country.

Sustainable, long-term operation and management of individual manufacturing and industrial facilities requires a clear and consistent regulatory environment. Too often, however, the regulations are not only continually being made more stringent, but the interpretation of them has been subject to frequent change (such as the rescission and replacement of EPA memoranda that address ambiguities in a particular statute or regulation). Guidance to states and industry on implementation is lacking or unclear, exposing companies to risk of enforcement or third-party litigation. While some issues can be resolved administratively by an EPA that is focused on balancing economic development and protecting the environment, Congress should also

[21] EPA's New Source Review Program: Evidence on Processing Time, 2002-2014. Art Fraas, Mike Neuner, and Peter Vail, February 2015. http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-15-04.pdf

take steps to reform the Clean Air Act; some recommendations are included in the final section of this testimony.

Thoughtful Policy is Needed to Support Additional Infrastructure and Energy Development

No conversation about promoting manufacturing and industry in this country would be complete without touching on how to continue to develop our natural resources and ensure we have competitive markets in the power generation sector. That means a level playing field where markets, not subsidies and mandates, determine the outcome for power generators. Federal regulators should also recognize and respect the primacy of states in regulating energy development within their borders. Policymakers should also not cave to "keep it in the ground" activists, whose policies would result in the loss of 14 million jobs, the doubling of gasoline prices and a four-fold increase in natural gas costs.[22] According to the same analysis, a nationwide ban on hydraulic fracturing would cost Pennsylvania almost half a million jobs and increase costs for the average household by $3,500 per year.

There is also a clear and immediate need for additional interstate pipeline and electric transmission. Companies seeking to construct such large-scale interstate projects must secure approvals from the Federal Energy Regulatory Commission through a National Environmental Policy Act (NEPA) review process. The NEPA process was established with the aim of requiring federal agencies to consider environmental impacts before authorizing projects. The White House Council on Environmental Quality provides implementation guidance to federal agencies on how to implement this policy. In the waning months of the Obama administration, CEQ finalized guidance directing federal agencies, including FERC, to consider climate change impacts during NEPA reviews. The guidance noted agencies should consider direct and indirect climate impacts as a result of approved projects. However, quite problematically, the guidance did not contain a clear effective date or a clear expectation on how federal agencies should apply the guidance to projects whose reviews were pending. Also problematic is the guidance's elevation of climate impacts for alternatives analysis, as is its lack of hard and fast thresholds for what emissions or impacts should be included or considered. As such, this guidance has placed the federal agencies and project applicants at litigation risk by granting additional paths for third-party NGO's to arbitrarily challenge a final decision approving a project. Even if the litigation is ultimately unsuccessful in terms of reversing a FERC approval (and nearly all challenges to FERC final actions under NEPA have been unsuccessful as such), the project would be

[22] What if Hydraulic Fracturing Was Banned? U.S. Chamber of Commerce Institute for 21st Century Energy, Nov. 4, 2016.
http://www.energyxxi.org/sites/default/themes/bricktheme/pdfs/CoC_BannedFracking_FULL_v3.pdf

unnecessarily delayed while litigation proceeds. It should be apparent that during such a delay, the manufacturing and construction jobs associated with the project will not materialize, families and businesses will continue to pay higher costs, and the economy will suffer as a result. To help avoid these outcomes, the CEQ guidance should be rescinded and to the extent the Trump administration would like to advise federal agencies to consider climate impacts, it should do so with clear guidance on how to handle projects that are in the middle of their reviews. Congress should also consider amending the statutes requiring NEPA to make clear how federal agencies should consider environmental impacts, including those related to climate change. NEPA should be used as originally designed: a measure to require consideration of environmental impacts to the extent Congress decides, in balance with the other prerogatives of the agency, such as ensuring the interstate transmission of electricity and gas in a manner consistent with the public interest or ensuring a fast, safe, efficient and convenient transportation system. NEPA should not be used as a weapon to halt development of crucial infrastructure.

The CEQ guidance also emphasized the Obama administration's social cost of carbon (SCC). The SCC is a significant departure in environmental cost-benefit calculations and was calculated on a global, rather than domestic, basis and over an extremely long period of time, and employed a significant amount of speculation and conjecture about long-term impacts. Congress and the Trump administration should deliberate as to whether or not a more appropriate, specific and science-based approach would be to better characterize impacts on a domestic basis, which would be in keeping with the historical approach to costs and benefits of regulation. A global SCC justifies more costly regulation than would a domestic SCC.

Recommendations to Modernize Our Regulatory Approach

The following summarize the key issues raised in this testimony in conjunction with an associated recommendation to change the relevant statute, regulation or policy, with the general aim of incentivizing innovation and economic growth in a manner that also encourages emissions reductions.

EPA should make administrative changes Non-Attainment New Source Review (NNSR) provisions and its modeling guidance to reflect expected emissions from actual operations, rather than from a potential-to-emit basis.[23] Similarly, the PSD program discourages cost-saving and emissions-reducing improvements at facilities and needs to be reformed, and the HAPS "once in, always in" policy should be retracted. The Clean Air Act can be amended to accommodate these reforms.

As discussed in this testimony, the current NNSR construct discourages investment into existing manufacturing by requiring facilities to accept emission control rates that are more stringent and to secure more emission reduction credits than are needed to protect public health. Similarly, the modeling guidances issued by EPA significantly overstate expected emissions from sources and result in more areas being designated as non-attainment than is realistic.

The PSD program penalizes any facility seeking to change its operations if it has not been running at capacity prior to the modification. The implementation of" major modification" regulations under PSD have become extremely costly and in practice have discouraged improved efficiencies at manufacturing and industrial facilities – for example, many facilities seeking to switch to more affordable and less-emitting fuel sources in their boilers have been prevented from doing so because of the "actual-to-PTE" test.

Another air quality rule that interferes with a facility's ability to change its manufacturing or industrial process is the HAPs "once in, always in" policy, which requires a facility that was ever once a major source of HAPs to always install MACT for HAPs upon expanding or changing the facility – even if that facility's emissions profile operates at below major source thresholds.

Should EPA prefer the Clean Air Act be amended first to provide support for these changes, a simple change to the Clean Air Act could be made by addressing the modification issue by statute and expressly stating that "any capital investment or change in operation of a source that results in the reduction of potential or actual

[23] For more discussion on recommendations establishing a better approach to modeling, as well as reforming the offset program and establishing requirements for the timely issuance of implementation rules and modeling guidance, please see a recent whitepaper, "EPA's New Source Review Program: Time for Reform?" The whitepaper, authored by Fraas, Graham and Holmstead, is appended to this testimony.

emissions is permitted by this statute without condition, requirement, or comment by EPA. The permittee must notify EPA of the investment or change in operation within 90 days of the completion of the change."

EPA should alter its permitting policy to provide certainty that projects that must undergo BACT or LAER determinations by determining appropriate emissions controls based upon the emissions control technology that was available during the initial permit application at projects in the same industrial category and that were actually constructed at the time; current agency policy requiring projects to undergo a revolving door of appeals prevents some projects from ever being built.

Third-party challenges to BACT and LAER determinations are frequent and have inhibited the construction of a substantial number of new projects in this country. EPA should revise its permitting policy to not require BACT or LAER determinations after lengthy litigation by making clear that only projects that were in existence at the time of a permit application submission, not the conclusion of litigation, should be considered for BACT and LAER evaluations. Further, EPA should require applicants and state agencies to only compare controls technologies used by facilities in the same industrial category as the proposed project and to only consider controls employed at projects that have actually been built. This change would provide the necessary certainty to projects and would also not impair air quality: the law is clear that facilities cannot operate in a manner that interferes with non-attainment areas progressing towards attainment nor in a manner that deteriorates air quality in attainment areas.

Amend the Clean Air Act to promote development in non-attainment areas, streamline EPA approvals or review of proposed state/local permitting actions and provide certainty to final permitting actions.

A non-attainment designation discourages economic investment; the Clean Air Act should be amended to allow for delegated air agencies at the state or local level to permit new projects using BACT, rather than LAER, provided that the permitting official determines that the use of such technology will not significantly impact local air quality. Such a change is needed as NAAQS for ozone and other pollutants approach background levels. Further, the Act should be amended to prohibit challenges to state permitting decisions except in cases of major deficiencies. Mere disagreement over a permitting official's judgment in implementing often ambiguous regulatory criteria should not warrant perpetual suspension of project development. A policy of reasonable turnaround times for EPA review of state permitting actions or SIP amendments should also be instituted and EPA held accountable to it.

The CEQ NEPA Guidance on greenhouse gas emissions should be rescinded, and Congress should consider providing clearer direction via statute regarding how climate impacts should be considered in NEPA reviews and regulatory costs.

As discussed, the CEQ NEPA Guidance is unclear and exposes federal agencies and, more importantly, vital infrastructure projects to unnecessarily delay due to litigation from third-parties. The Guidance is vague with respect to its effective date as well as to the extent agencies should weight climate-related impacts. The Trump Administration should retract the guidance.

Congress should "speak clearly" with respect to ambiguities of the Clean Air Act.

The late Justice Antonin Scalia famously remarked in the 2014 *Utility Air Regulatory Group v. EPA* decision that the Court expects Congress to "speak clearly" regarding what regulatory powers and duties the legislative branch has delegated to an agency. Throughout the years, each administration has continually rescinded and then reissued interpretive memoranda on issues such as source aggregation, new source review, and navigable waters. On these issues, Congress should amend the statutes to eliminate a need for EPA to interpret and re-interpret ambiguities. With regard to source aggregation, the Obama administration should be applauded for their final rule regarding the oil and gas sector,[24] which conforms to the historical and common-sense definitions of the key terms contiguous, adjacent and common control. This is generally in keeping with an approach to the issue instituted by the Pennsylvania Department of Environmental Protection in 2011. Nonetheless, the statute should still codify the language to resolve the issue entirely.

Congress should also be encouraged to embark on a robust stakeholder process to determine whether the Clean Air Act should be amended to explicitly state whether its provisions apply to greenhouse gases or not, and if they do, to direct EPA to address carbon emissions solely within the fenceline of facilities, in keeping with the historical approach to establishing standards of performance that are reflective of controls that, with consideration to economic feasibility, can be installed. Absent such clarity, future administrations will be free to approach carbon emission controls similar to the sweeping approach proposed by the Obama administration's Clean Power Plan.

The Clean Air Act should be amended to encourage "performance-based approaches" that rewards states and industry for attaining air quality goals.

As discussed in this testimony, the Clean Air Act's provisions and the implementation of them have resulted in states and industry having to control emissions to standards beyond what EPA has designated as protective of public health and the environment. The CAA's anti-backsliding provisions do not allow for the relaxation

[24] Source Determination for Certain Emission Units in the Oil and Natural Gas Sector. Environmental Protection Agency, June 3, 2016. https://www.gpo.gov/fdsys/pkg/FR-2016-06-03/pdf/2016-11968.pdf

of controls. Congress could instead amend the statute to still require states to implement and attain NAAQS but also allow states to relax regulatory impositions for areas that are attaining air quality better than the national standard – of course, only to the extent that the area does not fall back into non-attainment.

The Clean Air Act should be amended to allow for a more thoughtful implementation and review timeframe for all NAAQS pollutants, not just ozone. In addition, to the extent modeling is used in attainment designations, EPA should adopt an air quality modeling approach that reflects actual and expected future source operations.

While recent revisions to the ozone NAAQS have justifiably drawn considerable attention and scrutiny, ozone is not the only pollutant that EPA and states manage via the NAAQS construct. The issues presented by the on-going implementation of the 2010 revision to the sulfur dioxide (SO2) NAAQS also speak to a need for modernizing NAAQS implementation. The new 1-hour SO2 standard of 75 ppb was established June 2, 2010. 75 FR 35520. EPA published notice on Aug. 5, 2013 announcing designations of some areas in 16 states; however, not all regions of the country were classified. Litigation was filed by an environmental group in the U.S. District Court for the Northern District of California, which resulted in EPA agreeing in a settlement on March 2, 2015 to an accelerated schedule to designate the remaining areas of the country. EPA agreed to, in just over a year's time, make a final designation determination for any area of the country that contained stationary sources that emitted more than 16,000 tons of SO2 or emitted more than 2,600 tons of SO2 with an annual average emissions rate of 0.45 lbs SO2/mmBtu or higher in 2012. In order to meet the deadline imposed by the date set in the settlement, EPA gave states a handful of months to meet a Sept. 28, 2015 deadline to make propose designations to EPA (either attainment, non-attainment or unclassifiable). In its guidance memo to states instructing them to meet this deadline, EPA noted that "we recognize that the timeline for designations by July 2, 2016 does not provide for establishment and use of new ambient monitors. Therefore, we anticipate that in many areas the most reliable information for informing these designations will be based on source modeling."[25]

While it is fair to question whether the terms contained in the settlement agreement were appropriate and whether EPA took the right path in its guidance to states, this outcome would have been avoided altogether had EPA and states been given more time under the statute to implement the 2010 standard.

[25] Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard. Environmental Protection Agency, March 20, 2015. https://www.epa.gov/sites/production/files/2016-06/documents/20150320so2designations.pdf

As such, Congress should amend the statutory timetables for reviewing all NAAQS criteria pollutants from five to ten years and obligate that the EPA administrator publish simultaneously the necessary modeling and implementation guidance within six months of any new standard. These concepts are embodied in the "Ozone Standards Implementation Act of 2017" (relating to timetables for reviewing NAAQS) and in the "Promoting New Manufacturing Act" (introduced in the 114th Congress as H.R. 2557 and relating to the simultaneous issuance of guidance and permitting).

In addition, Congress should consider revising the Clean Air Act to allow states to establish reciprocity agreements that allow for the trading of emission reduction credits among their facilities.

Congress should establish clearly in statute how costs and benefits of regulation are to be calculated.

Our regulatory system is in need of reform, beginning with the process of how costs and benefits are calculated. First, EPA should be required to consider economic impacts when amending NAAQS requirements, as well as incorporate what is technologically feasible when establishing new NAAQS requirements. In addition, too often, EPA relies on co-benefits, or a description of purported benefits of pollutants will be reduced as a result of a regulatory measure but that are not the pollutants the rule seeks to address. Perhaps the most egregious example of this was the final Mercury and Air Toxics Rule.[26] The MATS Rule was designed to reduce emissions of hazardous air pollutants, including mercury, from existing power plants. According to the Summary of Monetized Benefits table provided in the final rule's Federal Register notice, the rule would achieve only $4 million to $6 million in public health benefits as a result of the reduction of these pollutants, despite an estimated cost of $9.6 billion. But because EPA also incorporated estimated benefits from reductions of PM2.5, SO2 and CO2, the agency was able to claim benefits greatly outweighed the costs. While this approach to cost-benefit was harshly criticized in the *UARG v. EPA* decision in 2015, EPA's ability to enforce the rule stood. By April 2016 (one year after the effect date of the MATS rule – some plants were granted one-year compliance extensions), about 20 GW of the nation's coal-fired generation was retired. EPA expected slightly less than 4.7 GW of retirement to occur over that time. Congress should consider amending statutes relevant to regulatory development, such as the Administrative Procedure Act and the Regulatory Flexibility Act, to make clear how much a federal agency can rely on co-

[26] National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial Institutional Steam Generating Units. Environmental Protection Agency, Feb. 16, 2012. https://www.gpo.gov/fdsys/pkg/FR-2012-02-16/pdf/2012-806.pdf

benefits that occur as a result of reductions or outcomes which occur but are not the direct aim of the rulemaking.

Congress should also consider amending such statutes to make clear whether or not a proper cost-benefit calculation should recognize emission reductions that achieve pollution concentrations in ambient air quality that lower than NAAQS targets – values that EPA designed to be sufficiently protective of public health. In addition, Congress should also require EPA recognize the lifetime loss of earnings from displaced workers (as estimated in the aforementioned Masur and Posner reports) and enforce EPA's requirements under the Clean Air Act's Section 321, regarding continual evaluation of job loss or employment shift.

EPA should also be required to convene panels with small businesses for all major rules, including any changes to NAAQS, as outlined in the Small Business Regulatory Enforcement Fairness Act of 1996. These panels would bring to the table the voices of small businesses, many of whom have less flexibility than larger operations to adjust business practices in order to comply with new requirements. These panels were not convened for NAAQS or the Clean Power Plan, despite significant impacts from these rules on small businesses.

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In conclusion, it should be clear that significant opportunities lay before us to grow our economy and secure continued environmental progress. There are unquestionably reforms needed to both the actual text and the implementation of several environmental statutes, starting with the Clean Air Act. We have suggested a few reforms for Congress and the Trump administration to consider. We also note that these reforms are not panacea: such reform must take place along with competitive tax, trade and labor policy. We must also work to ensure a skilled and able workforce is continually being developed so that as new opportunities become available as a result of more thoughtful policy, the promise of a stronger, more productive economy becomes a reality.

Thanks you for the opportunity to bring the concerns and suggestions of our members before you and we look forward to working together on these issues in this Congress.

Senator BARRASSO. We have heard from our witnesses. I want to thank all of you for being here with your testimony.

There are no more people to ask questions today at the hearing, but they may submit written questions. So the hearing record will remain open for 2 weeks.

I want to thank all of you for being here; we are thankful for your time. Thank you for your testimony.

[Whereupon, at 11:41 a.m., the hearing was adjourned.]