

STATES' ROLE IN PROTECTING AIR QUALITY: PRINCIPLES OF COOPERATIVE FEDERALISM

HEARING

BEFORE THE

SUBCOMMITTEE ON CLEAN AIR
AND NUCLEAR SAFETY

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

MARCH 5, 2019

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



Available via the World Wide Web: <http://www.govinfo.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

35-947 PDF

WASHINGTON : 2019

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SIXTEENTH CONGRESS
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STATES' ROLE IN PROTECTING AIR QUALITY: PRINCIPLES OF COOPERATIVE FEDERALISM

TUESDAY, MARCH 5, 2019

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY,
Washington, DC.

The Committee met, pursuant to notice, at 10:07 a.m. in room 406, Dirksen Senate Office Building, Hon. Mike Braun (Chairman of the Subcommittee) presiding.

Present: Senators Braun, Whitehouse, Cramer, Rounds, Sullivan, Boozman, Ernst, Cardin, Booker, Markey, Barrasso, and Carper.

Senator BRAUN. Thanks to everyone for being here today. This hearing of the Clean Air and Nuclear Safety Subcommittee is called to order.

First, I am going to turn to Senator Barrasso to make a few comments.

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

Senator BARRASSO. Thank you very much, Mr. Chairman.

Before we begin, I just want to take a moment to congratulate Senator Braun on holding his first hearing as the Chairman of the Clean Air and Nuclear Safety Subcommittee. He just joined the Senate a few months ago, and he has already established himself as a leader.

Senator Braun, I know you share my commitment to pursue innovative, practical solutions to improve the air that we breathe, while allowing for our economy to grow, so I look forward to supporting your work and the work this Subcommittee will accomplish with you at the helm.

Today's hearing addresses a critical subject: States and Washington working together to protect our environment.

When I go back to my home State of Wyoming, I hear about the improved relationship that regulators and businesses have with the Environmental Protection Agency since President Trump has taken office.

So, Chairman Braun, thank you for holding this important meeting.

Thank you.

**OPENING STATEMENT OF HON. MIKE BRAUN,
U.S. SENATOR FROM THE STATE OF INDIANA**

Senator BRAUN. You are welcome.

I will begin by recognizing myself for a brief opening statement before turning the floor over to Ranking Member Whitehouse for 5 minutes, then we will hear from our panel of experts.

I come to this Subcommittee not just as a conservationist and an advocate for protecting our natural resources, but as someone who knows how important clean air is from firsthand experience from being a farmer and an outdoorsman. Way back in my hometown of Jasper, Indiana, when I was 16 years old, I took slides of our factories spewing out coal dust into our community, so my interest in this has deep roots.

Respecting and preserving our rich natural resources has been a priority of mine since I was young; even started the ecology club back in high school. Excited to be able to work with my colleagues on this Subcommittee and with the Trump administration to protect our environment in an economically responsible way.

The purpose of this hearing is to hear your experiences implementing the concept of cooperative federalism under the Clean Air Act in hopes of providing this Subcommittee and the public at large with a greater understanding of the opportunities and challenges facing States as they engage with the EPA to implement Clean Air Act regulations.

On a subject not with air, but 2 or 3 weeks ago, when it came to waters—waters of the U.S.—I had three different farmers ask me about how they navigate through the web of regulations in the simple process of managing their ditches. They were confused by the intertwining of what they think is there, and how it is even being implemented at the State level.

Despite what some stories might suggest, we have seen tremendous air quality improvements in the U.S. since Congress passed the Clean Air Act of 1970. At the same time, our economy has grown. U.S. GDP has grown 324 percent since 1970, while emissions of major air pollutants have dropped precipitously. Over that same timeframe, emissions of six common pollutants—lead, ozone, particles, carbon monoxide, nitrogen dioxide, and sulfur dioxide—have fallen 73 percent.

For much of the history of the CAA, this was achieved through rulemaking, where input from industry, the States, and the Federal Government was carefully considered to reach attainable targets.

Despite these successes, the previous Administration eroded this doctrine, creating inefficiencies and waste at both the Federal and State levels. The Obama EPA mandated CAA regulations with minimal collaboration with the States. The regulations also ignored and exaggerated the feasibility of commercially available control technologies.

This led to a lack of regulatory coordination between States and the EPA and some jurisdictional lawsuits resulting. Most notably, 26 States went to the Supreme Court and asked for relief from the Clean Power Plan, citing EPA's lack of authority to issue that rule. In an unprecedented rule, the Court granted the States' request and stayed the rule.

The Trump administration and the new EPA Administrator, Andrew Wheeler, have recognized the need to reconsider controversial rules that have went way beyond their original intended authority. This Administration is committed to listening to the concerns of the States.

Our expert witnesses today are State air officials who can bring an on the ground perspective as to how the decrease in Federal litigation tying up State resources has affected their important work. North Dakota, in an example that we will hear about today, has saved half a million dollars in litigation annually and can, instead, redirect that money toward environmental protection.

My regulatory philosophy is that government works best at the local level. I have believed that my entire life. I think, if there is regulation needed, it is best to implement it when you are closest to the people, where those being governed have skin in the game, and I applaud Administrator Wheeler's efforts to implement the law as intended by Congress, ensuring that those who make regulatory decisions are members of the communities that will live under those regulations.

I look forward to hearing from our panel of expert witnesses today and again would like to emphasize my passion for this critical issue.

Now I would like to recognize Ranking Member Senator Whitehouse for his opening statement.

**OPENING STATEMENT OF HON. SHELDON WHITEHOUSE,
U.S. SENATOR FROM THE STATE OF RHODE ISLAND**

Senator WHITEHOUSE. Thank you, Mr. Chairman, and congratulations on your maiden hearing as Chair.

Almost 11 months ago, this Subcommittee held a hearing on the same subject that brings us here today, cooperative so called federalism. At that hearing, we heard powerful testimony from the lead environmental officials in California and Delaware who described the damage that rising seas driven by carbon pollution are causing in their States. The witnesses from Delaware also described the struggle of reducing air pollution when much of it blows in from power plants in upwind States.

I lamented that then-Environmental Protection Agency Administrator Scott Pruitt's governing philosophy wasn't so much cooperative federalism as it was cooperative corporatism, serving the interests of industry.

So here we sit, 11 months later, back to take testimony on the same subject. It occurs to me to wonder what the point is to these hearings.

What has EPA done with respect to air pollution since our last hearing, held on April 10, 2018?

Well, April 13, 3 days after the last hearing on this subject, EPA issued a final notice denying a petition filed by Connecticut under the Clean Air Act asking EPA to make a determination that emissions from a Pennsylvania power plant were responsible for its inability to meet air quality standards.

So much for EPA concern about the problem of cross-State air pollution.

On August 2nd, EPA and the National Highway Traffic Safety Administration announced a proposal to freeze greenhouse gas emissions and corporate average fuel economy standards for cars and light trucks. This proposal would result in additional carbon pollution of almost 900 million metric tons for model years 2021 through 2025. That is the equivalent of adding almost 200 million cars to the road for 1 year and represents almost 20 percent of U.S. total carbon emissions in 2018.

Who at EPA was paying attention when California and Delaware discussed what carbon pollution is doing to coastal States?

On August 21st, EPA announced a proposal to replace the Clean Power Plan. This proposal would result in additional carbon pollution of between 20 million and 61 million short tons per year over the period 2025 to 2035, the equivalent of adding between 4 million and 12 million cars to the road.

Again, was anyone at EPA paying any attention when California and Delaware discussed what carbon pollution is doing to coastal States?

On September 11th, EPA announced a proposed rule to weaken monitoring and repair rules for methane leaks at oil and gas facilities. This proposal would result in additional carbon pollution of 380,000 short tons of methane over the period 2019 to 2025 and would create downwind air pollution problems, the equivalent of adding almost 2 million cars to the road for 1 year.

Again, was anyone at EPA paying the slightest attention to those States in our last hearing on this subject?

On October 5th, EPA denied four petitions by Delaware and one by Maryland asking it to make a final determination that out of State power plants were responsible for their inability to meet air quality standards.

On December 6th, after all the work members of this Committee have done to encourage carbon capture technologies, EPA proposed eliminating carbon capture and storage technology as the best system of emission reduction for new and modified coal fired power plants.

On December 27th, EPA proposed eliminating the legal justification for rules limiting the emissions of mercury and other hazardous air pollutants that Rhode Islanders must live with.

On February 21st, 2019, the Trump administration announced that it would end negotiations with California over the auto rule.

In short, EPA completely ignored our last hearing on this subject.

What else since April 10th? Well, there is the ever growing mountain of evidence of EPA's cooperative corporatism. Former EPA Administrator Scott Pruitt's litany of scandals, many of them related to improper relationships with the fossil fuel industry he was supposed to be regulating, became so long that he was finally forced to resign. After his resignation, he was given a job by a coal baron. The revolving door spins.

Meanwhile, who did we confirm to replace Pruitt? Through the revolving door came former coal lobbyist Andrew Wheeler. We shrugged off the fact that the U.S. Chamber of Commerce, the National Association of Manufacturers, and two shadowy fossil fuel industry front groups—the Utility Air Regulatory Group and the

American Council for Clean Coal Electricity—got essentially exactly their proposal to replace the Clean Power Plan. And guess what? Bill Wehrum, the head of EPA's Air Office, who was responsible for this proposal, used to have the Utility Air Regulatory Group as his client. The revolving door just keeps spinning.

We turned a blind eye to Marathon Petroleum's role undoing greenhouse gas emission and fuel economy standards for automobiles. Various front groups that received a minimum—a minimum of \$196 million from fossil fuel industry interests all lobbied to roll back the standards, as did Valero, Endeavor, Koch Companies, and the American Fuel and Petrochemical Manufacturers.

So, forget federalism at EPA. It has become evermore apparent that the Trump EPA has zero intention of listening to the States and every intention of kowtowing to the fossil fuel industry.

What we ought to be holding hearings on is the capture of EPA by the industry it is supposed to regulate but instead has been turned into its toy and play thing.

Thank you, Mr. Chairman.

Senator BRAUN. You are welcome.

As you can see from the opening statements, we are going to have a robust conversation here today. That is good.

We will now hear from our witnesses: Dave Glatt, Chief of the Environmental Health Section, North Dakota Department of Health; Becky Keogh, Director, Arkansas Department of Environmental Quality; Craig Segall, Assistant Chief Counsel, California Air Resources Board.

I am very pleased that two of our witnesses today have representatives from States here on our own Subcommittee. I will start with Senator Cramer to introduce our witness from North Dakota, and then, after that is done, Senator Boozman will introduce our guest from Arkansas.

Senator Cramer.

Senator CRAMER. Thank you, Mr. Chairman.

And thank you to all the witnesses for being here, and thanks for inviting Dave to testify today.

Dave, I think North Dakota has an exceptional story to tell regarding the subject of today's hearing, and I am looking forward to your testimony.

I really can't think of anybody better prepared than Dave to testify on this topic. Dave is a native North Dakotan. He received both his bachelor's degree in Biology and his master's degree in Environmental Engineering from North Dakota State University, famous for lots of things, not the least of which is seven out of the last eight national football championships; and we celebrated that yesterday with the President in the White House, so it was a great day.

So, thanks for being here, Dave.

But Dave spent 35 years to this point, I think, at least, at the North Dakota Department of Health. He has been the Chief of the Environmental Health Section for the Department for the last 16 years. Over the course of 35 years, obviously, he has worked with lots of Administrations of different political stripes, different relationships, different philosophies, and all the while Dave, I can as-

sure you, has had North Dakota's air, water, land resources at the heart of every part of his job, and we have seen that.

When I was a regulator in North Dakota on the Public Service Commission, we always had great confidence that Dave was going to look out for the air that we all breathe because he was looking out for the air that he breathes.

So, with that perspective, Dave, thank you for being here. We look forward to your testimony.

Thank you, Mr. Chairman.

Senator BRAUN. Senator Boozman.

Senator BOOZMAN. Thank you, Mr. Chairman.

I want to give a special thanks to Becky Keogh of Little Rock, Arkansas, for being here today to testify. Becky has an impressive job history which has made her uniquely qualified at this hearing to testify.

Becky served as the Director of the Arkansas Department of Environmental Quality, or ADEQ, since 2015. Prior to her role as Director, Mrs. Keogh served as Deputy Director of ADEQ from 1996 to 2006. She was subsequently appointed to serve on the Arkansas Geological Commission from 2006 to 2009.

Becky is currently the President of the Environmental Council of the United States, which we are very proud of. An Arkansas native, Director Keogh has a degree in chemical engineering from our mutual alma mater, the University of Arkansas. We can't brag that we are doing very well in football right now, but we are rebuilding.

As an Arkansas native, we really do appreciate all that she has done and appreciate her being here today and really look forward to your testimony.

Thanks for all your hard work in so many different areas for the people of Arkansas.

Senator BRAUN. Thank you, Senator Boozman.

Finally, Craig Segall is the Assistant Chief Counsel at the California Air Resources Board, where he is responsible for litigation and implementation of many of the Board's climate and clean air programs. Previously, he was a staff attorney at the Sierra Club, where he litigated many of the issues we will discuss today.

Mr. Segall is also a former law clerk of Hon. Marsha Berzon of the U.S. Court of Appeals for the Ninth Circuit. He is a graduate of the University of Chicago and of the Stanford Law School.

Thank you for being here today.

I want to remind the witnesses that your full written testimony will be made part of the official hearing record. Please keep your statements to 5 minutes so that we may have time for plenty of questions.

Look forward to hearing your testimony, and we will begin with Mr. Glatt.

STATEMENT OF DAVE GLATT, CHIEF OF THE ENVIRONMENTAL HEALTH SECTION, NORTH DAKOTA DEPARTMENT OF HEALTH

Mr. GLATT. Well, thank you, Chairman Braun, Ranking Member Whitehouse, and members of the Committee. Thank you for giving me this opportunity to testify in front of you this morning.

My name is Dave Glatt. I am a registered professional engineer, Environmental Health Section Chief for the North Dakota Department of Health. We are North Dakota's primary environmental protection agency, responsible for implementation of many of the U.S. EPA federally delegated programs such as the Clean Air Act.

As background, North Dakota is a mostly rural agricultural State which leads the Nation in the production of many agricultural crops. In addition, we are second in the Nation for oil production, and we are a net energy exporter distributing energy throughout the region following an all of the above philosophy. Utilizing abundant coal, oil, natural gas, and renewable resources, the State is routinely recognized for its great air quality, high environmental program compliance, and overall quality of life.

I am here today to briefly discuss my observations after 35 years working with the Department of the Federal and State working relationship. At times it is referred to as a relationship founded in cooperative federalism doctrine where, in principle, the Federal Government works with States as equal partners in the pursuit of environmental and public health protection.

Under this doctrine, the Federal Government sets the standards to provide national consistency, and the States are tasked with the implementation of these standards with Federal oversight.

Due to the diverse nature of the Nation where climate, geology, topography, population, cultural, and political elements vary widely, it is critically important that States take a lead role in the implementation of environmental programs. In fact, this doctrine has matured over the years to where States are directly responsible for over 90 percent of program implementation and enforcement activities.

Where States are the primary implementers of programs, innovative and cost effective approaches to environmental protection are the rule and not the exception. We live in the communities we regulate, where transparency, responsiveness, accessibility, and accountability are not just buzzwords, but expectations of the public we serve.

Working at the State agency in various capacities, I have observed the following:

Where cooperative federalism is embraced by both EPA and the States with respect to air quality, the result is relevant, lasting, and cost effective environmental protection solutions. In our State, under this doctrine, Superfund sites have been cost effectively closed in a timely manner, use of compliance assistance technologies such as optical gas imaging cameras were introduced for use in oil fields, and EPA acknowledged and adopted a State developed minor source air permitting program for oil wells that enhanced EPA's regulatory presence on Tribal lands. Where cooperative federalism flourishes, relevant and meaningful environmental public health protection follows.

Since the establishment of EPA, States have consistently and methodically increased their technical expertise and competency to the point where they are at par or exceed the Federal Government in many areas of environmental protection. The States excel in areas where they follow good science and the law, and their tech-

nical expertise is applied to State specific environmental conditions or industrial operations.

States' direct involvement with environmental challenges has also identified certain areas where their expertise may be limited, and in these areas Federal input is appreciated and needed, such as in the establishment of national ambient air or drinking water standards.

Federal regulatory overreach that does not follow a cooperative federalism doctrine or ignores State specific concerns has resulted in legal challenges and considerable expenditures of State dollars. Where EPA has not taken the time to listen to State specific challenges and has, instead, created numerous—sometimes onerous—regulations while treating States as a singular entity has resulted in less cooperation and more litigation.

During the past Administration, North Dakota expended over \$700,000 challenging Federal environmental regulations such as the Clean Power Plan that did not account for the specific nature of the environment or industry, or the direct and indirect impact on the citizens of the State. The State viewed these regulations as an arbitrary Federal regulatory overreach with little or no environmental benefit.

Our expenditures spent on litigation in the current Administration is a little over \$100,000, which has been primarily expended to address the actions from the previous Administration. In the current working relationship with our Federal partners, there has been more listening and cooperation than prescriptive directives. We generally feel that excessive funds spent on litigation would be better spent on environmental compliance and improvement actions.

It is important to note that the environmental quality remains at high levels, and compliance rates have not decreased in the State with the more open, flexible, and cooperative approach with this Administration.

States are the constant in any Administration change. Each new Administration typically starts out declaring a new day and a new way of environmental protection. It has been my experience when the Federal partner has outlined a new approach to environmental regulation, they believe it will be improvement from previous actions.

However, these declarations seem to discount the actions by the States and the unique, necessary role they play in meaningful environmental protection. It has been my experience that the Federal regulatory pendulum can swing widely from Administration to Administration, while the State regulatory pendulum moves less radically. Although States do not agree on every issue, the foundation of all State level action has historically been accessible, accountable environmental and public health protection.

Last, the right of States to implement desired environmental protection and controls must be applied judicially with great responsibility and caution. A State's quest to improve "in State" environmental challenges should not negatively impact sovereign State jurisdictions outside its borders. Negative regulatory impacts can include additional cost to an adjoining State with no perceived or actual benefit. We have experience with issues such as this as it re-

lated to energy production and how an adjoining State attempted to direct development and industry standards in North Dakota.

This concludes my testimony. I will stand for any questions at the appropriate time, Mr. Chairman.

[The prepared statement of Mr. Glatt follows:]



David Glatt
Chief of the Environmental Health Section
North Dakota Department of Health

Dave Glatt has been the Chief of the Environmental Health Section for the North Dakota Department of Health for 16 years. Mr. Glatt has over 35 years of experience working with the North Dakota Department of Health. He joined the North Dakota Department of Health in 1983 as an environmental engineer. Over his tenure, Dave served in a variety of roles for North Dakota's Department of Health including as director of the Division of Waste Management and Manager for the

Ground Water Protection Program. He is a member of the North Dakota Board of Water Well Contractors and the National Ground Water Association.

Mr. Glatt is a native of North Dakota and earned a bachelor's degree in biology and a master's degree in environmental engineering from North Dakota State University. He was born in Valley City, N.D., and was raised in Milpitas, California.

Testimony

United States Senate

Subcommittee on Clean Air and Nuclear Safety

March 5, 2019

10:00 am

Chairman Braun and Ranking member Whitehouse and members of the Committee, my name is L. David Glatt, P.E., Environmental Health Section Chief for the North Dakota Department of Health. We are North Dakota's primary environmental protection agency responsible for the implementation of many of the US Environmental Protection Agency (EPA) federally delegated programs which includes the Clean Air Act. As background, North Dakota is a mostly rural agricultural state which leads the nation in the production of many agricultural crops. In addition, we are second in the nation for oil production and we are a net energy exporter distributing energy throughout the region following an all of the above philosophy utilizing abundant coal, oil, natural gas and renewable resources. The state is routinely recognized for its great air quality, high environmental program compliance and overall quality of life.

I am here today to briefly discuss my observations, after 35 years working with the Department, of the federal – state working relationship. At times it is referred to as a relationship founded in a Cooperative Federalism doctrine where in principle the federal government works with the states as equal partners in the pursuit of environmental and public health protection. Under this doctrine, the federal government sets the standards to provide national consistency and the states are tasked with the implementation of these standards with federal oversight. Due to the diverse nature of the nation, where climate, geology, topography, population, cultural and political elements vary widely, it is critically important that states take a lead role in the implementation of environmental programs. In fact, this doctrine has matured over the years to where states are directly responsible for over 90 percent of program implementation and enforcement activities. Where states are the primary implementors of programs, innovative and cost-effective approaches to environmental protection are the rule not the exception. We live in the communities we “regulate”, where transparency, responsiveness, accessibility and accountability are not just buzz words but expectations of the public we serve

Working at the state agency in various capacities, I have observed the following:

- Where Cooperative Federalism is embraced by both EPA and the states with respect to air quality, the result is relevant, lasting and cost-effective environmental protection solutions. In our state under this doctrine, Superfund Sites have been cost-effectively closed in a timely manner; use of compliance assistance technologies, such as optical gas imaging cameras were introduced for use in the oil fields; and EPA acknowledged and adopted a state-developed minor source air permitting program for oil wells that enhanced EPA's regulatory presence on tribal lands. Where Cooperative Federalism flourishes, relevant and meaningful environmental and public health protection follows.
- Since the establishment of EPA, states have consistently and methodically increased their technical expertise and competency to the point where they are at par or exceed the federal government in many areas of environmental protection. The states excel in areas where they follow good science and the law, and their technical expertise is applied to state specific environmental conditions or industrial operations. States' direct involvement with environmental challenges has also identified certain areas where their expertise may be limited, and in these areas federal input is appreciated and needed. Such as in the establishment of national ambient air or drinking water standards.
- Federal regulatory overreach that does not follow a Cooperative Federalism doctrine or ignores state-specific concerns has resulted in legal challenges and considerable expenditure of state dollars. Where EPA has not taken the time to listen to state-specific challenges and has instead created numerous, sometimes onerous, regulations while treating states as a singular entity has resulted in less cooperation and more litigation. During a past administration, North Dakota expended over \$700,000 challenging federal environmental regulations such as the Clean Power Plan (CPP) that did not account for the specific nature of the environment or industry, or the direct and indirect impact on the citizens of the state. The state viewed these regulations as an arbitrary federal regulatory over reach with little or no environmental benefit. Our expenditures spent on litigation in the current administration is a little over \$100,000, which has been primarily expended to address the actions from the previous administration. In the current working relationship with our federal partners, there has been more listening and cooperation than prescriptive directives. We generally feel that the excessive funds spent on litigation would be better spent on environmental compliance and improvement actions. It is important to note that environmental quality remains at high levels and compliance rates have not decreased in the state with the more open, flexible and cooperative approach taken by this administration.

- States are the constant in any administration change. Each new administration typically starts out declaring a new day and a new way of implementing environmental protection. Some have pursued a dramatic change from past administrations while some are subtle in their approach as they pursue change in the federal environmental protection paradigm. It has also been my experience that when a federal partner has outlined a new approach to environmental regulation, they believe it will be an improvement from previous actions. However, these federal declarations seem to discount the actions by the states, and the unique and necessary role they play in meaningful environmental protection. It has been my experience that the federal regulatory pendulum can swing widely from administration to administration while the state regulatory pendulum moves less radically. Although states do not agree on every issue, the foundation of all state-level action has historically been accessible, accountable environmental and public health protection.
- The right of the states to implement desired environmental protection and controls must also be applied judicially with great responsibility and caution. A state's quest to improve "in state" environmental challenges should not negatively impact sovereign state jurisdictions outside its borders. Negative regulatory impacts can include additional cost to an adjoining state with no perceived or actual benefit. We have experience with issues such as this as it related to energy production and how an adjoining state attempted to direct development and industry standards in North Dakota.

Overall, a federal and state partnership following a Cooperative Federalism with respect to air quality is essential to ensuring cost effective and lasting impact to address the challenges of the day. A strict top-down prescriptive approach without state input limits flexibility and innovation and ignores the essential role states play in effective environmental protection.

This concludes my testimony and I will stand for questions at the appropriate time.

Senator BRAUN. Thank you, Mr. Glatt.
Dr. Keogh.

**STATEMENT OF BECKY KEOGH, DIRECTOR,
ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY**

Ms. KEOGH. Chairman Braun and Ranking Member Whitehouse and Subcommittee members, I am Becky Keogh. I am the Director of the Arkansas Department of Environmental Quality, and it is my great honor to appear before this Committee. I bring greetings from Governor Asa Hutchinson and the rest of our great natural State, and a warm hello to you from home, Senator Boozman.

Only 3 years ago I was here seeking this body's assistance in improving the relationship between the Federal Government and the States. While cooperative federalism called for States to be partners with the EPA, functionally, States were more pawn than partner. Not only were States excluded from environmental policy solutions, we weren't even part of the equation.

I am here once again representing Arkansas, and much has changed. In addition to my Arkansas duties, I now serve as the President of the Environmental Council of States. Since my first testimony, States have gone from asking for a seat at the table to a discussion of what happens when we arrive. We States are now advocating for a standard operating procedure of shared decision-making, shared protection, shared problem solving, and shared programmatic development between States and EPA.

When federalism is at its purest, it is also at its rawest. State regulatory agencies and EPA are required to simultaneously regulate from the position of sovereign and subordinate, and that is compounded by the dynamic and unpredictable subject matter of which we are asked to regulate. Often, our most challenging days are ones that cannot be imagined just the day before.

Protecting and preserving the environment requires that we environmental regulators stand at the ready to respond to edicts such as acts of Congress and natural disasters. Our challenges are at the same time unique to our locality, but yet universal to our larger national community, and each answer is both a part and a whole. Each of our voices is essential to effective management of our Nation's air, land, water, and wildlife.

In order to understand and navigate the future relationship with EPA, we must have an understanding of the past, and Mr. Chairman, I understand that you have experience in a successful logistics company, and I am sure, in working extensively with vehicles, you have noticed the size of the windshield in relationship to the rearview mirror. There is a reason the windshield is larger than the rearview mirror. Certainly, the future is bigger than the past, but the rearview mirror serves an undeniable purpose. In order to understand where we are going, we must first understand where we have been.

Missteps of the past have a way of catching up to us after we have long since passed them by, and just like a rearview mirror, these objects may be closer than they appear. However, by looking through the windshield we can see a path to innovation and exploration, and the path forward should be paved with greater responsibility and flexibility at the State level.

The argument for decentralization is not an argument for eliminating the Federal role in environmental protection. Rather, it is an argument for redefining the Federal-State balance. States today bear little resemblance to States in the 1960s, and our role in environmental protection has fundamentally changed. We have been transformed by growth of professional staffs, vigorous two-party systems, use of referenda and initiatives to make policy, procedural requirements that assure greater public participation in decisions. Many aspects of environmental protection have also been assimilated into State and local politics.

Seventy percent of important environmental legislation enacted by the States now has little or nothing to do with national policy, and only 25 percent—approximately \$2.8 billion—of the total amount States now spend annually on environment and natural resources actually come from Washington. State and local governments are responsible for nearly all the enforcement of national environmental laws and continue to dominate decisions in the areas of land use and waste disposal.

The benefits of a State centered environmental protection future are apparent if you peer through the windshields of the States. In fact, at the Arkansas Department of Environmental Quality, we do most things that were once exclusively the role of the Federal Government: we operate 13 federally delegated environmental programs; we have 300+ engineers, ecologists, geologists, biologists, lawyers, accountants, and epidemiologists; we operate a state of the art lab that informs our work.

Air quality in Arkansas is among the best in the country. The entire State is in full attainment of all national ambient air quality standards, and we are on track for achieving regional haze visibility goals. Arkansas takes the lead in implementing protective and timely permitting processes, brings certainty to our businesses as they make substantial investments. Our single permitting system reduces duplication and ensures swift issuances. Advancements in technology and transparency through e-permitting, advanced monitoring, and transformation efforts resulted in ADEQ becoming one of the Nation's leaders in reduced backlog, lowest permitting costs, and achievement of air quality standards.

Under Governor Hutchinson's transformation of government, the Arkansas Energy Office has also been aligned with the Arkansas Department of Environmental Quality, and in administering energy advancement and efficiency programs, Arkansas is seeking record investment in solar energy investments and energy performance solutions, realizing reductions in greenhouse gas emissions well beyond those that were mandated under previous regulatory agendas.

And the success of Arkansas is not isolated. All States have unique regional experience and successes that allow us to better deal with new and unforeseen environmental challenges. Just this month, we asked and received assistance from the State of Texas and Louisiana and from our State's National Guard's Departments of Health, Ag, and Forestry to help us extinguish an expansive underground fire that is threatening the air and water quality in one of our most vulnerable Arkansas communities.

These unique environmental challenges that we are battling in Arkansas remind us that even the most robust environmental program can, at the same time, be expert and novice depending on the specific challenge. That is where the EPA could be a tremendous difference maker for overall environmental landscape. But frustrating to both of us, the EPA has been limited by current law in what they are able to do to respond to our call.

So, looking through that expansive windshield in the not so far distance of the road, we must find a better path. The role of States has evolved, and there has not been a substantial modification to the Federal role. Why not use the wealth of EPA resources, both technical and financial, to help States fill gaps? Consider allowing the EPA the flexibility to offer support that is not duplicative, but instead niche in nature. Consider their primary charge as a supporting role. No matter how robust and progressive in their programs, States benefit from a central source of support.

In conclusion, I am happy to report that change is in the horizon. Last week I was informed that newly confirmed Administrator Wheeler will be meeting with Arkansas tomorrow to discuss our road ahead. We will have one eye on the rearview mirror to remember where we have been, but our momentum and energy will be focused through the windshield at what lies ahead, and I commend to him, as I do to you today, as I conclude, the wisdom of Winston Churchill: The pessimist sees the difficulty in every opportunity; the optimist sees the opportunity in every difficulty.

Thank you very much.

[The prepared statement of Ms. Keogh follows:]



Becky Keogh
Director
Arkansas Department of Environmental Quality

Becky Keogh has served as the Director of the Arkansas Department of Environmental Quality (ADEQ) since 2015. Immediately prior to her appointment by Governor Asa Hutchinson as ADEQ Director, she was employed in an environmental and regulatory management role for an international resources corporation. She has been engaged in a unique range of technical and managerial roles across government, private industry, and environmental consulting throughout her career. Director Keogh previously held positions as a Vice President and Senior Consultant for an international environmental and engineering firm. She served as Deputy Director of ADEQ from 1996–2006. She was subsequently appointed to serve on the Arkansas Geological Commission from 2006–2009.

Director Keogh has been an active member and alumni member of the Environmental Council of the States (ECOS) since 1997. A well-respected leader among her counterparts in other states, she was elected by her peers as one of only four officers for ECOS. Additionally, as Director, she testified on behalf of the rights of states before the Senate Environment and Public Works Committee in 2016.

An Arkansas native, Director Keogh has a degree in chemical engineering from the University of Arkansas. She is married, has three children, and has four grandchildren.

Written Testimony of Becky W. Keogh
 Director, Arkansas Department of Environmental Quality
 to the
 United States Senate Committee on Environment and Public Works
 Subcommittee on Clean Air and Nuclear Safety
 March 5, 2019
 Washington, D.C.

Chairman Senator Mike Braun, Ranking Member Senator Sheldon Whitehouse, and subcommittee members, my name is Becky Keogh and I serve as the Director of the Arkansas Department of Environmental Quality. It is my great honor to appear before the United States Senate Committee on Environment and Public Works Subcommittee on Clean Air and Nuclear Safety. Additionally, I bring greetings from Governor Asa Hutchinson and the rest of our great "Natural State." We are also proud to have sent to Washington one of our best and brightest, your colleague on this committee, the quintessential statesman, Senator John Boozman. A warm hello to you from home, Senator Boozman.

The fact that this is the second time in the past three years that I have been asked to address this esteemed body about cooperative federalism is a testament to the evolving and improving relationship between the federal government and the states. Only three short years ago, I sat here as a state leader with a career comprised of extensive public environmental experience asking this body for assistance in changing the relationship between the states and their federal counterpart—the Environmental Protection Agency. While legislatively cooperative federalism called for states to be partners with the Environmental Protection Agency, functionally states were more pawn than partner. Not only were states excluded from environmental-policy solutions, we weren't even a part of the equation.

Thirty-six months later, I am before you again as the Director of the Department of Environmental Quality. I am also now serving as President of the Environmental Council of the States with three years of service as an officer. Since my first testimony, states have gone from asking for a seat at the table to a discussion of what happens when we arrive. We states are now advocating for a standard-operating procedure of shared decision making, shared problem solving, and shared programmatic development between the states and the EPA.

There is no better example of cooperative federalism at its purist than the environmental regulatory framework. But when federalism is at its purist, it is also at its rawest. State regulatory agencies and their federal counterpart are each required to simultaneously regulate from the position of sovereign and subordinate. This inherent challenge of cooperative federalism is compounded by the dynamic and unpredictable subject matter of which we are asked to regulate. Often our most challenging days are ones that cannot be imagined just the day before. Protecting

and preserving the environment requires that we environmental regulators stand at-the-ready to respond to elite edicts such as acts of Congress and the wills of Mother Nature, which are no-less intimidatingly sometimes called acts of God.

Our challenges are at the same time unique to our locality and universal to a larger national community. And each answer is both a part and a whole. That is why it is imperative that we find a way to fine-tune the relationship between the states and the EPA; each of our voices is essential in the effective management of our nation's air, land, water, and wildlife—the precious and limited commodities that we are tasked to protect.

But in order to understand and navigate the future of the states' relationship with the EPA, we must have a better understanding of the past. Mr. Chairman, I understand that prior to your full-time role as a Senator you operated a successful auto-parts distribution and third-party logistics company. And I am sure in working extensively with vehicles that you have noticed the size of the windshield in relation to the rearview mirror. There is a reason the windshield is bigger than the rearview mirror. Certainly the future is bigger than the past, but the rearview mirror serves an undeniable purpose. In order to understand where we are going, we must understand where we have been. Bad habits, past mistakes, and poor decisions have a way of trying to catch up to us after we've long since passed them by. Just like rearview mirrors, "these objects may be closer than they appear."

So, I am before you today advancing a position of decentralization of environmental regulation. This is informed by historical perspective as presented in the following passage:

The conventional narrative of the origins of federal regulation is a fable. Contrary to common perceptions, many measures of environmental quality were already improving prior to the advent of federal environmental laws . . .

Indeed, the rate of improvement for some pollutants was greater before the adoption of federal controls than after.

Adler, Jonathan H., *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection* (2002). Faculty Publications. 191. (Internal citations removed.) (A more complete passage from this article is referenced at the back of this testimony.)*

Professor Adler goes on to call for innovation and exploration of "alternative means of ensuring environmental protection." It is through the windshield that we find the path to this call for innovation and exploration. And we can proceed swiftly into the future if, like the windshield's design, we craft a solution that provides optimal surveillance of all possibilities in front of us while protecting us from the elements as we speed ahead. In our design we must advance a system that can safely crack, but not completely shatter, should the innovation or experimentation fail us.

The argument for decentralization is not an argument for eliminating the federal role in environmental protection. Rather, it is an argument for redefining the federal-state balance. Specifically, the federal government should focus its efforts where the federal government has a comparative advantage over state and local governments. This is not the case in designing and implementing drinking water standards or improving urban air quality. It is, however, the case when it comes to interstate pollution. Where pollution from one state spills over into another state, there is an unimpeachable case for federal intervention. Yet there are relatively few provisions of federal environmental law that specifically address such spillover concerns and what few provisions exist have been rarely invoked. It is also important for the federal government to clarify the extent of its current role.

Leaving the precise contours of existing federal authority unclear results in uncertainty, which discourages states from filling the gaps because they do not know how much of a gap there is to fill. State governments are not likely to squander resources duplicating federal regulations, so the lack of clear boundaries on federal regulation may be resulting in lower levels of environmental protection. More importantly, the federal government needs to create clear and legally defined opportunities for state and local experimentation. A policy of “ecological forbearance,” under which state governments could seek relief from existing federal mandates so as to experiment with alternative means of environmental protection could reopen the laboratories of democracy in environmental policy. This is not an argument for simply scrapping the regulatory structure that exists today. Rather, it is a call for facilitating greater innovation and evolution in environmental policy by creating opportunities for policy change.

Finally, it is important to note that there is no such thing as achieving environmental nirvana. Modern human civilization inevitably entails environmental impact. The question is not which policy approach or mix of policies will eliminate all environmental problems. Rather, the question is what mix of institutions and policies will do the best-or perhaps the least-bad-job of helping us reach the environmental goals that we seek to attain. Every approach is going to have problems; every approach that we point to is going to fail at some point. So the answer to the question will simply be the approach that does the most acceptable job. It is in some senses an historical accident that state leadership in environmental policy was supplanted by federal regulation, and environmental policy could be improved if states regained more of their historic role.

The federal government did not come to dominate environmental policy because a more decentralized system was leading to environmental ruin. Rather, an accidental spark on the Cuyahoga River helped ignite the political push for national regulation — a push that was then furthered by other factors within the political process. Recognizing the fables of federal environmental regulation, and decentralizing control over environmental policy, could restore a more healthy and productive balance in environmental policy. A more decentralized approach would not only be more efficient, but also more effective and equitable as well.

States today bear little resemblance to states in the 1960s, and our role in environmental protection has fundamentally changed. We have been transformed by growth of professional staffs, vigorous two-party systems, use of referenda and initiatives to make policy, and procedural requirements that assure greater public participation in regulatory decisions. Many aspects of environmental protection have also been assimilated into state and local politics, as they have been into national politics.

Seventy percent of important environmental legislation enacted by the states now has little or nothing to do with national policy and only about 25 percent (approximately \$2.8 billion) of the total amount states now spend annually on environment and natural resources comes from Washington. State and local governments are responsible for nearly all the enforcement of national environmental laws and continue to dominate decisions in areas like land use and waste disposal.

The benefits of a state-centered environmental protection future are apparent if you peer through the windshields of the states. In fact, the Arkansas Department of Environmental Quality does most of the things that were once exclusively the role of the federal government. We operate thirteen federally delegated environmental programs, with a three-hundred plus staff of engineers, ecologists, geologists, biologists, lawyers, accountants, and epidemiologists. We operate a state-of-the-art lab that informs our permitting, reporting, and enforcement actions.

Air Quality in Arkansas is among the best in the country. The entire State is in attainment with all National Ambient Air Quality Standards. The most recent available data indicates that Arkansas remains below visibility goals for regional haze for the first planning period for each of its two Class I Areas: Caney Creek and Upper Buffalo Wilderness Areas. These achievements are being realized all while implementing a robust permitting system, delegated to the State of Arkansas by EPA. The ADEQ Office of Air Quality implements all air programs delegated by EPA Region 6 to the State of Arkansas. These programs include the Title V program for major sources of pollutants, the New Source Performance Standards, the National Emission Standards for Hazardous Air Pollutants, Prevention of Significant Deterioration, and the State Implementation Plan.

The EPA should recognize that the states have on-the-ground experience with regulating the facilities within their borders and defer to them and their expertise in appropriate instances on important permitting and planning issues. Arkansas has taken the lead in implementing protective and timely permitting processes. Arkansas is among the few states with a single permit system in which facilities receive both a Title I and Title V operating permit. This single-permit system provides certainty to business upfront when they make investments, reduces duplicative processes in permit issues, and helps ensure swift permit issuances.

ADEQ has a defensible regulatory agenda, successfully protecting the environment and protecting investment decisions that are bringing Arkansas forward. Our leadership in

technology and transparency through e-permitting, advanced monitoring, and transformation efforts resulted in ADEQ becoming one of the nation's leaders in (1) reduced backlog of Title V renewals, (2) lowest permit administrative costs, and (3) achievement of air quality standards. According to the data from EPA's National Title V database, Arkansas is among the top quartile of state agencies in timeliness of Title V significant modification issuances. Arkansas is also ranked 5th in the timeliness of Title V renewals among state agencies.

Arkansas resolves compliance concerns swiftly and with few appeals. During the state fiscal year for 2018, one hundred twenty-three cases were resolved informally. Another fifty-eight cases were referred for enforcement. Of those, fifty cases were resolved in settlement through Consent Administrative Orders, and only four led to the issuance of Notices of Violation, which initiate administrative legal proceedings against the alleged violator. The Office of Air Quality has overseen increasingly sophisticated modeling and analyses needed to meet Clean Air Act requirements.

ADEQ staff recently utilized EPA's prognostic meteorological data to support a request to re-designate a county of unclassifiable to attainment/unclassifiable. This was the first of its kind request in the nation. EPA recently proposed approval of this re-designation request and received no adverse comments. We expect approval shortly. Similarly, the Office of Air Quality also performed an analysis using NOAA's HYSPLIT model in support of the development of the Arkansas "good neighbor" SIP revision, which addresses interstate impacts for the 2015 Ozone standard.

Our state's Office of Air Quality has also worked to develop tools and resources to educate and inform the regulated community and the public on regulatory requirements. To this end, Arkansas is engaged in a consensus-based process that is open to stakeholders and the public, which is intended to streamline Arkansas Air Regulations as well as to produce helpful permitting guidance. This process is called the Air Regulatory Efficiency and Streamlining Effort or "EASE."

Efforts are underway to convene regular workgroup meetings to produce deliverables as a result of collaborative efforts. Similarly, Arkansas recently engaged with its federal and state partners in a Fire Policy Forum that facilitated a vibrant dialogue surrounding the use of "fire as a land management tool," air quality considerations, and solutions to the challenges of balancing these two necessities. This Forum featured Congressman Bruce Westerman as well as Wayne Cascio, who is the Director of the National Health and Environmental Effects Research Laboratory with EPA's Office of Research and Development.

We find value in working with our partner agencies to better inform our working knowledge of issues of common concern and to establish best work practices moving forward. These outcomes often have the benefit of driving improvements in air quality as well. We believe that EPA can continue to foster this type of dialogue by allowing flexible sources of

funding that allow states to consider solutions to issues that states themselves determine are important to them, which may include fire policy in Arkansas. Cooperative federalism means trusting states as the co-equal sovereigns that they are and creating an environment in which states can thrive with support of EPA.

Our agency has a major role in advancing the two dominant industries of our state, agriculture and tourism. As such, our permitting and enforcement record are not only checked by the EPA but, more close-to-home, they are checked by the competing political interests within the state. The state of our state in terms of economic development and prosperity of our citizens rests on two industries that are often interested in the same resources. As a regulatory agency, ADEQ has an inherent incentive to let science, not passion or politics, dictate our decisions as regulators.

Under Governor Hutchinson's transformation of government efforts, the Arkansas Energy Office has been aligned with ADEQ. In administering energy advancement and efficiency programs, Arkansas is seeing record investment in solar-energy investments and energy-performance solutions, realizing reductions in greenhouse gas emissions well beyond those which were to be mandated under previous regulatory agendas. One early adopter was an energy project that resulted in 20 million dollars in savings at Arkansas State University—Jonesboro. The project allowed clean air and reduced energy demand, which allowed the University to direct savings from lower utility bills to increased investment in education.

We also coordinate with other state and local governments units and other sovereigns to solve complex cross-jurisdictional problems. Just this month we have asked for (and received) assistance from the states of Texas and Louisiana and from our state's National Guard and departments of Health, Agriculture, and Forestry to help us extinguish an expansive underground fire that is threatening the air and water quality of one of our most vulnerable communities. But, frustratingly both to us and our federal counterpart, there is little the EPA has the authority to do to assist when it comes to one-offs. Acting Secretary Wheeler and our Regional Administrator, Anne Idsal, are both dedicating substantial time and energy looking for ways the federal government can help us close the gaps on this environmental challenge that exceeds the scope of our small-state's resources.

Looking through that expansive windshield, in the not-so-far distance down the road, we must find a better path. The role of the states has evolved, but there has not been a substantial modification of the federal role. Now that states do the majority of the lifting once done in Washington, why not use the wealth of EPA resources, both technical and financial, to help states fill the gaps. Consider allowing the EPA the flexibility to offer support that is not duplicative of the substantial state activity, but instead is niche in nature. Consider the federal government's primary charge in environmental protection as a supporting role as opposed to the lead. States, no matter how robust or progressive in their programs, will benefit from a central

source of support, science, and standards. But the support cannot be one-size fits all; it must bend to recognize the strengths and weaknesses of each state in terms of geography and wealth.

Arkansas is a model for how states efficiently and effectively take the lead in improving and maintaining air quality across the country. That is why a “state’s first” approach to regulation makes sense. We states can at the same time be experts and novices depending on the specific challenge.

*You've heard the story. Industrialization and economic growth laid waste to the American environment through much of the twentieth century. Common law based environmental protections were ineffective, and state and local governments were unable or unwilling to address environmental concerns. As a result, environmental quality was in continuous decline until comprehensive federal legislation was adopted in the late 1960s and early 1970s. The infamous 1969 Cuyahoga River fire and the massive oil spill off the coast of Santa Barbara focused public attention on the nation's environmental plight and helped spur the passage of needed federal environmental laws.

This is the conventional account of the origins of federal environmental law. It is a story often told to explain how the nation moved from a mix of property-based, common law rules and state and local regulations to a sprawling federal regulatory apparatus. But it is wrong. The conventional narrative of the origins of federal regulation is a fable. Contrary to common perceptions, many measures of environmental quality were already improving prior to the advent of federal environmental laws. The Environmental Protection Agency's first national water quality inventory, conducted in 1973, found that there had been substantial improvement in water quality in major waterways during the decade before adoption of the federal Clean Water Act, at least for the pollutants of greatest concern at the time, organic waste and bacteria.

Throughout the 1950s and 1960s, state and local governments began to recognize the importance of environmental quality and adopted first-generation environmental controls. Some states' efforts were more comprehensive and more successful than others, and different states had different priorities. Environmental protection did not always trump health care, education, or other local concerns. Nonetheless, by 1966, every state had adopted water pollution legislation of some sort.

A similar pattern of state and local action preceded federal regulation in other areas as well. Federal regulation of wetlands, for example, began after a federal district court interpreted the Clean Water Act to require it in 1975. But state and local regulation had begun much earlier. In 1963, Massachusetts became the first state to regulate wetland development, modeling its initial efforts on preexisting local rules. By 1975, all fourteen states in the continental United States with more than ten percent of their land area in wetlands adopted wetland protection measures.

The story of air pollution control follows a similar pattern. Cincinnati and Chicago became the first cities to adopt effective smoke control ordinances in 1881, and action by cities increased dramatically after the Second World War. In

some cities, such as Pittsburgh, the business community played a leading role in supporting such regulation. State regulations followed in much of the country.

Indeed, the rate of improvement for some pollutants was greater before the adoption of federal controls than after. Robert Crandall of the Brookings Institution found that pre-federal air pollution control efforts were more successful than is typically assumed, as have Indur Goklany and Paul Portney of Resources for the Future.

...

The oft-told explanation for federal environmental legislation—that ever-deteriorating environmental quality made federal regulation necessary—does not fit the historical record. Rather, a mix of factors led to the adoption of federal environmental laws, even though environmental quality was already improving in many respects. With a better understanding of the sources of federal regulation, perhaps we can reevaluate the current federal role and explore alternative means of ensuring environmental protection.

Adler, Jonathan H., *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection (2002)*. Faculty Publications. 191. (Internal citations removed.)



Office of Air Quality

STATE OF THE AIR 2018

Arkansas Department of
Environmental Quality

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 <https://www.adeq.state.ar.us/air/forms/questions.aspx>

FOREWORD

Dear Reader,

On behalf of the Arkansas Department of Environmental Quality (ADEQ) Office of Air Quality (OAQ) team, thank you for taking the time to read OAQ's 2018 State of the Air Report. This report presents data about the air quality in Arkansas and achievements in OAQ program implementation during federal fiscal year (FFY) 2018.

The air we breathe is one of our greatest natural resources. In Arkansas, we are fortunate to enjoy outstanding air quality. We are meeting or beating all federal ambient air quality standards throughout the state. Additionally, reduced pollution is resulting in visibility improvements at our scenic wilderness areas.

At a time of improving air quality, OAQ has also realized greater efficiencies in our permitting program. We have reduced the time necessary for OAQ to issue timely permits that protect the public from pollution-related health risks, the environment from degradation, the permittee from uncertainty, and ADEQ from unwarranted challenge and appeal.

We continue to assert our proper role with the United States Environmental Protection Agency (EPA) in our "cooperative federalism" relationship. I'm happy to report that in FFY 2018, EPA approved a number of our states plans. We're encouraged that EPA is recognizing our efforts and showing the appropriate degree of deference to the State in evaluating our federal submissions.

Again, thank you for taking the time to read the OAQ 2018 State of the Air Report. If you have questions, comments, or concerns, please contact us.

Sincerely,



Stuart L. Spencer
Associate Director, Office of Air Quality



ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY

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Introduction to the Office of Air Quality

Who we are

The OAQ consists of four branches: Permits, Compliance, Policy and Planning, and Asbestos and Enforcement. Each branch of the OAQ has specific duties and addresses various aspects of the air program. The OAQ team is composed of scientists, engineers, attorneys, and administrative professionals.



What we do

- Develop and implement programs designed to ensure compliance with federal air quality regulations
- Regulate emissions through a permitting program that sets emission limits protective of public health
- Monitor ambient air quality in Arkansas through deployment and maintenance of a statewide monitoring network
- Investigate complaints and violations of State and federal air quality laws
- Prepare and issue air quality forecasts

BRANCHES

▲ PERMITS

The Permits Branch implements a single-permit system for new and modified facilities that encompasses both State and federal regulatory requirements for stationary sources.

▲ COMPLIANCE

The Compliance Branch investigates whether permitted facilities operate in accordance with State and federal air pollution regulations, as specified in each facility's permit. The Compliance Branch also investigates citizen complaints regarding air pollution and responds to emergency situations.

▲ POLICY AND PLANNING

The Policy and Planning Branch is responsible for developing plans to comply with State statutes and federal air regulations. The Policy and Planning Branch also collects technical information on air quality and emissions of air pollutants.

▼ ASBESTOS AND ENFORCEMENT

Two distinct sections make up the Asbestos and Enforcement Branch. Asbestos ensures any demolitions and asbestos-related renovations occur in accordance with Arkansas's asbestos regulation. Enforcement implements and enforces all State and federal air pollution regulatory requirements.



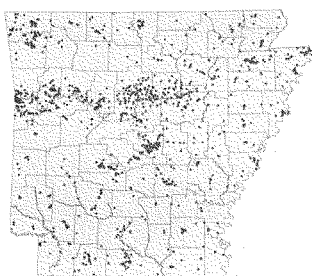
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Permits Branch

The Permits Branch implements a single-permit system for new and modified facilities that encompasses both State and federal regulatory requirements for stationary sources. Permits include information on what pollutants are being released, how much may be emitted, and what steps the source's owner or operator is taking to reduce pollution. All permits include a mechanism to demonstrate compliance with the permit conditions. The permitting process ensures that stationary sources will be constructed or modified to operate without resulting in a violation of the Arkansas environmental statutes and regulations and without interfering with the attainment and maintenance of the national ambient air quality standards (NAAQS). Visit our website more information about OAQ's Permits Branch:

<https://www.adeq.state.ar.us/air/permits/>



Permitted Stationary Sources in Arkansas.



Image Credit: Dwight Burdette

TYPES OF AIR PERMITS

▲ MAJOR SOURCE/TITLE V

For stationary sources of air pollutants that have actual or potential emissions at or above 100 tons per year of any criteria pollutant, ten tons per year for a single hazardous air pollutant (HAP) or twenty-five tons per year for any combination of HAPs. Also for select categories of facilities regardless of emission rates.

▲ MINOR SOURCE

Stationary sources required to obtain a permit under Arkansas Pollution Control and Ecology Commission (APC&EC) regulations, but do not meet any major source thresholds.

▲ GENERAL PERMITS

Standardized permits for air curtain incinerators, animal/human remains incinerator facilities, cotton gins, gasoline bulk plants, hot mix asphalt facilities, natural gas compression stations, and rock crushing facilities



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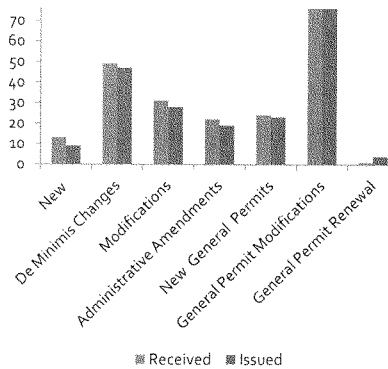
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Minor Source Permitting Metrics

During FFY 2018, the Permits Branch received 220 minor source permit applications and issued 209 minor source permits. The average processing time for new and modified minor source permits was 136 days.

Figure 1 (right) shows the breakdown in permit activity type of minor source permit applications received and issued.

Figure 1 Number of FFY 2018 Minor Source Permitting Activities

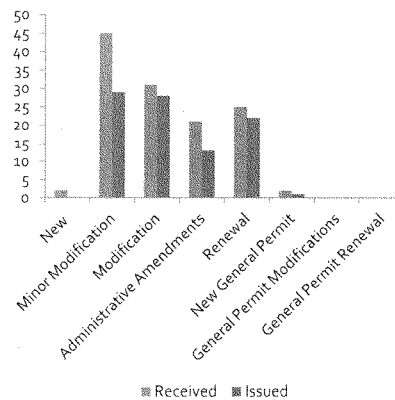


Title V Source Permitting Metrics

During FFY 2018, the Permits Branch received 126 Title V permit applications and issued 93 Title V permits/amendments. The average processing time for a new, renewal or modified Title V permit was 180 days.

Figure 2 (right) shows the breakdown in permit activity type of Title V permit applications received and issued.

Figure 2 Number of FFY 2018 Title V Permitting Activities



Permitting Lean Metrics

During FFY 2018, the Permits Branch implemented measures to improve permitting processes based on a lean event held in December 2017.

Goals developed at the permits lean event included reducing the number of incomplete applications received to thirty-four percent, reducing permit lead times to 180 days, and increasing the number online application submissions to fifty percent.

Figure 3 (right) shows the administrative completeness goal metrics, Figure 4 (bottom left) shows the lead time metrics, and Figure 5 (bottom right) shows the online submission goal metrics for the first three quarters of 2018.

Figure 3 Goal 1: Administratively Incomplete Applications

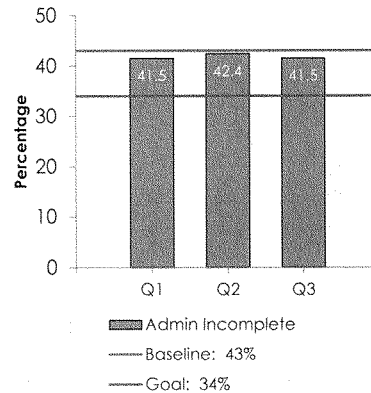


Figure 4 Goal 2: Lead Time by Quarter

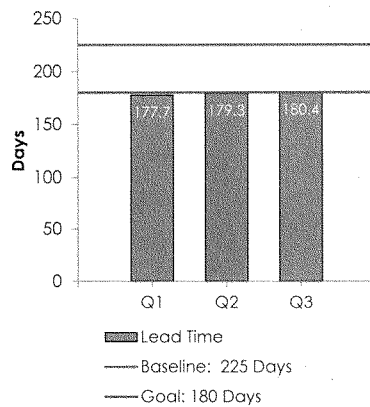
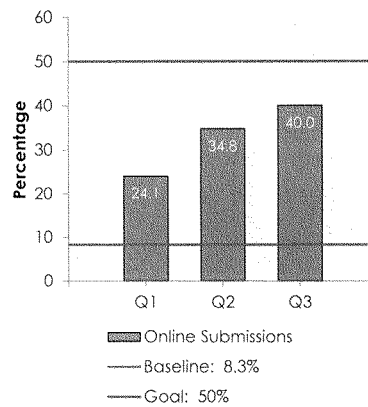


Figure 5 Goal 3: Online Submissions



Title V National Rankings

ADEQ is among the top state regulatory agencies in the nation for timeliness of Title V permit significant modification and renewal issuance.

Delays in issuance may result from late or incomplete applications or other factors that delay the permitting authority's ability to finalize action. The OAQ has engaged in a number of efforts in the past few years to streamline the permitting process to ensure timely issuance of permits.

TITLE V ISSUANCE TIMELINESS

▲ TITLE V RENEWALS

The Clean Air Act considers Title V renewals to be timely if they occur prior to the expiration of the existing permit. Permits that have not been renewed by the expiration date are referred to as "outstanding renewal permits."

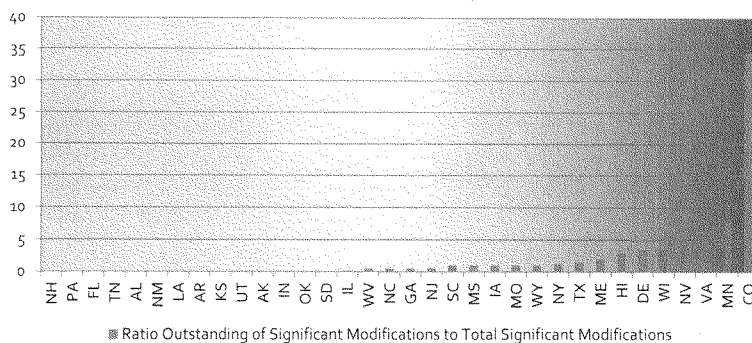
▲ SIGNIFICANT MODIFICATIONS

The Clean Air Act considers Title V significant modifications to be timely if they are issued within 18 months of application submittal.

Title V Significant Modifications Rankings

According to data from the Environmental Protection Agency's (EPA) National Title V Database (January–June 2018), Arkansas is among the top eleven state agencies in timeliness of Title V significant modification issuance. All of Arkansas's Title V significant modification actions for that period were completed within eighteen months.

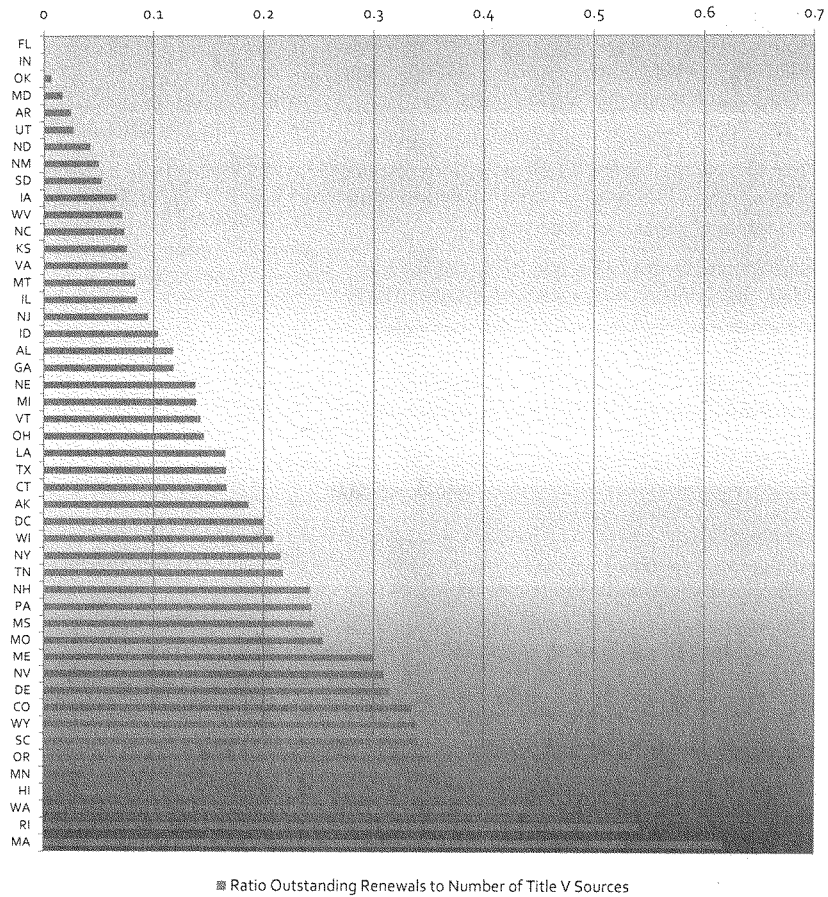
Figure 6 Comparison of State Air Permitting Authority Timeliness for Issuance of Title V Significant Modifications



Title V Renewal Rankings

According to data from EPA's National Title V Database (January–June 2018), Arkansas is ranked number 5 in timeliness of Title V renewals among state agencies.

Figure 7 Comparison of State Air Permitting Authority Timeliness for Issuance of Title V Renewals



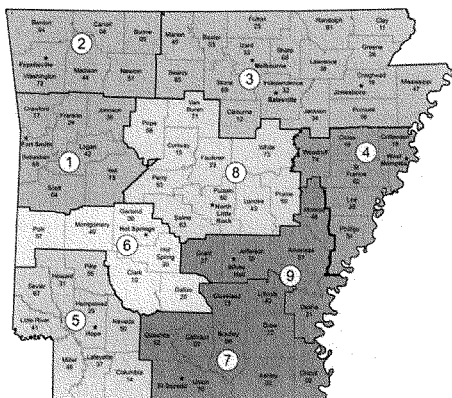
Compliance Branch

The Compliance Branch inspects permitted facilities to document whether owners and operators are complying with State and federal air pollution regulations, as specified in each facility's permit. This is accomplished through unannounced compliance inspections, stack testing, and monitoring and reporting requirements.

The Compliance Branch inspectors also investigate citizen complaints regarding air pollution, respond to emergency situations, and perform pre-assessments of vegetative burn sites.

Arkansas has seventy-five counties, which are divided into nine inspection districts. The compliance districts are shown in the map below and contacts for each district are given in the sidebar to the right. Visit our website more information about OAQ's Compliance Branch:

<https://www.adeq.state.ar.us/air/compliance/>



INSPECTOR DISTRICT CONTACTS

▲ DISTRICT 1

Stephen Foster 479-424-0333

David Miesner 479-424-0333

▲ DISTRICT 2

Jay Ellis 479-267-0811 ext. 11

Paul Hairston 479-267-0811 ext. 18

▲ DISTRICT 3

Keith Collins 870-793-4762

Coy Dobson 870-935-7221 ext. 11

Mitchel Kennedy 870-792-4762

Bryant Lamb 870-368-5053

▲ DISTRICT 4

James Starling 870-733-3526

▲ DISTRICT 5

Alex Mathis 870-777-7585

▲ DISTRICT 6

Risa Parker 501-520-5762

▲ DISTRICT 7

Jay Northern 870-862-5941

Tiffany Wooten 870-862-5941

▲ DISTRICT 8

Lori Burke 501-682-0737

Caleb Fielder 501-682-0775

Ronnie McDade 501-682-0962

Mikayla Shaddon 501-682-0808

▲ DISTRICT 9

Maurice Carlton II 870-247-5155



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Compliance Branch Metrics

Inspections

During FFY 2018, OAQ compliance branch air inspectors performed 284 inspections of minor sources and 123 inspections of Title V sources. Two Title V inspections and sixty-five minor source inspections were not associated with a district.

Inspectors also performed 570 stack test observations and reviewed 294 annual compliance certifications and 588 semi-annual monitoring reports.

Figure 8 FFY 2018 Air Compliance Inspections Per District

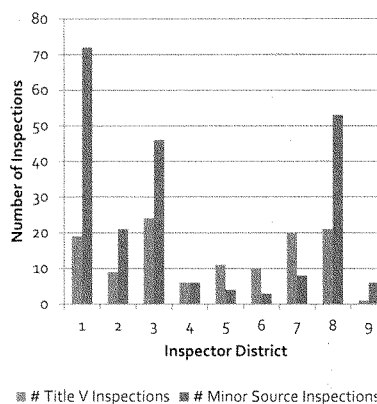
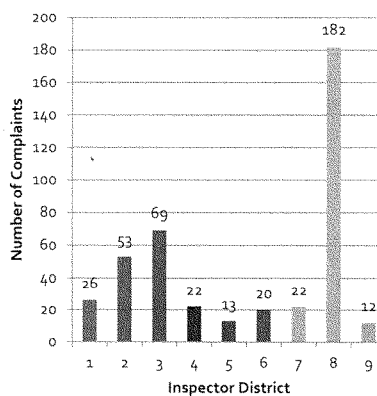


Figure 9 FFY 2018 Complaint Investigations Per District

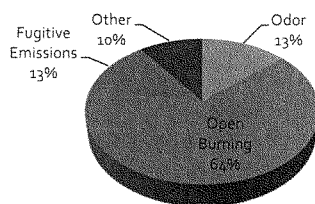


Air Pollution Complaints

ADEQ provides citizens with multiple ways to file air pollution complaints, including through the ADEQ website (https://www.adeg.state.ar.us/complaints/forms/air_complaint.aspx) and via mobile applications.



During FFY 2018, Compliance air inspectors investigated 419 complaints.



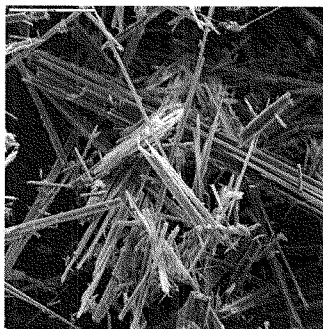
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Asbestos Program

The Asbestos Program ensures compliance with State and federal asbestos rules through complaint investigations, monitoring of demolition and renovation projects, licensing and certifying of asbestos professionals, and conducting outreach demonstrations. Arkansas asbestos regulations are contained in Regulation No. 21. Asbestos is also regulated as a hazardous air pollutant by the United States Environmental Protection Agency.

The Asbestos Program also administers the Arkansas Asbestos Abatement Grant Program, which assists small cities and counties to clean up and stabilize structurally-impaired buildings containing friable asbestos. Visit our website more information about OAQ's Asbestos Program:



<https://www.adeq.state.ar.us/air/program/>

What is Asbestos?

Asbestos is a naturally occurring mineral substance, which over thousands of years has proven to be very useful and durable. Because of its resistance to heat, asbestos has been used in several commercial applications such as cigarette filters, car brakes, various building materials (insulation, roofing, piping, etc), fire-proof clothing, and stage curtains. While it seemed to be an all-purpose material, asbestos also proved to be detrimental to human health causing diseases such as lung cancer, asbestosis, and mesothelioma. In 1971, the EPA deemed asbestos to be a hazardous air pollutant. In 1993, the APC&EC developed Regulation No. 21, which sets forth regulations pertaining to the handling of asbestos.

Although asbestos is no longer mined in the United States, it still has a variety of uses that are now regulated to ensure public safety. Through education the public is learning to leave undamaged asbestos containing material alone. It poses little harm when the fibers are not disturbed and broken into inhalable pieces that can ultimately attach to the pulmonary system and cause incurable illness.



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Asbestos Metrics

Complaints

During FFY 2018, Asbestos inspectors investigated sixty-six complaints.

Licenses and Certifications

During FFY 2018, ADEQ issued 1477 asbestos worker certifications, seventy-five contracting firm licenses, fifty-four consulting firm licenses, twenty-three training firm licenses. Figure 10 (top right) shows the certifications issued by type.

Notice of Intent (NOI) Submissions and Inspections

During FFY 2018, ADEQ received 442 NOIs for demolitions and renovations pursuant to Arkansas asbestos rules and performed 306 inspections pursuant to NOIs received. Figure 11 (bottom right) breaks down the type of NOI submissions received and inspections.

Arkansas Asbestos Abatement Grant

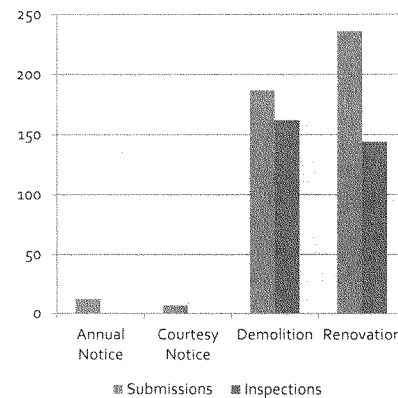
Table 1 FFY 2018 Arkansas Asbestos Abatement Grant Recipients

RECIPIENT	USE	AMOUNT
City of Dumas	Abatement Prior to Demolition of Tanenbaum Building	\$40,800
City of Eudora	Old John's Campus Upper and Lower Elementary Renovation	\$55,932
Dallas County and City of Forsyth	Clean up of condemned nursing facility, Grandma's House, Inc.	\$37,500
Total		\$145,232

Figure 10 FFY 2018 Asbestos Worker Certifications by Type



Figure 11 FFY 2018 Asbestos NOI Submissions by Type



Enforcement

The Enforcement Section is responsible for administering consistent, appropriate, and timely enforcement of State and federal air pollution laws and regulations administered by the Department. This section provides support and assistance on OAQ enforcement issues designated for formal and informal enforcement action. These enforcement actions are in response to referrals from the Asbestos Section and the Compliance and Permit Branches. The enforcement process helps facilities achieve successful compliance with State and federal standards and ensures compliance with air pollution laws and regulations. Visit our website more information about OAQ Enforcement:

<https://www.adeg.state.ar.us/air/program/>

Enforcement Metrics

During FFY 2018, fifty-eight cases were referred to the Enforcement Section. One hundred twenty-three cases were handled informally. Four NOVs and fifty CAOs were issued to resolve formal enforcement actions.

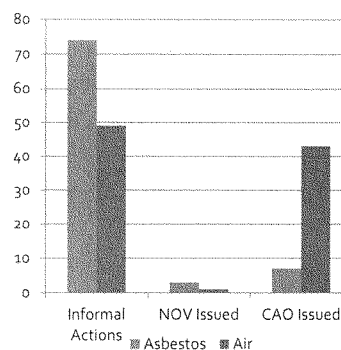
Figure 12 (right) breaks down the types of enforcement actions by media included in OAQ during FFY 2018.

TYPES OF ENFORCEMENT ACTIONS

▲ INFORMAL
 Actions taken using a letter detailing violations found of an air permit and/or applicable regulations that do not at that time warrant a formal enforcement action, but require corrective action

▲ FORMAL
 Actions taken using legally-binding consent administrative orders (CAOs) and/or notice of violations (NOVs) that incorporate civil penalties, corrective actions, and other terms

Figure 12 Enforcement Actions Completed in FFY 2018



Policy and Planning Branch

Among other duties, the Policy and Planning Branch is responsible for gathering information on current and projected emissions trends, analyzing air quality data, and developing state plans to help maintain clean air in Arkansas. The Branch also provides technical expertise to the other branches of the Office of Air Quality and helps to educate the public about air quality issues.

Visit our website more information about OAQ's Planning Branch:

<https://www.adeq.state.ar.us/air/planning/>

Emissions Inventory

During 2018, the Emissions Inventory team collected and verified submissions of industry emissions data from large stationary sources: Type A and Type B sources. These emissions data must be submitted to EPA for inclusion in the national emissions inventory (NEI).

Sixty-six Type A sources submitted emissions reports during 2018.

One-hundred fourteen Type B sources submitted emissions reports during 2018.

Trends in pollutant emissions reported to the NEI are included in Appendix C. Appendix C also presents trends in carbon dioxide (CO₂) emissions tracked by the United States Energy Information Administration.

CORE RESPONSIBILITIES

- ▲ EMISSIONS INVENTORY
- ▲ AIR QUALITY MODELING
- ▲ AIR QUALITY FORECASTING
- ▲ AIR QUALITY MONITORING
- ▲ STATE PLAN DEVELOPMENT
- ▲ REGULATORY INITIATIVES
- ▲ VOLUNTARY EFFORTS

EMISSIONS REPORTING

▲ TYPE A SOURCE

Permitted to emit ≥ 2500 tons per year of sulfur oxides (SO_x), nitrogen oxides (NO_x), or carbon monoxide (CO); or

Permitted to emit ≥ 250 tons of volatile organic compounds (VOCs), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), or ammonia (NH₃).

Report emissions every year

▲ TYPE B SOURCE

Permitted to emit ≥ 1000 tons per year of CO;

Permitted to emit ≥ 100 tons per year of SO_x, NO_x, VOC, PM₁₀, PM_{2.5}, or NH₃; or

Have actual lead emissions ≥ 0.5 tons per year

Report emissions every three years



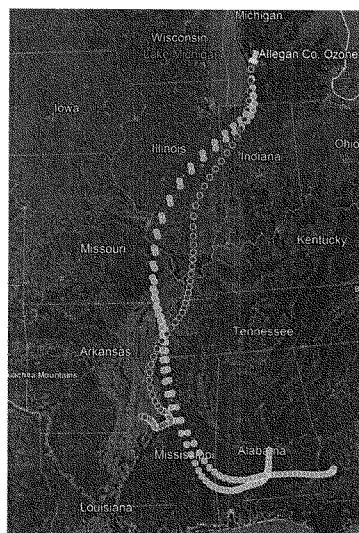
Air Quality Modeling Achievements

In 2018, OAQ engaged in various modeling efforts in support of air quality planning.

For example, OAQ performed AERMOD modeling using prognostic meteorological data to support a request that EPA re-designate Independence County from unclassifiable to attainment/unclassifiable for SO₂.

OAQ also performed HYSPLIT air trajectory modeling to support development of a state plan to satisfy “Good Neighbor” obligations for the 2015 ozone NAAQS.

In addition, OAQ collaborated with other states in the Central States Air Resources Agencies to determine what areas influence visibility impairment in specified federal lands like Caney Creek and Upper Buffalo Wilderness Areas for the Regional Haze Program.



HYSPLIT Air Trajectories

Air Quality Forecasting

Policy and Planning Branch technical staff produce air quality forecasts for northwest and central Arkansas. Forecasts are created by using meteorological data and pollutant concentration data to estimate ozone and fine particulate matter. These estimates are then translated into an Air Quality Index (AQI).

The AQI is color-coded to indicate the level of health concerns for the forecasted pollutant concentrations.

AQI Value	Level of Health Concern	Colors
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon



Air Quality Monitoring

Ambient air quality monitoring data show that the entire state of Arkansas is in attainment with all NAAQS.

Figure 13 below compares statewide average air quality conditions to the NAAQS. More information about Arkansas's Ambient Air Monitoring Network and trends in criteria pollutant monitoring data and visibility trends are included in Appendix B. OAQ also deploys special purpose air quality monitors from time to time to evaluate specific air quality concerns raised by citizens.

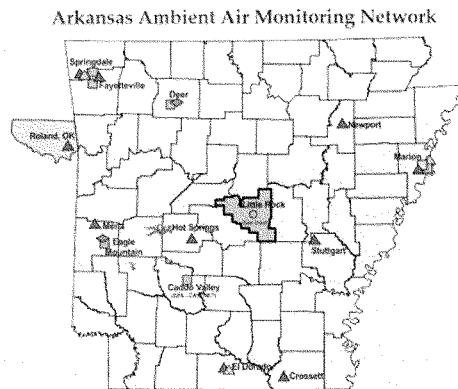
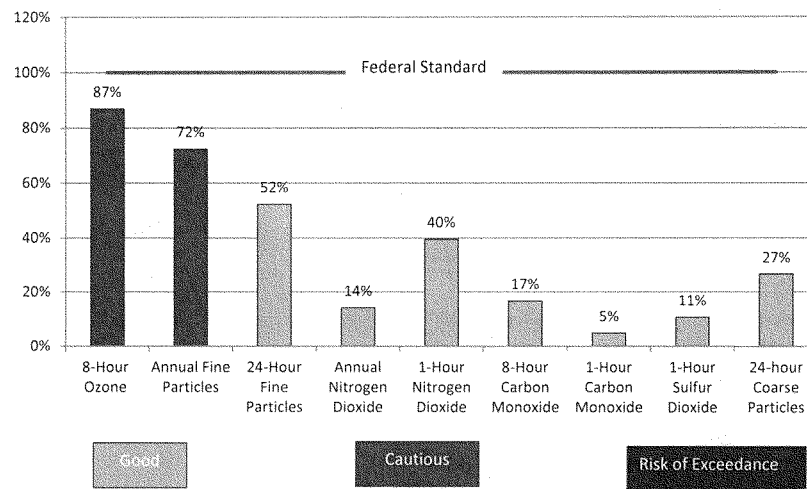


Figure 13 2017 Arkansas Statewide Average Air Quality Compared to the NAAQS



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State Plan Development

In FFY 2018, OAQ worked on several state implementation plan (SIP) revisions. The Arkansas SIP demonstrates how the State will implement Clean Air Act requirements under State statutes and regulations. The SIP covers multiple program areas including implementation of NAAQS, addressing interstate pollution transport obligations, and ensuring protection of visibility in designated Class I wilderness areas and national parks.

OAQ staff frequently revises the SIP to comply with new federal regulations and changes to Arkansas law. All SIPs are made available for public comment prior to finalization.

FY 2018 SIP REVISION EFFORTS

▲ PHASE I REGIONAL HAZE

- Addresses NO_x controls for power plants
- Finalized October 31, 2017
- EPA approved February 12, 2018

▲ PHASE II REGIONAL HAZE

- Addresses SO₂ controls for power plants
- Finalized August 8, 2018
- EPA proposed approval November 30, 2018

▲ PHASE III REGIONAL HAZE

- Addresses requirements for Ashdown Mill
- Proposed October 5, 2018

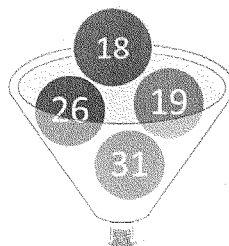
▲ OZONE INFRASTRUCTURE

- Addresses Clean Air Act 110(a)(1) and (2) requirements for 2015 ozone NAAQS
- Non-transport elements proposed October 3, 2018
- Transport proposal under development

Regulatory Initiatives

In FFY 2018, OAQ worked on a proposal before the APC&EC to adopt the 2015 ozone NAAQS into Regulation No. 19. On September 28, 2018, the APC&EC initiated rulemaking based on OAQ's petition. The OAQ anticipates adoption in mid-2019.

Since 2013, OAQ has been engaged in a streamlining project to simplify the APC&EC air regulations, bring them up to date with current state and federal requirements, and repeal or revise outdated provisions. In 2018, OAQ began stakeholder outreach for this project. OAQ is currently engaging with stakeholders to refine a pre-proposal draft released in May 2018.



Streamlined
Regulation



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Voluntary Efforts

Fire Policy Forum

On March 29–30, 2018, the Arkansas Department of Environmental Quality hosted Arkansas's inaugural Fire Policy Forum. The meeting brought a diverse group of governmental and private sector entities together to facilitate a vibrant dialogue surrounding the intersection of careful and prudent use of "fire as a land management tool," air quality considerations, and solutions to the challenges of balancing these two necessities.



EPA Region 6 Monitoring Group presentation about EPA Exceptional Events Rule

Volkswagen Environmental Mitigation Trust

During FFY 2018, ADEQ solicited comment on and finalized a beneficiary mitigation plan that describes how the State of Arkansas plans to use funds awarded as a result of the Volkswagen Settlement to reduce NOx emissions in Arkansas. The plan was submitted to the Trustee on June 25, 2018.

ADEQ OAQ and Energy Office staff are working to develop application procedures and scoring criteria for programs included in the beneficiary mitigation plan.

ADEQ PLANNED PROGRAMS UNDER BENEFICIARY MITIGATION PLAN

- ▲ **ARKANSAS BUS CNG PILOT**
School bus pilot to replace aging diesel buses with new CNG buses
- ▲ **CLEAN FUELS**
Competitive funding assistance program to repower or replace aging diesel Class 4–8 freight and drayage trucks and buses with new alternative-fueled engines or vehicles
- ▲ **ELECTRIC VEHICLE INFRASTRUCTURE**
Rebate program for installations of level 2 and DC Fast electric vehicle chargers
- ▲ **STATE AGENCY FLEET EMISSION REDUCTIONS**
Funding assistance for State agencies to repower or replace aging diesel Class 4–8 freight and drayage trucks
- ▲ **GO RED!**
Volkswagen funds will be used to supplement ADEQ's existing Go RED! program



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Go RED!

The Go RED! program is a competitive funding assistance program that awards funding for projects that reduce emissions from diesel engines in Arkansas. Such projects include installation of exhaust controls, engine upgrades, idle reduction technologies, engine replacements, and vehicle/equipment replacements. Public, private, and nonprofit entities in Arkansas are eligible to receive funding assistance.

Table 2 FFY 2018 Go RED! Funding Assistance Recipients

RECIPIENT	PROJECT TYPE	AMOUNT
County Line	Replacement of one school bus	\$21,254
Heber Springs	Replacement of one school bus	\$18,959
Dover	Replacement of two school buses	\$44,414.75
Clinton	Replacement of two school buses	\$41,300
Danville	Replacement of one school bus	\$21,887
Viola	Replacement of one school bus	\$19,509
Horatio	Replacement of one school bus	\$22,140
Total		\$189,463



Contacts and Acknowledgments

Contacts

We welcome your comments on the information contained in this report to the contacts below.

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Acknowledgements

The 2018 State of the Air Report was edited by Tricia Treece. We gratefully acknowledge the contributions of the staff and management of the OAQ in the production of this report:

Ronald Allen, Lee Anderson, Heinz Braun, David Clark, Brandon Creer, Iqbal Hossan, Kelly Jobe, Demetria Kimbrough, William Montgomery, Iris Pennington, Thomas Rheaume, Stuart Spencer, and Tricia Treece.

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Appendix A National Ambient Air Quality Standards

Introduction

Setting the Standards

The Clean Air Act requires that the United States Environmental Protection Agency (EPA) set national ambient air quality standards (NAAQS) for pollutants that are common to outdoor air and are considered harmful to public health and the environment. These pollutants, which are referred to as "criteria pollutants," include ozone, particulate matter, carbon monoxide (CO), lead, sulfur dioxide (SO₂), and nitrogen dioxide (NO₂).

The EPA Administrator, in consultation with the Clean Air Scientific Advisory Committee, sets primary and secondary NAAQS for each criteria pollutant. The primary NAAQS is set at a level that reduces the risk of harm so as to protect public health, including sensitive populations, with an adequate margin of safety. The secondary NAAQS is set at a level that is protective of the public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Periodic Review

The NAAQS are reviewed every five years to determine whether recent scientific data continue to indicate that the level, form, and averaging time of the current NAAQS are protective of public health. If the data show that the current level of the NAAQS is not protective of public health with an adequate margin of safety, then the EPA must revise the standard.

CRITERIA POLLUTANTS

- ▲ CARBON MONOXIDE (CO)
- ▲ LEAD
- ▲ NITROGEN DIOXIDE (NO₂)
- ▲ OZONE
- ▲ FINE PARTICULATES (PM_{2.5})
- ▲ COARSE PARTICULATES (PM₁₀)
- ▲ SULFUR DIOXIDE (SO₂)

FEDERAL STATUTORY REQUIREMENTS

- ▲ CLEAN AIR ACT § 108
Air Quality and Control Techniques
- ▲ CLEAN AIR ACT § 109
National Primary and Secondary Ambient Air Quality Standards
- ▲ CLEAN AIR ACT § 110
State Implementation Plans for National Ambient Air Quality Standards
- ▲ CLEAN AIR ACT § 111
Standards of Performance for New Stationary Sources
- ▲ CLEAN AIR ACT §§ 160-169B
Prevention of Significant Deterioration
- ▲ CLEAN AIR ACT §§ 171-193
Plans for Nonattainment Areas



Implementation

States must develop implementation plans to ensure that all areas of the state attain and maintain any new or revised NAAQS. Areas in which the NAAQS for a particular criteria pollutant is not being met are designated as nonattainment and require additional planning efforts to improve air quality. The Governor makes nonattainment designation recommendations and the EPA promulgates them. EPA classifies nonattainment areas as marginal, moderate, serious, severe, or extreme, based on the severity of the air pollution and the availability and feasibility of pollution control measures. For each nonattainment area, the affected states must develop plans to reduce pollutant levels in the air to achieve attainment with the NAAQS as expeditiously as possible.

Table A-1 List of Current National Ambient Air Quality Standards

POLLUTANT	PRIMARY/ SECONDARY	AVERAGING TIME	LEVEL	FORM
Carbon Monoxide (CO)	Primary	8-hour	9 parts per million	Not to be exceeded more than once per year
		1-hour	35 parts per million	
Lead	Primary and Secondary	Rolling 3-month average	0.15 micrograms per cubic meter	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1-hour	100 parts per billion	98th percentile, averaged over 3 years
	Primary and Secondary	Annual	53 parts per billion	
Ozone	Primary and Secondary	8-hour	70 parts per billion	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
	Primary	Annual	12 micrograms per cubic meter	
Fine Particulate Matter (PM _{2.5})	Secondary	Annual	15 micrograms per cubic meter	Annual mean, averaged over 3 years
	Primary and Secondary	24-hour	350 micrograms per cubic meter	
Coarse Particulate Matter (PM ₁₀)	Primary and Secondary	24-hour	150 micrograms per cubic meter	Not to be exceeded more than once per year on average over 3 years
	Primary	1-hour	75 parts per billion	
Sulfur Dioxide (SO ₂)	Primary	1-hour	75 parts per billion	99th percentile of 1-hour daily maximum concentration, averaged over 3 years
	Secondary	3-hour	0.5 parts per million	



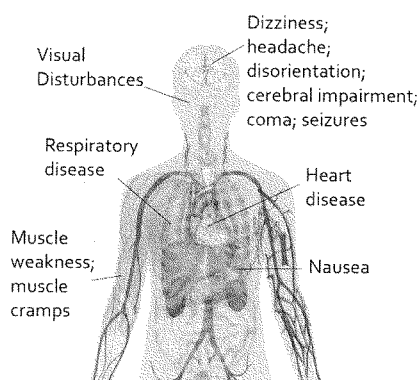
Carbon Monoxide (CO)

CO can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and other tissues. At extremely high levels, CO can cause death.

People with several types of heart disease already have a reduced capacity for pumping oxygenated blood to the heart, which can cause them to experience myocardial ischemia (reduced oxygen to the heart), often accompanied by chest pain (angina), when exercising or under increased stress. For these people, short-term CO exposure further exacerbates their body's already compromised ability to respond to the increased oxygen demands of exercise or exertion. The primary NAAQS is set to reduce the acute risks of exposure to carbon monoxide

CO is a colorless, odorless gas emitted from combustion processes. CO is primarily a byproduct of incomplete combustion of fuels such as gasoline, natural gas, oil, coal, and wood. CO emissions in Arkansas come primarily from fires, mobile sources, and biogenic sources.¹ Smaller contributions come from industrial processes, fuel combustion, solvents, and other miscellaneous sources.

Symptoms of Carbon Monoxide Exposure



SOURCES OF EMISSIONS

- ▲ VEHICLES
- ▲ FIRE
- ▲ POWER PLANTS
- ▲ INDUSTRY
- ▲ FOSSIL FUEL COMBUSTION

¹ Source: 2014 National Emissions Inventory version 1



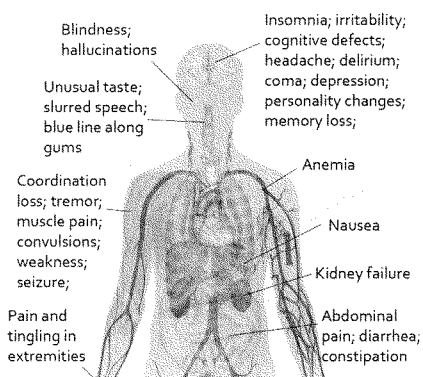
Lead

Exposures to lead over a long period of time can cause deleterious effects on the central nervous system. Lead exposure is particularly harmful to children because exposure may lead to neurodevelopmental impairment resulting in lowered intelligence quotients (IQ) and behavioral problems. According to the Centers for Disease Control, harmful effects may also result from short-term exposures to very high levels of lead. The NAAQS is set at this level to reduce the risk of long-term health effects due to lead exposure.

Lead is a naturally occurring element that can be found in the air, water, and soil. Although small levels of lead are naturally occurring in soil, lead is also emitted into the air during ore and metals processing and combustion of fuels containing lead.

In Arkansas, sixty-six percent of lead emissions come from aircraft running on leaded fuel. The remaining thirty-four percent of lead emissions primarily come from the industrial and electricity sectors. Lead emitted into the air can settle onto surfaces like soil, dust and water where it can remain for long periods because it does not decay or decompose.

Symptoms of Lead Exposure



SOURCES OF EMISSIONS

- ▲ AIRPORTS
- ▲ VEHICLES BURNING LEADED FUELS
- ▲ ORE AND METALS PROCESSING
- ▲ WASTE INCINERATORS
- ▲ POWER PLANTS
- ▲ LEAD-ACID BATTERY MANUFACTURERS
- ▲ LEAD SMELTERS



Ozone

At ground level, ozone is unhealthy to breathe and can trigger various respiratory and cardiovascular health problems. In setting the level of the ozone standard, EPA considers various clinical and epidemiological studies to evaluate what level, averaging time, and form of the standard would be protective of human health and public welfare. The primary NAAQS is set to reduce the risk of acute and chronic health effects due to ozone exposure.

Ozone is ubiquitous in the natural environment. Ozone is formed by photochemical reactions involving nitrogen oxides (NO_x), volatile organic compounds (VOCs), and sunlight. The formation of ozone is highly weather dependent, and ozone can be transported long distances by wind.

VOCs can be emitted from both biogenic (naturally occurring in organisms) and anthropogenic (caused by people) sources. In Arkansas, approximately eighty-one percent of VOC emissions come from biogenic sources, particularly trees, and only ten percent of emissions come from sources regulated by State and federal air quality programs. NO_x is formed primarily by combustion of fossil fuels.

Symptoms of Ozone Exposure

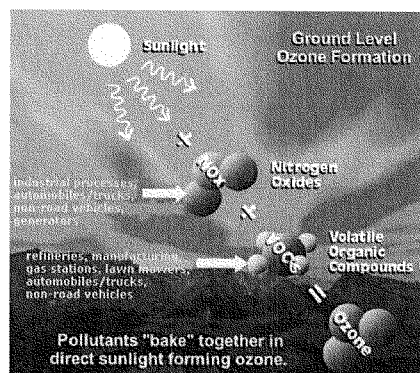
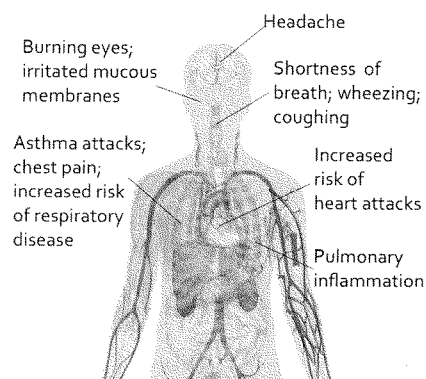


Image Credit: Harris County, Texas



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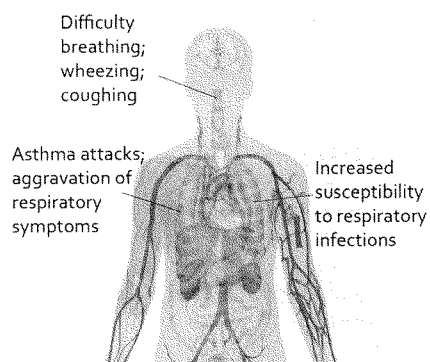
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Nitrogen Dioxide (NO₂)

NO₂ is one of a group of highly reactive gases known as "nitrogen oxides," or NO_x. Other nitrogen oxides include nitrous acid and nitric acid. EPA's NAAQS uses NO₂ as the indicator for the larger group of NO_x. Exposure to NO_x occurs through inhalation. Scientific studies link short-term NO_x exposures, ranging from thirty minutes to twenty-four hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing short-term elevated NO_x concentrations and increased visits to emergency departments and hospital admissions for respiratory issues. This is especially true for people with asthma. The primary NAAQS is set to reduce the risk of acute and chronic health effects due to exposure to NO_x.

NO_x forms quickly from emissions from cars, trucks, buses, power plants, and off-road equipment. NO_x may be transported for long distances and may react with other pollutants or water vapor to form secondary pollutants. NO_x emissions in Arkansas result primarily from mobile sources and fuel combustion. Smaller sources include biogenic sources, industrial processes, fires, solvents and other miscellaneous sources.

Symptoms of Nitrogen Dioxide Exposure



SOURCES OF EMISSIONS

- ▲ VEHICLES
- ▲ POWER PLANTS
- ▲ OFF-ROAD EQUIPMENT
- ▲ INDUSTRY
- ▲ FIRES
- ▲ FOSSIL FUEL COMBUSTION



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Sulfur Dioxide (SO₂)

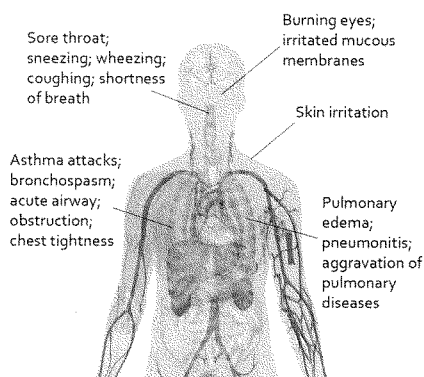
SO₂ is one of a group of highly reactive gases known as "oxides of sulfur." Current scientific evidence links short-term exposures to SO₂, ranging from five minutes to twenty-four hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (e.g., while exercising or playing). The primary NAAQS is set to reduce the risk of acute and chronic health effects due to exposure to SO₂.

While SO₂ tends not to be transported long distances in its original form, it does react with other pollutants and water vapor to form fine particulates and acidic aerosols that may be transported long distances. It also contributes to acid rain.

The largest sources of SO₂ emissions are from fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO₂ emissions include industrial processes, such as extracting metal from ore, and the burning of high sulfur-containing fuels by locomotives, large ships, and nonroad equipment.

SO₂ emissions in Arkansas result primarily from fuel combustion, with much smaller contributions from fires, industrial processes, mobile sources, solvents and other miscellaneous sources.

Symptoms of Sulfur Dioxide Exposure



SOURCES OF EMISSIONS

- ▲ INDUSTRY
- ▲ POWER PLANTS
- ▲ VEHICLES AND HEAVY EQUIPMENT THAT BURN HIGH SULFUR CONTENT FUELS
- ▲ VOLCANOES



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Particulate Matter (PM₁₀ and PM_{2.5})

There are two size fractions of particulate matter for which EPA sets NAAQS: PM₁₀ and PM_{2.5}. The primary NAAQS is set to reduce the risk of acute and chronic health effects due to exposure to particulate matter.

PM₁₀ particles are small enough to enter the respiratory tract once inhaled. Inhalation of PM₁₀ can increase the frequency and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Certain populations may be more sensitive to the effects of particulate pollution than others. These include children, the elderly, exercising adults, and those with pre-existing lung diseases.

PM_{2.5} particles are microscopic solids and liquid droplets that are small enough to penetrate deep into the lungs when inhaled. Scientific studies have linked PM_{2.5} exposure to a number of adverse health effects. These effects include the following: premature death in people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; aggravated asthma; decreased lung function; and increased respiratory symptoms, such as irritation of airways, coughing, and difficulty breathing.

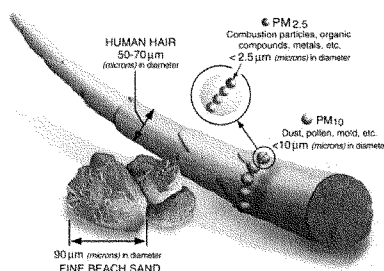


Image Credit: United States Environmental Protection Agency

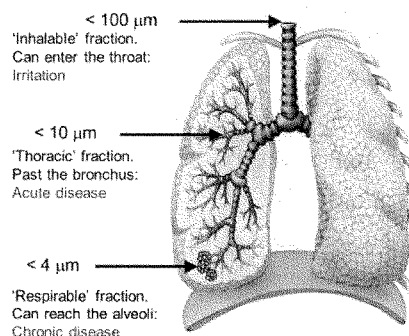


Image Credit: United States Geological Survey



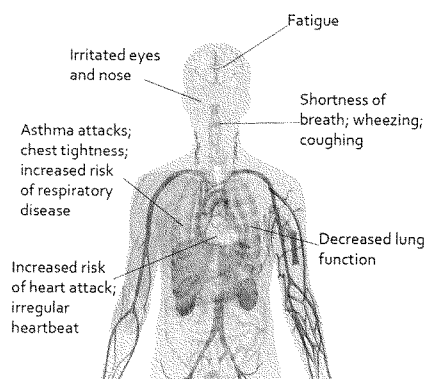
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PM₁₀ and PM_{2.5} fractions of particulate matter have different physical characteristics and are emitted by different sources. PM₁₀ particles originate from a variety of mobile and stationary sources, and their chemical composition varies widely. Actions that generate PM₁₀ particles include grinding or crushing operations, mineral processing, agricultural operations, fuel combustion, and fires. PM_{2.5} is emitted directly from diesel engines, smelters, and other combustion sources. PM_{2.5} can also form in the atmosphere due to complex reactions of precursor compounds, such as SO₂ and NO_x. PM_{2.5} may be composed of sulfate, nitrate, ammonium, and/or hydrogen ions. It may also contain elemental carbon, metal compounds, organic compounds, and particle-bound water.

PM₁₀ particles often settle in areas relatively near their sources. However, smaller PM_{2.5} particles may stay suspended in the atmosphere for long periods of time and may be transported hundreds of miles.

Symptoms of Particulate Exposure



SOURCES OF EMISSIONS

- ▲ FIRE
- ▲ POWER PLANTS
- ▲ INDUSTRY
- ▲ VEHICLES
- ▲ AGRICULTURE
- ▲ DUST



Appendix B Arkansas Air Quality Monitoring

Introduction

ADEQ has monitored air quality in the State of Arkansas for over thirty-five years. The Department's air monitoring network is composed of various types of intermittent and continuous monitors that are strategically located throughout the state. Using the high-quality information provided by the monitoring network, ADEQ can confirm that air quality programs in the state are adequately protecting public health and that environmental goals are being achieved.

Arkansas's ambient air quality monitoring network is used to determine attainment with the national ambient air quality standards (NAAQS) for the following criteria pollutants: ozone, particulate matter (PM_{2.5} and PM₁₀), carbon monoxide (CO), sulfur dioxide (SO₂), and nitrogen dioxide (NO₂). Attainment is determined based on a comparison of time-weighted averages (design values) to the level of the NAAQS.

There are also two particulate matter speciation monitors in Arkansas that are part of the IMPROVE network, which tracks visibility conditions in Class I national parks and wilderness areas. In Arkansas, IMPROVE monitors are located in the Upper Buffalo Wilderness Area and the Caney Creek Wilderness Area.

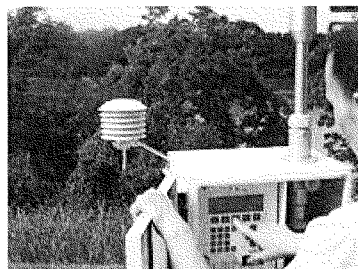


Table B-1 Pollutants Monitored by Arkansas Ambient Air Quality Network

POLLUTANT	NUMBER OF MONITORS	LOCATIONS
Ozone	8	Clark County
		Crittenden County
		Newton County
		Polk County
		Pulaski County ²
PM ₁₀	3	Washington County ³
		Pulaski County
		Washington County
		Arkansas County
		Ashley County
PM _{2.5}	12	Crittenden County
		Garland County
		Jackson County
		Polk County
		Pulaski County
CO	1	Union County
		Washington County
NO ₂	2	Pulaski County
		Crittenden County
SO ₂	1	Pulaski County

² Pulaski County contains two monitors for Ozone, three for PM_{2.5}, and three for PM₁₀.

³ Washington County contains two monitors for Ozone.



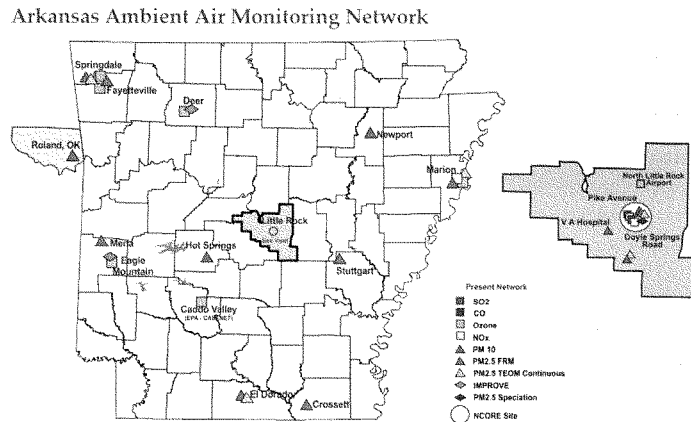
Arkansas Ambient Air Quality Network

Determining Locations for Ambient Air Monitors

Ambient air monitoring networks are established according to federal requirements based on total population in a metropolitan statistical area and the following factors:

1. Where the highest concentration is expected to occur in the area covered by the monitor (usually determined through modeling);
2. What the expected representative concentrations are in areas of high population density;
3. What impacts on ambient pollution levels significant sources or source categories may have; and
4. What the background concentration levels are.

Arkansas's Ambient Air Monitoring Network is pictured below.



Periodic Review of Monitoring Network

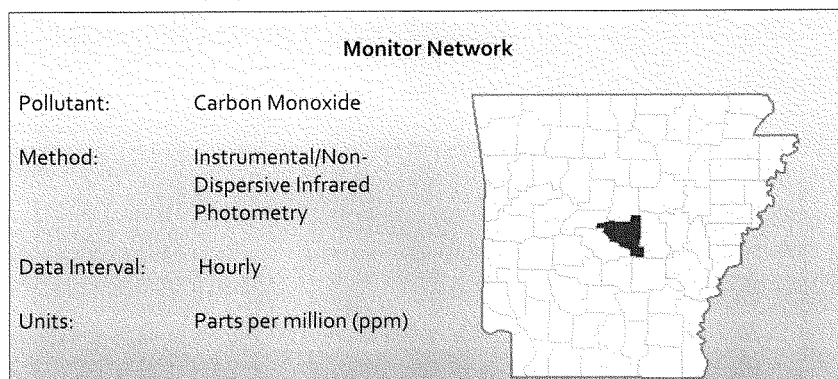
ADEQ reviews the Arkansas Ambient Air Monitoring Network each year to detail the exact expected operation schedule for each monitor for the coming calendar year. The network is evaluated every five years to determine whether the current number and location of monitors meets ADEQ's environmental monitoring objectives and satisfies federal monitoring requirements for each pollutant.



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Carbon Monoxide (CO)



Arkansas is in attainment with the primary one-hour and primary eight-hour NAAQS for CO. This attainment status is based on results from the Arkansas CO ambient air monitoring network. No more than one observed ("Obs") average value can exceed the level of the standard for each CO NAAQS. Table B-2 provides a summary of CO monitor activity for 2017. Figures B-1 and B-2 illustrate trends relative to the corresponding NAAQS.

NAAQS DESIGN VALUE

▲ ONE-HOUR PRIMARY NAAQS

Thirty-five parts per million (35 ppm), not to be exceeded more than once per year

▲ EIGHT-HOUR PRIMARY NAAQS

Nine parts per million (ppm), not to be exceeded more than once per year

▲ THERE ARE NO SECONDARY CO NAAQS

Table B-2 2017 Arkansas CO Monitor Values Summary Data

COUNTY	SITE ADDRESS	#OBS	EIGHT-HOUR AVERAGES (ppm)			ONE-HOUR AVERAGES (ppm)		
			1st Max	2nd Max	Obs > 9	1st Max	2nd Max	Obs > 35
Pulaski	Pike Ave at River Road, North Little Rock	8707	1.6	1.5	0	1.7	1.7	0



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The values contained in the figures below are displayed to the right of the figure along with the slope and R^2 value. The closer the R^2 value is to one, the more confidence we have in the slope's indication of a positive or negative trend.

Figure B-1 Trends in Second Highest Observed One-Hour Average CO Concentration

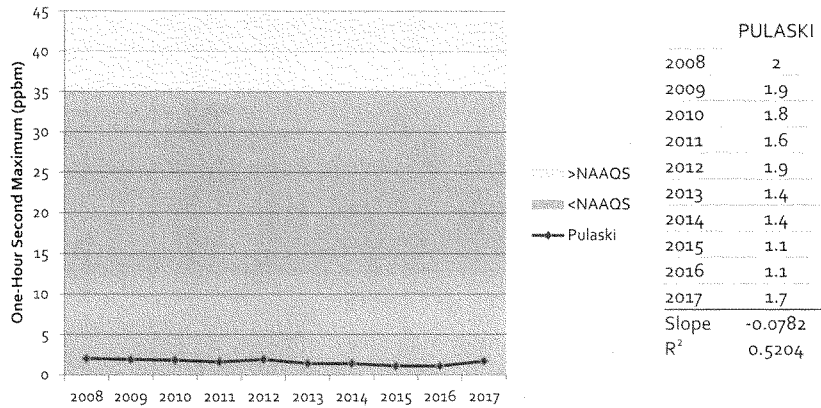
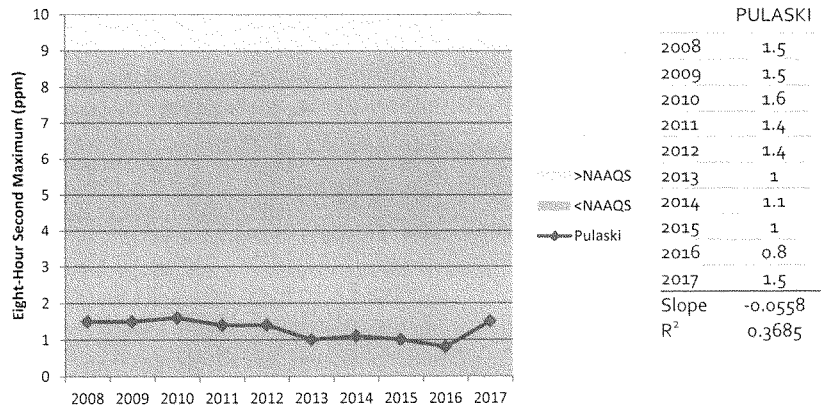
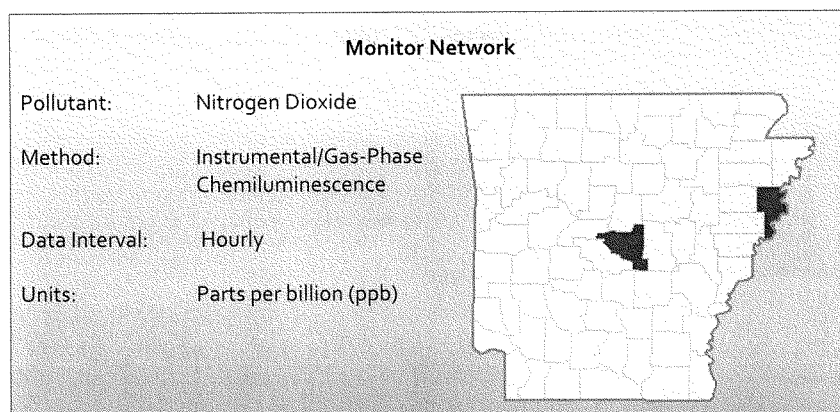


Figure B-2 Trends in Second Highest Observed Eight-Hour Average CO Concentration



Nitrogen Dioxide (NO₂)

Arkansas is in attainment with all NO₂ NAAQS. This attainment status is based on results from the Arkansas NO₂ ambient air monitoring network. Table B-3 provides a summary of NO₂ monitor activity for 2017. Figures B-3 and B-4 illustrate trends over the past ten years in nitrogen dioxide design values relative to the corresponding NAAQS.

NAAQS DESIGN VALUE

- ▲ **ONE-HOUR PRIMARY NAAQS**
One-hundred parts per billion (100 ppb), ninety-eighth percentile of one-hour daily maximum concentrations averaged over three years
- ▲ **ANNUAL PRIMARY AND SECONDARY NAAQS**
Fifty-three parts per billion (53 ppb), annual mean

Table B-3 2017 Arkansas NO₂ Monitor Values Summary Data

COUNTY	SITE ADDRESS	#OBS	98 TH PERCENTILE ONE-HOUR AVERAGE (ppb)	ANNUAL MEAN (ppb)
Pulaski	Pike Ave at River Road, North Little Rock	8695	39	7.6
Crittenden	Lh Polk and Colonial Drive, Marion	8640	37	7.1



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Figure B-3 Trends in Annual-Hour Nitrogen Dioxide Design Values

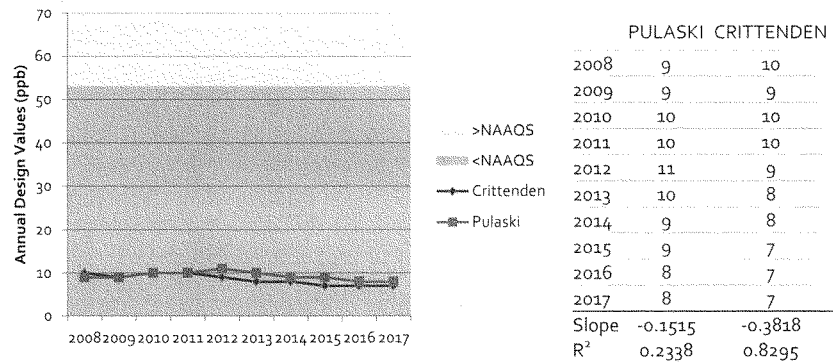
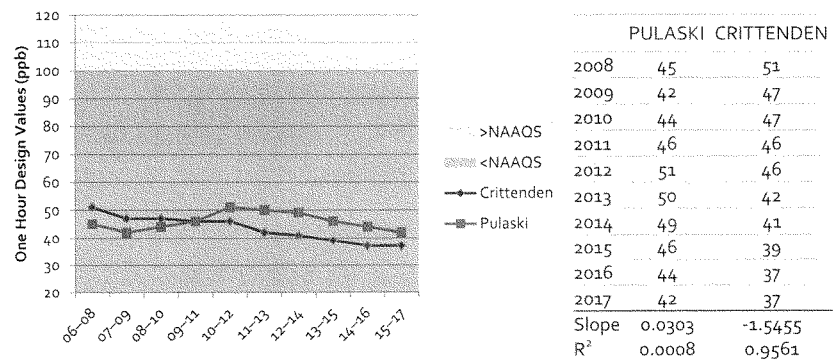
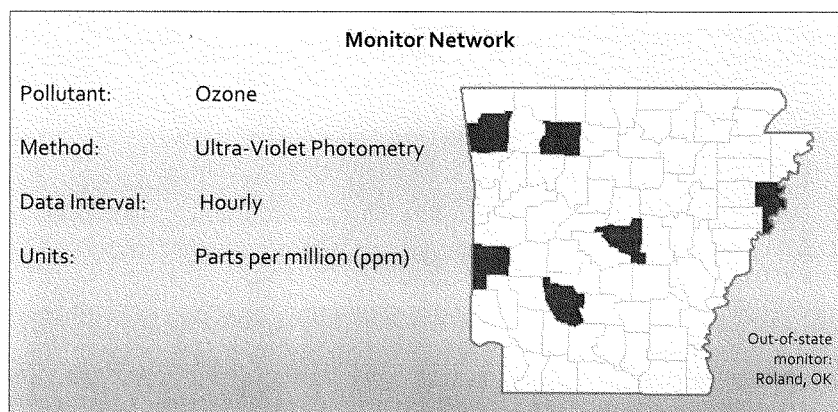


Figure B-4 Trends in One-Hour Nitrogen Dioxide Design Values



Ozone



Arkansas is in attainment with the ozone NAAQS. This attainment status is based on results from the Arkansas ozone ambient air monitoring network. Table B-4 provides a summary of ozone monitor activity for 2017. Figure B-5 illustrates trends over the past ten years in ozone design values relative to the NAAQS in effect for that year.

NAAQS DESIGN VALUE

▲ EIGHT-HOUR PRIMARY AND SECONDARY NAAQS

Seventy parts per billion (70 ppb or 0.070 ppm), annual fourth-highest daily maximum eight-hour concentration averaged over three years

Table B-4 2017 Arkansas Ozone Monitor Values Summary Data

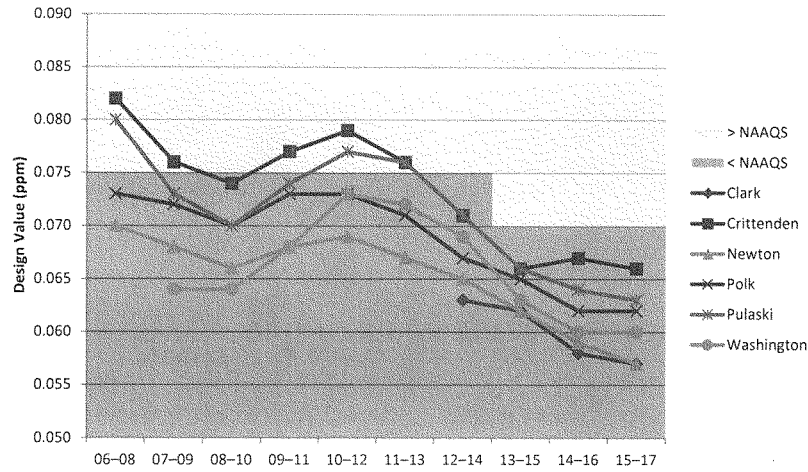
COUNTY	SITE ADDRESS	VALID DAYS	DAILY MAXIMUM EIGHT-HOUR AVERAGE (ppm)	
			4 th MAX	OBS > 0.070
Clark	Lower Lake Recreation Area, Caddo Valley	269	0.058	0
Crittenden	Lh Polk And Colonial Drive, Marion	275	0.064	1
Newton	Hwy 16	273	0.056	0
Polk	463 Polk 631, Mena	272	0.061	0
Pulaski	Pike Ave At River Road, North Little Rock	361	0.058	0
Pulaski	Remount Road, North Little Rock	272	0.062	1
Washington	600 South Old Missouri Road, Springdale	275	0.061	0
Washington	429 Ernest Lancaster Dr., Fayetteville	274	0.058	0



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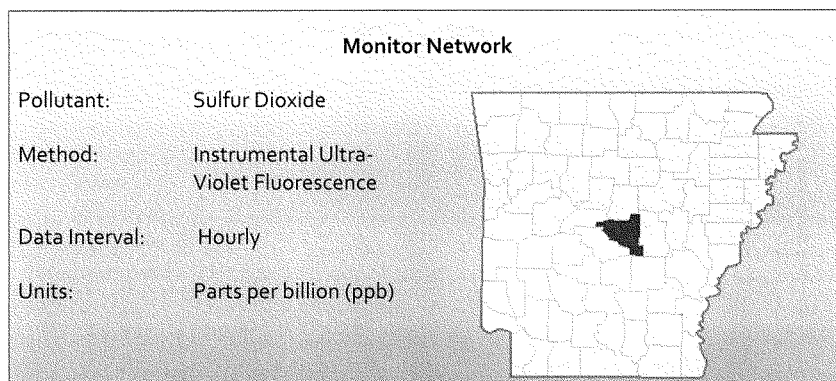
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Figure B-5 Trends in Eight-Hour Ozone Design Values



COUNTY	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16	SLOPE	R ²
Clark							0.063	0.062	0.058	0.057	-0.0022	0.9308
Crittenden	0.082	0.076	0.074	0.077	0.079	0.076	0.071	0.066	0.067	0.066	-0.0016	0.7547
Newton	0.07	0.068	0.066	0.068	0.069	0.067	0.065	0.062	0.059	0.057	-0.0013	0.7803
Polk	0.073	0.072	0.07	0.073	0.073	0.071	0.067	0.065	0.062	0.062	-0.0013	0.7727
Pulaski	0.08	0.073	0.07	0.074	0.077	0.076	0.071	0.066	0.064	0.063	-0.0015	0.6272
Washington		0.064	0.064	0.068	0.073	0.072	0.069	0.063	0.06	0.06	-0.0007	0.1573



Sulfur Dioxide (SO₂)

All areas of Arkansas are designated attainment, attainment/unclassifiable, or unclassifiable with all SO₂ NAAQS. There are no SO₂ nonattainment areas in Arkansas. Attainment status is based on results from the Arkansas SO₂ ambient air monitoring network described below and the SO₂ designations modeling. Table B-5 provides a summary of SO₂ monitor activity for 2017. Figure B-6 illustrates the trend over the past ten years in SO₂ design values relative to the primary NAAQS.

NAAQS DESIGN VALUE**▲ ONE-HOUR PRIMARY NAAQS**

Seventy-five parts per billion (75 ppb), ninety-ninth percentile of one-hour daily maximum concentrations averaged over three years

▲ THREE-HOUR SECONDARY NAAQS

One-half part per million (0.5 ppm or 500 ppb), not to be exceeded more than once per year

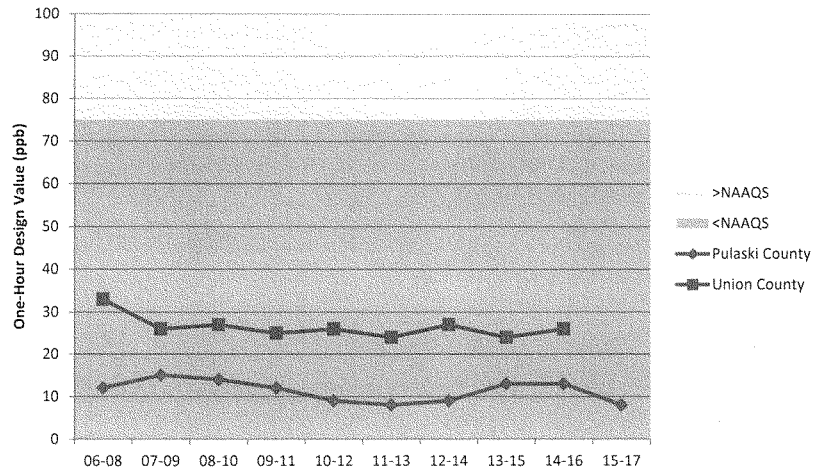
Table B-5 2017 Arkansas SO₂ Monitor Values Summary Data

COUNTY	SITE ADDRESS	ONE-HOUR	
		# obs	99 th Percentile (ppb)
Pulaski	Pike Ave at River Road, North Little Rock	8707	8



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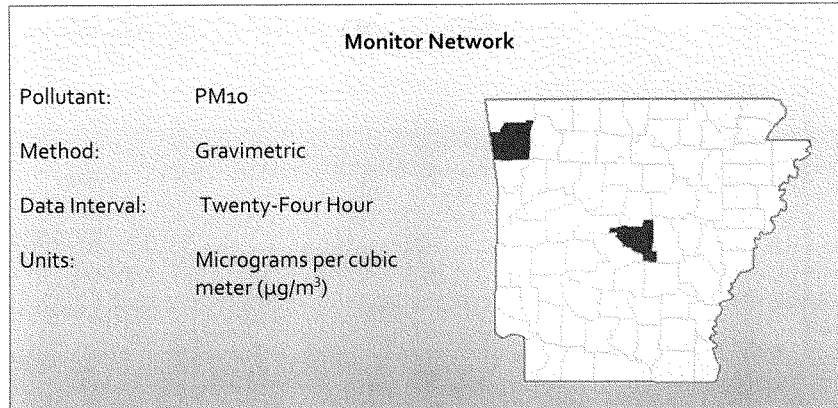
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Figure B-6 Trends in One-Hour SO₂ Design Values

COUNTY	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16	15-17	SLOPE	R ²
Pulaski	12	15	14	12	9	8	9	13	13	8	-0.3939	0.213
Union	33	26	27	25	26	24	27	24	26		-0.5833	0.3507



Coarse Particulate Matter (PM10)



Arkansas is in attainment with the PM₁₀ NAAQS. This attainment status is based on results from the Arkansas PM₁₀ ambient air monitoring network. Table B-6 provides a summary of PM₁₀ monitor activity for 2017. Figure B-7 illustrates trends over the past ten years in maximum PM₁₀ twenty-four hour concentrations relative to the PM₁₀ NAAQS.

NAAQS DESIGN VALUE

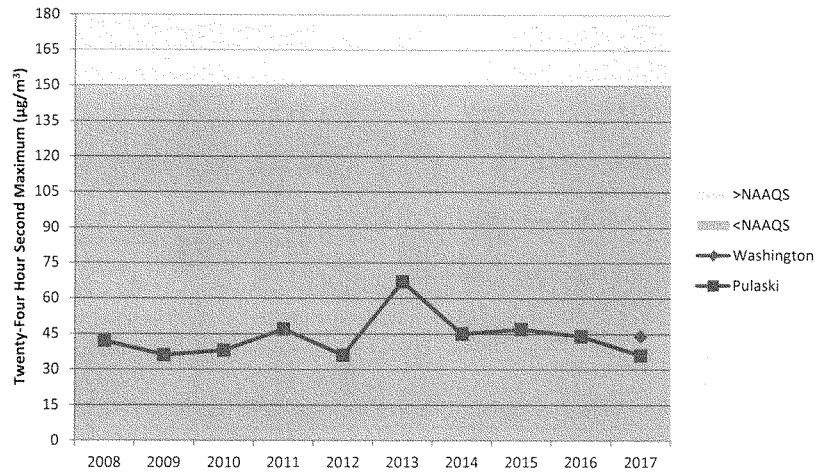
▲ TWENTY-FOUR HOUR PRIMARY AND SECONDARY NAAQS

One-hundred fifty micrograms per cubic meter ($150 \mu\text{g}/\text{m}^3$), not to be exceeded more than once per year on average over three years

Table B-6 2017 Arkansas Ozone Monitor Values Summary Data

COUNTY	SITE ADDRESS	VALID DAYS	DAILY MAXIMUM AVERAGE ($\mu\text{G}/\text{M}^3$)	
			1ST MAX	2ND MAX
Pulaski	Pike Ave At River Road, North Little Rock	61	37	36
Pulaski	Pike Ave At River Road, North Little Rock	29	29	28
Pulaski	Remount Road, North Little Rock	61	36	31

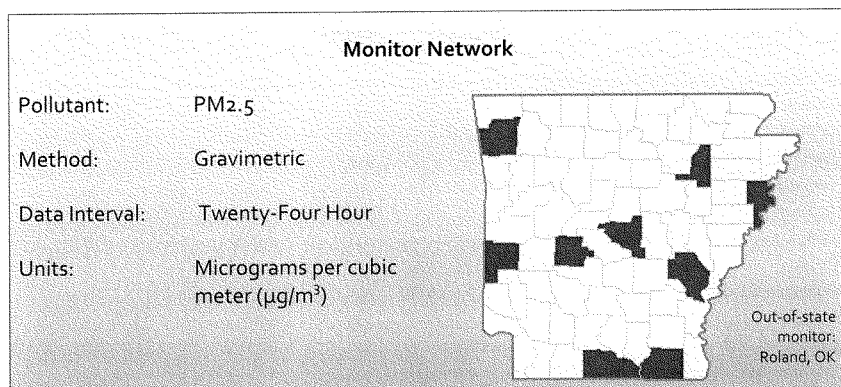


Figure B-7 Trends in Twenty-Four-Hour Maximum PM₁₀ Concentrations

COUNTY	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	SLOPE	R ²
Pulaski	42	36	38	47	36	67	45	47	44	36	0.4364	0.0202
Washington										44	NA*	NA*

The monitor installed in Washington County is new. Because there are not at least three data points, ADEQ did not perform a trends analysis for this monitor.



Fine Particulate Matter (PM_{2.5})

Arkansas is in attainment with all PM_{2.5} NAAQS. This attainment status is based on results from the Arkansas PM_{2.5} ambient air monitoring network. Table B-7 provides a summary of PM_{2.5} monitor activity for 2017. Figures B-8 and B-9 illustrate trends over the past ten years in PM_{2.5} design values relative to the corresponding, concurrent primary NAAQS.

NAAQS DESIGN VALUE

▲ **ANNUAL PRIMARY AND NAAQS**
Twelve micrograms per cubic meter (12 µg/m³), annual mean averaged over three years

▲ **ANNUAL SECONDARY NAAQS**
Fifteen micrograms per cubic meter (15 µg/m³), annual mean averaged over three years

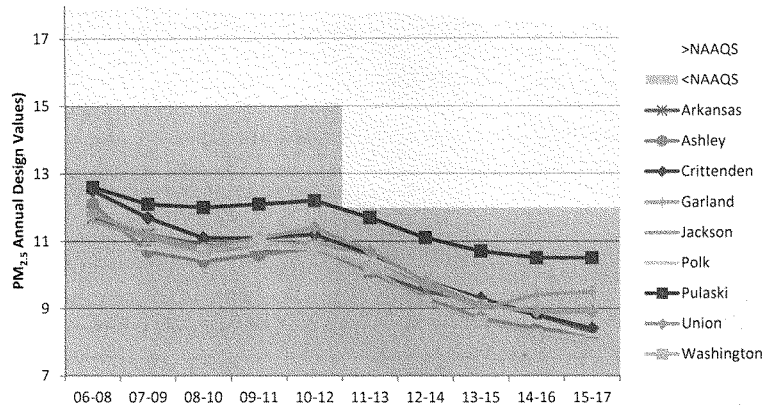
▲ **TWENTY-FOUR HOUR PRIMARY AND SECONDARY NAAQS**
Thirty-five micrograms per cubic meter (35 µg/m³), ninety-eighth percentile, averaged over three years



Table B-7 2017 Arkansas PM_{2.5} Monitor Values Summary Data

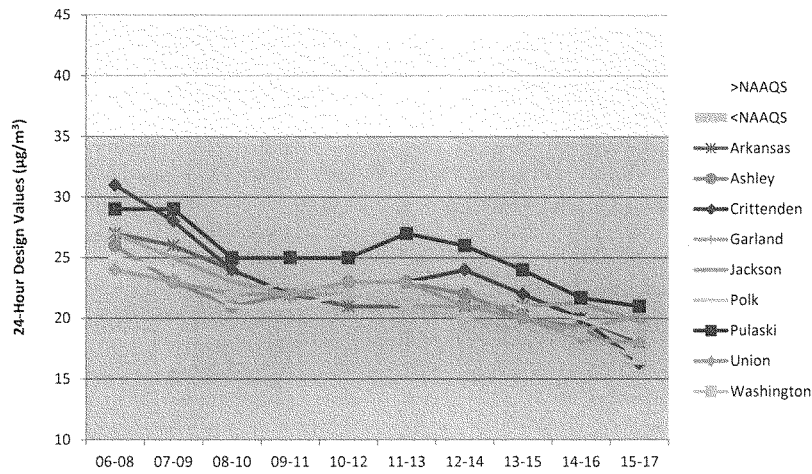
COUNTY	SITE ADDRESS	# OBS	TWENTY-FOUR-HOUR	ANNUAL MEAN ($\mu\text{g}/\text{m}^3$)
			98TH PERCENTILE ($\mu\text{g}/\text{m}^3$)	
Arkansas	1703 N Beurkle - Hwy 63, Stuttgart	113	16	7.7
Ashley	1015 Unity Road, Crossett	121	14	8.2
Crittenden	Lh Polk And Colonial Drive, Marion	122	14	8.0
Garland	300 Werner St., Hot Springs	121	17	8.4
Garland	300 Werner St., Hot Springs	29	21	8.8
Jackson	7648 Victory Blvd, Newport	122	18	8.1
Polk	Hornbeck Road, Mena	121	17	8.1
Pulaski	Pike Ave At River Road, North Little Rock	361	18	9.2
Pulaski	Pike Ave At River Road, North Little Rock	30	22	9.9
Pulaski	Doyle Springs Road, Little Rock	121	21	9.6
Union	Union Memorial Hospital, El Dorado	121	18	8.9
Washington	600 South Old Missouri Road, Springdale	121	15	7.8



Figure B-8 Trends in Annual PM_{2.5} Design Values

COUNTY	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16	15-17	SLOPE	R ²
Arkansas	11.7	11.2	10.9	10.7	10.8	10.1	9.5	9.2	8.8	8.3	-0.365	0.967
Ashley	12.1	10.7	10.4	10.6	10.8	10.1	9.3	8.7	8.4	8.2	-0.390	0.895
Crittenden	12.5	11.7	11.1	11.1	11.2	10.6	9.8	9.3	8.8	8.4	-0.429	0.955
Garland	11.6	11.1	10.7	10.8	11	10.5	9.7	9	9.4	9.5	-0.261	0.833
Jackson		10.8	10.5	10.8	10.8	10.5	9.8	9.2	8.6	8.2	-0.338	0.835
Polk		10.8	10.5	10.8	10.8	10.5	9.8	9.2	8.6	8.2	-0.338	0.835
Pulaski	12.6	12.1	12	12.1	12.2	11.7	11.1	10.7	10.5	10.5	-0.243	0.888
Union	11.8	11.2	10.8	11.1	11.4	10.7	9.8	9.1	8.9	8.9	-0.335	0.852
Washington			10.7	11	10.8	10.2	9.2	8.6	8.2	7.9	-0.491	0.921



Figure B-9 Trends in Twenty-Four Hour PM_{2.5} Design Values

COUNTY	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16	15-17	SLOPE	R ²
Arkansas	27	26	24	22	21	21	21	21	20.0	18.0	-0.855	0.874
Ashley	26	23	21	22	23	23	22	20	19.3	16.3	-0.716	0.685
Crittenden	31	28	24	22	23	23	24	22	20.0	16.3	-1.166	0.769
Garland	25	24	21	21	22	21	21	20	19.0	20.3	-0.505	0.709
Jackson	27	25	23	22	22	21	21	21	21.3	19.7	-0.64	0.788
Polk	25	24	21	21	22	23	23	21	20.0	18.3	-0.493	0.566
Pulaski	29	29	25	25	25	27	26	24	21.7	21.0	-0.746	0.716
Union	24	23	22	22	23	23	21	20	18.3	18.0	-0.606	0.787
Washington			22	23	22	21	20	19	18.7	16.7	-0.817	0.908

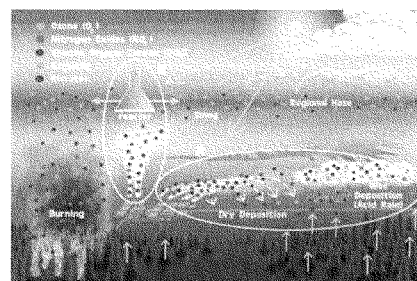
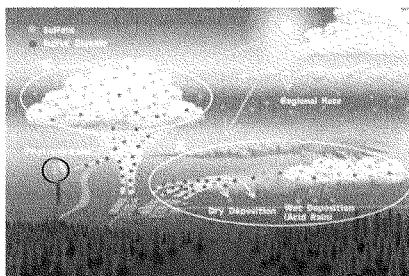


Visibility Conditions Monitoring in Protected Areas

Regional Haze

The Clean Air Act mandates that the states and federal partners work to restore pristine visibility conditions in designated Class I areas and prevent future visibility impairment. There are 156 Class I areas, which include national parks, wildlife refuges, and wilderness areas. States, EPA, and federal land managers are charged to work together to monitor and address visibility impairment from anthropogenic sources.

The Regional Haze Program was established by EPA pursuant to this Clean Air Act mandate. Under the Regional Haze Regulations, states must develop plans covering ten year periods with the goal of achieving natural visibility conditions at designated Class I areas by 2064.

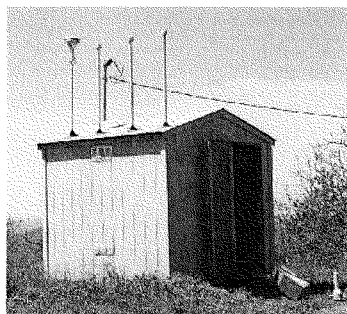


National Park Service (1999) "Introduction to Visibility"

Interagency Monitoring of Protected Visual Environments Monitoring Network

The IMPROVE network is a long-term monitoring program that tracks changes in visibility. The IMPROVE monitors are capable of speciation of haze-causing pollutants so that the causal mechanism of visibility impairment in each Class I area can be determined.

There are two IMPROVE monitors in Arkansas: one near the Caney Creek Wilderness Area and the other in the Upper Buffalo Wilderness Area.



Forest Service Caney Creek IMPROVE monitor (CACR1)



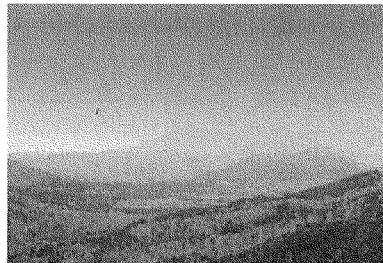
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Caney Creek Wilderness Area



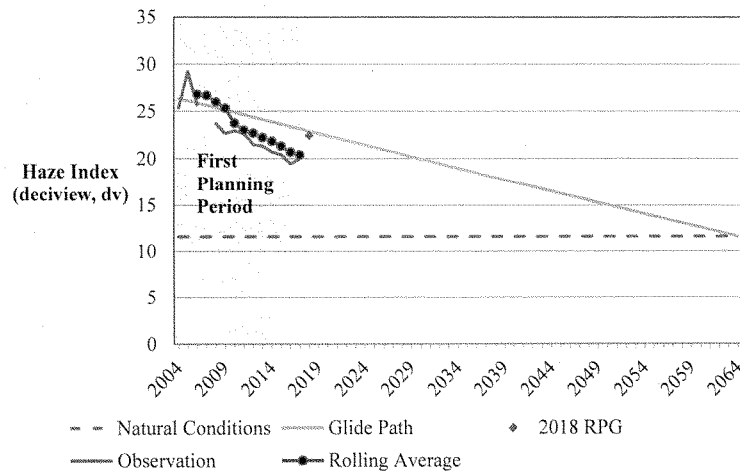
Caney Creek – Twenty Percent Hazeiest Days Natural Conditions Winhaze Visual Air Quality Modeler Model Image



Caney Creek – Twenty Percent Hazeiest Days 2002 Winhaze Visual Air Quality Modeler Model Image

Visibility in Caney Creek is improving at a faster rate than would be necessary to achieve the goal of natural visibility conditions by 2064 and is on track to beat visibility goals established in Arkansas's Regional Haze plans. This is indicated by the reduction in haze index values (deciviews) on the twenty percent hazeiest days.

Figure B-10 Visibility Improvement Trends on Twenty Percent Hazeiest Days at Caney Creek Wilderness Area



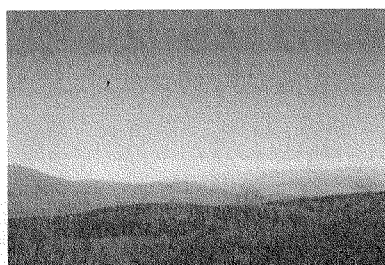
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Upper Buffalo Wilderness Area



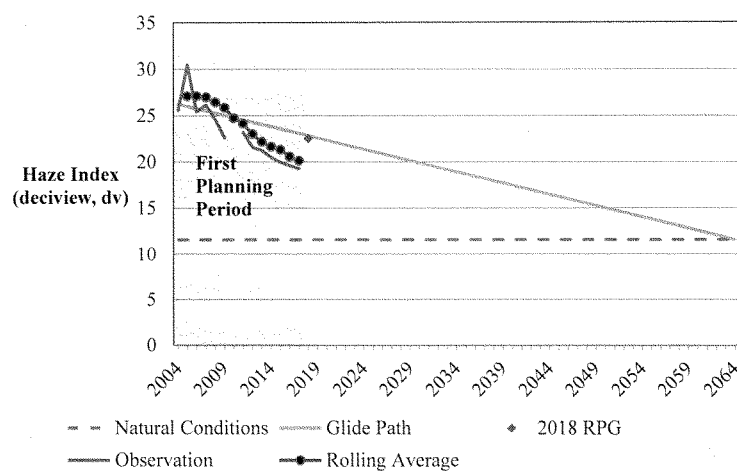
Upper Buffalo – Twenty Percent Hazeiest Days Natural Conditions Winhaze Visual Air Quality Modeler Model Image



Upper Buffalo – Twenty Percent Hazeiest Days 2002 Winhaze Visual Air Quality Modeler Model Image

Visibility in Upper Buffalo is improving at a faster rate than would be necessary to achieve the goal of natural visibility conditions by 2064 and is on track to beat visibility goals established in Arkansas's Regional Haze plans. This is indicated by the reduction in haze index values (deciviews) on the twenty percent hazeiest days.

Figure B-11 Visibility Improvement Trends on Twenty Percent Hazeiest Days at Upper Buffalo Wilderness Area



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Appendix C Emissions Inventory Trends

National Emissions Inventory

Every three years, the United States Environmental Protection Agency (EPA), in collaboration with the states, collects data on criteria pollutant emissions. EPA publishes the data in the National Emissions Inventory (NEI), which provides information about the estimated emissions of criteria pollutants and their precursors from various source categories. The Arkansas Department of Environmental Quality (ADEQ) provides EPA with emissions estimates reported by larger stationary sources for inclusion in the NEI. EPA estimates emissions from smaller stationary sources, nonpoint sources, biogenic sources, mobile sources, and event sources.

The nonpoint source category includes small stationary sources too small to report as point, as well as biogenic sources—vegetation and other natural sources of emissions. The mobile source category is split into two subcategories: onroad vehicles and nonroad vehicles. Wildfires and prescribed burns fall into the event category.

This Appendix presents trends in anthropogenic emissions for the three most recent NEI years: 2008, 2011, and 2014.

EMISSION SOURCE CATEGORY	EXAMPLES
Point	Larger Stationary Sources
Nonpoint	Residential heating, solvents, agriculture, road dust
Biogenic	Crops, lawns, trees, soils
Onroad	Passenger vehicles, trucks, buses
Nonroad	Aircraft, locomotive, marine vessels
Event	Wildfires, prescribed burns

ANTHROPOGENIC VS NATURAL EMISSIONS

▲ ANTHROPOGENIC SOURCE EMISSIONS

All point sources, nonroad sources, and onroad sources are anthropogenic sources of emissions. Most nonpoint sources, with the exception of biogenic sources, are considered anthropogenic sources.

▲ NATURAL SOURCE EMISSIONS

All biogenic sources are natural sources of emissions. Event sources—such as volcanic emissions, dust storms, and wild-fires—are also natural emissions sources. There is some disagreement as to whether prescribed burns should be considered anthropogenic. For this trends analysis, all event sources are considered natural.



Trends in Anthropogenic Nitrogen Oxides Emissions

Nitrogen oxides (NO_x) are precursors for multiple criteria pollutants including ozone and fine particulate matter (PM_{2.5}). Approximately eighty-eight percent of total NO_x emissions in Arkansas come from anthropogenic sources.⁴ The primary anthropogenic contributors to NO_x emissions in Arkansas are mobile sources—particularly onroad vehicles—and point sources.

Overall, NO_x emissions from anthropogenic sources decreased by eight percent between 2008 and 2014.⁵ Onroad NO_x emissions decreased by approximately seventeen percent, nonroad NO_x emissions decreased by twenty-four percent, and point source NO_x emissions decreased by two percent between 2008 and 2014. Nonpoint source NO_x emissions increased by approximately eighteen percent between 2008 and 2014.

Figure C-1 2014 Relative Contribution of Anthropogenic NO_x Emissions in Arkansas by Source Category

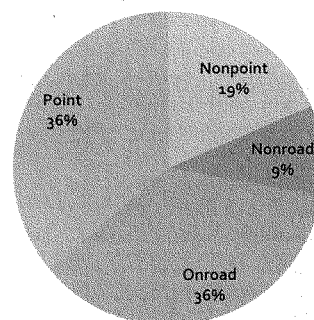
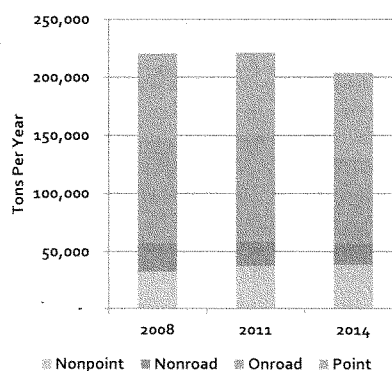


Figure C-2 Trends in Anthropogenic NO_x Emissions in Arkansas by Data Category



⁴ Source: 2014 National Emissions Inventory version 1

⁵ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1



Trends in Anthropogenic Volatile Organic Compound Emissions

Volatile organic compounds (VOCs) are precursors for ozone. Only ten percent of total VOC emissions in Arkansas come from anthropogenic sources.⁶ Emissions from nonpoint sources comprise the largest portion (fifty-three percent) of the Arkansas anthropogenic VOC emissions inventory.

Overall, VOC emissions from anthropogenic sources in Arkansas decreased by approximately twelve percent between 2008 and 2014.⁷ Emissions from nonpoint sources increased by six percent between 2008 and 2014. Emissions from nonroad, onroad, and point sources decreased during the same time period. The largest reduction (thirty-five percent) in emissions occurred in the on-road source category.

Figure C-3 2014 Relative Contribution of Anthropogenic VOC Emissions in Arkansas by Source Category

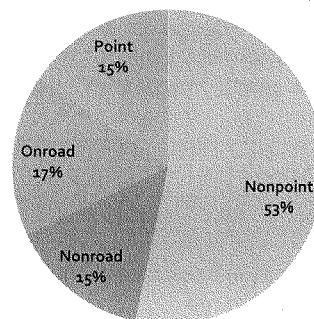
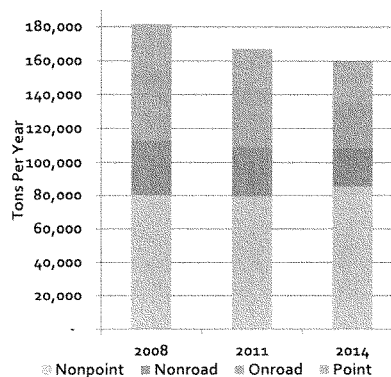


Figure C-4 Trends in Anthropogenic VOC Emissions in Arkansas by Data Category



⁶ Source: 2014 National Emissions Inventory version 1

⁷ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1



Trends in Anthropogenic Carbon Monoxide Emissions

Overall, CO emissions from anthropogenic sources decreased by thirty-five percent between 2008 and 2014.⁸ Onroad and nonroad CO emissions dropped sharply by approximately forty-five percent and thirty percent, respectively. Nonpoint CO emissions decreased by approximately thirteen percent between 2008 and 2014 and point CO emissions decreased by approximately eight percent.

Carbon monoxide (CO) is both a criteria pollutant and a precursor for ozone. Approximately forty-three percent of total Arkansas CO emissions come from anthropogenic sources.⁹ Emissions from onroad sources comprise the largest portion (forty-eight percent) of the Arkansas anthropogenic CO emissions inventory.

Figure C-5 2014 Relative Contribution of Anthropogenic CO Emissions in Arkansas by Source Category

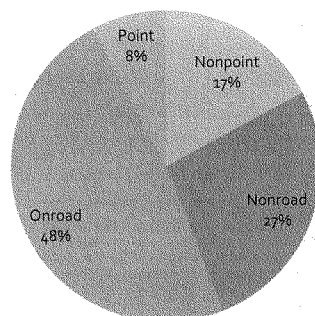
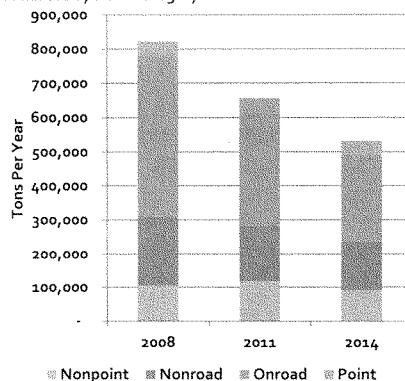


Figure C-6 Trends in Anthropogenic CO Emissions in Arkansas by Data Category



⁸ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1

⁹ Source: 2014 National Emissions Inventory version 1



Trends in Anthropogenic Sulfur Dioxide Emissions

Overall, SO₂ emissions from anthropogenic sources decreased by approximately three percent between 2008 and 2014. SO₂ emissions from point sources decreased by approximately two percent.¹⁰ SO₂ emissions from onroad sources decreased by fifty-six percent. SO₂ emissions from nonroad sources decreased by ninety-one percent. SO₂ emissions from nonpoint sources increased from 2008 to 2011, but decreased by thirty-nine percent between 2008 and 2014.

Sulfur dioxide (SO₂) is both a criteria pollutant and a precursor for fine particulate matter (PM_{2.5}). Virtually all SO₂ emissions come from anthropogenic sources.¹¹ Emissions from point sources comprise the largest portion (ninety-nine percent) of the Arkansas anthropogenic SO₂ emissions inventory.

Figure C-5 2014 Relative Contribution of Anthropogenic SO₂ Emissions in Arkansas by Source Category

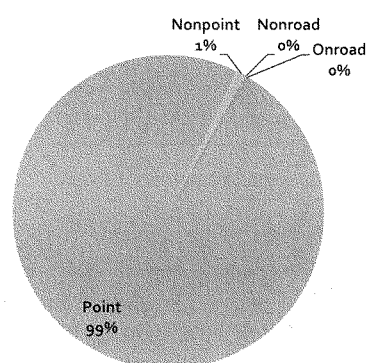
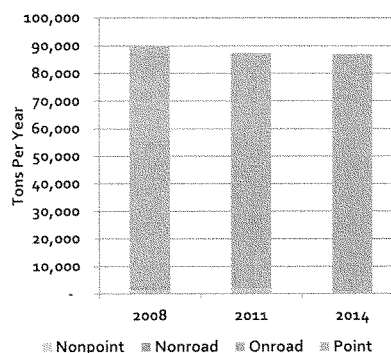


Figure C-6 Trends in Anthropogenic SO₂ Emissions in Arkansas by Data Category



¹⁰ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1

¹¹ Source: 2014 National Emissions Inventory version 1



Trends in Anthropogenic Coarse Particulate Matter Emissions

Coarse particulate matter (PM₁₀) is a criteria pollutant. Approximately ninety-one percent of Arkansas PM₁₀ emissions come from anthropogenic sources.¹² Emissions from nonpoint sources comprise the largest portion (ninety-seven percent) of the Arkansas anthropogenic PM₁₀ emissions inventory.

Overall, Arkansas experienced approximately a forty-one percent increase in PM₁₀ emissions from anthropogenic sources between 2008 and 2014.¹³ Emissions from point and nonroad source categories decreased. Nonpoint source emissions increased by forty-three percent and onroad emissions increased by twenty-six percent.

Figure C-7 2014 Relative Contribution of Anthropogenic PM₁₀ Emissions in Arkansas by Source Category

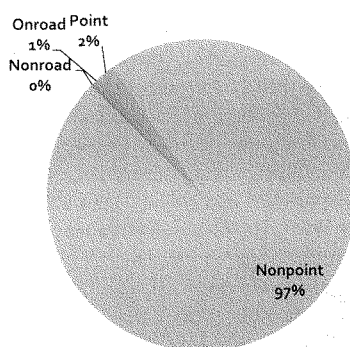
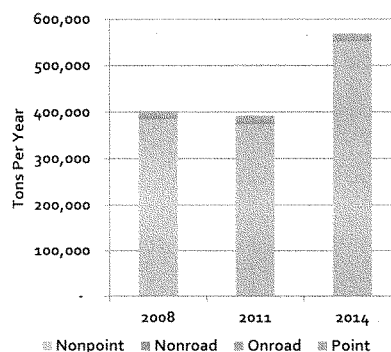


Figure C-8 Trends in Anthropogenic PM₁₀ Emissions in Arkansas by Data Category



¹² Source: 2014 National Emissions Inventory version 1

¹³ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1



Trends in Anthropogenic Primary Fine Particulate Matter Emissions

Primary fine particulate matter (primary $PM_{2.5}$) is the condensable and filterable fraction that is directly emitted from sources. Primary $PM_{2.5}$ does not include secondary $PM_{2.5}$ formed downwind by reactions between precursor pollutants, such as nitrogen oxides (NO_x), sulfur dioxide (SO_2), and ammonia (NH_3). Approximately sixty-nine percent of primary $PM_{2.5}$ emissions in Arkansas come from anthropogenic sources.¹⁴ Emissions from nonpoint sources comprise the largest portion of the Arkansas anthropogenic primary $PM_{2.5}$ emissions inventory.

Overall, primary $PM_{2.5}$ emissions increased between 2008 and 2014 as a result of an increase in emission estimates from the nonpoint source category and from two sectors not regulated by ADEQ or EPA: agriculture—crop and livestock dust—and unpaved road dust.¹⁵ Emissions from point, onroad, and nonroad source categories decreased.

Figure C-9 2014 Relative Contribution of Anthropogenic $PM_{2.5}$ Emissions in Arkansas by Data Category

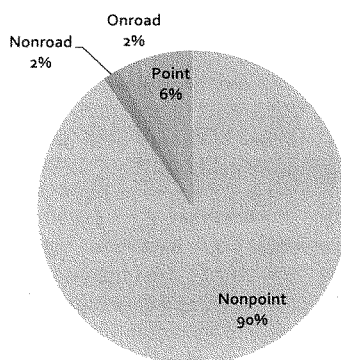
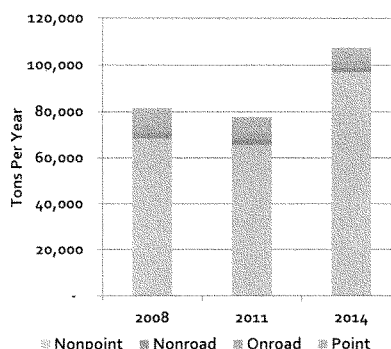


Figure C-10 Trends in Anthropogenic $PM_{2.5}$ Emissions in Arkansas by Source Category



¹⁴ Source: 2014 National Emissions Inventory version 1

¹⁵ Source: 2008 National Emissions Inventory version 3, 2011 National Emissions Inventory version 2, 2014 National Emissions Inventory version 1



Trends in Anthropogenic Ammonia Emissions

Ammonia (NH_3) is a precursor for fine particulate matter ($\text{PM}_{2.5}$). Approximately eighty-nine percent of NH_3 emissions in Arkansas come from anthropogenic sources.¹⁶ Emissions from nonpoint sources comprise the largest portion (ninety-six percent) of the Arkansas anthropogenic NH_3 emissions inventory from source categories regulated by state and federal air quality programs.¹⁷

Overall, NH_3 emissions from anthropogenic sources decreased by approximately thirty-nine percent between 2008 and 2014. The overall decrease in NH_3 emissions resulted from a forty percent decrease in nonpoint source NH_3 emissions between 2008 and 2014. Onroad sources of NH_3 emissions also decreased between 2008 and 2014. Nonroad and point source emissions increased between 2008 and 2014.

Figure C-11 2014 Relative Contribution of Anthropogenic $\text{PM}_{2.5}$ Emissions in Arkansas by Data Category

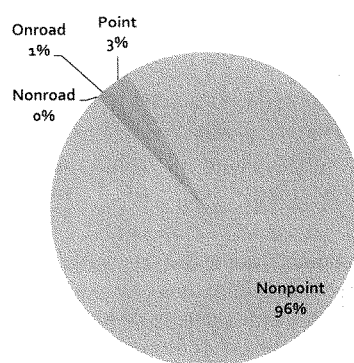
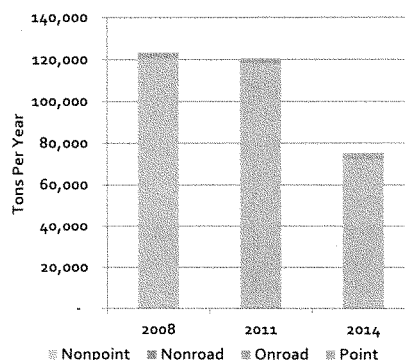


Figure C-12 Trends in Anthropogenic $\text{PM}_{2.5}$ Emissions in Arkansas by Data Category



¹⁶ 2014 National Emissions Inventory version 1

¹⁷ Id.



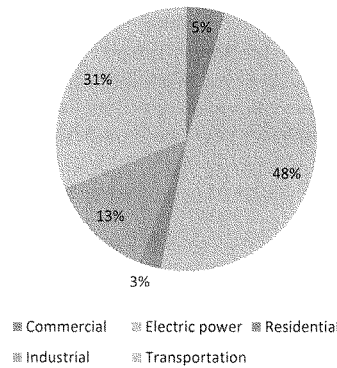
Carbon Dioxide Trends

Carbon dioxide (CO₂) accounts for 81.6% of all United States anthropogenic greenhouse gas emissions.¹⁸ Greenhouse gases trap heat in the atmosphere.

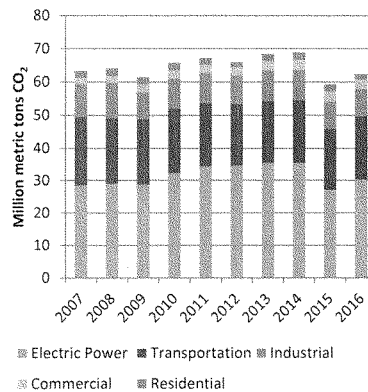
CO₂ is naturally present in the atmosphere, but is also emitted by human activities, including fossil fuel combustion, industrial processes, and land-use changes.

The United States Energy Information Administration (EIA) inventories energy-related CO₂ emissions. In Arkansas, the largest source of anthropogenic CO₂ emissions is the electric power sector followed by the transportation sector. Over the past decade CO₂ emissions from the electric power sector in Arkansas have increased reaching a peak of 35.5 million metric tons in 2014. Emissions from Arkansas's power sector declined in 2015, but began rebounding in 2016. CO₂ emissions from the transportation sector have decreased over the past decade. The industrial sector in Arkansas has also decreased its CO₂ emissions over the past decade. The residential sector and commercial sector make up a much smaller portion of the energy-related CO₂ emissions inventory in Arkansas.

C-13 Arkansas 2016 Relative Carbon Dioxide Emissions By Energy-Related Sector (EIA State Carbon Dioxide Emissions Data)



C-14 2007–2016 Trends in Energy-Related CO₂ Emissions in Arkansas (EIA State Carbon Dioxide Emissions Data)



¹⁸ EPA (2016). "Overview of Greenhouse Gases" < <https://www.epa.gov/ghgemissions/overview-greenhouse-gases> >



Appendix D 2018 Ozone Season Summary

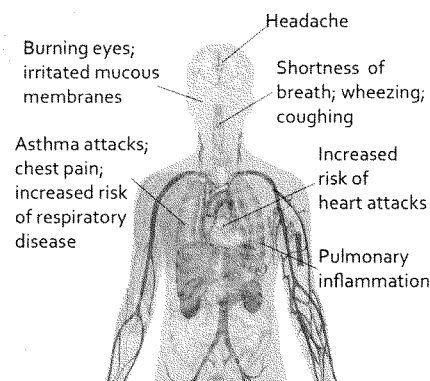
Introduction

Ozone is a gas that can be beneficial or harmful, depending on where it is found. In the stratosphere, ozone forms a protective layer that shields the planet from ultraviolet rays. At ground level, ozone is unhealthy to breathe and can trigger various respiratory and cardiovascular health problems. Ground level ozone also has negative impacts on vegetation and ecosystems.

Ground level ozone is produced via photochemical reactions involving nitrogen oxides (NO_x), volatile organic compounds (VOCs), and sunlight. Local meteorology—including temperature, wind speed and direction, humidity, solar radiation, and cloud cover—affects ozone formation.

The United States Environmental Protection Agency (EPA) has established a national ambient air quality standard (NAAQS) for ozone at a level of 70 ppb (0.070 ppm) to protect public health and welfare. The Arkansas Department of Environmental Quality (ADEQ) monitors air quality in Arkansas and implements a permitting program to ensure that sources of precursor compounds, such as NO_x and VOCs, do not interfere with attainment and maintenance of the ozone NAAQS.

Symptoms of Ozone Exposure



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Ozone Season

Between May 1 and September 30 each year, conditions are typically more conducive for ozone formation than at other times of the year. This period is known as ozone season.

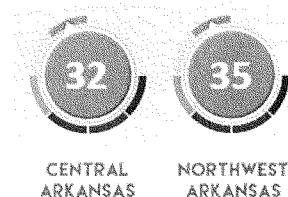
During the ozone season, ADEQ reports current air quality conditions and forecasts day-ahead air quality conditions for two major metropolitan areas in Arkansas: central Arkansas and northwest Arkansas. The Tennessee Department of Environment and Conservation reports and forecasts conditions in the Memphis metropolitan area, which includes West Memphis, Arkansas.

Current air quality conditions and forecasts are presented to the public in the form of the Air Quality Index (AQI). The AQI ranges from 0–500¹⁹ with an easy-to-recognize color system. The AQI colors are intended to help people to rapidly determine whether air pollutants are reaching unhealthy levels. Current and next-day AQI for central and northwest Arkansas are posted daily on ADEQ's website²⁰ and reported in the media. AQI for metropolitan areas throughout the nation are posted to EPA's Air Now webpage.²¹

Table D-1 AQI Breakdown for the 8-Hour Ozone NAAQS

INDEX VALUES	8-HOUR OZONE AVERAGE (ppm)	LEVELS OF HEALTH CONCERN
0–50	0.000–0.054	Good
51–100	0.055–0.070	Moderate
101–150	0.071–0.085	Unhealthy for Sensitive Groups
151–200	0.086–0.105	Unhealthy
201–300	0.106–0.200	Very Unhealthy

Daily Air Quality Indices (AQI)



D-2 Arkansas Yearly Highest Ozone AQI

AQI	DATE
122	6/6/2018
115	6/9/2017
100	6/9/2016
100	6/5/2015
100	7/22/2014

¹⁹ For the 8-hour ozone standard, AQI values above 300 are not calculated.

²⁰ www.adeq.state.ar.us

²¹ www.airnow.gov



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Ozone Action Days

Ozone Action Days is a central Arkansas program coordinated through Metroplan and the Central Arkansas Clean Cities Coalition in cooperation with the Arkansas Department of Health, ADEQ, and the Arkansas Department of Transportation.

There are two types of ozone action days:

Ozone Action Advisory—Code Orange

Declared when AQI forecast is code orange (AQI 101–150), indicating that prolonged outdoor exertion is **UNHEALTHY FOR SENSITIVE GROUPS**

Ozone Action Alert—Code Red

Declared when the AQI forecast is code red (AQI 151–200), indicating that prolonged exertion is **UNHEALTHY FOR EVERYONE**

ADEQ 2018 Ozone Forecasting Accuracy

Ozone concentrations are forecasted daily during the ozone season. The ADEQ air quality forecaster estimates ozone concentrations using meteorological data and recent pollutant concentrations.

During 2018, ADEQ correctly forecasted whether the next day would be an ozone action day (Code Orange or Code Red) ninety-eight percent of the time. ADEQ's accuracy for forecasting whether a day would be good (AQI in Green range) or Moderate (AQI in Yellow range) was seventy-six percent.

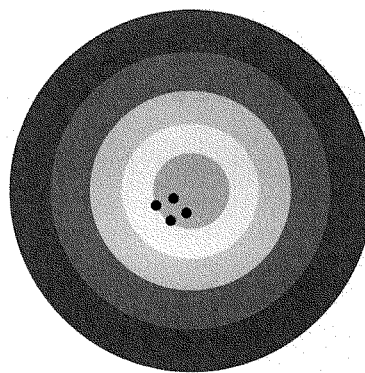
DOs AND DON'Ts FOR OZONE ACTION DAYS

▲ DOs

- Limit driving. Share a ride, carpool, walk, or ride the bus.
- Combine errands.
- Keep your car well-tuned.
- Avoid "jackrabbit" starts (forceful accelerations) or excessive idling.
- Stay indoors as much as possible.

▲ DON'Ts

- Don't do lawn and gardening chores that use gasoline powered equipment.
- Don't use oil-based paints and solvents.
- Don't use products that release fumes or evaporate easily.
- Don't refuel or if you must refuel, do so after dark and don't fill the tank completely.
- Don't exercise outdoors.



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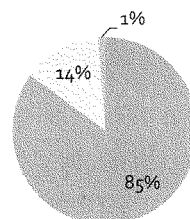
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Central Arkansas 2018 Ozone Season Overview

Two ozone monitors collect data to determine the air quality of Central Arkansas. Both are located in North Little Rock.

During ozone season 2018, there were only two **Code Orange** AQI days—June 5th and June 6th—in Central Arkansas based on monitor data. One-hundred thirty days were well below the ozone NAAQS (AQI 0–50, Green). Monitored values for twenty-one days in the 2018 ozone season fell in the AQI range of 51–100 (Yellow).

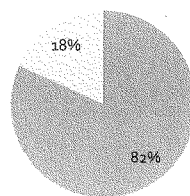
Figure D-1 Central Arkansas 2018 Ozone Season Monitored Days by AQI Color



Northwest Arkansas 2018 Ozone Season Overview

Two ozone monitors in Northwest Arkansas, one in Springdale and the other in Fayetteville collect ozone concentration data for northwest Arkansas. During ozone season 2018, there were no **Code Orange** AQI days, twenty-eight yellow days, and 125 green days based on monitor data.

Figure D-2 Northwest Arkansas 2018 Ozone Season Monitored Days by AQI Color

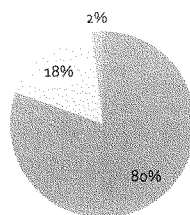


Marion 2018 Ozone Season Overview

There is one ozone monitor located in Marion, Arkansas, which is part of the Memphis metropolitan statistical area.

During the ozone season, Marion had three **Code Orange** AQI days, twenty-seven yellow days, and 123 green days based on monitor data.

Figure D-3 Marion 2018 Ozone Season Monitored Days by AQI Color



2018 Running Design Values

Compliance with the ozone NAAQS is determined based on design values for each monitor. The design value for ozone is the fourth highest eight-hour daily maximum averaged over three years. If the design value for an area is below the level of the NAAQS, the area is said to be in "attainment" with the NAAQS. If the design value is higher than the NAAQS, the area is designated as "nonattainment" and the State must enact emission reduction measures to bring the area back into attainment with the NAAQS. Most monitors are located in metropolitan statistical areas; however, Arkansas does have a few rural monitors to provide data on background conditions.

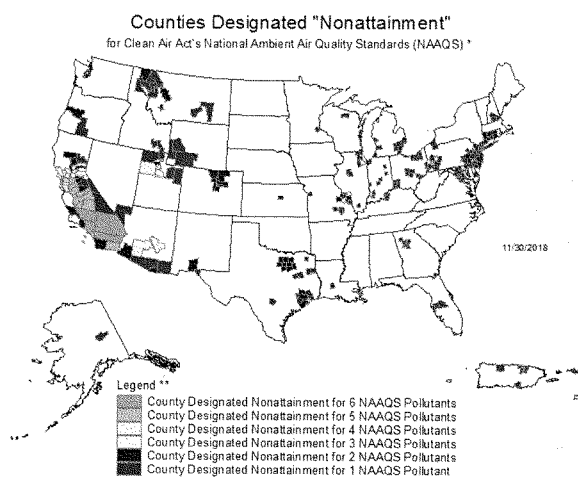
Table D-3 2016–2018 Running Ozone Design Values

MONITORING LOCATION	RUNNING DESIGN VALUE*
Little Rock/North Little Rock/Conway MSA	0.064 ppm
Memphis MSA	0.069 ppm
Fayetteville/Springdale/Rogers MSA	0.060 ppm
Deer	0.058 ppm
Eagle Mountain	0.061 ppm
Caddo Valley	0.058 ppm

*The ozone NAAQS is 0.070 ppm (70 ppb).

Arkansas Ozone Attainment Status

The entire state of Arkansas is in attainment for the 2015 ozone NAAQS and all other NAAQS.



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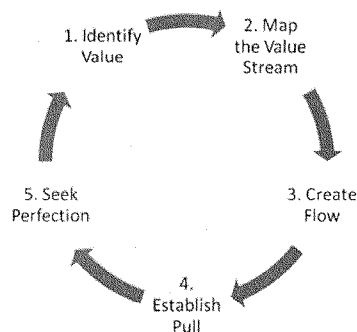
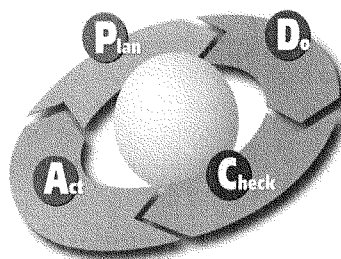
Appendix E Office of Air Quality Federal Fiscal Year 2018 Lean Events

What is a Lean Event?

The Arkansas Department of Environmental Quality (ADEQ) is working to achieve continuous improvement in our work to serve the citizens of Arkansas. As part of our continuous improvement efforts, ADEQ is implementing Lean Six Sigma concepts throughout the agency. Lean Six Sigma is a management practice first introduced in Japan that has been adopted across a broad spectrum of organizations. By implementing certain lean management principles, ADEQ is working to increase the quality of our work and reduce costs.

A lean event (also known as a "Kaizen event") is the beginning of a continuous cycle of planning, implementing, evaluating, and revising product work flows to reduce waste and rework while maintaining or improving product quality. During a lean event, a team creates a plan to improve the work flow for product development. This plan involves identifying the value of the product, evaluating the value of each step in producing the product, challenging the wasted steps, creating a work flow through value added steps, and establishing metrics to evaluate process changes.

The overall goal for ADEQ's lean efforts is to achieve continuous improvement in our mission to protect, enhance, and restore the natural environment for the well-being of all Arkansans by understanding those we serve and creating better, more efficient processes.



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Enforcement Lean Event

On March 22, 2018, ADEQ Office of Air Quality (OAQ) Enforcement staff held a lean event to evaluate improvements to the time it takes to process enforcement orders. This project was a follow-up to a previous multi-media enforcement lean event.

The purpose of this event was to set a new goal for processing enforcement orders by Air Enforcement. An Air-specific goal was necessary because Air Enforcement was already more efficient than any of the other media. Compared to other media, Air Enforcement was fifty percent more efficient, thus making an eighty percent reduction in processing time not feasible.

1. Identifying Value

The enforcement process has an impact on a wide variety of stakeholders (customers) including citizens, regulated facilities, permit writers, compliance inspectors, and enforcement analysts. Efficiency in the enforcement process reduces uncertainty and may affect future actions by the entities against which OAQ takes enforcement action. OAQ anticipates improved efficiency at ADEQ and streamlining of the enforcement process to result in a more efficient use of staff resources and cost savings for the agency.

OPPORTUNITIES FOR IMPROVING METRICS

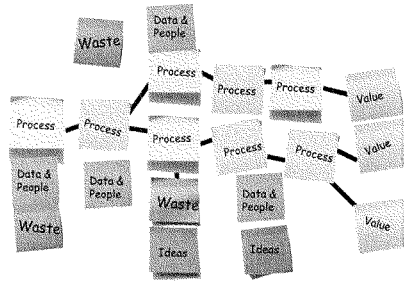
▲ LEAD TIME ON ENFORCEMENT ORDERS

Baseline average lead time from referral to proposal of enforcement order is eighty-days



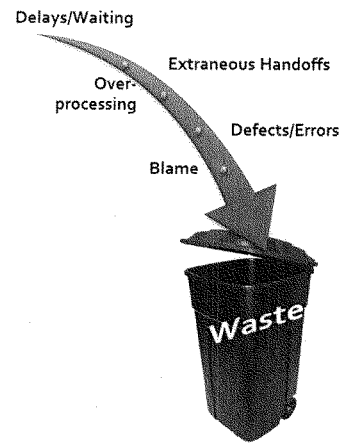
2. Mapping the Value Stream

During the March 22, 2018 lean event, the Air Enforcement Lean Team reviewed and made a few changes to the process map developed at the previous process map.



3. Creating Flow

The Air Enforcement Lean Team identified several actions to consider in implementation of improved efficiency. The Lean Team established a monthly meeting schedule with the Legal Branch of the Office of Law and Policy ("Legal"), and created a process wherein Legal notifies Air Enforcement staff when changes or delays occur. In addition, the team collaborated to develop an accountability form and moved the review process to the ePortal online tracking system. Another result of the collaboration involved Legal embossing enforcement orders after OAQ review but before Director review.



4. Establishing Goals

The Air Enforcement Lean Team established a goal to reduce enforcement order processing time by thirty percent. The team developed an action plan to implement the measures identified in the Air Enforcement Lean Event. The sidebars (top right and bottom right) describe the goal and milestones for Air Enforcement.

GOAL

▲ ENFORCEMENT ACTION PROCESSING TIME

Reduce the average lead time to process an air enforcement action from eighty business days to fifty six business days (thirty percent reduction) by September 30, 2018

5. Seeking Perfection

A quarterly evaluation schedule was implemented to determine progress towards achieving the goal to reduce processing time for enforcement orders. By the end of Q3 2018, the Air Enforcement team had reduced processing time from eighty business days to 21.25 business days, which is an improvement of 73.4%!

MILESTONES

▲ MONTHLY MEETINGS WITH LEGAL

Starting in May 2018

▲ IMPLEMENT ACCOUNTABILITY FORM

By March 2018

▲ CHANGES TO SCHEDULE PROCESS FOR EMBOSSING ORDERS

By May 2018

▲ IMPLEMENT EPORTAL REVIEW PROCESS

By June 2018



Asbestos Lean Event

In April 2018, ADEQ Office of Air Quality (OAQ) staff held a lean event to evaluate improvements to Asbestos certification and license processing.

The Asbestos Lean Team consisted of members of the Asbestos section, Fiscal, Solid Waste, and Regulated Storage Tanks. The event was facilitated by Tim Cain.

At this event, the Asbestos Lean Team explored ways to make licensing and certifying of companies and individuals more efficient and cost-effective.

OPPORTUNITIES FOR IMPROVING METRICS

▲ LEAD TIME ON CERTIFICATION PROCESSING

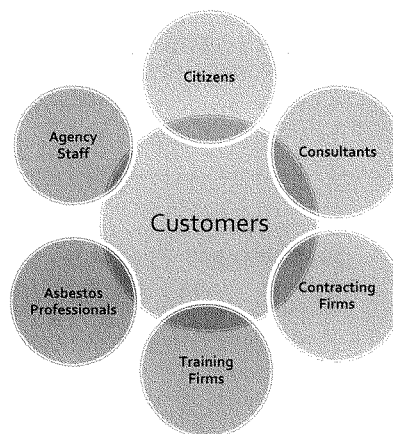
Baseline average lead time to process a complete certification application is 5.7 business days

▲ LEAD TIME ON LICENSE PROCESSING

Baseline average lead time to process a complete license application is 9.6 business days

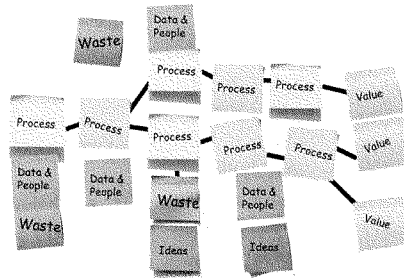
1. Identifying Value

The Asbestos certification and licensing processes impact a wide variety of stakeholders (customers) including citizens, consultants, contracting firms, training firms, asbestos professionals, agency staff in Fiscal and Asbestos. Licenses and certifications are required for various workers, consultants, contractors, and training firms to perform asbestos renovation and demolition work in the state. Increasing the efficiency of the Asbestos team in processing licenses and certifications produces cost savings for the agency and allows asbestos-related work to proceed sooner.



2. Mapping the Value Stream

During the April 2018 lean event, the Asbestos staff reviewed and made changes to the process map for licenses and certifications. The staff identified parts of the process that caused delays such as the lack of a clear routing process for checks from Fiscal, functionality deficiencies for the Licensing Certification System (LCS), and the lack of a mechanism to ensure that applicants filled out applications completely.



3. Creating Flow

The Asbestos Lean Team identified measures to implement to improve efficiency. These measures included improvements to LCS, directives for how Fiscal handles payments, modification of the walk-in same day process, and development of an online application system.



4. Establishing Pull

The Asbestos Lean Team established goals to reduce certification and license processing time by thirty percent. In addition, the team set qualitative goals including developing a procedure to address incomplete license and/or certification application packets and making the process simpler. The team developed an action plan to establish timeframes for implementation of the measures identified in the Asbestos Event.

The sidebars (top right and bottom right) describe the quantitative goals and milestones for Asbestos.

GOALS

▲ CERTIFICATION PROCESSING TIME

Reduce the average lead time to process certifications from 5.7 to four business days (thirty percent reduction) by November 15, 2018.

▲ LICENSE PROCESSING TIME

Reduce the average lead time to process licenses from 9.6 to 6.7 business days (thirty percent reduction) by November 15, 2018.

5. Seeking Perfection

A quarterly evaluation schedule was established to determine progress towards achieving the goals set in the Asbestos Lean Event. The purpose of this meeting was to evaluate progress toward the goals and to determine whether adjustments are needed.

MILESTONES

▲ COLLECT BASELINE AND NEW METRICS FOR CERTIFICATION AND LICENSING

By August 2018

▲ IMPLEMENT SAME DAY WALK-IN

By May 2018

▲ DEVELOP LICENSING SYSTEM PROGRAM PUNCH LIST

By August 20, 2018



Senator BRAUN. Thank you.
Mr. Segall.

**STATEMENT OF CRAIG SEGALL, ASSISTANT CHIEF COUNSEL,
CALIFORNIA AIR RESOURCES BOARD**

Mr. SEGALL. Thank you, Chairman, Ranking Member, members of the Subcommittee. I am glad to be with you today.

I am Craig Holt Segall, Assistant Chief Counsel of the California Air Resources Board. We are one of the oldest and largest environmental bodies in the country and in the world. We are also working on some of the hardest problems, given California's tens of millions of people live in deep valleys and desperately need protection from difficult air quality and pressing climate change.

I am going to make three points to you today that are elaborated in my written testimony.

The first of those points, as we heard from the Chair and from my co-panelists, is that the Clean Air Act is built on a cooperative federalism framework. In its very revision, it recognizes two critical points that we have talked a bit about already today: first, that the States need to be the primary regulators, but second, that they need a strong and consistent Federal partner that supports their work to protect their people.

Now, a hallmark of that program is the Clean Air Act's vehicle programs. California has been regulating vehicle emissions since before there was a U.S. EPA or this version of the Clean Air Act, and the Act recognized that treating California and the many States that have joined it functionally as a laboratory for innovation.

We have wound up commercializing technologies in cars that today are standard—the check engine light, the catalytic converter. The list goes on. And as we have added millions of cars and millions of people to our State and the States around the country, we have seen dramatic increases in air quality through the shared back and forth collaboration in Republican administrations and Democratic administrations on these critical issues.

The net result, as the Chair alluded to, has been dramatic decreases in air pollution, although it remains a pressing problem, and enormous benefits. According to one peer reviewed study that U.S. EPA itself produced, we are looking at about \$20 trillion—with a T—in public health benefits as a result of the Clean Air Act since 1990 to only several billions in costs, about a 40:1 benefit to cost ratio.

My second point—and this is critical—is that all of that is at risk today as a result of this Administration, which is, frankly, treating States with contempt. Again, my core example would be the vehicle program. The Trump administration announced some weeks ago that they stopped negotiating with California. The truth is they never started. They offered us some meet and greets. They showed no interest at all in maintaining the program that has now been running for multiple decades, in terms of greenhouse gases for nearly a decade successfully, and supported by an over 12,000-page engineering analysis we developed jointly with them for years.

Instead, in the interest of policymaking by Tweet, we saw a sudden reversal and a complete refusal to engage with any of the tech-

nical underpinnings of that role. Indeed, they refused to give us even the most basic technical information. We had to FOIA them. They still haven't even answered that FOIA.

Bottom line, it has been a frozen process, an ideological one, and it is not rooted in science. EPA's own experts have published in the journal *Science* condemning their approach.

We were able to rerun as many of their numbers as we could on the basis of their partial and spotty record. Truth is their proposal would result in \$168 billion in costs to the country, conservatively, throw the auto industry into chaos, basically blow up public investments in battery systems and electrification and protecting the air, and add an enormous amount of air pollution.

This is a huge unfunded mandate for the States because functionally it means that we will be unable to meet our federally mandated air quality standards, much less our State goals, our State climate targets, and move forward progressively on modernizing the industry. It is, frankly, a disaster, and it is only the tip of a rapidly melting iceberg.

Folks have alluded to the Clean Power Plan, which had enormous amount of State flexibility. The Administration's replacement somehow manages to actually increase power plant emissions. And the list goes on.

The Ranking Member alluded to some of these rollbacks. I needn't rehearse all of them. But we have seen systematic assaults in toxics protections, on air quality planning standards, even on something as basic as wood stove pollution. You know, rollback after rollback after rollback, all driven by an Administration so ethically corrupt that we have already lost one EPA administrator. We have never seen this in working with U.S. EPA under any Administration, this wholesale agency capture.

And that brings me to my third point. This isn't just a public health catastrophe. It is not just risking our progress on climate change when we have only a decade left to change course. It is a rule of law problem. What we are seeing is an agency that is ignoring the statute and the cooperative federalism framework set forward by the Article 1 Congress that is divorced from the factual record, and it is treating the States not as co-sovereigns with whom it has partnered now for going on half a century, but as interest groups to be swept aside while it increases the profits of narrow sectors of the economy at enormous cost to our economies, to our health, and to our people.

What I would ask of this Subcommittee and of Congress is to reassert your prerogative in oversight and in caring for public health and call the agency to task. There is not much time left. The vehicle rollback will be finalized in the coming months. Rollback after rollback is coming. We need your help, and we need it now.

Thank you.

[The prepared statement of Mr. Segall follows:]



Craig Segall
Assistant Chief Counsel
California Air Resources Board

Craig Segall has worked at the California Air Resources Board since 2013. As Assistant Chief Counsel, he is responsible for many of the Board's climate and clean air programs, including issues related to California's vehicle program, stationary source emissions, the Clean Power Plan, short-lived climate pollutants, electricity-related matters, and oil and gas sector emissions. Craig has received a Gold Superior Achievement Award for his state service.

Craig was previously a staff attorney for the Sierra Club, where he was involved in many major environmental cases. Prior to working for the Sierra Club, Craig clerked for Judge Marsha Berzon of the Ninth Circuit Court of Appeals. He graduated Order of the Coif from Stanford Law School in 2007. Craig's undergraduate degree is in biology, Phi Beta Kappa, from the University of Chicago.

**Testimony of Craig Holt Segall,
Assistant Chief Counsel, California Air Resources Board
Before the Senate EPW Subcommittee on Clean Air and Nuclear Safety
Hearing on Cooperative Federalism, March 5, 2019**

I am Craig Holt Segall, Assistant Chief Counsel of the California Air Resources Board. Chairman Braun, Ranking Member Whitehouse, members of this Subcommittee, thank you for inviting me to testify on cooperative federalism. Cooperation between states and U.S. EPA has saved thousands of lives, generated trillions in economic benefits, and created entire clean industries. But all of that is at risk, as the rogue administration of this U.S. EPA ignores Congressional direction and threatens state sovereignty.

My testimony today has three parts. First, I will describe the success we have enjoyed together. Second, I will discuss the pressing threats to our shared success and to public health and the economy. I will conclude by describing how these threats also threaten the rule of law and our federal relationship.

I. The Clean Air Act: A History of Success

States have used their police powers to protect the public since colonial days. Congress built on that legacy with the wave of environmental legislation of the 1960s and 70s; the federal Clean Air Act is perhaps the most successful of these efforts.ⁱ Congress set out two fundamental premises in the Act:

- First, Congress established that air pollution control “is the primary responsibility of States and local governments.”ⁱⁱ Congress made clear that states retained that authority, and, with few exceptions, nothing in the Act precluded state standards more stringent than federal law.
- Second, Congress made clear that “Federal financial assistance and leadership” are essential to support the states, set baseline standards, and set planning processes in motion.ⁱⁱⁱ

Building on those two fundamental points with regard to mobile sources, Congress recognized California’s global leadership in controlling car and truck emissions by preserving it in the 1967 Clean Air Act, defending and expanding that authority for decades, and allowing other states to join California standards if they chose.^{iv} Today, fourteen states and the District of Columbia have joined California to use these standards to protect peoples’ health.

The states drove innovation. California’s efforts ultimately brought you the check engine light, the catalytic converter, and many other improvements that have led to cleaner, safer, cars for everyone – all around the world.^v California standards were ultimately adopted as national standards in many cases. Today, that pattern continues as California creates innovative new incentives for progress, supported by national partnerships. It is no accident that citizens and companies in California and the states joining it are now pioneering the zero emission cars that will drive the future.

The results of this cooperative structure have been extraordinary. According to U.S. EPA, emissions of key pollutants have dropped by an average of 73 percent while the economy grew by 324 percent.^{vi} That means hundreds of thousands of saved lives, and millions of avoided asthma attacks.^{vii} A peer-reviewed analysis projects benefits since 1990 of up to \$2 trillion in 2020, at a cost of just around \$65 billion.^{viii}

In California alone, progress has been just as remarkable thanks to ongoing clean-up efforts. Air quality statewide has improved for decades. Los Angeles has not had a Stage 1 Ozone Alert for almost twenty years, soot pollution is way down, and we estimate that we have saved tens of thousands of lives.^{ix} During that time, California added millions of people and cars, and boomed to become one of the strongest economies in the world. We remain the largest manufacturing state in the country, as measured by output and employment^x – and our workers are some of the best paid as we continue to prosper.

During that time, California has also led on fighting climate change. As you know, we have barely a decade to sharply cut emissions or risk catastrophic change endangering billions of people, as the Trump Administration has reported.^{xi} California has already cut its emissions below 1990 levels, and is on track to cut emissions by 40% below those levels by 2030.^{xii} Pollution cuts from vehicles, which drive more than half of pollution in California and dominate pollution nationally, are a key part of that strategy; we have been operating under a shared national program to drive that innovation for nearly a decade.

But now all that progress is at risk.

II. What We Stand to Lose

A year ago, then-California EPA Secretary Matthew Rodriguez testified to this Committee that the Trump Administration was failing to hold up its end of the cooperative federalism partnership.^{xiii} He told you that U.S. EPA was failing to enforce the Clean Air Act and its own rules. He told you states had to sue repeatedly to get vital smog standards in place, block illegal loopholes for dirty trucks, and illegal exemptions for toxics. He told you that budget cuts were pushing the burden of basic enforcement onto the states. Sadly, we have not changed course.

Since that time, U.S. EPA enforcement has continued to collapse,^{xiv} the former Administrator resigned under an ethical cloud and was replaced by another Administrator with suspect ties to the fossil fuel industry, the Administration continues to propose dramatic budget cuts to staffing and to state grants, and U.S. EPA continues to undermine our partnership with illegal rollbacks and failures to enforce its rules.

The most egregious proposal is U.S. EPA's proposal to nearly flatline federal greenhouse gas emissions standards for cars, and to attack California's separate vehicle authority. That proposal ignores a twelve-thousand page analysis by CARB and the federal government showing that the current standards are feasible and beneficial, a conclusion U.S. EPA affirmed before turning on a dime in response to a Presidential tweet.^{xv} It disrupts decades of state/federal work, ignores two federal district court decisions affirming California's authority, and threatens the ability of dozens of states to comply with federal public health targets by stalling out vehicle emissions reductions.

The proposal is unacceptable, illegal, and has been repudiated by leading experts in a peer-reviewed study in *Science*.^{xvi} It is based on vastly inflated estimates of cleaner vehicle costs that bear no relation to the technical record. The proposal then offers tortured claims, based on non-peer-reviewed models, that without a rollback these expenses will force Americans to keep old cars and (for some reason) to vastly increase their driving, causing more traffic deaths. In essence, believe it or not, the proposal claims that the best way to save lives is not cutting pollution and focusing on highway safety and public transit, but to raise gas consumption and gas prices to keep everyone off the roads (and yet with newer, shoddier, cars in our garages). If that logic seems implausible and hard to follow – it is. In fact, we don't

need to pay the oil companies millions to save us all; we just need to build clean, safe, cars, as we have been doing for years.

If this bizarre rollback is finalized, CARB's analysis shows that air pollution will jump in Los Angeles and other polluted parts of the state, and the country.^{xvii} So will gas prices, fuel use (by billions of gallons), and greenhouse gases.^{xviii} The rule will also undermine American competitiveness, create enormous uncertainty for the auto industry, and threaten jobs and investments in clean energy and cleaner cars. We conservatively estimate the net cost of the federal rollback at \$168 billion.^{xix} And that is not counting the more diffuse cost of stalling out progress in the vital auto industry.

It should not surprise this committee that U.S. EPA's professional staff was cut out of this proposal's development. The rulemaking docket is full of EPA staff commenting with dismay that the proposal makes no sense. Instead, the oil industry is behind this campaign, as the New York Times has reported, mounting an ongoing disinformation campaign and seeking to coopt the former oil and coal industry lobbyists and lawyers who now run the Agency.^{xx} Members of this committee have documented this improper bias in detail, and California shares their concerns.^{xxi} It should not surprise you to learn that the Administration continues to fail to respond to information requests for the made-up models and analyses underlying the flawed proposal.

California and states representing more than one-third of the U.S. auto market stand ready to take all legal action necessary to block the rule. Congress should look closely at this disastrous proposal.

And the damage does not stop there. U.S. EPA has proposed to replace the Clean Power Plan with a rule that, incredibly, actually *increases* power sector emissions on its own admission.^{xxii} We are not just failing to gain ground – we are moving backwards. U.S. EPA has done its best to allow the oil industry to leak and flare natural gas – foregoing state royalties and risking public health. It has even recently proposed to allow dangerous pollution from the woodstoves that many Americans still use to heat their homes, even though cleaner models are available.^{xxiii} Each one of these proposals ignores the evidence, and Congress's clear mandates in the Clean Air Act to work with the states to clean the air. Instead, the states are left holding the bag, needing to spend their resources to stop the worst and maintain the status quo.

Not only must these rollbacks stop, we need accelerated federal action. For instance, federal rules on trucks, ships, airplanes, and new locomotives are critical to cleaning up the air – and especially the freight sector.^{xxiv} The freight and transportation sectors dominate remaining emissions preventing air quality attainment in places like Los Angeles and the San Joaquin Valley, and in states and cities across the country.

The result is that states – red, blue, and purple – are losing the tools and rules they need to cut pollution to comply with federal health standards. In essence, we are losing the ability to protect our people because U.S. EPA is not holding up its end of the deal. The result is not just an unfunded mandate to cut pollution with failing federal help, but cuts to highway funds and lost grant monies if we cannot attain federal standards. And it is not just a dollars problem: Without federal action, too many people – especially children, the ill, and the elderly -- will remain at risk.

We need action to protect the vulnerable, not to further endanger them and the planet.

III. The Threat to Federalism and the Rule of Law

This assault on public health and the states offends the most basic principles of our law: The rollbacks ignore the facts on which dispassionate government action must be based, shirk clear direction from Congress, and trample on the states as co-sovereigns.

This last offense is particularly serious. As James Madison wrote in the Federalist Papers, states “retain a residuary and inviolable sovereignty.”^{xxv} Justice Kennedy reminded us that states retain that dignity today.^{xxvi} They are to be treated as “joint participants in the governance of the Nation.”^{xxvii}

Congress enshrined that understanding in the federal Clean Air Act, to our great and lasting benefit. This U.S. EPA, with its leadership captured by narrow interests, seeks instead to trample on that framework and disrupt a cooperative relationship that has saved the lives of hundreds of thousands of people. There could be no more fundamental assault on state sovereigns than endangering their people while ignoring Congress’s clear command that the air be cleaned in partnership.

Instead, U.S. EPA is ignoring the law and the evidence for political purposes. In the vehicle process, U.S. EPA has treated California, for instance, as just another interest group – rather than a sovereign state representing tens of millions of people. The Administration completely failed to seriously engage us, and is now ready to attack our choices and the free decisions of our companion states on spurious grounds.

This is wrong: As the Court, including Justices Scalia, Roberts, Kavanaugh, Gorsuch, and Alito have repeatedly reminded us, Congress’s law and the Constitution, not policy preferences, must be the agency’s guide.^{xxviii} Our ordered liberty, our federal relationship, the quality of our air, and the health of our people depend on the cooperative federalism that Congress has set out. I would respectfully ask that this Subcommittee take all appropriate action to call U.S. EPA back to the purpose set out by the Congress and protect the law, the country, and the very air we breathe.

ⁱ For a thorough discussion of these issues, see Ann Carlson, *Iterative Federalism and Climate Change*, Journal of the UCLA School of Law (2008), available at: <https://escholarship.org/content/qt7pc2n5qc/qt7pc2n5qc.pdf>.

ⁱⁱ 42 U.S.C. § 7401(a)(3).

ⁱⁱⁱ 42 U.S.C. § 7401(a)(4).

^{iv} 42 U.S.C. § 7543(b) & (e); 42 U.S.C. § 7507.

^v CARB, *Analysis in Support of Comments of the California Air Resources Board on the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (Oct. 26, 2018), pp. 23-67 (discussing this history), available at: <https://ww2.arb.ca.gov/carbs-comments-safe-proposal>

^{vi} U.S. EPA, *Progress Cleaning the Air and Improving People’s Health*, available at: <https://www.epa.gov/clean-air-act-overview/progress-cleaning-air-and-improving-peoples-health>. See also Timothy J. Sullivan et al., *Air Pollution Success Stories in the United States: The Value of Long-Term Observations*, 84 Environmental Science and Policy 69 (2018);

^{vii} See *id.*

^{viii} Timothy J. Sullivan et al., *Air Pollution Success Stories in the United States: The Value of Long-Term Observations*, 84 Environmental Science and Policy 69 (2018) (citing U.S. EPA analyses).

- ^{ix} CARB, *Fifty Year Air Quality Trends and Health Benefits* (2018), available at: <https://www.arb.ca.gov/board/books/2018/020818/18-1-2pres.pdf? ga=2.132591819.435680366.1551201838-1125598780.1450482027>. See also David D. Parrish et al., *Air Quality Improvement in Los Angeles – Perspectives for Developing Cities*, 10 *Environmental Science and Engineering* 11 (2016). CARB has further documented the close link between air pollution control and air quality improvement in its State Implementation Plan. See CARB, Revised Proposed 2016 State Strategy for the State Implementation Plan (March 7, 2017), available at: <https://www.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf>.
- ^x National Association of Manufacturers, *State Manufacturing Data*, available at: <https://www.nam.org/Data-and-Reports/State-Manufacturing-Data/State-Manufacturing-Data/April-2017/2017-State-Manufacturing-Data-Table/>.
- ^{xi} U.S. Global Change Research Program, *Fourth National Climate Assessment Vol. II* (2018), available at: <https://nca2018.globalchange.gov/>.
- ^{xii} CARB, *California Greenhouse Gas Emissions for 2000 to 2016* (2018), available at: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf.
- ^{xiii} Testimony of Matthew Rodriguez before the Senate EPW Subcommittee on Clean Air and Nuclear Safety (Apr. 10, 2018), available at: https://www.epw.senate.gov/public/index.cfm/hearings?id=94D3696B-6633-4CBC-86AD-FD18A131611E&Statement_id=98BA2ED6-25B5-4B93-9626-5D0FAC52F77F.
- ^{xiv} CNN, *New Report from Environmental Group Details Reduced Enforcement at EPA* (Feb. 26, 2019), available at: <https://www.cnn.com/2019/02/26/politics/epa-report-enforcement-environmental-integrity-project-eip/index.html>.
- ^{xv} U.S. EPA/CARB/NHTSA, *Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025* (July 2016), available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF>; see also U.S. EPA, *Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation* (2017), available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf>.
- ^{xvi} Antonio M. Bento et al., *Flawed Analyses of U.S. Auto Fuel Economy Standards*, 362 *Science* 1119 (2018), available at: <http://science.sciencemag.org/content/362/6419/1119.summary>.
- ^{xvii} CARB analysis, *supra* n. v, at pp. 291-292.
- ^{xviii} *Id.* at 333-34.
- ^{xix} *Id.* at 332.
- ^{xx} Hiroko Tabuchi, The New York Times, *The Oil Industry's Covert Campaign to Rewrite American Car Emissions Rules* (Dec. 13, 2018), available at: <https://www.nytimes.com/2018/12/13/climate/cape-emissions-rollback-oil-industry.html>.
- ^{xxi} See, e.g., Letter from Senator Sheldon Whitehouse et al. to U.S. EPA Regarding the SAFE Rule (Oct. 26, 2018).
- ^{xxii} 83 Fed. Reg. 44746, 44784 (Aug. 31, 2018).
- ^{xxiii} See 83 Fed. Reg. 61,574 (Nov. 30, 2018).
- ^{xxiv} See generally CARB, *Mobile Source Strategy* (2016), available at: <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf>.
- ^{xxv} Federalist 39.
- ^{xxvi} See, e.g., *Alden v. Maine*, 527 U.S. 706, 714.
- ^{xxvii} *Id.* at 748.
- ^{xxviii} See, e.g., *Utility Air Regulatory Group v. EPA*, 134 S.Ct. 2427, 2446 (2014) (Scalia, J., writing that agencies may not “revise clear statutory terms”); *Mexichem Fluor, Inc. v. EPA*, 866 F.3d 451, 460 (D.C. Cir. 2017) (now-Justice Kavanaugh writing that EPA may “act only as authorized by Congress”); *Scenic America, Inc. v. DOT*, 138 S. Ct. 2 (Oct. 2, 2017) (Gorsuch, J., joined by Roberts, C.J., and Alito, J. writing that agencies are not delegated unbounded power).

Senator BRAUN. Thank you.

Thank you, witnesses, for your testimony.

We will now turn to the Senators here for questions.

I am going to start by recognizing myself with 5 minutes, and we want to stick as close as we can to the 5 minutes.

This is for Director Keogh and Mr. Glatt.

The EPA, under the Obama administration, in my opinion, failed to treat States as co-sovereigns in protecting the environment. Can you speak as to how, in your States, you have seen that rightful responsibility be returned to the States?

Start with you, Mr. Glatt.

Mr. GLATT. Thank you, Chairman.

Yes, in several ways. Just the overall initial relationship. When we interacted with EPA under the Obama administration, it was more of "what have you been up to lately." Now it is "what can we do to help." And they actually are allowing us to do environmental protection, and they have come along with us as partners, so we look forward to that relationship staying the same. It is about environmental protection, and it is about compliance at the end of the day; it is not about gotcha, and we really appreciate the approach they have taken.

One clear example, we permitted a refinery, the cleanest refinery in the United States if not the Nation. We started out working with the EPA. Their assistance to us to make sure that the permit complied with the law was invaluable, and I appreciated that relationship. In the past, they would have remained silent, waited until we went out for public comment, and then approached us as a gotcha type moment. That is not how you do good government.

Senator BRAUN. Thank you.

Director Keogh.

Ms. KEOGH. Well, we too have seen the cooperation of this Administration, particularly in various programs, not only just our air program, but our water. We had many things that I would call on hold or stuck for decades, if not longer, in terms of permits, policies in our water programs, as well as our air.

Arkansas is benefiting, however, directly from the approval of a State regional plan approach for regional haze visibility improvements now without the added \$1 billion or more in unneeded and unnecessary controls that were mandated under a Federal plan from the previous Administration, so we are finding that Regional Administrator Anne Idsal, as well as the administrative staff in DC, outreach. Administrator Wheeler particularly has been effective in bringing us to the table ahead of issues, not after the issues are created.

Thank you.

Senator BRAUN. Thank you.

This will be for the same two witnesses. As State regulators, you handle a lot of permits. Can you give me a couple particular instances where a permitting process has ended up being simpler and with an effective, good outcome for the environment?

Mr. Glatt.

Mr. GLATT. One really quick one is, Mr. Chairman, we developed a minor source permitting program for the oil field, making sure that we knew where the oil wells were being developed, who was

developing them, and the type of emissions coming off of them. Initially, EPA was critical of that. Once they took a look at that, they adopted that program and implemented it on the Reservation, improving environmental quality on the Reservation.

So, when we are allowed to do permitting at the State level, it gets done quicker, in a matter of days, versus what we were talking weeks or not at all at the EPA.

Ms. KEOGH. Likewise, we are a State with many minor sources that don't really fall to the level of a Federal regulatory program, and Arkansas developed a unique minor source permitting program that we believe is protective but allows the flexibility for new growth in our State. This has been very effective, and we recently received approval of a State implementation plan for that after it languished for about 7 years under a previous Administration's review, so we look forward to that interaction.

We also have effective permitting programs on a number of key issues and concerning permits. We have been able to take permits that were stuck on water quality and bring them to final resolution, providing actually more protection through a permit than leaving it unaddressed through ongoing debates between the State and the Federal Government.

Senator BRAUN. Thank you.

Briefly here, again for the same two witnesses, when the EPA was developing the Clean Power Plan, did they consult with your States to determine feasibility, or did they ignore your input?

Mr. Glatt.

Mr. GLATT. Mr. Chairman, they did consult with us, but it was superficial. I did meet with the Administrator in North Dakota. It was zero degrees that day. I expressed to the Administrator it is not always this warm in North Dakota and that major changes in the power grid would result in true public health implications. So they consulted. Final rule that came out didn't look at all like the proposed rule, so they did not listen to us at all.

Senator BRAUN. Thank you.

Briefly, Director Keogh.

Ms. KEOGH. Yes. We were consulted only toward the final proposal. Arkansas has a base of nuclear power, but also very diverse energy supply, and it was important to Arkansas to have a plan that works for us going forward, and we are seeing great benefits of that flexibility using markets and technology to drive lower cost solutions but improved and reduced greenhouse gas emissions.

Senator BRAUN. Thank you.

Ranking Member Whitehouse.

Senator WHITEHOUSE. Thank you, Chairman.

I guess the point I would like to open with is that one State's onerous regulation is a neighboring State's clean air. And as a downwind State, we have to take it pretty seriously when EPA won't enforce Federal law, won't protect our downwind States.

My State Department of Environmental Management can't regulate a spewing power plant in Pennsylvania or West Virginia or Ohio. There is nothing we can do about that. And if EPA walks away from its responsibility, those States may think they have been relieved of an onerous regulation, but I live in a world in which I drive to work in Rhode Island, and on a bright, clear sum-

mer day I have heard the radio warn that the air is unsafe to breathe in my State; that elderly people, the people with breathing difficulties, that infants should stay indoors on a nice summer day because nobody will tell the polluting power plants in other States to knock it off and clean up their act.

So, until Rhode Island is protected—and I think it ain't for nothing that so many of us who are here today are from downwind States. This isn't funny. This is making a big difference in our lives.

Ms. Keogh talked about the windshield and the rearview. I would add one other automotive feature; I would add headlights. We have to have the headlights flicked on so we can see ahead to what is coming at us. And the headlights are science. That is what lets us know what is coming at us.

So, when we have an EPA that throws legitimate scientists off their advisory board so they can bring industry flunkies on so that they can ignore scientific reports that warn very clearly about what is going to happen, there is no longer any debate about this, and the coasts are going to take a real beating. We are looking at several feet of sea level rise in my small State. We don't have much to give away, folks. Several feet of sea level rise is not funny, and the fact that EPA won't take an interest in this issue is very frustrating.

So, I appreciate how they are not being onerous with you guys, but I have a different fight. I have to fight to protect my own State here. And what I see is very selective cooperative federalism. It is cooperative federalism when the interest of the State happens to align with the fossil fuel industry. Then they are all cooperative as all get-out. But when, like California and Rhode Island, as a CAFE standard State also, when the States have worked together in cooperative federalism and put together a rule that has stood the test of time for—what—decades now, this Administration's approach to cooperative federalism is no, we're going to do what Marathon Oil tells us to do, and we are going to completely ignore the 14 States that have done this for a long time.

This isn't right. This isn't right, and it is going to come home to roost because you can't stop science. You can't stop facts. You can't stop the operation of the earth by the biological, chemical, and geological rules that we know. So this is going to come, and what it is going to show is that the true north for this Administration wasn't federalism; it was whatever the fossil fuel industry told it to do, and that, in my experience, has been the true north.

But there are States, unlike you guys, who are downwind States, and for us it really, really matters when there is a power plant that won't clean up its pollution, and we can't do anything about it, and EPA walks away.

There are coastal States. It is not just me. Moody's has now said that it is going to rate municipal debt based on climate and sea level risk for coastal communities.

Freddie Mac has said that there could well be a coastal property values crash as bad as the 2008 mortgage meltdown. I lived through that. I don't want to live through that again. Freddie Mac isn't the Sierra Club; Freddie Mac is all about homes and mortgages, and they are warning about it.

First Street has just gone all the way up the coast and in peer reviewed research showed that coastal property values in areas subject to flooding are already starting to peel off. So, if there is going to be a coastal property values crash, that is what the opening of it looks like, and that is what is happening.

I already mentioned the CAFE standards. Some cooperative federalism, when they won't work with 14 States on a program that has already been working very effectively to help bring down pollution from automobiles.

So, I appreciate this hearing, but I don't take EPA at all seriously. I think cooperative federalism is a mask, it is a sham. It is a way to deliver for the fossil fuel industry, and depending on what State you are, they will roll right over you in the name of cooperative federalism.

Senator BRAUN. Thank you.

Senator Cramer.

Senator CRAMER. Thank you, Mr. Chairman.

Again, thanks to all the witnesses.

Dave, I am going to follow up a little bit on how Chairman Braun wrapped up at the end of his time, because I would like to hear you put a little more meat on those bones as it relates to the Clean Power Plan and the collaboration and cooperation of the Federal Government.

You might recall I was still on the Public Service Commission when the Clean Power Plan was first rolled out, and when we first saw the Clean Power Plan, I think we, as a State, we knew what the Government wanted to address, what they were trying to address; and as I recall, our State, along with our stakeholders, we were looking for pragmatic solutions to the same problem that the Clean Power Plan was trying to solve.

By the way, before I forget, does anybody remember the Supreme Court of the United States staying the Clean Power Plan? We have people up here who passionately talk about the good old days of the Clean Power Plan that was deemed not to be appropriate by the Supreme Court of the United States, and we are still under that stay, so let's not forget that there are other facts that we can't ignore in the law.

With that, Dave, if you could just help. You referenced the final rule and how it differed from the proposed rule. Maybe just tell a little more of that story, because I think it is important.

Mr. GLATT. Yes, Chairman and Senator. There was a lot to that.

I first will state that when the proposal came out I sat down with every one of the CEOs from the electric generation utilities. Some of them were co-ops; some were privately owned. Not one of those CEOs said hell no. What they said, we can do this, but we need time, and we need cooperation. So they sat down and looked at the proposal, and they said this is something I think we can work through, so they were actively looking at how do we reduce CO₂, how do we start changing the electric generation economy or market, if you will.

We sat down with EPA, and we said, you know, this is something I think we can work with. What came out of that was primarily a doubling of the reductions required, to the point where the CEOs said we can't work with this; basically, this would put us out of

business, and we would not be an entity anymore. So they went from cooperation, saying yes, we can do this, trying to work with EPA, explain to them where this was going and how they could make this work, going to a point where EPA came out and just pushed it to the limit to where they said we can't be part of this anymore.

Senator CRAMER. Let me follow up on that. Hadn't the comment period between the proposed rulemaking and the final rule, had we as a State, and other stakeholders throughout the country, had they known that this, what I call, forgive me, a bait and switch, had they not known that was going on, would they have commented differently or perhaps more aggressively had they thought that the EPA was a real partner in all this?

Mr. GLATT. Yes, Senator. Actually, they were kicking themselves because they did not actively comment on the initial proposal because that was something they thought they could work with. What came out later was so radically different, they really thought they missed an opportunity without coming out more aggressively initially. They thought they had a cooperative process moving forward. I would use the same term, it was bait and switch. The comment I had received from an EPA individual, I said, what is going on here, and they said, well, there are winners and losers, and you lost.

That is not how we operate, and that is not how anybody should operate. We are all in this together. And we are sensitive to the needs of the coasts, and we need to be on the same page, but we have to work together and not find winners and losers.

Senator CRAMER. Ms. Keogh, if you could comment as well. I know that I am not as familiar with specific situations, but perhaps you could elaborate.

Ms. KEOGH. Right. As Dave Glatt said, our biggest challenge with the Clean Power Plan was the winners and losers aspect. We were a State and are a State that is fundamentally focused on clean energy. As the recent speech of the chairman of our Joint Energy Committee said, the cleanest kilowatt and the cheapest kilowatt is the one not used. And so we focus a lot on efficiency in Arkansas, and we have found ways. Arkansas State University is now saving \$20 million a year through an energy performance innovative grant program that we established where they can put tuition dollars back into education rather than pay for a higher use of energy to run their campuses.

So, these are the things that we are looking for in Arkansas to find solutions. They are durable; they are reasonable; they keep rates affordable; they keep the grid reliable, and that is what we are looking for, and that is what we hope for through a power strategy for Arkansas and for the Nation.

Thank you.

Senator CRAMER. Thank you.

Thank you, Mr. Chairman.

Senator BRAUN. Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman.

By way of background, I served in the State legislature, was Speaker of the House in the Maryland General Assembly, was appointed by President Reagan to serve on the Federalism Task Force

and Commission. I believe in federalism; I think it is extremely important.

I think the Clean Air Act represents the best example of federalism. In 1963, it was passed, recognizing the States with the primary responsibility to regulate and show what works so other States could copy that, exactly what California did with its CAFE, with its standards for autos, copied by 12 other States because it worked. You showed what could be done.

There are certain areas where the States cannot act. Pollution knows no bound. Delaware and Maryland are downwind States. The Clean Power Plan rule by the Obama administration was a recognition that the Federal Government is the only entity that can control what goes on across borders.

So I am somewhat puzzled by the support for the Trump administration when it has restricted the States' ability to act where it believes it is in its best interest to act, but has withdrawn the Federal support in those areas that really are interstate areas.

So, Mr. Segall, let me give you a chance as to how the restrictions that have been imposed by the Trump administration are affecting the State of California in its ability to do what the Supreme Court has said, by the way, under the Clean Air Act, that carbon is a dangerous pollutant and is required to be regulated under the Clean Air Act. How have the Trump policies affected your ability to protect the carbon emissions in your State?

Mr. SEGALL. Senator, it is profoundly concerning. What I should say is this is a justice question. We have talked a bit already about CEOs, but fundamentally this is about vulnerable people.

Living in Sacramento, you sometimes can't see to the end of the street because of the forest fire smoke this past summer. We are acutely aware of the danger of climate pollution, and what we are seeing is a proposal essentially to flat line both the Federal greenhouse gas standards and to attack California's ability and the ability of any State that wants to adopt our standards to adopt our greenhouse gas emission standards, and this is especially strange, our zero emission vehicle standards, which are a criteria, or smog standards. It is unclear how or why they are being attacked.

We have been here before. This was litigated twice. Two Federal district courts have held our authority, so it is really beyond the pale. The bottom line is, if this moves forward, we are going to see tons of excess pollution, we are going to see a slowdown in vehicle innovation, and we are going to see increased both climate risk and just generally air quality risk as we see additional pollution and smog pollution in all of our cities. It is exceptionally concerning.

Senator CARDIN. To Mr. Glatt and to Ms. Keogh, do you support the Trump administration's restrictions on the 13 States that have different emission standards? Do you support taking away from the States the ability to act in regards to their vehicle emission issues?

Mr. GLATT. Senator, I am a very strong supporter of States' rights and being able to address those issues within their State boundaries. Where I start to get a little shaky on that is when a State imposing under the umbrella of saying it is our right to control pollution in our State, starts impacting other States, and we have had that case on externalities.

Senator CARDIN. But my question is on vehicle emissions, where California has acted, and 12 other States have acted. Do you support their ability to do that?

Mr. GLATT. I support their ability. I don't know if that has any positive impact in North Dakota.

Senator CARDIN. Well, I understand that, but if North Dakota decided to do it, you would believe you should have the right to do that, wouldn't you?

Mr. GLATT. I would say, Senator, that is correct.

Senator CARDIN. And Ms. Keogh, do you also agree with what Mr. Glatt just said?

Ms. KEOGH. As I stated in my testimony, I think States and EPA regulate from a position of sovereignty and subordinate. We are an advocate, as well as North Dakota, on States' rights, and our attorney general has acted to defend rule of law on these matters. I think that is the important thing that we look at, is what is allowed under Federal law, and that States' rights apply to regulatory matters within their jurisdiction under the law.

Senator CARDIN. It was a simple question. Do you agree that California should have the right in regards to what they have been doing for many years now on emissions?

Ms. KEOGH. As provided under law, yes, I do.

Senator CARDIN. So maybe, Mr. Chairman, we have reached some consensus, that is, that what the Trump administration is recommending in taking away from California and 12 other States, including Maryland, is something that our State partners believe is wrong.

Senator BRAUN. Thank you.

Senator BOOZMAN.

Senator BOOZMAN. Thank you, Mr. Chairman.

Again, thank all you all for being here at the hearing.

One thing I would like to state is that I know that we have a really difficult situation in Arkansas with the Trafalgar Road fire in Bella Vista, and I know that the ADEQ has worked really hard on that, also having support of the EPA, so we really do appreciate the efforts in that regard. You all, as well as EPA, have certainly kept us informed. I know that you two are working back and forth together. As you mentioned, when the administrator found out that you were going to be in town, wanted to meet with you, and our regional administrator also.

So, again, I think that is really what this is all about in the sense of we talk about cooperation and things like that. I think that is a good example of that, so we do appreciate that effort and do appreciate your all's effort in, again, dealing with a very difficult situation.

My experience, I have been with Senator Cardin in the House and now over here and have great respect for him. I guess my experience has been that, in the past, with not just the past Administration, but the Administrations in general, the EPA is all for cooperation until you want to do something different than what they want. That has just been the standard. I think that is part of government. That is why people elect us, to try to keep a handle on that.

Can you comment on that, Ms. Keogh, in regard to how can we do a better job of working hand in hand? As Senator Cardin pointed out, the frustration of States wanting to do this and that. Can you comment on how we can do a better job of working hand in hand with stakeholders to develop rules and regulations?

Ms. KEOGH. Thank you, Senator Boozman, I am happy to do so.

In Arkansas, we work closely with our regulated community, but we also work closely with our public interest groups to make sure that our programs do address a broader sense. EPA has been a true partner as we have instituted an operational efficiency model to streamline our permitting program and to increase transparency. I know working recently with Region 6, one of the things we have asked them to do is to reduce the duplication where they might grow, analyze, or replace our decisionmaking with their own technical staff and to reallocate those technical resources to helping us solve those problems that even go past what our capabilities are.

So I think, Senator Boozman, you hit the nail on the head about the fact that we should be able to find answers by our collective work, rather than independent analysis that seems to waste money and time.

Thank you.

Senator BOOZMAN. Right. Can you talk a little bit about the fire policy forum ADEQ helped coordinate, in particular, maybe your thoughts on how this approach could serve as a model for inter-agency collaboration?

Ms. KEOGH. Well, I mentioned natural disasters earlier, and we have talked about a specific uncontrolled fire in Arkansas, but this is a subject matter that I know in California is near and dear to their heart, but we have a number of situations where we believe fire is a tool that is necessary for our foresters to use to manage our forests to avoid those uncontrolled fires that result in a much larger environmental impact.

Working both with our agriculture industry and our U.S. Forest Service, the State forestry department, we were able to bring together stakeholders to help get a common understanding of how that practice can be beneficial, but yet, at the same time, be implemented in a way that protects our quality, and it garnered speakers from EPA's Office of Research and Development; the director came in, as well as U.S. Forest Service, and I think it was a true success. Even our own Farm Bureau, our ag group now has a tool to inform farmers on how to better utilize better decisionmaking. So it shows when we bring the experts together, they find not only a good solution, but a better solution than we, as an agency, might have devised.

Senator BOOZMAN. I agree.

Thank you, Mr. Chairman.

Senator BRAUN. Thank you.

Senator Carper.

Senator CARPER. Thanks so much.

Welcome. It is great to see all of you. Thanks so much for joining us today.

One of the questions that we are being asked here in the U.S. Senate as Democrats and Republicans is do we believe climate change is real, do we believe that human beings are contributing

to that, and do we think that Congress has some responsibility in addressing that.

I would just ask each of you, Mr. Glatt, Ms. Keogh, do you believe climate change is real? Just a yes or no.

Mr. GLATT. Senator, I appreciate the question.

Senator CARPER. Just a yes or no.

Mr. GLATT. Yes and no.

Senator CARPER. Thank you so much.

Ms. Keogh.

Ms. KEOGH. We deal with an ever changing——

Senator CARPER. Your mic is not on, ma'am.

Ms. KEOGH. I am sorry. We deal with an ever changing climate through our regulatory policies, and we do act in Arkansas——

Senator CARPER. I was just looking for a yes or no. Thank you, ma'am.

Mr. Segall.

Mr. SEGALL. Yes, of course.

Senator CARPER. All right.

Mr. Glatt, do you think we, as human beings, have something to do with that?

Mr. GLATT. Pardon, the question?

Senator CARPER. Do you think we, as human beings, have something to do with climate change?

Mr. GLATT. Senator——

Senator CARPER. Just a yes or no.

Mr. GLATT. Yes, and we are doing something about it, yes.

Senator CARPER. Thank you.

Ms. Keogh.

Ms. KEOGH. We are taking actions to reduce our man-made emissions so that we can derive better——

Senator CARPER. Is that a yes?

Ms. KEOGH. We believe that——

Senator CARPER. OK.

Mr. Segall.

Thank you.

Mr. Segall.

Mr. SEGALL. Yes. And I would add that it is beyond a five-sigma level of proof, they just reported the other day. It is unquestionable.

Senator CARPER. Mr. Glatt, do you think Congress has some responsibility in addressing this challenge?

Mr. GLATT. Senator——

Senator CARPER. Just a yes or no.

Mr. GLATT. Congress has a role, but the difficulty is——

Senator CARPER. Thank you very much.

Ms. Keogh. Ms. Keogh. Thank you.

I don't mean to be rude, but I don't have a lot of time.

Does Congress have a responsibility in addressing this? Do we have a shared responsibility in addressing this? Just a yes or no.

Ms. KEOGH. I believe this is a science decision, not so much a political decision, but I do believe there is a role to play in making sure that we are all treated——

Senator CARPER. Thank you, ma'am.

Mr. Segall.

Mr. SEGALL. This is a most fundamental responsibility. It is an existential threat to the country.

Senator CARPER. I live in a State called Delaware, east of here, and when I was Governor of Delaware we were out of attainment for a number of clean air requirements, and it is not because of what we were doing in our States. Ninety percent of our pollution in Delaware comes from outside of our State. I could have shut down the State of Delaware, all the cars, vehicles off the road, shut down every business. We would still have been out of attainment.

Meanwhile, up in Pennsylvania there are utilities, coal fired utilities that are operating, and they have scrubbers, they have equipment of scrubbers on their power plants, and they don't use them. They don't use them. We have a situation up in Pennsylvania with three. There is a situation in West Virginia, I think there is another over there. They don't use them.

States have the opportunity to petition, called Section 126, to do something about that, and to say, EPA, we can't make Pennsylvania turn on their pollution control, we can't make West Virginia turn on their pollution control devices. EPA, why don't you help us, kind of like Golden Rule, treat other people the way you want to be treated. That is one of the problems that we face. I just want you to feel what we face, what we have to put up with at the end of America's tailpipe.

The greatest source of carbon emissions in our country comes from mobile sources. Andrew Wheeler said that he was all for a 50 State deal, and when it came time to actually negotiate a 50 State deal with California and 13 other States, he was nowhere to be seen.

Mr. Segall, any comments that you have on this.

Mr. SEGALL. Yes, that is true. It is appalling. This is a program we worked on for decades under Democratic and Republican administrations. It is one that is working well. It is one that is saving lives. One would hope that the Administrator of the EPA would want to preserve it and would recognize the importance of the coal regulatory State sovereigns. They haven't, and that is a shocking departure from practice and endangers a lot of people.

Senator CARPER. Mr. Segall, the California Resources Board said, "The administration broke off communications before Christmas and never responded to our suggested areas of compromise or offered any compromise proposal at all." Can you tell us more about this Administration's efforts to work with California, compared to how the Obama administration did so?

Mr. SEGALL. Yes. Under the Obama administration we worked extensively on the technical details. We dug in. Again, this is a science question. We had a 12,000-page report. Everything was working fine.

This Administration issued a sketchy determination in response to a presidential Tweet that was just a few pages long that blew up the entire program. That has been consistent with their negotiating style. Folks in the room often aren't even familiar with the core technical details of their programs.

Senator CARPER. I will finish with this. I was a naval flight officer during the Vietnam war, stationed for a while in San Diego as a midship in Long Beach, later on at Moffett Field, California. I

like to run. I love to run outside. There were days where I ran outside I did a lot more damage to my lungs than I did good.

And the reason why California has asked years ago for the ability to have more rigorous standards, shared by States like Utah because of the geography in those States and the pollution that gathers between the mountains, they asked for some special abilities to tighten things up. That is what they have had for years. The auto companies don't want to build one car for California and 49 States, a different model of the same car. They didn't want that; they want a 50 State deal.

Why we don't work with them and with California to make that happen is beyond me. This is something that is good for the planet, good for our air, good for industry. It just makes no sense.

Thank you.

Senator BRAUN. Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman, very much.

Mr. Segall, thank you for being here, and we thank California for its leadership on this. Massachusetts is a State that follows California. Rhode Island follows California. Delaware follows California. We are all in on your efforts here. Administrator Wheeler proposed new fuel economy emissions rule that would wrench away California's longstanding ability to set its own standards and allow our States to follow, because an attack on California is an attack on all of us, and we feel it as an attack.

Has California's Clean Air Act waiver for vehicle emission standards ever been revoked?

Mr. SEGALL. No, that has never happened.

Senator MARKEY. It has never happened. So the assault on State level standards means more money spent by consumers on gasoline, more oil imported from the Middle East, more carbon pollution in the atmosphere, and more uncertainty for States and car companies.

Mr. Segall, with all these lose-lose outcomes, who would you say is the winner if Trump wins through his EPA Administrator, Wheeler? Who is the winner in all this?

Mr. SEGALL. This is purely a gift to oil companies.

Senator MARKEY. Oil companies.

Mr. SEGALL. Yes.

Senator MARKEY. So oil companies are just doing cartwheels with the happiness that they have about how much lower the fuel economy standards will be.

Mr. SEGALL. Oh, yes. We see enormous increases in people being made to buy their product. What is really going on here is a subsidy program to oil at the expense of State sovereignty and public health.

Senator MARKEY. When I was in the House, I was the author of the fuel economy standard law in 2007, along with Senators over here, partnered with Nancy Pelosi. We got that done, and that is what was used with the California waiver to promulgate the 2012 standards. I am very proud of that, and it is still the largest single reduction of greenhouse gases of any law ever passed in any country in the world.

So, like many other things, Trump is just going to side with the Koch Brothers, side with the oil industry in general. It is all part

of a pathological pattern where he is a climate denier, gives his State of the Union Address for an hour and 20 minutes, doesn't mention climate change, names a fossil fuel lobbyist to be the head of the EPA.

So, Mr. Segall, will a challenge to California's ability to set its own strong standards under the Clean Air Act mean more uncertainty for consumers and auto manufacturers?

Mr. SEGALL. Senator, it will. What this will drive is massive litigation and a massive need by the States to take every other action at their disposal to make up those tons. This isn't going to lift anybody's regulatory burden; it is going to require extensive State action to get where we need to go, and in the meantime, it is going to make it harder for the auto industry, especially the American auto industry, to compete globally.

Senator MARKEY. So this Section 177.202–209 authority in the Clean Air Act, I said on the floor there is no intention in having a 2007 law in any way undermined that authority which you have, and it has also been reaffirmed twice by courts that you have this authority, California has this authority. So we are setting up just a massive, prolonged litigation with the whole world looking at us as we try to preach temperance from a barstool.

We are telling other countries please reduce your greenhouse gases, and Trump is the Denier-in-Chief, and it is just sending the wrong message to the rest of the world as these apocalyptic events across the planet are becoming more and more intense as we are just seeing incredible tornados across the south unprecedented in terms of their damage. But again, unfortunately, a preview of coming attractions of what is going to happen, and it will even be worse in the years ahead.

In your testimony you mention disagreements between EPA and National Highway Transportation Safety staff working on the proposed new rule. A former EPA official even said the Department of Transportation "cooked the books" to make sure they could produce the numbers to justify the awful rule.

Mr. Segall, didn't an EPA analysis find that this rule would actually cause an additional 17 fatalities a year, despite the Administration's argument that the rule will save lives by keeping drivers off the road?

Mr. SEGALL. Senator, I believe that is right, and I would say I have never before seen an EPA rule where EPA's own staff was so thoroughly cut out of the process and filed documents explaining the rule was wrong.

Senator MARKEY. So this is a classic example of State and Federal Government cooperation, and Trump and his oil company cronies are seeking to cheat on this test, including the fatalities that are caused, but also the damage to our planet.

Senator Whitehouse and I, we happen to live with the second fastest warming body of water on the planet, the Gulf of Maine. Except for the Arctic, it is the worst, and we are poised to see damage that is going to be absolutely catastrophic for us, but it is also true for the whole rest of the planet.

I thank California, I thank you for all your efforts. We stand with you, and we will fight with you.

Mr. SEGALL. Thank you.

Senator MARKEY. Thank you, Mr. Chairman.

Senator BRAUN. Thank you, Senator Markey.

We have time remaining, and as I run this Subcommittee I am going to use it to the full extent. We don't meet often enough, and I think there is probably more to be said, so anyone that wants to follow up with an additional 2, 2 and a half minutes, 3 minutes, I am going to start here and then allow everybody else to do likewise.

Mr. Segall, California's position that the standards issued in 2012 by the Obama administration should not be changed, do you agree with that, that what we had in 2012 through the Obama administration should not be changed?

Mr. SEGALL. I do, with a caveat. When we went through the 12,000 page technical review, Senator, we actually determined the standards were, if anything, a little too weak. We maintained them at the same level, basically maintained our national program, but they underrepresent what the industry can do.

Senator BRAUN. Thank you. I think in the assertiveness of that statement I wonder if that really is implicit, that there is room for negotiation, and I will quote somebody from your State, from Mary Nichols, head of the California Air Resources Board: "California will take all actions to ensure that the smart standards we developed in partnership with the auto industry to cut greenhouse gas emissions from vehicles stay in place."

Mr. Segall, in his speaking about the Obama era standards that are feasible and beneficial and that we need to review them, was based upon a single presidential Tweet. I would tend to disagree with that as well. The Alliance of the Automobile Manufacturers sent a letter to the EPA, and the letter said, "If left unchanged, those standards could cause up to 1.1 million Americans to lose jobs due to lost vehicle sales, and low income houses would be hit the hardest."

I ask for unanimous consent to enter this into the record.

[The referenced information follows:]



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February 21, 2017

G. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code 1101A
Washington, D.C. 20460

RE: Final Determination on the Appropriateness of the Model Year 2022-2025
Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm
Evaluation

Dear Administrator Pruitt,

I write on behalf of the Alliance of Automobile Manufacturers (Alliance), an association representing twelve leading manufacturers of cars and light trucks,¹ to request that the U.S. Environmental Protection Agency (EPA) withdraw the Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (Final Determination) which was announced on January 13, 2017 but never published in the *Federal Register*.

For the auto industry, the Final Determination may be the single most important decision that EPA has made in recent history. The Alliance requests that EPA withdraw the Final Determination and resume the Midterm Evaluation, in accordance with its original timetable, to remedy the severe procedural and substantive defects that have infected the process to date. We explain, in more detail below, EPA's authority to withdraw the Final Determination and why that withdrawal is appropriate and essential.

1. EPA Should Exercise Its Authority to Withdraw the Final Determination

As you know, on January 20, the White House issued a memorandum to the heads of all executive departments and agencies instituting a freeze on regulatory activity, pending review by the Office of Management and Budget (OMB) Director.² The Alliance urges EPA to withdraw the Final Determination on its own initiative in accordance with the regulatory freeze. Irrespective of whether EPA considers the Final Determination a rule or an adjudication, the Final Determination should be reviewed

¹ Alliance members are BMW Group, FCA US LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche Cars North America, Toyota, Volkswagen Group of America, and Volvo Car USA.

² See Memorandum for the Heads of Executive Departments and Agencies, Jan. 20, 2017, <https://www.whitehouse.gov/the-press-office/2017/01/20/memorandum-heads-executive-departments-and-agencies>.

and withdrawn. As the Alliance has noted, a wealth of precedents confirm that the Final Determination is a rule, and all rules not yet published in the *Federal Register* are subject to the regulatory freeze.³ Even if EPA continues to construe the Final Determination as an adjudication, however, it is still subject to the regulatory freeze as an “agency statement of general applicability and future effect ‘that sets forth a policy on a statutory, regulatory, or technical issue or an interpretation of a statutory or regulatory issue.’” The Final Determination reaffirms and reinstates industry-wide greenhouse gas emissions standards for all light vehicles sold in America for MY 2022-2025, and thereby establishes a policy on a regulatory issue of central importance to the auto industry.

Furthermore, EPA has ample authority to withdraw the Final Determination on its own initiative, irrespective of whether EPA considers it a rule or an adjudication. If the Final Determination is a rule, it is clearly a nonfinal one, because it has not been published in the *Federal Register*. See 5 U.S.C. § 553(d); *Kenecott Utah Copper Corp. v. U.S. Dep’t of Interior*, 88 F.3d 1191, 1209 (D.C. Cir. 1996). And, as a nonfinal rule, EPA can readily withdraw the Final Determination without engaging in notice-and-comment rulemaking. *Kenecott*, 88 F.3d at 1206.

Even if EPA continues to endorse the view that the Final Determination is an adjudication, however, EPA has broad inherent power to reconsider its decision “within the period available for taking an appeal.” *Am. Methyl Corp. v. EPA*, 749 F.2d 826, 835 (D.C. Cir. 1984). Agencies have long exercised this power to fix determinations like this one that suffer from “serious procedural and substantive deficiencies.” *Belville Min. Co. v. United States*, 999 F.2d 989, 998 (6th Cir. 1993). Regardless of how EPA classifies the Final Determination, EPA should promptly withdraw it in light of the many procedural and substantive flaws described below.

2. EPA Has Abrogated Its Commitment to a Robust Midterm Evaluation

As the Supreme Court has recognized, EPA’s regulatory efforts to address greenhouse gases have already produced “the single largest expansion in the scope of the [Clean Air Act] in its history.”⁴ In 2009, EPA issued an Endangerment Finding that motor vehicle greenhouse gas emissions contribute to climate change and thereby threaten public health and welfare. Thereafter, EPA and the National Highway Traffic Safety Administration (NHTSA) began jointly setting greenhouse gas emissions and fuel economy standards for new light-duty motor vehicles, starting with Model Year (MY) 2012-2016. Then, in 2012, EPA and NHTSA took the unprecedented step of

³ See Alliance Comments on Proposed Determination on Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation at 11-13, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827; Memorandum for the Heads of Executive Departments and Agencies, Jan. 20, 2017.

⁴ *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427, 2436 (2014) (internal quotation marks omitted).

setting joint greenhouse gas and fuel economy standards over a decade in advance for MY 2022-2025 vehicles. 77 Fed. Reg. 62,628 (Oct. 15, 2012). No agency ever had set emissions standards so far into the future, and all stakeholders understood that no one could accurately project the circumstances affecting the technological and economic feasibility of these standards.

The Alliance supported these efforts—but only on the condition that EPA and NHTSA would reassess standards as data became available to test their feasibility. That commitment was essential because of the great uncertainty regarding the feasibility of the future standards. Based on the projections in the 2012 rule, manufacturers must achieve an average 54.5 miles per gallon equivalent across their new vehicle fleets by 2025. Even today, no conventional vehicle today meets that target, and conventional vehicles comprise 96.5% of the new light-duty vehicle fleet. Only some non-conventional vehicles (i.e., hybrid, plug-in electric, and fuel-cell vehicles), which comprise fewer than 3.5% of today's new vehicles, currently can do so.⁵ Even under EPA's optimistic estimates, the automotive industry will have to spend a staggering \$200 billion between 2012 and 2025 to comply, making these standards many times more expensive than the Clean Power Plan.⁶

EPA and NHTSA committed to a robust Midterm Evaluation that would take a fresh look at these standards by April 2018. The agencies promised that this review would be collaborative, so that the industry could offer the agencies real-life data to adjust their model-driven forecasts. The agencies also committed to developing greenhouse gas emissions standards and fuel economy standards in tandem.⁷ And they repeatedly represented that they would not complete the Proposed Determination/Notice of Proposed Rulemaking until mid-2017 at the earliest.⁸ The industry took the agencies at their word, commissioning complex studies critical to assessing the MY 2022-2025 standards and the processes used by EPA in its analysis, that we had expected to add to the administrative record for the Midterm Evaluation in 2017.

On November 30, 2016, EPA abruptly abrogated these commitments. EPA issued a Proposed Determination that the MY 2022-2025 standards should go into force

⁵ "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2016," at 118. U.S. Environmental Protection Agency. EPA-420-R-16-010, Nov. 2016.

⁶ See EPA Regulatory Impact Analysis for 2012-2016 rule (EPA-420-R-10-009, Apr. 2010) at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2012-2016-light-duty-vehicle>; EPA Regulatory Impact Analysis for 2017-2025 rule (EPA-420-R-12-016, Aug. 2012) at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle>.

⁷ See 40 C.F.R. § 86.1818-12(h), 77 Fed. Reg. 62,784 (Oct. 15, 2012), 40 C.F.R. § 86.1818-12(h)(1)-(2); 81 Fed. Reg. 49,219 (July 27, 2016).

⁸ See Alliance Comments on Proposed Determination at 10, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827.

without modification. EPA issued the Proposed Determination without coordinating with NHTSA. EPA demanded comments by December 30, 2016, even though the Proposed Determination was not published in the *Federal Register* until December 6. The public and industry had a mere 24 days, spanning a major national holiday, to comment on nearly 1,000 pages of documents, plus additional cited documents and computer modeling, regarding requirements that will profoundly affect the automobile industry and the more than 900,000 American workers it directly employs.⁹ After EPA denied requests by various stakeholders to extend the abbreviated comment period, we did our best to file substantive comments. EPA received more than 100,000 public comments, including 63 sets of comments from various organizations spanning hundreds of pages.¹⁰ Many objected that the comment period was inadequate. EPA denied all requests to extend the abbreviated comment period and yet EPA issued the Final Determination on January 13, 2017, just 14 days after the comment period closed. EPA brushed aside objections to its procedural shortcuts and never justified the need for such an abbreviated comment period. EPA also rejected commenters' substantive and technical concerns by resting on its earlier analysis.

3. EPA Should Withdraw the Final Determination Immediately

The Final Determination is the product of egregious procedural and substantive defects and EPA should withdraw it.¹¹ In EPA's rush to promulgate the Final Determination before the new administration took office, EPA bypassed required procedures, failing for instance to provide an adequate period for meaningful notice and comment. The Final Determination asserts that there was no need for more time because the Proposed Determination did not include much new material. But that contention is belied by EPA's acknowledgement that the Proposed Determination adjusted a number of EPA assumptions in response to commenters who pointed out errors at earlier stages. The industry also had an unacceptably short period to try to ascertain why EPA rejected many of its objections.¹² These procedural defects are significant irrespective of whether the Final Determination constitutes rulemaking or adjudication.

EPA's unilateral announcement of its Final Determination also constitutes a failure to harmonize its greenhouse gas emissions standards with NHTSA's fuel-economy standards, contrary to the letter and intent of EPA's own regulations. NHTSA has not yet reached a determination on its fuel economy standards and continues its

⁹ U.S. Department of Labor, Bureau of Labor Statistics, 2015, U.S. Vehicle and Equipment Manufacturing Employment equaled 909,700 people.

¹⁰ Final Determination, Response to Comments at 1-3.

¹¹ See Alliance Comments on Proposed Determination, Dec. 30, 2016, Docket ID No. EPA-HQ-OAR-2015-0827.

¹² See Final Determination, Response to Comments at 7.

Midterm Evaluation rulemaking activities. EPA's failure to act in coordination with NHTSA also casts serious doubt on the legitimacy of EPA's data and conclusions, given the substantial discrepancies between EPA's and NHTSA's analysis of the technologies and costs associated with the MY 2022-2025 standards.¹³

Furthermore, EPA's Final Determination that the MY 2022-2025 greenhouse gas standards should remain unchanged, is riddled with indefensible assumptions, inadequate analysis, and a failure to engage with contrary evidence. Here are just a few examples:

- EPA estimated that these standards will cost the industry at least \$200 billion. But EPA underestimated the burden. Contrary to EPA's assumptions, manufacturers will have to rely on much more expensive electrified technologies (i.e., hybrids and plug-ins), driving up vehicle prices and depressing auto sales.
- EPA refused to conduct an analysis of consumer acceptance and technology affordability needed for compliance, claiming this was too difficult.
- EPA refused to analyze substantively the economic impact of the MY 2022-2025 standards, instead making cursory assertions that downplayed the impact of its mandate on auto sales and employment.
- EPA refused to consider many of the Alliance's technical concerns even when supported by an outside consultant¹⁴, asserted the Alliance provided insufficient data, and then refused further meetings for clarification.

4. Studies and Data Highly Relevant to the Midterm Evaluation Have Not Been Submitted to EPA Because They Still Are Pending

It is particularly critical that EPA withdraw the current Final Determination and reopen the Midterm Evaluation process because analysis commissioned according to EPA's original timetable is ongoing and the Alliance expects that new information relevant to the Final Determination's underlying assumptions and resulting analysis will soon emerge. EPA's rushed timetable, coupled with its about-face on the timing of the Midterm Evaluation, prevented consideration of this information.

¹³ See Alliance Comments on US EPA, US DOT, California's Air Resources Board Draft Technical Assessment Report of Greenhouse Gas Emissions and Fuel Economy Standards for Model Year 2022-2025 Cars and Light Trucks at ES-9, Sept. 26, 2016, Docket ID No. EPA-HQ-OAR-2015-0827, NHTSA's costs are approximately 42% higher than EPA's (NHTSA Table ES-2 v. EPA ES-4 Table ES-1).

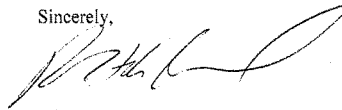
¹⁴ See Novation Analytics Comments on Draft Technical Assessment, Sept. 26, 2016; Docket ID No. EPA-HQ-OAR-2015-0827.

We urge EPA to reconsider imposing such a far-reaching mandate on an entire industry without adequately considering the consequences, and without giving stakeholders a meaningful opportunity to comment. The MY 2022-2025 standards threaten to depress an industry that can ill afford spiraling regulatory costs. If left unchanged, those standards could cause up to *1.1 million* Americans to lose jobs due to lost vehicle sales.¹⁵ And low-income households would be hit the hardest.¹⁶

The Alliance is not asking EPA to make a different Final Determination at this time. All we are asking is that EPA withdraw the Final Determination and resume the Midterm Evaluation, in conjunction with NHTSA, consistent with the timetable embodied in EPA's own regulations. We believe that, if carried out as intended, the Midterm Evaluation can lead to an outcome that makes sense for all affected stakeholders and for society as a whole.

The Alliance welcomes the opportunity for further dialogue about ways to rekindle the industry's longstanding cooperation with EPA on these issues.

Sincerely,



Mitch Bainwol
President and CEO

Cc: Secretary Elaine Chao, DOT
Kevin Green, DOT
Bill Charnley, EPA
Chris Grundler, EPA
Michael Olechwiw, EPA
Rebecca Yoon, NHTSA
James Tamm, NHTSA
Mike McCarthy, CARB
Annette Hebert, CARB

¹⁵ McAlinden, Sean, et al., *The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy*, Center for Automotive Research (Sep. 2016) at 49. Referring to the \$3.00 per gallon gasoline price \$6,000 technology cost scenario.

¹⁶ Walton, Tom, et al., *The Impact of Future Fuel Economy Standards on Low Income Households*, Defour Group LLC (Sep. 2016); Walton, Tom, et al., *Defour Group Response to EPA Rejoinders to Defour Group / Alliance of Automobile Manufacturers Submission Regarding the Regressivity/Affordability of EPA's Proposed Fuel Economy Standards*, (Dec. 2016).

Senator BRAUN. Ranking Member Whitehouse, do you have an additional comment?

Senator WHITEHOUSE. Mr. Segall, you used the word capture in your testimony. Could you elaborate on what you mean? I assume you are describing the concept of regulatory capture or agency capture.

Mr. SEGALL. I am, and that concept essentially speaks to the point where a regulator becomes so interwoven with the entities it is regulating that it stops looking critically at the evidence.

Actually, the letter that the Chairman has entered into the record is a good example of this. The auto industry, after some relief, it is true, they have been pressing for that for years, they were rejected on the record just months before in a real analysis. What we are seeing in this sudden swerve has a lot to do with the fact that EPA is now run primarily by fossil fuel lobbyists. Their view is narrow, their economic interests are narrow, and their ability to actually rigorously look at the evidence is clearly limited.

And you don't have to take my word for it; we have gone to court again and again on these rollbacks. We keep winning because EPA isn't grounding its actions in the law or the facts, and to me, that is a strong indication that what we are seeing are politically driven choices, not proper environmental decisions.

Senator WHITEHOUSE. I hear that Marathon Oil and a few fossil industry front groups were the driving force between the CAFE standards rollback. Do you have any information from your perspective on the California Air Resources Board about that?

Mr. SEGALL. We believe that reporting. We think that is right. This looks very much—given that the science cannot possibly support what has been proposed, and the auto industry themselves have said that they don't want it. Who wants this? It is the oil industry.

Senator WHITEHOUSE. Like the old story about the tortoise on top of the fence post. You know it didn't climb there; somebody had to put it there when its behavior is that weird.

You mentioned in your testimony that the Clean Power Plan, as proposed by this fossil fuel industry-run EPA would actually, to quote you, "incredibly actually increase power sector emissions on its own admission." When you say on its own admission, what do you mean?

Mr. SEGALL. I mean EPA's own impact analysis. They project increases in most of the major pollutants so bad that they also propose major revisions to the core permitting programs to accommodate this massive pollution. It is quite remarkable.

Senator WHITEHOUSE. So, if you were looking at that Clean Power Plan, and you were looking at it as a means for trying to actually reduce carbon emissions, it would appear to be rather deliberately going in the opposite direction, would it not?

Mr. SEGALL. It is a gift to the coal industry at the cost of people's lungs.

Senator WHITEHOUSE. Thank you.

Senator BRAUN. Senator Cramer.

Senator CRAMER. I have 20 minutes, but I will try to say a few things in 2. In fact, I may shift completely to a very pragmatic issue.

Dave, it has been really cold in North Dakota, has it not, this winter? One of the coldest winters in decades.

Mr. GLATT. That is correct, Senator.

Senator CRAMER. In a long time. Last week—maybe it was 2 weeks ago, could have been any week in the last 5 or 6—is it not true that in the Midwest, the integrated resource planning that involves—one of concerns you raised early on in your testimony, involves the availability of a robust energy on the grid, electricity, was at stake. And why was that?

Mr. GLATT. The demand was so great during this cold spell.

Senator CRAMER. And when we have high demand, and the grid relies on energy sources that are not reliable, intermittent, what happens but that there is not enough supply, and that is exactly what happened. The people of Minnesota actually complained that their electricity wasn't as robust as a result of what always happens, or at least 90 percent of the time happens when it is really, really cold, is the wind does not blow, and wind turbines don't turn, don't spin; and when wind turbines don't spin, they don't provide warmth. And by the way, that didn't even consider the fact that gas companies were asking people to curtail their use of natural gas because they needed to get this other fuel to dispatchable electricity.

My point of all this is to tell you that I have great empathy with what you were saying, Mr. Segall, with regard to States' rights and emission standards, particularly transportation emissions. I also know that there can occasionally be conflicts between the interstate commerce clause and other cooperative federalism, and that this stuff is never as simple as any one side would like it to be.

But I also know that—I just think that when the EPA—the Clean Power Plan in particular—when they came out with not just a big bait and switch in terms of the standard, the emission allowance, which I thought was very unfair and unreasonable, but they were very prescriptive, as well, and what I worry about is whenever we become overly prescriptive or we broaden jurisdictions outside the fence line—as an example, that was one of the early blunders of the Clean Power Plan, was to go beyond EPA's legal authority—that we don't allow the type of innovation that I believe exists. And I think you could make a point of that, I think you could, and I certainly think you could. I just think we could have a better conversation sometimes about this.

My time is well up, but if anybody wants to comment, that is just my rambling for the moment, Mr. Chairman.

Mr. SEGALL. Senator, I would just say that California is a great example of that. We are moving rapidly toward 100 percent renewable grid, and what we are finding is intermittency is much less of a problem than we would have thought because energy storage is replacing both gas plants, and if we balance that out. And it has been great to see how well Americans can innovate when we ask them to do it.

Ms. KEOGH. I would just add that, as an engineer, I am a full believer that technology will lead the day in terms of environmental excellence, and I think we have seen that in the last few years, and I hope that we can continue to show that technology is the answer versus more regulation.

Thank you.

Mr. GLATT. And just to add up finally that I agree with that. We are seeing the market in the clean power plant vacuum change. We are seeing more renewable, less coal, less emissions, and that is without any regulations, so it tells me that at least the corporations in North Dakota understand that things have to change, and they are doing that, and it is innovation, it is new technology, and spending money to move forward.

Senator BRAUN. Quick note: members can submit follow up questions for the record; it will be open for 2 weeks.

I want to thank all of the witnesses; it was a very good, robust conversation, and I think Senator Whitehouse and I are both in agreement that the topics of federalism and the environment need to be vetted. We need to take the full hour and a half to do it, and we hope to have this Committee as a good forum to do it.

Thank you so much.

The hearing is adjourned.

[Whereupon, at 11:31 a.m. the Committee was adjourned.]

