

MODERNIZING ENVIRONMENTAL LAWS: CHALLENGES AND OPPORTUNITIES FOR EXPANDING INFRASTRUCTURE AND PROMOTING DEVELOPMENT AND MANUFACTURING

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT

OF THE

COMMITTEE ON ENERGY AND

COMMERCE

HOUSE OF REPRESENTATIVES

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THURSDAY, FEBRUARY 16, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT,
COMMITTEE ON ENERGY AND COMMERCE
Washington, DC.

The subcommittee met, pursuant to call, at 10:00 a.m., in room 2123 Rayburn House Office Building, Hon. John Shimkus (chairman of the subcommittee) presiding.

Present: Representatives Shimkus, McKinley, Barton, Murphy, Olson, Johnson, Flores, Hudson, Walberg, Carter, Walden (ex officio), Tonko, Ruiz, Peters, Green, DeGette, McNerney, Dingell, Matsui, and Pallone (ex officio).

Staff present: Wyatt Ellertson, Research Associate, Energy/Environment; Adam Fromm, Director of Outreach and Coalitions; Giulia Giannangeli, Legislative Clerk, Digital Commerce and Consumer Protection/Environment; Tom Hassenboehler, Chief Counsel, Energy/Environment; Zach Hunter, Director of Communications; A.G. Johnston, Senior Policy Advisor/Professional Staff, Energy/Environment; Katie McKeough, Press Assistant; Mary Neumayr, Senior Energy Counsel; Tina Richards, Counsel, Environment; Chris Sarley, Policy Coordinator, Environment; Dan Schneider, Press Secretary; Peter Spencer, Professional Staff Member, Energy; Hamlin Wade, Special Advisor, External Affairs; Luke Wallwork, Staff Assistant; Jeff Carroll, Minority Staff Director; Jacqueline Cohen, Minority Senior Counsel; Jean Fruci, Minority Energy and Environment Policy Advisor; Caitlin Haberman, Minority Professional Staff Member; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; Dan Miller, Minority Staff Assistant; Alexander Ratner, Minority Policy Analyst; Matt Schumacher, Minority Press Assistant; Andrew Souvall, Minority Director of Communications, Outreach and Member Services; and C.J. Young, Minority Press Secretary.

Mr. SHIMKUS. Let me call the subcommittee to order.

And before we start opening statements I want to welcome, and I will have my ranking member welcome Congressman Walberg and Congressman Carter, who are new to the Energy and Commerce Committee as a whole, and also new to the subcommittee.

So, so welcome. Glad to have you.

Mr. TONKO. Thank you, Mr. Chairman. On our side I would like to welcome Congresswoman Debbie Dingell at the end of this tier, and Representative Scott Peters and Representative Raul Ruiz.

So we look forward to a very productive session with Energy and Commerce.

Thank you, Mr. Chair.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. Thank you. And this is a kind of a new committee. It has got expanded jurisdiction over part of the stuff we are talking about today. And so and this is also a committee that helped push through the Toxic Chemical Reform bill which was a, I would argue, is one of the major pieces of legislation that got through in the last Congress.

So, so we work well together. We fight when we need to fight, and that is the way the system works. So it is great, it is great to have you here.

And I will recognize myself for 5 minutes for my opening statement.

Welcome to the Environment Subcommittee's first hearing of the 115th Congress. The topic of the hearing today reflects what is going to be one of the themes of our legislative work this Congress, and that is to identify the best ways to modernize the statutes within our jurisdiction in ways that deliver effective environmental protections and remove unnecessary barriers to expand economic opportunity in communities and the nation.

We will be returning to this topic a lot in the coming months. Today focuses on challenges to economic development under certain laws and policies administered by the Environmental Protection Agency. We will be taking testimony to help us to identify practical solutions and statutory updates that will accelerate the development of infrastructure and manufacturing.

In a future hearing, we will look at similar challenges at the Department of Energy. In particular, we will be working to update and ensure more rapid implementation of our nation's nuclear waste management policy.

As we know from extensive committee oversight, getting our nation's used fuel management program back on track will result in a path to reinvigorate the nuclear energy sector, save taxpayers billions of dollars in liability costs, and unlock tens of billions of dollars for construction and associated infrastructure projects.

The benefits of good jobs in strong communities that result from this kind of economic activity can be difficult to measure fully, but that makes them no less real. And so, as we look at how to modernize environmental laws, we should always keep in mind the intangible good that comes from enabling people to have the economic wherewithal to live healthier and safer lives.

These community-strengthening benefits of economic development are central to the goals of the EPA's Brownfields Program. This program incentivizes states, local governments, and private stakeholders to clean up underused or abandoned industrial and commercial properties, and to return them to beneficial use. There are more than 450,000 Brownfield sites in the United States. In

many communities across the nation, Brownfields contribute to the blight that depresses property values, inhibits development, and contributes to economic stagnation.

Cleaning up these sites and returning them to productive use is great for the economy because Brownfields grants can be directly leveraged into jobs, additional redevelopment funds, and to increase residential property values. So it offers the kind of a community boost we want from good environmental policies.

While the Brownfields Program seems to be working, there is always room for improvement. So, we today welcome Mayor Jon Mitchell from New Bedford, Massachusetts. Mayor Mitchell has developed solar projects from contaminated sites, which is also something that is happening near my district in East St. Louis, Illinois. Turning contaminated sites into solar seemed like an excellent way to develop infrastructure while addressing blighted areas within our communities.

In the implementation of our air laws, the states, localities, and private sector all face challenges in developing new infrastructure or manufacturing projects. As noted in past committee hearings, when companies seek to invest in large capital projects, they need realistic and predictable project timelines. This is necessary to plan, design, procurement, installation and operations. Yet, uncertainties in the process for obtaining air permits can lead to costly delays and decisions not to invest in these projects.

EPA is required to make new source permit decisions one year after a completed application is filed. An analysis that looked at preconstruction permits for power plants and refineries, however, found that while permits in the late 1990s averaged around 160 days, from 2002 to 2014 it took an average of 480 days to issue a decision on a permit application.

In other cases, we see EPA setting new air standards but failing for years to issue implementation regulations. EPA took nearly seven years to issue guidance on how to comply with its 2008 ozone standards. It took more than three years to issue final implementation regulations for its 2012 particulate matter standards.

The unnecessary delays for project developers and city and state planners just add up and result in the costly waste of time and project investments idling on the sidelines. We should be able to do better than this. In today's modern economy it makes no sense that we cannot have a more efficient permitting process, or more timely guidance from the regulatory agencies.

Our witnesses today will provide local, state, and national perspectives that should help guide us as we consider common sense measures to expand economic opportunity by modernizing certain environmental statutes.

And with that my time is almost out. And I yield back my time and recognize the ranking member of the subcommittee Mr. Tonko. [The prepared statement of Mr. Shimkus follows.]

PREPARED STATEMENT OF HON. JOHN SHIMKUS

Welcome to the Environment Subcommittee's first hearing of the 115th Congress. The topic of the hearing today reflects what is going to be one of the themes of our legislative work this Congress. And that is to identify the best ways to modernize the statutes within our jurisdiction in ways that deliver effective, environ-

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Cleaning up these sites and returning them to productive use is great for the economy because brownfields grants can be directly leveraged into jobs, additional redevelopment funds, and into increased residential property values so it offers the kind of community boost we want from good environmental policies.

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Our witnesses today will provide local, state, and national perspectives that should help guide us as we consider commonsense measures to expand economic opportunity by modernizing certain environmental statutes.

OPENING STATEMENT OF HON. PAUL TONKO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. TONKO. Thank you, Mr. Chair. And welcome to our panelists and to the new members of the Energy and Commerce Committee

on both sides of the aisle. I look forward to working with you all as a member of this committee.

Decades of American history demonstrate we can grow our economy and create jobs while improving our environment and public health. I am not convinced that trend is about to change. I want to make it clear from the start of this hearing that our environmental protections provide significantly greater benefits than costs to society. It results in healthier people, which means fewer sick days, asthma attacks, hospital visits, and premature deaths, among many other benefits.

OMB estimated that major rules promulgated by EPA from 2004 to 2014 generated benefits between \$160 and \$788 billion compared to \$38 to \$45 billion in costs. Clean Air Act protections account for the majority of these benefits, and have prevented millions of lost work and school days. The Cross-State Air Pollution Rule had a benefit-to-cost ratio exceeding 50 to 1. And a clean power plant will reduce carbon pollution while saving lives.

Strong laws can prevent environmental disasters. When our laws fail to protect people, the cost can be tremendous.

I want to thank Ms. Mays for being here today from Flint, Michigan. It is important for members to hear about the harm that was done to thousands of our fellow Americans and how it could have been prevented by better laws and greater investment from the Federal Government. The price of this disaster will far exceed the investment that would have been necessary to prevent it.

The case of Flint should make it clear that real infrastructure investment is indeed needed. We cannot fool ourselves into thinking it can only be done through deregulation. We need federal dollars behind our efforts.

So I would agree that some of our environmental laws should be updated. And I would suggest starting with strengthening the Safe Drinking Water Act. Our water infrastructure is crumbling. In many communities it is becoming a liability to economic growth, to public health and to safety.

Democratic members of this subcommittee have reintroduced legislation to improve the Safe Drinking Water Act. It has been 21 years since we last updated this law. It is past time to reauthorize the drinking water SRF which has received flat funding since its inception, despite growing needs and aging infrastructure. We must give EPA the authority necessary to be able to set standards and require an update of the Lead and Copper Rule.

Similarly, our Brownfields law is in need of an update. This program has been incredibly successful by every method, and it is a great investment. Every federal dollar leverages between \$17 and \$18 in other public and private funding. Cleaning up these sites has environmental, health, and economic benefits, including increasing nearby residential property values and putting unused properties back on local tax rolls.

But many of the easy Brownfields have been cleaned up. In addition to more flexibility, we need to examine whether the funding level for individual sites and the overall program is adequate. For both water and Brownfields, strengthening these laws would create jobs, protect public health, and ease the burden on local governments. Last Congress this subcommittee worked together on TSCA

reform, a law that industry, consumer protection, and environmental stakeholders all agreed needs to be brought into the 21st Century. I hope we can find common ground again this Congress to improve laws where a consensus exists on the need for reform.

Based on the testimony we will hear this morning, I think there are strong cases to start with drinking water and Brownfields.

And with that, Mr. Chair, I would like to yield my remaining time to Representative Doris Matsui from California.

Ms. MATSUI. Thank you very much, Ranking Member Tonko, yielding time.

Strong investment in water infrastructure is vital to our health and safety. As we have seen tragically this week in California at Oroville Dam, aging and neglected infrastructure threatens lives.

Just 70 miles south of Oroville at Folsom Dam, which is just upstream from my district in Sacramento, we are demonstrating the positive impact infrastructure can have. I worked tirelessly to ensure the millions of dollars in federal investment over the last decade building a spillway, which is making our residents safer, our regions more secure. That also involves environmental standards, too.

Water infrastructure is vital for public safety and public health. Instead of rushing to weaken our environmental standards, I hope we can come together to make real commitments to maintaining and improving infrastructure in all our communities.

Thank you. And I yield back.

Mr. SHIMKUS. The gentlelady yields back her time.

The Chair now recognizes the gentleman from New Jersey, Mr. Pallone for 5 minutes.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Mr. Chairman.

Our nation's crumbling infrastructure is a pressing issue that we must address. And in this subcommittee that means investing in drinking water infrastructure, Superfund cleanups, and Brownfield grants. Our current investments in these critical public health programs is simply not enough. This week's evacuation in California related to the Oroville Dam are the latest example, but far from the only example.

My Democratic colleagues and I have repeatedly introduced legislation to modernize and fund these infrastructure programs. The Republicans have consistently opposed or blocked these efforts.

Today I join many of the Democrats on this subcommittee in announcing the reintroduction of the Safe Drinking Water amendments and Ranking Member Tonko's AQUA Act to fund drinking water infrastructure efforts. When Democrats controlled the House, the AQUA Act passed easily on a bipartisan voice vote. But since Republicans took over they have avoided the issue. And I hope this hearing is a sign that Republicans are ready to join our infrastructure efforts.

As the Federal Government has pulled back infrastructure funding in recent years, the backlog of infrastructure repairs and replacement has grown, and so has the price tag to address it. Laying

pipe replacements into water mains burst costs more than planning ahead. Delaying Superfund cleanups while contaminants spread in the environment costs more than quickly containing and addressing pollution.

In the long run we're not saving money by ignoring the problem. And only public funding can close the gap to the communities in need. Now, I expect my Republican colleagues will suggest today that the key to spurring infrastructure is environmental deregulation instead of public funding. But that approach is dangerous and shortsighted.

Environmental protections are essential for public health, for the economic viability of our communities, and for the preservation of our natural resources. The benefits of environmental protections far outweigh the costs, and so repealing those protections would hurt far more than it would help. Cutting environmental protections may benefit some in the short term, but others will pay with their health and welfare.

We will hear today from Melissa Mays, a resident of Flint, Michigan. The ongoing drinking water crisis in Flint will only be solved with significant federal funding. Melissa's experience shows why environmental protections are so important and what can happen when short-term economic decisions overrule environmental considerations. Any efforts by Republicans in Congress and President Trump to remove environmental protections will have lasting consequences, unleashing dangerous pollution that could take decades to clean.

We will also hear today from the Mayor of New Bedford, whose harbor is a Superfund site thanks to the unrestricted dumping of PCBs decades ago. That harbor, like the Superfund sites in my district, shows the long-term costs of having to clean up pollution, costs that could have been avoided if stronger environmental protections had been in place.

Mayor Mitchell will also tell us about new clean energy jobs in New Bedford, in both the solar and wind energy industries. These are good jobs, driven in part by environmental protections.

And there are numerous small manufacturers nationwide that develop and manufacture air pollution control equipment. The experienced and innovative technologies produced in this sector position these manufacturers as leaders in international markets for pollution control and environmental services. Repealing air quality regulations will not only eliminate vital public health protections, it will also kill those jobs.

When it comes to infrastructure, Democrats will continue to fight for the federal investments our communities need. These investments strengthen public health while also creating good-paying jobs. And when it comes to environmental protections, Democrats will continue to lead the fight for safe drinking water, clean air, and clean land. We can have a safe environment and a strong economy. In fact, in the long run, a safe environment is absolutely necessary for a strong economy.

And I will yield back unless anybody else wants my time, Mr. Chairman.

PREPARED STATEMENT OF HON. FRANK PALLONE, JR.

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Mr. SHIMKUS. The gentleman yields back his time.

The Chair looks to the majority side to see if anyone else wants to do an opening statement. The Chair recognizes the gentleman from Texas Mr. Barton for 5 minutes.

**OPENING STATEMENT OF HON. JOE BARTON, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS**

Mr. BARTON. I won't take 5 minutes, Mr. Chairman, but you are gracious to give me that time.

First, I want to congratulate you on chairing this subcommittee. A long time ago I chaired a similar subcommittee that had kind of the jurisdiction of Mr. Upton's subcommittee and your subcommittee; we did energy and environment. And it should be that way because they exist together. So I am very pleased that you chair the subcommittee and have the jurisdiction that this subcommittee has.

I want to welcome our witnesses to the first hearing of this subcommittee. This is an important issue. Republicans hear the Democratic side, who seem to think we are ready to rape and pillage the environment. Nothing could be further from the truth.

We do want to review our environmental statutes and put them in context with where we are today in terms of economic development. You can have both. You can have positive economic development and effective environmental protection. And I think this hearing is going to lead us to begin to do that.

I would hope, Mr. Chairman, that as we go through the hearing process we, we take a serious look at, to the extent we want to reform, review, change some of the environmental statutes, that we put in a true, effective cost-benefit analysis. I see no reason we can't use real numbers and real science, as opposed to some of the studies that the Obama Administration did.

I was here when we did the Clean Air Act amendments early '90s. I was here when we passed the last Safe Water Drinking Act. Then Chairman John Dingell worked across the aisle to craft both of those pieces of legislation. And I'm sure you and Mr. Weldon hope to do the same thing with Mr. Pallone and the Democrats.

I hope we also take a real look at CO₂. I know that's not the direct purpose of this hearing, Mr. Chairman, but there is no question that the criteria pollutants in the Clean Air Act, mercury and SO₂ and NAAQS and particulate matter, that they are true pollutants.

CO₂ is a little different animal. It's not directly harmful to human health. The theory is that the amount of manmade CO₂ has somehow tipped the balance in the upper atmosphere, and that is causing, over long periods of time, consequences that are negative. It is not entirely clear whether that is an absolutely true fact or not as opposed to a theory. And I hope we will, I hope we will take a look at that and, if necessary, clarify what a pollutant is under the terms of the Clean Air Act.

In any event, Mr. Chairman, you are gracious with your time. I appreciate you yielding to me. And I look forward to this hearing and to our witnesses.

Let me say one other thing. The minority has somehow decided that Flint, Michigan, is a federal issue. There is no question that if we do an infrastructure bill we can lend a helping hand to many communities around the country that need to upgrade their water systems. But to say that the reason that Flint, Michigan, happened is because of lack of federal initiative is not a true statement.

That was a state and local issue. The local community and the state did not do their job. And I know we have the gentleman from Michigan Mr. Walberg, now on the committee, and he may have a different view about that. But we certainly want to help the Flint, Michigans of the world, but to say that that is now a federal responsibility 100 percent, I strongly disagree with.

But I yield.

Mr. SHIMKUS. The gentleman yields back his time.

So, again, welcome to the panel. This is how we operate:

You all submitted your opening statements for the record. I will recognize each one of you for 5 minutes to kind of summarize. And then we will go on to questions. And it should, it should go real well.

So first off we'd like to welcome the Honorable Jonathan Mitchell, Mayor of New Bedford, Massachusetts. Sir, welcome. You have 5 minutes and you are recognized.

HON. JONATHAN F. MITCHELL, MAYOR, NEW BEDFORD, MASSACHUSETTS; KEVIN SUNDAY, DIRECTOR, GOVERNMENT AFFAIRS, PENNSYLVANIA CHAMBER OF BUSINESS AND INDUSTRY; MELISSA MAYS, FOUNDER, WATER YOU FIGHTING FOR?; EMILY HAMMOND, GEORGE WASHINGTON UNIVERSITY LAW SCHOOL ON BEHALF OF CENTER FOR PROGRESSIVE REFORM; THOMAS M. SULLIVAN, VICE PRESIDENT, SMALL BUSINESS POLICY, U.S. CHAMBER OF COMMERCE; AND ROSS E. EISENBERG, VICE PRESIDENT, ENERGY RESOURCES POLICY, NATIONAL ASSOCIATION OF MANUFACTURERS

STATEMENT OF MR. MITCHELL

Mr. MITCHELL. All right. Thank you, Mr. Chairman. Good morning, members of the committee, subcommittee.

My name is Jon Mitchell. I am the Mayor of New Bedford, Massachusetts. And I am pleased to be here to testify on behalf of the United States Conference of Mayors where I chair the Energy Committee.

Today I want to discuss the importance of reauthorizing and modernizing the Brownfields law and by describing how New Bedford has used the program and turned environmental liabilities into environmental assets. If Congress is interested in giving economic development tools to communities, reauthorizing and modernizing the Brownfields law should be a cornerstone of that effort.

Let me give you a little bit of background on New Bedford.

New Bedford was the world center of the 19th Century whaling industry, and later became a national center for cotton textile manufacturing. Today the city has recaptured its national leadership in the maritime sector as the number one commercial fishing port in the United States. Our city historically has struggled, however, with high unemployment rates and demographic challenges, like most older, industrial urban centers.

That said, the city and the region are in the midst of a noticeable transformation. This past year we enjoyed the sharpest drop in unemployment of any metropolitan area in America. When I came

into office 5 years ago the unemployment rate hovered around 14 percent. And today it is 3.7 percent.

With two major Superfund sites, hundreds of Brownfield sites and a few remaining opportunities for so-called greenfield commercial development, New Bedford has come to recognize that our path to continuing our trajectory of growth and prosperity lies in part in unlocking the potential of contaminated sites through innovative new approaches.

I would like to highlight two of our projects: a traditional Brownfield site and a redeveloped Superfund site.

New Bedford's upper harbor is host to dozens of historic textile mill buildings. With a healthy real estate market and spectacular views of the river and marshlands, private sector investors there in that part of the city have recognized the potential for conversion of these mills to residences. The city has moved forward with plans to construct a recreational bike path along this particular area that would follow the shoreline between the mill buildings and the water's edge.

The fundamentals of economic activity are all in place. That said, an important underlying factor has been, throughout the period of redevelopment, Brownfield grant funding. In key instances, grants have helped catalyze and support New Bedford's mill conversion projects. And this is a problem that is similar in so many cities across America.

Targeted Brownfield funds have been used creatively to fill important gaps and cover assessment and remediation costs that were problematic for the city and its private sector partners. For example, the city was recently awarded two \$200,000 Brownfield clean-up grants that paid for the remediation of two derelict large fuel tanks along the river. And that led, that opened the doors up for redevelopment. All told, multiple waterfront buildings have now been converted, and tens of millions of dollars have been invested, and hundreds of construction jobs were created, all as a result of this unlocking of the door through Brownfield grants.

It also may, and turning to the other project, it may surprise you that, according to *The Wall Street Journal*, the City of New Bedford has the distinction of having the most installed solar capacity per capita of any municipality in the continental United States. We are actually beaten by Honolulu, for obvious reasons.

I would like to highlight our flagship solar project, which is the Sullivan Ledge Solar Project, because it is a great example of the creative re-use of a contaminated site that has helped support local jobs and deliver bottom line benefits.

Sullivan's Ledge was one of the country's most high-profile Superfund sites. Today, atop a cleaned and capped landfill, sits a 1.8 megawatt solar farm with over 5,000 solar panels that generate electricity to support over 200 homes. Our effort was far from easy, but it required a great deal of creativity by pulling in PRPs and getting very creative about some of the technical hurdles that we had to confront. But it is now, indeed, an environmental asset.

So what does all this mean to us as we look at Brownfields and Congress' role in supporting Brownfield redevelopment? It's this, and members touched upon this directly: whole funding of the Brownfields program. At the current levels EPA funds only 30 per-

cent of the applications. And this is a very good investment in cities, especially ones like mine, creating a multi-purpose grant that enhances flexibility for cities to move money around to the sites that need it the most. Increased cleanup of grant amounts is, in particular, a cleanup grant as opposed to assessment is especially important.

And then there are a handful of other things, like allowing reasonable administrative costs in the grant program, clarifying grant eligibility for publicly-owned sites, removing barriers for local and state governments to address mothballed sites, and encouraging Brownfield cleanups by so-called good Samaritans.

In closing, Brownfield redevelopment is a win/win for everyone involved. And it creates jobs, cleans up the environment, and it is pro business and pro community.

And I thank you again for the opportunity, Mr. Chairman, to speak to all these matters.

[The statement of Mr. Mitchell follows:]



**Written Testimony of New Bedford Mayor Jon Mitchell
For The U.S. Conference of Mayors
Before the House Energy and Commerce
Subcommittee on Environment and the Economy
Thursday, February 16, 2016**

**"Modernizing Environmental Laws: Challenges and Opportunities for Expanding
Infrastructure and Promoting Development and Manufacturing"**

INTRODUCTION

My name is Jon Mitchell. I am the Mayor of New Bedford, Massachusetts, where I have served since 2012. I'm pleased to be here to testify on behalf of the U.S. Conference of Mayors where I serve as Chair of the Energy Committee. Mr. Chairman and members of the Committee, I would like to officially submit my written testimony for the record.

I am pleased to speak before you today to examine potential reforms to environmental statutes to promote infrastructure, development, and manufacturing. My testimony will focus on the reauthorization of the Brownfields Law with its national and local impact to infrastructure, economic development, and job creation.

In particular I will describe how New Bedford has pursued renewable energy as one creative solution to the redevelopment of brownfield and Superfund sites, and in the process, turned environmental liabilities into economic assets for the community.

If Congress is interested in giving economic development tools to communities, especially those that are economically struggling, reauthorizing and modernizing the Brownfields Law should be a cornerstone in that effort.

HISTORY

Since the early 1990s, the Conference of Mayors made the redevelopment of brownfield properties one of its top priorities. At that time, the Government Accountability Office (GAO) estimated there were anywhere from 400-600,000 brownfield properties. Brownfields are defined as abandoned or underutilized property whose redevelopment is hindered due to real or perceived environmental contamination.

Developers and business owners were unwilling to touch these properties out of fear of liability. These concerns were the result of the joint, several, and strict liability provisions in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a 1980s law more commonly known as Superfund, which made an innocent developer just as responsible for the cost of cleanup as the actual polluter.

As a result, these potential businesses would develop on greenfields rather than take a risk on a brownfield property. This has contributed to urban sprawl and left abandoned or underutilized sites in just about every community in the United States. New Bedford alone has several hundred brownfields and two Superfund sites.

As former Chicago Mayor Richard Daley said at the time, "As a nation, we recycle aluminum, glass, and paper, but we don't recycle our most valuable commodity, our land."

The Conference of Mayors worked with Congress and the EPA to formulate legislation and a program that provided some liability relief for innocent developers as well as money to do assessments and cleanup.

This was legislation had strong bipartisan support. The fact that the Small Business Liability and Brownfields Redevelopment Act passed in the Senate with a 99-0 vote and

was put on the unanimous consent calendar in the House and then signed by President Bush, demonstrates the vast bipartisan appeal of this issue.

And you can understand why: This is a win for the community, the environment, and the business community.

NATIONAL IMPACT OF BROWNFIELDS

The Brownfields Law and the EPA Program that resulted has had a very positive impact on many communities throughout the nation. According to EPA, since the inception of the program, they have awarded nearly \$600 million in assessment money which has resulted in over 24,000 brownfield assessments. They have also awarded about \$215 million for cleanup grants resulting in over 1,200 cleanups completed. This has created over 113,000 jobs and nearly \$22 billion dollars leveraged.

In fact, each EPA dollar spent leverages approximately \$18 in other investments. Another added bonus is that by developing on brownfield sites, you are also reutilizing or refurbishing already existing infrastructure.

However, resources have been limited, and EPA has had to turn away many highly qualified applicants due to lack of funding. EPA estimates that for the past 5 years, over 1,700 requests for viable projects were not awarded money because of limited funding. EPA estimates that if they were able to provide funding to those turned away applicants, an additional 50,000 jobs would have been created along with an additional \$12 billion of leveraged funding.

In the last Conference of Mayors survey, 84 percent of cities said that they have successfully redeveloped a brownfield site with 150 cities successfully redeveloping nearly 2,100 sites, comprising more than 18,000 acres of land. And, at that time, there were over 1,200 sites comprising of another 15,000 acres that were in the process of

being redeveloped. 106 cities reported that 187,000 jobs have already been created through the redevelopment of brownfield properties with 71,000 jobs in the pre-development stage and 116,000 permanent jobs.

These new developments have resulted in an increase in tax revenues at the local, state, and federal level. 62 cities reported that their actual tax revenues from redeveloped brownfield sites totaled over \$408 million with an estimate of potential revenues ranging from \$1.3 - \$3.8 billion.

And, it should be noted that in every survey that the Conference of Mayors ever conducted, the top three impediments to brownfields redevelopment were always the same-- lack of clean up funds, the need for more environmental assessments, and liability issues.

BROWNFIELDS REDEVELOPMENT IN NEW BEDFORD

Moving from a national perspective, I want to tell you about this program at the local level. First of all, I want to give you a little background on my community. New Bedford is port city located sixty miles south of Boston with a population of roughly 100,000. It is most widely known as the world center of the whaling industry in the 19th century, featured prominently in the premier American novel, Melville's *Moby Dick*. Later a national center of cotton textile manufacturing, the City today has recaptured its national leadership in the maritime sector, as the number one commercial fishing port in the United States for the past sixteen years.

To be sure, my City has struggled with a high unemployment and demographic challenges like most other older urban areas. That said, the City and region are in the midst of a noticeable transformation: Not once, but twice in the past two years the New Bedford area has seen the sharpest year-over-year drop in unemployment of all 387

metropolitan areas studied by the Bureau of Labor Statistics. When I came into office, our unemployment rate hovered around 14%; today it is 3.7%.

This recent success aside, our primary local economic development goal is to build a permanent foundation for economic prosperity that isn't subject to the vagaries of business cycles or any one industry, but instead builds on our many underlying assets.

As Mayor, I can tell you that, as I survey all the impediments to achieving our overarching economic goal, no factor is more fundamentally constraining than the lack of suitable land for future development. As a result of our industrial past, New Bedford, like many communities throughout the nation, lives today with an environmental legacy that takes off the table too many sites that could otherwise accommodate new business expansion or infrastructure investments.

With two major Superfund sites and hundreds of brownfield sites, we in New Bedford have come to recognize that our path to prosperity lies in unlocking the potential of contaminated sites through creative, innovative new local policy approaches. My hope is that Congress can likewise adopt creative, new strategies that will allow the federal government to become an even stronger partner with cities like New Bedford.

I would like to highlight for the Subcommittee two of our local redevelopment projects – a traditional brownfield site and a redeveloped Superfund site. What these two projects have in common is that, in both cases, the City has found ways to unlock underlying economic potential and turn an environmental liability into environmental and economic asset.

THE RIVERWALK AND RESIDENTIAL MILL RE-USE PROJECTS

New Bedford's upper harbor is host to dozens of historic mill buildings built alongside the Acushnet River. Our mills date to the period around the turn of the 20th century when New Bedford's cotton textile mills dominated the industry.

What the builders of these magnificent brick, stone, and lumber structures could hardly have imagined was that today they represent a unique opportunity for residential living and recreation along the water's edge.

With a healthy real estate market and spectacular views of tidal marshes and wildlife in the midst of an urban center, private sector investors have recognized the potential for conversion of these mills to residences. Moreover the City has signaled its commitment and moved forward with plans to construct a public recreational path called "The Riverwalk" that would follow the shoreline between the mill buildings and water's edge.

Make no mistake: The story of our mill conversions is a demonstration of the importance of having solid economic fundamentals in place. In this case, an underlying market demand for housing, attractive historic structures in an appealing location, and a publicly-funded recreational amenity that creates additional value.

What I would like to suggest to the Subcommittee is that all of these factors should be seen as necessary but not sufficient.

An important, often under-appreciated, factor underlying all of this economic activity has been brownfield grant funding. In key instances, grants have helped catalyze and support New Bedford's mill conversion projects. Targeted brownfield funds have been used creatively to fill important gaps and cover assessment and remediation costs that were problematic for the city or its private development partners to assume.

One recent example is illustrative: The City was recently awarded two \$200,000 brownfield clean-up grants that paid for the remediation of two 75,000-gallon underground storage tanks containing 30,000 gallons of No. 6 fuel oil at a key waterfront location. These grants were themselves preceded by a brownfield

assessment grant. Addressing this serious environmental hazard was essential to all the nearby development projects.

Today I can report that just west of the remediated tanks stands the new Cliftex Lofts, a market-rate/ affordable age 55+ housing complex. Just south is the Whaler's Cove complex which was successfully developed as 55+ and assisted living units. The City's new Riverwalk will pass just east of the tanks.

All told, multiple mill buildings have been converted at a cost of tens of millions of dollars in investment, and hundreds of residents now fondly call these buildings home.

SULLIVAN'S LEDGE SUPERFUND SITE RE-USE

It may surprise some to learn that the Wall Street Journal reported not long ago, that the City of New Bedford had the distinction of having the most installed solar capacity per capita of any municipality in the continental United States.

I will refrain today from delving into how and why a medium-sized city in the Northeast came to pursue such an ambitious solar energy initiative, but I would like to highlight our flagship solar project, the Sullivan's Ledge Solar Project.

Sullivan's Ledge, once the site of one of the country's most high-profile "Superfund" hazardous waste sites, was recently converted by the City to a 1.8 megawatt solar farm with more than 5,000 solar panels spread across ten acres, and producing enough electricity for 226 homes.

This accomplishment was the result of years of work to steadily navigate through considerable legal, regulatory, engineering, and financial hurdles. In all, the project required strong cooperation from multiple state and federal agencies, the solar

industry, and fourteen private parties responsible for the underlying environmental liability.

It was far from easy, but it was well worth the effort. Sullivan's Ledge is a great example of our "liabilities-into-assets" mindset and the creative re-use of a contaminated site in manner that has helped support local jobs and delivered bottom-line benefits to city government and taxpayers.

Some background is useful: Sullivan's Ledge operated as a granite quarry until about 1932. Between the 1940s and the 1970s, local industries used the quarry pits and adjacent areas for disposal of hazardous material and other wastes. Beginning in the 1980s until 2000, the site was cleaned up in three stages which included excavation and capping among other remedies. It continues to be closely monitored. The cleanup solution meets all EPA and Massachusetts Department of Environmental Protection standards and ensures the health and safety of residents.

The Massachusetts Department of Environmental Protection had made it a priority to support the siting of renewable energy installations on contaminated lands and landfills, so Sullivan's Ledge was welcomed by state environmental leaders as a project that demonstrated the energy, environmental, and economic benefits to be gained from the state-level strategy.

Power generation began in 2014 and soon afterward the Project began to receive recognition for its innovative approach to a complex environmental challenge. The City's effort at Sullivan's Ledge drew special praise from the EPA as an example to the nation of how solar energy production can become a redevelopment strategy for contaminated sites.

There are two aspects of Sullivan's Ledge worth consideration by the Subcommittee:

First, to state the obvious, the clean-up of the property made all else possible. Without successful remediation, there would be no solar park and none of the associated benefits.

Second, with regard to the benefits, I want to emphasize that the rationale for pursuing the solar project was as much about local jobs and local fiscal benefits as anything else.

Due to renewable energy incentives, Sullivan's Ledge alone is projected to save New Bedford city government \$2.7 million over the next twenty years in utility costs. The ten solar projects and one wind project in the City's renewable energy power program together are projected to save city government nearly \$30 million over the next twenty years. With the City spending \$6-7 million annually in electricity bills, these savings are not insignificant and are major help in reducing the burden on local taxpayers.

As important, Sullivan's Ledge, along with several of our other solar projects, was installed by a New Bedford-based solar company with a history of hiring local residents. As a result, we were able to advance important local job-creation/retention goals. In all, roughly a dozen of our own residents were on site at Sullivan's doing the work of installing and wiring panels.

This project was a win on so many levels – it created local green construction jobs, it redeveloped a severely contaminated property, it saved taxpayer money, it helps fight climate change, and it helps makes us more energy independent. It also serves as a model for other communities throughout the nation.

WAYS TO IMPROVE THE PROGRAM

The Brownfields Law has a proven track record of leveraging private sector investment, creating jobs, and protecting the environment. It also reuses and, in many cases,

modernizes infrastructure that is already in place as opposed to building out new infrastructure that will need to be maintained and eventually replaced.

The Brownfields law provided some liability relief for innocent purchasers of brownfield properties and provided resources to conduct environmental assessments and cleanups. However, there is much more work to be done. As mentioned earlier, GAO estimated there are between 400-600,000 brownfield sites throughout the United States.

The challenge that communities face now is that many of the “easy” brownfield sites have been developed and now what remains are the more difficult brownfield sites – the, what we would like to call, the medium to dark brown brownfield sites. The Conference of Mayors, along with many others, believe that with some changes to the Brownfields Law would help spur on additional redevelopment projects and economic growth.

I would like to highlight some of the key recommendations that the Conference of Mayors believe would make a significant difference with redeveloping even more properties.

Full Funding of the Brownfields Program – I know budgets are tight and we are all doing more with less. However, this program has a proven track record of leveraging private sector money, putting people to work, and taking formerly contaminated properties and putting them back into productive pieces of land that increases all of our tax bases. At the current funding levels, which are far below the authorized level, EPA only funds (roughly 30 percent) of the applications that make it to headquarters. The mayors of this nation believe this is a good investment that pays for itself and not only should be fully funded at the previously authorized levels of \$250 million but, in fact, the authorized and appropriated levels should be increased.

Creation of a Multi-Purpose Grant – The way the program works currently is that a city applies for various grants and identifies the properties where the money will be spent. The only problem with that scenario is that this is not flexible enough for real marketplace situations. A city may have multiple developers and businesses who are interested in several brownfield properties. What many cities could use is the ability to assess a number of properties and provide cleanup grants and loans depending on which site or sites are chosen for redevelopment. It hinders that opportunity if a city has to apply for a grant and wait six months to a year to see if they get funding. The Conference of Mayors would like to see the establishment of a multi-purpose grant to be given to communities that have a proven track record of fully utilizing their brownfield money. We believe by giving us that flexibility will make the program even more useful to not only us but our business community as well.

Increase Cleanup Grant Amounts – As I mentioned earlier, many of the “easy” brownfield redevelopment projects are already underway or have been completed. What we have left are brownfields that are more complicated due to the level of cleanup that is needed, market conditions, location of the site, or a combination of these factors. The Conference of Mayors would like an increase in the funding ceiling for cleanup grants to be \$1 million and in special circumstances, \$2 million. This would give some additional resources to conduct cleanup at the more contaminated sites and bring these properties back into productive use.

Allow Reasonable Administrative Costs - Brownfield grant recipients should be allowed to use a small portion of their grant to cover reasonable administrative costs such as rent, utilities and other costs necessary to carry out a brownfield project. As far as I know, this is the only program that prohibits administrative costs entirely. As a result, smaller communities and non-profits sometimes do not bother to even apply for these grants due to the cost burdens associated with taking a federal grant.

Clarify Eligibility of Publicly-Owned Sites Acquired Before 2002 – The Conference of Mayors and the Brownfields Coalition believes that as long as a local government did not cause or contribute to the contamination of the property but just happened to own the property prior to 2002, when the law was enacted, they should be allowed to apply for EPA funding for that property. It took Congress nine years to pass the original law and in that time, many communities took it upon themselves to take ownership of contaminated properties so that they could potentially turn these properties around. These same communities have now found themselves ineligible to apply for any funding for those properties to assist them with their efforts.

Remove Barriers to Local and State Governments Addressing Mothballed Sites – The Act should exempt local and state government from CERCLA liability if the government unit (a) owns a brownfield as defined by section 101(39); (b) did not cause or contribute to contamination on the property; and (c) exercises due care with regard to any known contamination at the site.

Local governments throughout the country have long recognized the harm abandoned and underdeveloped brownfield properties can pose to their communities. Properties that lie idle because of fear of environmental contamination, unknown cleanup costs, and liability risks can cause and perpetuate neighborhood blight, with associated threats to a community's health, environment, and economic development.

Local government property acquisition authority is one of the key tools to facilitate the redevelopment of brownfields. Through voluntary sales or involuntary means including tax liens, foreclosures and the use of eminent domain, local governments can take control of brownfields in order to clear title, conduct site assessment, remediate environmental hazards, and otherwise prepare the property for development by the private sector or for public and community facilities.

Although property acquisition is a vital tool for facilitating the development of brownfields, many local governments have been dissuaded by fears of environmental liability.

Encouraging Brownfield Cleanups by Good Samaritans – The Act should provide an owner-operator exemption from CERCLA liability for non-labile parties that take cleanup action or contribute funding or other substantial support to the cleanup of a brownfield, in conformance with a federal or state cleanup program, but do not take ownership of that site. Groups such as Ducks or Trout Unlimited have wanted to clean up properties and restore them to their natural habitat but because they have no protection under the law, they could be held as liable as the person who polluted the property. We need more, not less, people and organizations to help clean up these sites.

Closing

I wish to thank the Subcommittee for having me testify today. Brownfields redevelopment is a win-win for everyone involved. It creates jobs, it cleans up the environment, and it's pro-business and pro-community. The reauthorization of this law should be a top priority for this Congress and I urge you to pass a reauthorization bill and appropriate the necessary funds to jump start the development in communities throughout the nation. Thank you again for this opportunity.

Mr. SHIMKUS. Thank you very much.

Now I will turn to Mr. Kevin Sunday, Director of Government Affairs at Pennsylvania's Chamber of Business and Industry. Your full statement will go into the record. You have 5 minutes and you are recognized.

STATEMENT OF KEVIN SUNDAY

Mr. SUNDAY. Thank you and good morning, Chairman Shimkus, Ranking Member Tonko, members of the subcommittee. It is an honor to appear before you this morning on behalf of the PA Chamber.

My name is Kevin Sunday, Director of Government Affairs. The PA Chamber is the largest broad-based business advocacy association in the state, a state that is second in the nation in total energy production, and in the top ten for manufacturing output. Among states, we have the fourth highest coal production, the second largest natural gas production, the second largest nuclear fleet. We are, in short, a big energy state.

Pairing these assets with the generational opportunities before us with pipeline and the electric transmission infrastructure mean we have the opportunity of a lifetime to grow our economy in a way that we haven't seen in decades. And that means we can take advantage of every facet of the value chain from energy production and power generation, to infrastructure, to manufacturing and refining. Each segment of that value chain relies and builds upon one another. And when we encourage the growth of one, we encourage opportunity in the others.

And we are starting to see some of that happen in our state. For example, we have had a shuttered steel mill reopening because of demand for new pipe. Domestic energy production gave three refineries in Southeast Pennsylvania and their thousands of employees, many of them union, a new life. A global integrated gas company picked Southwest Pennsylvania for a multi-billion dollar petrochemical facility. It is the first time in decades that anyone is talking about building that kind of operation outside of the Gulf Coast.

Those are just a couple examples. I have many more in my testimony. And I would like to say that those kinds of opportunities are so common that our unemployment rate is among the lowest in the country, but it is not. In fact, it trails it by almost a full point. And that is because we are leaving opportunity on the table.

We do need a skilled and ready workforce and we do need a competitive tax, trade, and labor policy to compete as a state and as a country, but we also need a modernized approach to our nation's environmental laws and the implementation of them so that we can promote economic opportunity without sacrificing environmental progress.

The current air quality compliance obligations are draconian. We have an energy-intensive manufacturing facility in Southeast Pennsylvania, and they spend more on annual air quality compliance than they spent buying the entire operation a few years ago for \$180 million.

We have another company that spent \$100 million on control equipment for emissions that the facility will never produce.

New regulatory obligations are being handed down faster than it takes to get a permit, and the obligations have become inordinately complex. State regulators are tied up due to a lack of guidance coming from federal agencies, and we would encourage Congress to take a hard look at how national ambient air quality standards are revised and implemented.

The EPA's use of unrealistic modeling in establishing NAAQS designations and in permitting evaluations is discouraging growth. We have heard first-hand companies declining to invest in Pennsylvania because of ozone transport requirements. And research is clear, such as that of Michael Greenstone, who was President Obama's Chief Economist on the Counsel of Economic Advisers, that the consequences of being designated non-attainment are severe, with billions of lost economic activity.

With regards to permitting, the current structure requires companies to account for emissions they will never actually emit. We have seen a number of our companies stuck in an endless loop of litigation and appeals. We also should rethink the current offset approach that requires one facility to shut down or retire so that another one can operate.

And, finally, when it comes to moving and using energy, we have lost opportunity because of delays in permitting new infrastructure, which require years of review from nearly a dozen state and federal agencies. What has already been permitted is at risk to litigation, which is going to delay things even further. We would encourage Congress to take the opportunity to step in and provide clear guidance on what the National Energy Policy Act should and shouldn't cover.

And I would encourage this committee that, if nothing else, as I have said in my remarks and testimonies for you to act, I would remind you that today is the fifth anniversary of the Mercury and Air Toxics Rule being published in the Federal Register. That rule, I would remind you, was estimated by EPA to cost \$10 billion to secure \$4 million. Again, \$10 billion in cost for \$4 million in benefit for mercury reduction. And I should also note that EPA was off by a factor of four regarding how much coal generation would shut down in the wake of the rule.

I have some recommendations in my testimony I would encourage you and the administration to take a look at. Our challenges are many but our opportunities are greater. And I would encourage that we embark on a process that incentivizes innovation and growth in emissions reduction, not one that encourages litigation and needless bureaucracy.

Thank you.

[The prepared statement of Mr. Sunday follows:]



Testimony

Submitted on behalf of the
Pennsylvania Chamber of Business and Industry

**Modernizing Environmental Laws: Challenges and Opportunities for
Expanding Infrastructure and Promoting Development and Manufacturing**

Before the:
**United States House of Representatives
Committee on Energy and Commerce
Subcommittee on Environment**

Presented by:
Kevin Sunday
Director, Government Affairs

Washington, DC
February 16, 2017

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Challenges to Energy, Infrastructure and Manufacturing

Energy Production and Power Generation



- Distorted playing field for power generation
- States, not federal government, should lead on regulating energy development and aggregation
- Source determination and aggregation guidance
- Carbon emissions and the Clean Air Act

Pipeline and Electric Infrastructure



- NEPA Process
- Wetlands Mitigation Requirements
- CEQ GHG Guidance
- US Army Corps consistency
- Water Quality Certifications

Manufacturing and Refining



- Regulatory uncertainty
- PSD and NSR Program
- NAAQS Implementation
- Major Modification requirements
- Startup, Shutdown and Malfunction Rule
- BACT/LAER Determinations
- Once-in, Always-in HAPS Guidance



Testimony of Kevin Sunday, Pennsylvania Chamber of Business and Industry
Before the House Energy and Commerce Committee Subcommittee on Environment
Regarding Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and
Promoting Development and Manufacturing
Feb. 16, 2017

Good morning Chairman Shimkus, Ranking Member Tonko and members of this committee,

My name is Kevin Sunday, director of government affairs for the Pennsylvania Chamber of Business and Industry. It is an honor to appear before you this morning to discuss the challenges our state faces with respect to attracting new manufacturing and building the necessary infrastructure to deliver energy to market, in part due to the current air quality regulatory construct. It is our sincere hope that the challenges and ideas we bring before you today encourage you to be bold in your efforts to modernize our nation's approach to environmental protection in a way that continues to improve the quality of our environment while also promoting economic growth. We must also be faithful and look to set policy that encourages the retention and expansion of existing manufacturing and industry.

The PA Chamber is the largest, broad-based business advocacy organization in the commonwealth. Our members are of all sizes, crossing all industry sectors throughout Pennsylvania. All of our members are committed to the stewardship of our state and nation's land, air and water, and we seek to provide a thoughtful and balanced approach on ways we can continue to reduce our environmental impacts and grow the economy. Pennsylvania and this country have been afforded the opportunity of a lifetime to grow the economy in a way not seen in decades, so long as every facet of the energy value chain is allowed to flourish: the energy production and generation industry, the pipeline and electric transmission sectors, and manufacturing and industrial production. Modernizing our nation's approach to environmental regulation can help us realize this opportunity without sacrificing environmental quality.

Infrastructure and Domestic Energy Production are Creating New Opportunity for Pennsylvania

Pennsylvania is well-poised to grow every industrial sector, not just manufacturing, given our abundant natural resources and leadership in the electric generation sector. Indeed, we have already seen a number of manufacturing success stories in Pennsylvania thanks to the increased production of domestic energy resources and the build-out of pipeline infrastructure. These include:

- Access to natural gas helps a leading pharmaceutical company's manufacturing facility reduce emissions and costs to remain competitive
- A leading pulp and paper manufacturer turning to natural gas for on-site heat and power to reduce cost and emissions
- Three soon-to-be shuttered refineries in southeast Pennsylvania finding new life thanks to access to domestic fossil fuels

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Feb. 16, 2017

- A global integrated oil and gas company selecting southwestern Pennsylvania to site a multi-billion petrochemical facility
- A leading consumer products company harnesses local gas reserves to provide all of its heating and power needs and send power back out to the grid
- A financial institution turns to an on-site natural gas combined heat and power system to reduce costs and ensure reliability for its computing systems
- A dormant steel mill will soon be restarted due to pipeline projects increasing the demand for rolled steel
- A shuttered coal-fired power plant in the mid-state will run on natural gas thanks to a greenfield pipeline project

These success stories demonstrate just a fraction of the renewal of opportunity that can be achieved in part through policy that allows all segments of the energy value chain to flourish. These segments include the development of our natural resources, power generation from a diverse portfolio of fuel sources, expanded oil, gas and electric infrastructure, and the use of those commodities in manufacturing and industry. The American economy stands to benefit tremendously as energy is developed and moved through infrastructure for final use in a home or business; we can also continue to secure additional improvements in air and water quality as we develop this value chain.

It must be noted that, for the projects referenced above, the financial considerations involved, such as access to low-cost energy and access to markets for produced products, were enough to overcome the substantial regulatory hurdles that state and federal environmental law present. However, for many projects, the regulatory structure becomes so burdensome on top of difficult economic conditions that shutting down the facility becomes the only option. Such has been the case for many of Pennsylvania's coal-fired power plants and heavy industry. The lack of infrastructure and burdensome regulatory requirements has also discouraged new investment into our state. Pennsylvania also recently lost out on a \$500 million investment in a petrochemical facility in southeastern Pennsylvania due to a lack of pipeline infrastructure and regulatory delays.¹ This is not the only situation where we have lost investment due to delays getting infrastructure permitted; an untold number of other projects have been lost in response to a combination of regulatory obligations that continually increase and a lack of certainty regarding the implementation of these obligations.

¹ Pa. business leaders: Shale-gas pipeline build-out needs to step up. Philadelphia Inquirer, Nov. 1, 2016. <http://www.philly.com/philly/business/Pa-biz-leaders-Shale-gas-pipeline-build-out-needs-to-step-up.html>

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The Current Regulatory Construct Presents Substantial Challenges to Industry and Is Reducing Economic Opportunity

Despite the significant opportunities energy development can bring to Pennsylvania's businesses and industries, our unemployment rate has climbed by nearly a full point over the past year, from 4.7% in December 2015 to 5.6% in December 2016.² Our unemployment rate is now higher than the national average of 4.9%, and the sectors which have shed the most jobs over the past year are in industries which are most exposed to impacts from environmental regulation: trades, manufacturing, mining, and construction.

Twice as many PA Chamber businesses say environmental regulations have a negative impact on operations compared to a positive.³ While our companies remain optimistic, expecting to see an increase in sales and workforce in the near future, it is apparent that we are not fully capitalizing on the opportunities before us.

The current regulatory approach presents a major challenge for every segment of the energy value chain, and as a result we are unnecessarily limiting economic opportunity. Businesses seeking to invest in new or expanded operations need clear direction from regulators on what compliance obligations are and will be in the future. Unfortunately, at the present time, regulatory requirements, particularly those in air and water, are changing faster than it takes to get a permit.

Despite Nationwide Progress with Air Quality, the Cost of Compliance Continues to Mount

Air quality issues present a particular challenge for industry. The current construct under the Clean Air Act unnecessarily inhibits investment and expansion of facilities. Hundreds, if not thousands, of man-hours and untold sums of capital are required to secure initial permits and ensure on-going compliance, consuming an ever-increasing share of companies' budgets that could otherwise be spent in expanding the workforce or investing in research and development. It is becoming increasingly costly and more difficult to integrate a management team's intent to expand production or otherwise execute a competitive vision for growth with mounting compliance obligations. As an example, one energy-intensive manufacturer in southeast Pennsylvania spends more per year in annual air quality compliance obligations than it cost the current ownership to buy the entire facility a few years ago for \$180 million. This facility is a key economic driver in the region, with a workforce of nearly 500 employees and several hundred contractors, many of them in the

² Pennsylvania Unemployment Rate Falls to 5.6% in December. Pennsylvania Department of Labor and Industry, Jan. 20, 2017. <http://www.media.pa.gov/Pages/Labor-and-Industry-Details.aspx?newsid=224>

³ 26th Annual Pennsylvania Economic Survey. Pennsylvania Chamber of Business and Industry, October 2016. http://pachamber.org/pdf/2016_Economic_Survey.pdf?1478794849

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building and construction trades. Any layoff that occurs at this facility or the others like it will cost the region 18 jobs, the state 22 jobs and the country 61 jobs.⁴ Another manufacturer was required to spend \$100 million to install pollution control equipment to control emissions that the facility will never produce. This is the product of EPA's so-called "once-in, always-in"⁵ guidance memorandum for major sources of hazardous air pollutants (HAPs), which requires facilities to install and use extremely costly control equipment compliant with Maximum Achievable Control Technology standards for HAPS even if the HAPs emissions of a facility are reduced to below major source thresholds (even to zero) due to changes in processes and operations.⁶

The Consequences of Non-Attainment and Ozone Transport

The current construct of the Clean Air Act presents an immediate discouragement to any company looking to build or expand in Pennsylvania or other fellow Ozone Transport Region states (a group of northeastern states from Virginia to Maine), as well as in any area of the country that has been designated as non-attainment. Generally speaking, EPA sets a National Ambient Air Quality Standard for a particular pollutant (such as ozone or SO₂) and works with states to designate counties or metropolitan regions of the country that are not meeting the standard. Facilities in these "non-attainment" areas are then required to comply with emissions limits that are more stringent than areas in attainment. Once the region meets attainment, the burden on facilities is eased somewhat. However, by virtue of how the Clean Air Act has been written and amended, Ozone Transport Region states must continually impose the more stringent, "non-attainment" emissions rules for ozone on their companies even after the states attain the already rigorous federal NAAQS for ozone in all areas within their own borders. In addition, EPA's continual lowering of NAAQS for other pollutants and the process it has used to characterize air quality has resulted in an increasing number of counties and regions being placed into "non-attainment," despite an overall improvement in air quality. The CAA's so-called "anti-backsliding" provisions⁷ prohibit EPA from easing regulatory requirements on sources even if EPA establishes a less stringent NAAQS.

⁴ Re-employment Assessment and Economic Impact of ConocoPhillips and Sunoco Closings. January 9, 2012. Pennsylvania Department of Labor & Industry Center for Workforce Information & Analysis. https://www.doleta.gov/performance/results/AnnualReports/PY2012/PA_Impact_Conoco_Sunoco_Closings.pdf

⁵ This policy was instituted in a May 1995 memorandum, entitled "Potential to Emit for MACT Standards – Guidance on Timing Issues." See <https://www.epa.gov/sites/production/files/2015-08/documents/pteguid.pdf>

⁶ The Environmental Council of the States, a national non-profit association of state environmental officials, has repeatedly affirmed (six times since 2000) a resolution for EPA to change this policy. See <http://www.ecos.org/wp-content/uploads/2016/02/Resolution-00-12-Once-in-2015v.pdf>

⁷ Clean Air Act Section 172(e): If the Administrator relaxes a national primary ambient air quality standard after November 15, 1990, the Administrator shall, within 12 months after the relaxation,

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The negative economic consequences of a non-attainment designation for a county or multi-county region are significant. Research by Michael Greenstone, who was chief economist for President Obama's Council of Economic Advisors from 2009 to 2010, demonstrates that in a fifteen-year observation period non-attainment counties lost 590,000 jobs and \$75 billion in economic output.⁸ Another report by Greenstone and his colleagues shows that productivity of manufacturing facilities falls significantly following a non-attainment designation.⁹ Research by W. Reed Walker, a professor at UC Berkeley, found a 15% decline in employment in the 1990's in sectors affected by the 1990 Clean Air Act amendments.¹⁰ It should be noted that EPA is not required to consider economic impacts at all when making changes to NAAQS requirements. For other Clean Air Act requirements and environmental regulations that are required to account for economic impacts, the comprehensive cost of job losses are significant and not properly recognized, as noted by Jonathan Masur and Eric Posner, who conservatively estimate that the lifetime loss of income for one unemployed worker is \$100,000 throughout the worker's lifetime. By requiring federal agencies, such as EPA, to account for this lifetime loss of earnings, the agencies would set regulatory policy in a more balanced manner.¹¹ In a separate paper, Masur and Posner note that traditional cost-benefit accounting ignores employment impacts in large part by relying on the faulty assumption that all workers who lose jobs as a result of the regulation will quickly regain them at equal wages.¹² It must also be noted that Clean Air Act Section 321¹³ obligates EPA to conduct a continual evaluation of job loss or employment shifts as a result of the administration and enforcement of the Act; Congress should ensure that EPA is in fact carrying out this obligation.

Beyond the issue of non-attainment, the current ozone transport and NAAQS construct contained within the Clean Air Act also require states to enforce "over-control" of emissions at sources beyond what is necessary for that state to attain full compliance of NAAQS within their own borders. In the case of the recent Cross-

promulgate requirements applicable to all areas which have not attained that standard as of the date of such relaxation. Such requirements shall provide for controls which are not less stringent than the controls applicable to areas designated nonattainment before such relaxation.

⁸ The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufacturers. Michael Greenstone, September 2001. www.nber.org/papers/w8484.pdf

⁹ The Effects of Environmental Regulation on the Competitiveness of U.S. Manufacturing. Michael Greenstone, John A. List and Chad Syverson, September 2012. <http://www.nber.org/papers/w18392.pdf>

¹⁰ Environmental Regulation and Labor Reallocation: Evidence from the Clean Air Act. W. Reed Walker, February 2011.

http://faculty.haas.berkeley.edu/rwalker/research/w_reed_walker_paper_pre_publication.pdf

¹¹ Unemployment and Regulatory Policy. Jonathan S. Masur and Eric A. Posner, December 2012.

http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1605&context=law_and_economics

¹² Regulation, Unemployment and Cost-Benefit Analysis. Jonathan S. Masur and Eric A. Posner, August 2011. <http://www.law.uchicago.edu/files/file/571-359-jm-eap-regulation.pdf>

¹³ 42 USC §7621.

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State Air Pollution Rule (CSAPR) update,¹⁴ which EPA finalized only last fall but is part of its implementation plan for the 2008 ozone rule, Pennsylvania's power generators will be required to over-control their emissions by more than 30% during ozone season in 2017, as noted by the Pennsylvania Department of Environmental Protection¹⁵ – despite the fact that all monitoring points in the state demonstrate attainment of the 2008 standard, almost all monitoring points in the state are demonstrating attainment of the 2015 standard, and monitors are showing a reduction of ozone concentrations by as much as 10 ppb since 2011.

Recent Regulatory Changes Are Disruptive to Business Planning

Last year's CSAPR update is one example of a federal agency finalizing new and extremely stringent regulatory obligations that afford industry extremely short periods of time to comply and that disrupt business planning. EPA finalized the CSAPR update with a purported aim to help Ozone Transport Region (OTR) states meet the 2008 ozone standard by lowering emissions budgets for electric generating units in Pennsylvania and other OTR states during the ozone season of May 1 through September 30, 2017. However, the rule was not published as final in the Federal Register until Sept. 7, 2016, giving affected units less than eight months to develop and implement a compliance strategy. Pennsylvania's final ozone season budget for 2017 is about 67% smaller than established in past years.¹⁶ This budget allocates a given amount of NOx allowances to each state and particular units in the state, and allowances may be bought, sold, traded or banked for use in future compliance periods. While units are allowed to surrender NOx allowances to comply for this year's ozone season under CSAPR, should emissions from units in state as a whole exceed the ozone season budget by more than 121% (which is a probability), units must surrender allowances at an extremely punitive ratio of 3:1. Eight months is simply too short a runway for a facility to alter its production schedule to allow for installation of new controls, and some facilities are not in a position where there are enough allowances to run during the entire season. As a result, some facilities are in a position where they will have to

¹⁴ Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS. Environmental Protection Agency, Sept. 7, 2016. <https://www3.epa.gov/airmarkets/CSAPRU/Cross-State%20Air%20Pollution%20Rule%20Update%20for%20the%202008%20Ozone%20NAAQS%202060%20ASo5%20FRM.pdf>

¹⁵ Comments on EPA's Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS. Pennsylvania Department of Environmental Protection, Feb. 1, 2016. http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Current%20Events/Comments_on_CSAPR_Update_Rule_EPA-HQ-OAR-2015-0500.pdf

¹⁶ Cross-State Air Pollution Rule (CSAPR) Update: Final Rule. Pennsylvania DEP, Dec. 8, 2016. [http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2016/12-8-16/CSAPR_\(Update\)_AQTAC_Presentation_for_December_2015\(4\).pdf](http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2016/12-8-16/CSAPR_(Update)_AQTAC_Presentation_for_December_2015(4).pdf)

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curtail operations during the spring and summer – which historically have been the season when demand for electricity generation is at its highest. As a direct result of regulation, some power generation facilities will lose market share.

Our members have also reported that the final Startup, Shutdown and Malfunction Rule,¹⁷ finalized in 2015, poses a substantial challenge to their operations and risk profiles. The SSM rule requires states to eliminate or drastically alter their approach to handling emissions from facilities during startup, shutdown and malfunction – approaches that had been on the books for decades and that had shielded facilities from being penalized for emissions exceedences that cannot be physically avoided. The rule impacts facilities across all industrial sectors, and many facilities affected by the rule are physically unable to meet the emissions restrictions the rule imposes. The rule, which is under litigation, was the product of a settlement arrangement between EPA and the Sierra Club.

The Need for Reform in the Offsets and Permitting Programs

There is a need to reform the offset program in its entirety. While sources in the Ozone Transport Region can secure NOx and VOC emissions reduction credits from sources in OTR states that have reciprocity agreements, new or expanding facilities located in non-attainment areas for other NAAQS criteria pollutants are not afforded the same flexibility – these sources must secure ERCs only from within the same non-attainment area, which can be as small as one county. With NAAQS for all pollutants continually being ratcheted downward, facilities seeking to make changes to their facilities to stay competitive may run into a situation where there are no affordable ERCs for the relevant pollutants. Widening the geographic area in which facilities may sell, trade or bank credits would be a potential solution but will require a legislative change. In addition, regulatory requirements have outpaced technological development, and as a result many companies are unable to make an economically rational decision to over-control emissions in order to bank and sell ERCs. Instead, facilities are more and more relying on ERCs from retired facilities, which the Clean Air Act does authorize. But it should be apparent to even the most casual observer that an emissions control construct that relies on an ever-increasing number of facility shutdowns and retirements in order that new or surviving facilities may operate is not good for our economy. Further, the cost of these credits have gone up over time, consuming increasing shares of companies' compliance budgets, due in part to a trading market

¹⁷ State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction. Environmental Protection Agency, June 12, 2015. <https://www.gpo.gov/fdsys/pkg/FR-2015-06-12/pdf/2015-12905.pdf#page=2>

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that is continually distorted by EPA regulations and implementation guidances that state ERCs for the same pollutant can be used for compliance with certain emission control requirements but not for others.

The current Non-attainment New Source Review construct also discourages expansion of existing manufacturing (and the attraction of new facilities) in non-attainment areas. Most large-scale manufacturing and industrial facilities will trigger NSR thresholds for NAAQS pollutants. When these facilities seek to expand their operations, they must calculate if there will be a net emissions increase as a result of the modification, and EPA has established that such a calculation must assume that a source will produce its maximum possible emissions every hour of every day for the duration of its existence (referred to as “potential to emit” or PTE), even though such a calculation is not representative of many facility’s actual operations. Companies must then account for these emissions that will never be emitted by accepting a more stringent limit and installing costly control technology than would be necessary had the calculation on future net emissions be representative of actual future operational practice. In practice, this has discouraged companies from investing in installing cheaper and cleaner-burning burners in their boiler systems or other on-site heating and power units. EPA has the discretion to make a change to permitting facility expansions based on expected future actual emissions, but has decided not to, as described in a guidance memo to the Indiana DEP.¹⁸ Such a change would still require offsets and controls, but would be based on actual facility operations. As a result, this change would not impair states’ ability to continue to make progress with respect to attaining NAAQS. The Clean Air Act could also be amended to encourage facility modifications by recognizing the inherent emissions reductions and expressly authorizing such changes, instead of applying new source technology restrictions that disincentivize efficiency improvements at facilities, as discussed in the recommendations section of this testimony.

In addition, the current permitting process allows for a revolving appeals process that has killed numerous projects. To move forward with a new facility, applicants must work with regulators to establish what controls (and/or the appropriate amount of offset credits) are needed on the project. Industry must work with regulators at the state and federal level as to what is the appropriate Best Available Control Technology¹⁹ (or BACT, applied to facilities in attainment areas) or Lowest Achievable Emissions Rate²⁰ (or LAER, applied to facilities in non-attainment areas). These evaluations examine controls technology employed at constructed facilities throughout the country. Before beginning construction, a facility needs to obtain a pre-construction

¹⁸ Letter from U.S. EPA Region 5 to Indiana Department of Environmental Management. U.S. EPA, April 4, 2011. <https://www.epa.gov/sites/production/files/2015-07/documents/atpanet.pdf>

¹⁹ 42 USC § 7479.

²⁰ 42 USC § 7501.

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permit, which establishes what appropriate controls are needed based on presumed impact. A pre-construction permit has a lifespan of 18 months. Too often, however, third-party NGO's challenge the permitting agency's conclusion in the pre-construction permitting process, and the litigation hangs the project up in years of delay. Even if the applicant and agency are successful in court, EPA policy (and the lifespan of the preconstruction permit) requires agencies to do another determination on impacts and appropriate technology. Third-party NGO's can then appeal again that the agency's determination was flawed, the process repeats itself and the project never gets off the drawing board – not for an actual lack of being able to comply with the relevant requirements but because there is no clear process to get to a “yes.”

There must be a clear path to “yes” so that projects can be planned and financed appropriately. Such a path can be made by establishing that BACT/LAER evaluations should be conducted only within the universe of what controls are employed at facilities that have actually been constructed and that are in the same industrial category as the proposed project. A cement kiln has significant operational and technical differences from a compressor station, a gas-fired power plant or an oil refinery and these differences should be accounted for when evaluating what technology should be considered in a BACT or LAER evaluation. It must be noted that should EPA change its policy in accordance with our recommendations there will not be an adverse environmental impact – facilities will still have to operate in a manner that allows non-attainment areas to make improvements in air quality, and facilities in attainment areas will have to operate in a manner that does not deteriorate the local air quality. The difference is that these facilities will actually be allowed to operate thanks to a streamlined permitting process. Efforts to streamline the process should be welcomed by all, given that a recent analysis demonstrated projects being permitted through the PSD program are taking more time.²¹ By the same analysis, review times for all projects in the EPA region that includes Pennsylvania are among the highest of any region in the country.

Sustainable, long-term operation and management of individual manufacturing and industrial facilities requires a clear and consistent regulatory environment. Too often, however, the regulations are not only continually being made more stringent, but the interpretation of them has been subject to frequent change (such as the rescission and replacement of EPA memoranda that address ambiguities in a particular statute or regulation). Guidance to states and industry on implementation is lacking or unclear, exposing companies to risk of enforcement or third-party litigation. While some issues can be resolved administratively by an EPA that is focused on balancing economic development and protecting the environment, Congress should also

²¹ EPA's New Source Review Program: Evidence on Processing Time, 2002-2014. Art Fraas, Mike Neuner, and Peter Vail, February 2015. <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-15-04.pdf>

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take steps to reform the Clean Air Act; some recommendations are included in the final section of this testimony.

Thoughtful Policy is Needed to Support Additional Infrastructure and Energy Development

No conversation about promoting manufacturing and industry in this country would be complete without touching on how to continue to develop our natural resources and ensure we have competitive markets in the power generation sector. That means a level playing field where markets, not subsidies and mandates, determine the outcome for power generators. Federal regulators should also recognize and respect the primacy of states in regulating energy development within their borders. Policymakers should also not cave to “keep it in the ground” activists, whose policies would result in the loss of 14 million jobs, the doubling of gasoline prices and a four-fold increase in natural gas costs.²² According to the same analysis, a nationwide ban on hydraulic fracturing would cost Pennsylvania almost half a million jobs and increase costs for the average household by \$3,500 per year.

There is also a clear and immediate need for additional interstate pipeline and electric transmission. Companies seeking to construct such large-scale interstate projects must secure approvals from the Federal Energy Regulatory Commission through a National Environmental Policy Act (NEPA) review process. The NEPA process was established with the aim of requiring federal agencies to consider environmental impacts before authorizing projects. The White House Council on Environmental Quality provides implementation guidance to federal agencies on how to implement this policy. In the waning months of the Obama administration, CEQ finalized guidance directing federal agencies, including FERC, to consider climate change impacts during NEPA reviews. The guidance noted agencies should consider direct and indirect climate impacts as a result of approved projects. However, quite problematically, the guidance did not contain a clear effective date or a clear expectation on how federal agencies should apply the guidance to projects whose reviews were pending. Also problematic is the guidance’s elevation of climate impacts for alternatives analysis, as is its lack of hard and fast thresholds for what emissions or impacts should be included or considered. As such, this guidance has placed the federal agencies and project applicants at litigation risk by granting additional paths for third-party NGO’s to arbitrarily challenge a final decision approving a project. Even if the litigation is ultimately unsuccessful in terms of reversing a FERC approval (and nearly all challenges to FERC final actions under NEPA have been unsuccessful as such), the project would be

²² What if Hydraulic Fracturing Was Banned? U.S. Chamber of Commerce Institute for 21st Century Energy, Nov. 4, 2016.
http://www.energyxxi.org/sites/default/themes/bricktheme/pdfs/CoC_BannedFracking_FULL_v3.pdf

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unnecessarily delayed while litigation proceeds. It should be apparent that during such a delay, the manufacturing and construction jobs associated with the project will not materialize, families and businesses will continue to pay higher costs, and the economy will suffer as a result. To help avoid these outcomes, the CEQ guidance should be rescinded and to the extent the Trump administration would like to advise federal agencies to consider climate impacts, it should do so with clear guidance on how to handle projects that are in the middle of their reviews. Congress should also consider amending the statutes requiring NEPA to make clear how federal agencies should consider environmental impacts, including those related to climate change. NEPA should be used as originally designed: a measure to require consideration of environmental impacts to the extent Congress decides, in balance with the other prerogatives of the agency, such as ensuring the interstate transmission of electricity and gas in a manner consistent with the public interest or ensuring a fast, safe, efficient and convenient transportation system. NEPA should not be used as a weapon to halt development of crucial infrastructure.

The CEQ guidance also emphasized the Obama administration's social cost of carbon (SCC). The SCC is a significant departure in environmental cost-benefit calculations and was calculated on a global, rather than domestic, basis and over an extremely long period of time, and employed a significant amount of speculation and conjecture about long-term impacts. Congress and the Trump administration should deliberate as to whether or not a more appropriate, specific and science-based approach would be to better characterize impacts on a domestic basis, which would be in keeping with the historical approach to costs and benefits of regulation. A global SCC justifies more costly regulation than would a domestic SCC.

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Recommendations to Modernize Our Regulatory Approach

The following summarize the key issues raised in this testimony in conjunction with an associated recommendation to change the relevant statute, regulation or policy, with the general aim of incentivizing innovation and economic growth in a manner that also encourages emissions reductions.

EPA should make administrative changes Non-Attainment New Source Review (NNSR) provisions and its modeling guidance to reflect expected emissions from actual operations, rather than from a potential-to-emit basis.²³ Similarly, the PSD program discourages cost-saving and emissions-reducing improvements at facilities and needs to be reformed, and the HAPS “once in, always in” policy should be retracted. The Clean Air Act can be amended to accommodate these reforms.

As discussed in this testimony, the current NNSR construct discourages investment into existing manufacturing by requiring facilities to accept emission control rates that are more stringent and to secure more emission reduction credits than are needed to protect public health. Similarly, the modeling guidances issued by EPA significantly overstate expected emissions from sources and result in more areas being designated as non-attainment than is realistic.

The PSD program penalizes any facility seeking to change its operations if it has not been running at capacity prior to the modification. The implementation of “major modification” regulations under PSD have become extremely costly and in practice have discouraged improved efficiencies at manufacturing and industrial facilities – for example, many facilities seeking to switch to more affordable and less-emitting fuel sources in their boilers have been prevented from doing so because of the “actual-to-PTE” test.

Another air quality rule that interferes with a facility’s ability to change its manufacturing or industrial process is the HAPS “once in, always in” policy, which requires a facility that was ever once a major source of HAPs to always install MACT for HAPs upon expanding or changing the facility – even if that facility’s emissions profile operates at below major source thresholds.

Should EPA prefer the Clean Air Act be amended first to provide support for these changes, a simple change to the Clean Air Act could be made by addressing the modification issue by statute and expressly stating that “any capital investment or change in operation of a source that results in the reduction of potential or actual

²³ For more discussion on recommendations establishing a better approach to modeling, as well as reforming the offset program and establishing requirements for the timely issuance of implementation rules and modeling guidance, please see a recent whitepaper, “EPA’s New Source Review Program: Time for Reform?” The whitepaper, authored by Fraas, Graham and Holmstead, is appended to this testimony.

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emissions is permitted by this statute without condition, requirement, or comment by EPA. The permittee must notify EPA of the investment or change in operation within 90 days of the completion of the change.”

EPA should alter its permitting policy to provide certainty that projects that must undergo BACT or LAER determinations by determining appropriate emissions controls based upon the emissions control technology that was available during the initial permit application at projects in the same industrial category and that were actually constructed at the time; current agency policy requiring projects to undergo a revolving door of appeals prevents some projects from ever being built.

Third-party challenges to BACT and LAER determinations are frequent and have inhibited the construction of a substantial number of new projects in this country. EPA should revise its permitting policy to not require BACT or LAER determinations after lengthy litigation by making clear that only projects that were in existence at the time of a permit application submission, not the conclusion of litigation, should be considered for BACT and LAER evaluations. Further, EPA should require applicants and state agencies to only compare controls technologies used by facilities in the same industrial category as the proposed project and to only consider controls employed at projects that have actually been built. This change would provide the necessary certainty to projects and would also not impair air quality: the law is clear that facilities cannot operate in a manner that interferes with non-attainment areas progressing towards attainment nor in a manner that deteriorates air quality in attainment areas.

Amend the Clean Air Act to promote development in non-attainment areas, streamline EPA approvals or review of proposed state/local permitting actions and provide certainty to final permitting actions.

A non-attainment designation discourages economic investment; the Clean Air Act should be amended to allow for delegated air agencies at the state or local level to permit new projects using BACT, rather than LAER, provided that the permitting official determines that the use of such technology will not significantly impact local air quality. Such a change is needed as NAAQS for ozone and other pollutants approach background levels. Further, the Act should be amended to prohibit challenges to state permitting decisions except in cases of major deficiencies. Mere disagreement over a permitting official’s judgment in implementing often ambiguous regulatory criteria should not warrant perpetual suspension of project development. A policy of reasonable turnaround times for EPA review of state permitting actions or SIP amendments should also be instituted and EPA held accountable to it.

The CEQ NEPA Guidance on greenhouse gas emissions should be rescinded, and Congress should consider providing clearer direction via statute regarding how climate impacts should be considered in NEPA reviews and regulatory costs.

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As discussed, the CEQ NEPA Guidance is unclear and exposes federal agencies and, more importantly, vital infrastructure projects to unnecessarily delay due to litigation from third-parties. The Guidance is vague with respect to its effective date as well as to the extent agencies should weight climate-related impacts. The Trump Administration should retract the guidance.

Congress should “speak clearly” with respect to ambiguities of the Clean Air Act.

The late Justice Antonin Scalia famously remarked in the 2014 *Utility Air Regulatory Group v. EPA* decision that the Court expects Congress to “speak clearly” regarding what regulatory powers and duties the legislative branch has delegated to an agency. Throughout the years, each administration has continually rescinded and then reissued interpretive memoranda on issues such as source aggregation, new source review, and navigable waters. On these issues, Congress should amend the statutes to eliminate a need for EPA to interpret and re-interpret ambiguities. With regard to source aggregation, the Obama administration should be applauded for their final rule regarding the oil and gas sector,²⁴ which conforms to the historical and common-sense definitions of the key terms contiguous, adjacent and common control. This is generally in keeping with an approach to the issue instituted by the Pennsylvania Department of Environmental Protection in 2011. Nonetheless, the statute should still codify the language to resolve the issue entirely.

Congress should also be encouraged to embark on a robust stakeholder process to determine whether the Clean Air Act should be amended to explicitly state whether its provisions apply to greenhouse gases or not, and if they do, to direct EPA to address carbon emissions solely within the fence-line of facilities, in keeping with the historical approach to establishing standards of performance that are reflective of controls that, with consideration to economic feasibility, can be installed. Absent such clarity, future administrations will be free to approach carbon emission controls similar to the sweeping approach proposed by the Obama administration’s Clean Power Plan.

The Clean Air Act should be amended to encourage “performance-based approaches” that rewards states and industry for attaining air quality goals.

As discussed in this testimony, the Clean Air Act’s provisions and the implementation of them have resulted in states and industry having to control emissions to standards beyond what EPA has designated as protective of public health and the environment. The CAA’s anti-backsliding provisions do not allow for the relaxation

²⁴ Source Determination for Certain Emission Units in the Oil and Natural Gas Sector. Environmental Protection Agency, June 3, 2016. <https://www.gpo.gov/fdsys/pkg/FR-2016-06-03/pdf/2016-11968.pdf>

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of controls. Congress could instead amend the statute to still require states to implement and attain NAAQS but also allow states to relax regulatory impositions for areas that are attaining air quality better than the national standard – of course, only to the extent that the area does not fall back into non-attainment.

The Clean Air Act should be amended to allow for a more thoughtful implementation and review timeframe for all NAAQS pollutants, not just ozone. In addition, to the extent modeling is used in attainment designations, EPA should adopt an air quality modeling approach that reflects actual and expected future source operations.

While recent revisions to the ozone NAAQS have justifiably drawn considerable attention and scrutiny, ozone is not the only pollutant that EPA and states manage via the NAAQS construct. The issues presented by the on-going implementation of the 2010 revision to the sulfur dioxide (SO₂) NAAQS also speak to a need for modernizing NAAQS implementation. The new 1-hour SO₂ standard of 75 ppb was established June 2, 2010. 75 FR 35520. EPA published notice on Aug. 5, 2013 announcing designations of some areas in 16 states; however, not all regions of the country were classified. Litigation was filed by an environmental group in the U.S. District Court for the Northern District of California, which resulted in EPA agreeing in a settlement on March 2, 2015 to an accelerated schedule to designate the remaining areas of the country. EPA agreed to, in just over a year's time, make a final designation determination for any area of the country that contained stationary sources that emitted more than 16,000 tons of SO₂ or emitted more than 2,600 tons of SO₂ with an annual average emissions rate of 0.45 lbs SO₂/mmBtu or higher in 2012. In order to meet the deadline imposed by the date set in the settlement, EPA gave states a handful of months to meet a Sept. 28, 2015 deadline to make propose designations to EPA (either attainment, non-attainment or unclassifiable). In its guidance memo to states instructing them to meet this deadline, EPA noted that “we recognize that the timeline for designations by July 2, 2016 does not provide for establishment and use of new ambient monitors. Therefore, we anticipate that in many areas the most reliable information for informing these designations will be based on source modeling.”²⁵

While it is fair to question whether the terms contained in the settlement agreement were appropriate and whether EPA took the right path in its guidance to states, this outcome would have been avoided altogether had EPA and states been given more time under the statute to implement the 2010 standard.

²⁵ Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard. Environmental Protection Agency, March 20, 2015.
<https://www.epa.gov/sites/production/files/2016-06/documents/20150320so2designations.pdf>

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As such, Congress should amend the statutory timetables for reviewing all NAAQS criteria pollutants from five to ten years and obligate that the EPA administrator publish simultaneously the necessary modeling and implementation guidance within six months of any new standard. These concepts are embodied in the “Ozone Standards Implementation Act of 2017” (relating to timetables for reviewing NAAQS) and in the “Promoting New Manufacturing Act” (introduced in the 114th Congress as H.R. 2557 and relating to the simultaneous issuance of guidance and permitting).

In addition, Congress should consider revising the Clean Air Act to allow states to establish reciprocity agreements that allow for the trading of emission reduction credits among their facilities.

Congress should establish clearly in statute how costs and benefits of regulation are to be calculated.

Our regulatory system is in need of reform, beginning with the process of how costs and benefits are calculated. First, EPA should be required to consider economic impacts when amending NAAQS requirements, as well as incorporate what is technologically feasible when establishing new NAAQS requirements. In addition, too often, EPA relies on co-benefits, or a description of purported benefits of pollutants will be reduced as a result of a regulatory measure but that are not the pollutants the rule seeks to address. Perhaps the most egregious example of this was the final Mercury and Air Toxics Rule.²⁶ The MATS Rule was designed to reduce emissions of hazardous air pollutants, including mercury, from existing power plants. According to the Summary of Monetized Benefits table provided in the final rule’s Federal Register notice, the rule would achieve only \$4 million to \$6 million in public health benefits as a result of the reduction of these pollutants, despite an estimated cost of \$9.6 billion. But because EPA also incorporated estimated benefits from reductions of PM_{2.5}, SO₂ and CO₂, the agency was able to claim benefits greatly outweighed the costs. While this approach to cost-benefit was harshly criticized in the *UARG v. EPA* decision in 2015, EPA’s ability to enforce the rule stood. By April 2016 (one year after the effect date of the MATS rule – some plants were granted one-year compliance extensions), about 20 GW of the nation’s coal-fired generation was retired. EPA expected slightly less than 4.7 GW of retirement to occur over that time. Congress should consider amending statutes relevant to regulatory development, such as the Administrative Procedure Act and the Regulatory Flexibility Act, to make clear how much a federal agency can rely on co-

²⁶ National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial Institutional Steam Generating Units. Environmental Protection Agency, Feb. 16, 2012. <https://www.gpo.gov/fdsys/pkg/FR-2012-02-16/pdf/2012-02-16.pdf>

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benefits that occur as a result of reductions or outcomes which occur but are not the direct aim of the rulemaking.

Congress should also consider amending such statutes to make clear whether or not a proper cost-benefit calculation should recognize emission reductions that achieve pollution concentrations in ambient air quality that lower than NAAQS targets – values that EPA designed to be sufficiently protective of public health. In addition, Congress should also require EPA recognize the lifetime loss of earnings from displaced workers (as estimated in the aforementioned Masur and Posner reports) and enforce EPA’s requirements under the Clean Air Act’s Section 321, regarding continual evaluation of job loss or employment shift.

EPA should also be required to convene panels with small businesses for all major rules, including any changes to NAAQS, as outlined in the Small Business Regulatory Enforcement Fairness Act of 1996. These panels would bring to the table the voices of small businesses, many of whom have less flexibility than larger operations to adjust business practices in order to comply with new requirements. These panels were not convened for NAAQS or the Clean Power Plan, despite significant impacts from these rules on small businesses.

* * * * *

In conclusion, it should be clear that significant opportunities lay before us to grow our economy and secure continued environmental progress. There are unquestionably reforms needed to both the actual text and the implementation of several environmental statutes, starting with the Clean Air Act. We have suggested a few reforms for Congress and the Trump administration to consider. We also note that these reforms are not panacea: such reform must take place along with competitive tax, trade and labor policy. We must also work to ensure a skilled and able workforce is continually being developed so that as new opportunities become available as a result of more thoughtful policy, the promise of a stronger, more productive economy becomes a reality.

Thanks you for the opportunity to bring the concerns and suggestions of our members before you and we look forward to working together on these issues in this Congress.

Mr. SHIMKUS. Thank you.

Now I will turn to Ms. Melissa Mays, Founder of Water You Fighting For, obviously from the Flint, Michigan, area. You are recognized for 5 minutes. Thanks for coming.

STATEMENT OF MELISSA MAYS

Ms. MAYS. Thank you.

Today is day 1,028 since we have had clean and safe water in the city of Flint, Michigan. We are coming up on the third anniversary of the irresponsible switch of our water source and the subsequent failure of our government to properly treat and protect our ageing infrastructure and, more importantly, our lives.

The last 1,028 days have been nothing short of a living hell for the 100,000 residents of Flint. The lack of stronger, enforced environmental regulations allowed our state Department of Environmental Quality to get away with loopholes in the Lead and Copper Rule for testing and reporting. In the effort to save just a few dollars per day, they exploited the weak existing rule, the defunded EPA, and poisoned 100,000 innocent people, people who depended on their government to provide the simplest of services: clean, safe water.

Children like mine were never warned to not go get a glass of water out of the taps because there might be hidden neurotoxins in the water that are invisible to the naked eye. Senior citizens never stopped to think twice about the dangerous unwanted chemicals they were drinking while taking their prescribed medication. I never imagined that the water I was filling my workout bottle with before heading to the gym could possibly kill me.

Because of the travesties like the hugely outdated Lead and Copper Rule and the absence of bathing and showering standards, nearly 200 people have died from pneumonia caused by bacteria in our water. For the past four weeks I have been suffering from a respiratory infection, plus ear infections because of the bacteria *Pseudomonas aeruginosa* which is present in my shower at a plate count of 2.9 million.

Before 2014, before we were poisoned, I had three happy, healthy, active sons. My oldest, Caleb, tested into a dual-enrollment school where he could take high school and college courses at the same time and be able to graduate with a diploma and an Associate's Degree.

My middle child, Christian, is sharp. His teachers have wanted to accelerate him a grade since elementary school.

My youngest, Cole, is the sweetest boy you could ever meet with his little dimples, adorable baby voice, and his everlasting innocence, which is now lost because he knows he is poisoned by politicians who wanted to save money.

Fast forward to today after our poisoning. Caleb almost failed his junior year because he could not remember his homework he had done the night before and would fail his tests. He called it brain fog. And so he had to relearn how to learn. Imagine going through 12 years of school and having a teacher bring a different way to remember because of being exposed to lead; copper; aluminum; total trihalomethanes; chloroform; 1,4, Dichlorobenzene; Bromodichlormethane; acetone; bacteria; and numerous other con-

taminants through drinking water and showering in your own home.

Christian and Cole have severe bone and joint pain, as lead settles in your bones as well as your growth plates. For kids ages 9 to 14, the growth plates are open and spongy to accommodate their muscles and joints to be able to stretch as their bones hit those typical 4-inch growth spurts. Both he and Cole are to start their second round of painful physical therapy since their growth plates are hardening prematurely.

Christian and Cole talk about the brain fog as well. And it terrifies me. Because even I know that your brain continues to develop until you are 25. My sons are also seeing a rheumatologist, which comes with a lot of blood work. Unfortunately, Christian passes out when it comes to needles. This will carry on for the rest of my sons' lives because someone wanted to save money.

My husband is 41 and has dizzy spells to where he nearly faints and is in constant pain. I am 38. I have a rheumatologist for my brand new autoimmune disorder that looks like lupus. I have a neurologist for my new seizures, as lead and copper are stored in your brain. I have a gastroenterologist because drinking caustic water tears up the pipes in the ground as well as your intestines, so I have IBS and diverticulosis.

I have consulted with a toxicologist and environmental physician who helped us develop a detox plan, but says it is moot since we are still being exposed in the shower to the dangerous toxins as our pipes crumble in the ground. And now I have an infectious diseases doctor to help with the bacterial infections I am now fighting.

We use only bottled water to cook with, drink, brush our teeth, and give our pets because the water is too unsafe. We spend so much time either sick, going to the doctor, taking tons of medication, or buying shower filters. Try to picture that in your head before suggesting that protecting your family's health and mine is too expensive.

Tell that to the restaurants in Flint that closed down because residents don't want to drink lead in their coffee or eat bacteria in their chicken noodle soup. Tell that to the dentist who lost patients because no one wanted a cleaning with a neurotoxin-laced water. Tell that to the families of the people that have died from Legionnaire's Disease, which is entirely preventable with tougher environmental laws and investment in infrastructure. Tell them their loved ones' lives are not worth businesses taking the proper precautions to not poison their customers.

Since the infrastructure in Flint is still failing, mains break, and pipes leak into the ground, our sidewalks are crumbling, our streets are caving in causing huge sink holes that makes it dangerous for ambulances to rush down the street, my street, to the hospital on emergencies. And our homes have flooded basements as the water table fills up.

There is no amount you can place on the safety, health, and well-being of tax-paying human beings and pets living in this country. So before cutting back on environmental regulations and infrastructure funding, find somewhere else. We pay our taxes so our government can do their job and ensure something as simple as life-sustaining clean, safe water. Seeing and suffering first-hand

the devastation that can and will happen with reduced or weakened environmental regulations and decreased funding for infrastructure updates has opened my eyes as to where we are as a country, and it is scary.

The health, safety, futures, and lives of the residents have fallen far beyond the desire to cut costs and pocket more money. This is short-term thinking, and it is reckless. If you want to protect your constituents' lives, you must implement updated and stringent, environmentally sound regulations and pollution restrictions, otherwise you will just be ushering in thousands of more Flints across this great country of ours.

I hope that the pain and suffering of my family, my sons, is a lesson and a warning to each of you. Put yourself in our shoes before you slash regulations to make a profit.

Thank you.

[The prepared statement of Ms. Mays follows:]

Testimony of Melissa Mays, Flint Resident and Founder, Water You Fighting For?

Congressional Committee on Energy and Commerce

“Modernizing Environmental Law: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing”

February 16, 2017

Main points:

- **Human Cost of Neglecting Infrastructure and weak environmental regulations**
- **Benefits to investing in all infrastructure**
- **Importance of updating, strengthening, and enforcing environmental regulations, protective laws, and environmental agencies**
- **We must plan to invest in the safety and well-being of all consumers and ensure these laws are health-based.**

**Testimony of Melissa Mays, Flint Resident and Founder, Water You Fighting For?
Congressional Committee on Energy and Commerce
“Modernizing Environmental Law: Challenges and Opportunities for Expanding
Infrastructure and Promoting Development and Manufacturing”
February 16, 2017**

Today is Day #1028 since we have had clean and safe water in the city of Flint, Michigan. We are coming up on the 3rd anniversary of the irresponsible switch of our water source and the subsequent failure of our government to properly treat the water and protect our aging infrastructure and more importantly, our lives. The next 1028 days have been nothing short of a living hell for the 100,000 residents of Flint.

The lack of stronger, enforced environmental regulations allowed our State Department of Environmental Quality to get away with loopholes in the Lead & Copper Rule for testing and reporting. In the effort to save just a few dollars per day, they exploited the weak existing rule, and the defunded EPA, and poisoned 100,000 innocent people. People who depended on their government to provide the simplest of services: clean, safe water. Children like mine were never warned not to go get a glass of water out of their taps because there might be hidden neurotoxins in that water that are invisible to the naked eye. Senior citizens never stopped to think twice about the dangerous, unwanted chemicals they were drinking while taking their prescribed medication. I never imagined that the water I was filling my workout bottle with before heading to the gym, could possibly kill me.

Because of travesties like the hugely outdated Lead & Copper Rule and the absence of bathing and showering standards, nearly 200 people died from pneumonia caused by bacteria in our water. For the past 4 weeks, I have been suffering from a respiratory infection plus ear infections caused by the bacteria *pseudomonas aeruginosa*, which is present in my shower at a plate count of 2.9 million.

Before 2014, I had 3 happy, healthy, active sons. My oldest, Caleb, tested into a dual enrollment school where he could take high school and college courses at the same time and be able to graduate with a diploma and an Associate's Degree. My middle son, Christian, is sharp. His teachers wanted him to accelerate a grade since elementary school. My youngest, Cole, is the sweetest boy you could ever meet with his little dimples, adorable baby voice, and his everlasting innocence, which is now lost as he knows he was poisoned by politicians who want to save money.

Fast forward to today, Caleb almost failed his Junior year because he could not remember the homework he had done the night before and would fail his tests. He calls it "brain fog" so he had to re-learn how to learn. Imagine going through 12 years of school and having to teach your brain a different way to remember because of being exposed to lead, copper, aluminum, total trihalomethanes, chloroform, 1, 4 Dichlorobenze, Bromodichlormethane, acetone, bacteria, and numerous other contaminants through drinking water and showering in your own home.

Christian and Cole have severe bone and joint pain as lead settles in your bones as well as your growth plates. For kids ages 9-14, their growth plates are open and spongy to accommodate their muscles and joints to be able to stretch as their bones hit those 4-inch growth spurts. Both he and Cole get to start their second round of painful physical therapy since their growth plates are hardening prematurely. Christian and Cole also talk about the brain fog and it terrifies me, because even I know that your brain continues to develop until you are 25. My sons are also seeing a rheumatologist, which also comes with a lot of blood work. Unfortunately, Christian passes out when it comes to needles. This will carry on through the rest of my sons' lives. Because someone wanted to save money.

My husband is 41 and has dizzy spells to wear he nearly faints and is in constant pain. I am 38 and have a rheumatologist for my autoimmune disorder that looks like Lupus. I have a neurologist for my new seizures, as lead and copper are stored in your brain. I have a gastroenterologist because drinking caustic water tears up pipes in the ground as well as your intestines and I have IBS and diverticulosis. I have consulted with a toxicologist and an Environmental Physician who helped us develop a detox plan but says it's moot since we are still being exposed in the shower to dangerous toxins as our pipes crumble in the ground. As now an infectious diseases doctor to help with the bacterial infections.

We use only bottled water to cook with, drink, brush our teeth, and give our pets because our water is too unsafe. We spend so much time either sick, going to the doctor, taking baggies full of medications, or buying shower filters. Try to picture that in your head before suggesting that protecting your family's health and mine is too expensive. Tell that to the restaurants in Flint that closed down because residents don't want to drink lead in their coffee or eat bacteria in their chicken noodle soup. Tell that to the dentists who lost patients because no one wants a cleaning with neurotoxin-laced water. Tell that to the families of the people that have died from Legionnaires Disease, which was entirely preventable with tougher environmental laws and investment in infrastructure. Tell them their loved ones' lives were not worth businesses taking the proper precautions to NOT poison their customers.

Since the infrastructure in Flint is still failing, as mains break and pipes leak in the ground, our sidewalks are crumbling, our streets are caving in and causing huge sinkholes that make it dangerous for ambulances to rush down my street to the hospital in an emergency. And our homes' have flooded basements as the water table fills up.

There is no amount you can place on the safety, health, and well-being of the taxpaying human beings and pets living in this country. So before cutting back on environmental regulations and infrastructure funding, find another area to make cuts. We pay our taxes so our government can do their job and ensure something as simple and life-sustaining: clean, safe water.

Seeing and suffering firsthand the devastation that can and will happen with reduced or weakened environmental regulations and decreased funding for infrastructure updates has opened my eyes to where we are as a country. The health, safety, futures, and lives of the residents have fallen far behind the desire to cut costs and pocket more money. This is short-term thinking and reckless. If you want to protect your constituents' lives, you must implement updated and stringent environmentally sound regulations and pollution restrictions. Otherwise you will just be ushering in thousands of more Flints across this great country of ours. I hope that the pain and suffering of my family, my sons, is a lesson and a warning to each of you. Put yourselves in our shoes before you start slashing regulations to make a profit. Thank you.

Mr. SHIMKUS. Thank you.

The Chair now recognizes Ms. Emily Hammond, Professor of Law at George Washington University Law School. You are recognized for 5 minutes.

STATEMENT OF EMILY HAMMOND

Ms. HAMMOND. Thank you, Chairman, Ranking Member Tonko, and distinguished members of the subcommittee for the opportunity to testify today.

Make no mistakes about where we started. The Cuyahoga River really did catch fire. Toxic waste really did ooze into homes and schoolyards in Love Canal. Millions have suffered from lung disease, heart attacks, and premature deaths because of our dirty air. And, as Ms. Mays just testified, we cannot afford to let our memories grow short.

I use the word “afford” intentionally because I will begin today by discussing how environmental law has helped our economy thrive. Next, I will describe why efforts to tamper with our regulatory process, efforts like the 2 for 1 Executive Order, systematically undermine not just the benefits we have gained but our prospects for the future.

Look what decades of experience show. Between 1970 and 2011, air pollution dropped 68 percent but the gross domestic product increased 212 percent. During that same period, private sector jobs increased by 88 percent.

Consider as well that the rules issued by EPA undergo a rigorous cost-benefit analysis. EPA is required by the Office of Management and Budget to follow accounting principles and assess both the costs and the benefits of regulations. These constrained analyses badly underestimate the benefits of environmental regulations. After all, how can you value a human life with the staggering beauty of the nature world.

Because of this under valuation, however, OMB-driven cost-benefit analyses are very conservative. I will use the Clean Air Act as an example.

Air pollutants have numerous adverse health and environmental effects. Ozone, for instance, is linked to respiratory illnesses, heart attacks, premature death, and negative effects on forests and crops. When people are sick, when they are caring for their ill loved ones or dying too early, they cannot work, they cannot go to school. That hurts business.

By contrast, environmental protections offer savings. EPA’s Clean Air Act rules saved over 164,000 lives in 2010. And they are projected to save 237,000 lives in 2020. These same rules saved 13 million days of work, and 3.2 million days of missed school in 2010. By 2020, these numbers will increase to 17 million days of work and 5.4 million days of school.

A study published in the proceedings of the National Academies of Sciences found the cumulative benefits to the economy of Clean Air Act air toxic regulations alone to be over \$104 billion by 2050.

Why are we reaping these benefits? Because our air, water, and soil are cleaner than they were decades ago. There is, however, very much still to do. And I urge this institution to ensure full funding for our environmental regulatory programs, including en-

forcement, for critical infrastructure upgrades, for Brownfields funding, and for efforts to fight climate change.

As we move forward with strengthening our environmental protections we must also ensure that our regulatory process is sound. The White House's January 30th 2 for 1 Executive Order is an example of sloppy regulatory policy that will be harmful to the public, especially with respects to environmental law. The order systematically disfavors the critical prevention protections that we need to ensure a thriving economy and healthy future. Most stunningly, it appears to direct agencies to count regulatory costs but not consider their benefits. This ignores this institution's directions. This institution enacted those environmental laws to secure their many benefits.

Environmental laws were enacted to ameliorate classic market failure. Polluters do not like to pay for the consequences of their actions. But these laws do more. They represent our society's recognition of a moral obligation to protect our neighbors, our children, our natural environment, and our future. There is still a great deal more to do, and we cannot afford complacency, whether in our environmental laws or in the regulatory process.

Thank you.

[The prepared statement of Ms. Hammond follows:]

**TESTIMONY OF EMILY HAMMOND
PROFESSOR OF LAW
THE GEORGE WASHINGTON UNIVERSITY LAW SCHOOL
BEFORE THE HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENVIRONMENT**

FEBRUARY 16, 2017

Thank you, Chairman Shimkus, Vice-Chairman McKinley, Ranking Member Tonko, and distinguished Members of the Subcommittee, for the opportunity to testify today about the importance of both environmental law and a rational regulatory process.

I am Professor of Law at the George Washington University Law School, a member-scholar of the not-for-profit regulatory think-tank, the Center for Progressive Reform, and past-Chair of the Administrative Law Section of the Association of American Law Schools. I am testifying today, however, on the basis of my expertise and not as a partisan or representative of any organization. As a professor and scholar of environmental law, energy law, and administrative law, I specialize in the role of these laws in society. My work is published in the country's top scholarly journals as well as in many books and shorter works, and I am a co-author of textbooks on both environmental law and energy law. Early in my career, I practiced environmental engineering; that experience and training inform my assessment of the role of environmental law in bettering our society.

In my testimony today, I will begin with an overview of the immense cost-justified benefits that environmental law has bestowed on our citizens and economy. Indeed, the available data reflect that environmental law and progress have successfully come hand-in-hand for decades. Second, I will turn to another matter related to valuing the benefits of environmental regulation: unwise efforts to tamper with the rationality of the regulatory process. A recent example is the so-called "2-for-1" Executive Order issued January 30, 2017. This Order

undermines agency efforts to ensure that environmental regulations protect public health, safety, and welfare *and* provide continuing cost-justified benefits.

I. Environmental Laws Have Strengthened Our Country

To properly appreciate the extraordinarily beneficial impact of environmental laws, one must appreciate the direness of the time before. The Cuyahoga River was so polluted that it caught fire. Toxic waste leaked into homes and schoolyards in Love Canal. Pollutants traveled far across state lines, damaging everything from drinking water supplies to forests, and causing cancer, heart and lung disease, birth defects, and premature deaths. This was not so long ago, and we can't afford our memories to become short.

Today environmental law safeguards our health and environment—and there is still much to do. But history has another lesson, going to the heart of this hearing: environmental protection is itself an economic good that contributes to a thriving economy.¹

First, look at our progress over time. Between 1970 and 2011, aggregate emissions of air pollutants dropped 68% while the U.S. Gross Domestic Product (GDP) increased 212%. During that same period, private sector jobs increased by 88%.² Our population has increased, we have used more energy, and we have built more infrastructure—all while improving our environment.

Second, consider that rules issued by the Environmental Protection Agency (EPA) undergo a rigorous cost-benefit analysis. EPA is required to follow Office of Management and Budget (OMB) accounting principles and assess both the costs and the benefits of regulations. Many researchers have concluded that these constrained analyses “vastly understate” the benefits of environmental regulations.³ Thus, OMB-driven cost-benefit analyses should be understood as very conservative because they systematically undervalue things like human life and a clean environment.⁴ Even with this caveat, the results are compelling. For example, OMB reported to

Congress that from 2004 through 2014, the economic benefits of all of EPA's major rules exceeded the costs by a ratio of nearly 21 to 1.⁵

Third, consider in more detail just what those conservatively estimated benefits are. The Clean Air Act (CAA), in particular, has had an enormous beneficial impact on our economy. Air pollutants have considerable adverse health and environmental effects: ozone, for instance, is linked to respiratory illnesses, heart attacks, premature death, and negative effects on forests and crop yields.⁶ When people are sick, caring for ill loved ones, or dying too early, they cannot work, which is detrimental to the economy. By contrast, environmental protections offer savings:

- OMB reports that the monetized benefits of CAA regulations accounted for 80% of the benefits of all regulations analyzed for its 2015 report to Congress.⁷
- A 2011 peer-reviewed EPA study showed that the benefits of the 1990 CAA Amendments and implementing regulations exceed costs by a factor of more than 30 to 1.⁸
- The 2011 study also revealed that EPA's CAA rules saved over 164,000 lives in 2010, and are projected to save 237,000 lives in 2020.⁹
- These same rules saved 13 million days of lost work and 3.2 million days of missed school in 2010. By 2020, these numbers will increase to 17 million and 5.4 million days, respectively.¹⁰
- Since EPA began regulating lead as a criteria pollutant under the CAA, the median concentration of lead in the blood of children between 1 and 5 years old has decreased 93% as of 2011-12. Moreover, several studies have documented an association between reducing exposure to lead and a reduction in criminal behavior.¹¹
- A study published in the proceedings of the National Academies of Sciences found the cumulative benefits to the economy of CAA air toxics regulations by 2050 to be over \$104 billion.¹²

Numerous additional studies reveal that we are improving in our efforts to protect human health and the environment. Just a few of the relevant recent findings include:

- Thanks to agencies' efforts to inform pediatricians about preventing, diagnosing, and treating environmental health illnesses in children, over 700,000 medical care providers have had outreach and training between 1999 and 2014.¹³
- Thanks to EPA, environmental risk assessments geared at children now consider their life stages, enabling a more fine-tuned approach to regulating exposure to carcinogens.¹⁴
- The climate benefits of programs that have reduced methane emissions from 1993 to 2013 – *prior* to many of the most recent programs—include a cumulative savings of more than 5 times the methane emissions in 2013, for monetized benefits of \$255 billion dollars.¹⁵
- A new comprehensive study has documented “large declines in most pollutants the Clean Water Act targeted” since the Act’s enactment.¹⁶ Notably, declines in mercury and pH are also attributable to CAA regulations.¹⁷
- Air quality for the major criteria pollutants has improved between 1980 and 2015: for example, 8-hour ozone levels have declined 32%, 1-hour nitrogen dioxide levels have declined 59%, and 1-hour sulfur dioxide levels have declined 84%.¹⁸

Despite these successes, there is much more to do. The crisis in Flint, Michigan demonstrates the importance of ensuring that compliance with our existing regulations must be monitored and enforced. As we continually introduce new compounds into our environment, which find their way into our air, food, soil, and drinking water, we need a robust system of environmental laws, regulations, and enforcement to ensure our safety. And as all of us increasingly experience the tremendous impacts of climate change, we *must* have a foundation of environmental law on which to build our future.

II. The Flaws of Tampering With Rational Regulation: The 2-for-1 Executive Order

As we move forward with strengthening our environmental protections, we must also ensure that our regulatory process is sound. The White House’s January 30, 2017 Executive Order on Reducing Regulation and Controlling Regulatory Costs (the so-called “2-for-1 Order”) is an example of sloppy regulatory policy that will be harmful to the public, especially with

respect to environmental law. This Order, as interpreted by the Acting Administrator of the Office of Information and Regulatory Affairs (OIRA),¹⁹ provides that executive agencies must rescind 2 rules for every 1 promulgated, such that the net cost of any new rule is zero.²⁰

The Order raises numerous concerns, but here I focus the most alarming: the overall impact of this Order is to systematically disfavor the critical environmental, health, and safety protections that we need to ensure a thriving economy. Most stunningly, it appears to direct agencies to count regulatory costs but not benefits.²¹ Given that most major federal regulations are cost-justified, it is utterly arbitrary and contrary to law to ignore the beneficial impacts of protective regulations. Indeed, such an approach is an affront to this institution, which has enacted our environmental laws to secure their many benefits discussed above.

Other systematic means of undermining the regulatory process are more subtle but no less nefarious. In carrying out the Order, agencies are permitted to bundle rescissions with new regulations.²² But suppose that during notice-and-comment rulemaking, commentators demonstrated that the proposed rescissions were unwarranted. The agency would be caught in an anti-regulatory trap: It could not issue the new regulation while rescinding the other two because doing so would be contrary to the record, making the agency vulnerable on judicial review. And the agency could not issue the new regulation by itself because it would be barred by the Order. The result? A chilling effect on necessary new regulations meant to ensure our future.

III. Conclusions

Environmental laws were enacted to ameliorate a classic market failure: polluters have every incentive to impose costs that they have created on public health and the environment rather than taking responsibility for those impacts themselves. I contend, however, that these laws do more: they represent our society's recognition of a moral obligation to protect our

neighbors, our children, our natural environment, and our future. There is still a great deal more to do, and we cannot afford complacency.

We must also be vigilant about protecting the integrity of our regulatory process. The 2-for-1 Order is just one example of how failing to do so trades naked, arbitrary politics for our country's future. We cannot afford a systematic undoing of the environmental, health, and safety protections that Congress wisely established.

Thank you again for the opportunity to testify today. I look forward to your questions.

¹ See generally Sidney A. Shapiro et al., *Saving Lives, Preserving the Environment, Growing the Economy: The Truth About Regulation*, CTR. FOR PROGRESSIVE REFORM WHITE PAPER #1109 (July 2011), at http://www.progressivereform.org/articles/RegBenefits_1109.pdf; see also Stephen M. Meyer, *Environmentalism and Economic Prosperity: Testing the Environmental Impact Hypothesis*, MIT PROJECT ON ENVIRONMENTAL POLITICS AND POLICY iv (Oct. 5, 1992) (measuring economic performance of all fifty states as compared to state environmental rank, and concluding that "states with stronger environmental policies did not experience inferior rates of economic growth.").

² ENVTL. PROTECTION AGENCY, THE CLEAN AIR ACT AND THE ECONOMY, at https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_ednref6 (last visited Feb. 15, 2016).

³ E.g., Elsie M. Sunderland et al., *Benefits of Regulating Hazardous Air Pollutants from Coal and Oil-Fired Utilities in the United States*, 50 ENVTL. SCI. & TECH. 2117, 2117 (Feb. 5, 2016); see generally FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004).

⁴ The Congressional Research Service and others have demonstrated that a September 2010 report widely cited by opponents of environmental regulations like the Small Business Administration relied on flawed methodology. Curtis W. Copeland, ANALYSIS OF AN ESTIMATE OF THE TOTAL COSTS OF FEDERAL REGULATIONS, CONG. RESEARCH SERV. NO. 7-5700 (Apr. 6, 2011). In fact, the report's authors failed to even consider regulatory benefits. *Id.* at 25.

⁵ OFFC. OF MGMT. & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, 2015 REPORT TO CONGRESS ON THE BENEFITS AND COSTS OF FEDERAL REGULATIONS AND AGENCY COMPLIANCE WITH THE UNFUNDED MANDATES REFORM ACT 9 (2015).

⁶ See generally Final Rule, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,292 (Oct. 26, 2015).

⁷ OMB, *supra* note 5, at 12.

⁸ ENVTL. PROTECTION AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT FROM 1990 TO 2020, 7-1 (Mar. 2011).

⁹ *Id.* at 7-9.

¹⁰ *Id.* at 5-25 (Tbl. 5-6).

¹¹ *Id.* at A216.

¹² Amanda Giang & Noelle E. Selin, *Benefits of mercury controls for the United States*, 113 PNAS 286 (Jan. 12, 2016).

¹³ Michael Firestone et al., *Two Decades of Enhancing Children's Environmental Health Protection at the U.S. Environmental Protection Agency*, 124 ENVTL. HEALTH PERSPECTIVES A214, A215 (Dec. 2016).

¹⁴ *Id.* at A216.

¹⁵ At a 3% discount rate. See April M. Melvin et al., *Climate Benefits of U.S. EPA Programs and Policies That Reduced Methane Emissions 1993-2013*, 50 ENVTL. SCI. & TECH. 6873, 6876, 6879 (May 26, 2016).

¹⁶ David A. Keiser & Joseph S. Shapiro, *Consequences of the Clean Water Act on the Demand for Water Quality*, NAT'L BUREAU OF ECON. RESEARCH WORKING PAPER 21-23 (Jan. 2017).

¹⁷ *Id.* at 23.

¹⁸ ENVTL. PROTECTION AGENCY, AIR QUALITY—NATIONAL SUMMARY, at

<https://www.epa.gov/air-trends/air-quality-national-summary> (last visited Feb. 15, 2017).

¹⁹ Memorandum from Dominic J. Mancini, Acting Administrator, OIRA, Re: Interim Guidance Implementing Section 2 of the Executive Order of January 30, 2017, Titled "Reducing Regulation and Controlling Regulatory Costs," Feb. 2, 2017 (hereinafter, "Memorandum").

²⁰ 2-for 1 Order § 2.

²¹ See, e.g., Memorandum at 4 (referring only to costs for accounting purposes).

²² Memorandum at 5.

Mr. SHIMKUS. Thank you.

The Chair now recognizes Mr. Thomas Sullivan, Vice President of Small Business Policy at the U.S. Chamber of Commerce. You are recognized for 5 minutes. Welcome.

STATEMENT OF THOMAS SULLIVAN

Mr. SULLIVAN. Thank you, Mr. Chairman, and Ranking Member Tonko, members of the subcommittee.

My name is Tom Sullivan and I run the Small Business Council at the U.S. Chamber of Commerce. The Chamber is the world's largest business federation. We represent the interests of three million businesses as well as state and local chambers, and industry associations. The majority of our business members are small firms. In fact, approximately 96 percent of Chamber members' companies have fewer than 100 employees, and 75 percent have fewer than ten.

Maxine Turner, who is the founder of Cuisine Unlimited in Salt Lake City, chairs our Small Business Council, which works to ensure the views of small business are considered as part of the Chamber's policy making process.

I am especially pleased to join our partners at the Pennsylvania Chamber of Commerce on this panel. The U.S. Chamber was founded by a group of chambers in 1912. They are the backbone of our institution. And that is as true today as it was 105 years ago.

I have spent most of my professional career advocating for small business, first at NFIB, and then from 2002 to 2008, I was honored to serve as the Chief Counsel for Advocacy at the Small Business Administration. That office is charged with independently representing the views of small business. And it oversees agency compliance with the Regulatory Flexibility Act, which is also sometimes called the Small Business Regulatory Enforcement Fairness Act, or an acronym called SBREFA.

It is the purpose of those laws that guides my testimony this morning, that early input by small businesses in the development of legislation and regulatory policy should serve as a model for modernizing environmental statutes, as well as the government's role implementing the law. Many times federal laws and regulations that may work for large corporations don't work for small firms.

Several years ago I worked with a group of small businesses in Quincy, Illinois, who found themselves in the crosshairs of Superfund. The authors of Superfund never intended to target small business owners like Greg Shierling, who owned two McDonald's, and Mack Bennett, who owned a furniture store, or Barbara Williams, who owned a diner in Gettysburg, Pennsylvania. The unintended consequences of a one size fits all statute forced small business owners to spend thousands in legal fees for settlements when they really had not done anything wrong.

Thankfully, Congress took action and exempted innocent small businesses from Superfund in 2001.

Whether it is reauthorizing a new law, creating a new agency, or when agencies craft new regulations, government is well advised to solicit input and work with small businesses to devise solutions

that maximize benefits of laws and regulation and minimize harmful economic impact. Recent figures show that there are over 28 million small businesses in the United States, and that small business has been responsible for creating about two-thirds of the net new jobs over the past 15 years. However, the United States has experienced a decline in start-ups, and that trend threatens a full economic recovery.

According to data from the Census Bureau, there were 700,000 fewer net businesses created from 2005 to 2014 than from 1985 to 1994. More worrisome is recent evidence that suggests the number of transformational start-ups, those that contribute disproportionately to job and productivity growth, has been in decline since 2000.

This decline in entrepreneurship and small businesses' increasing concern with regulatory burden are trends that should be reversed in order for the United States to experience growth. When agencies and small businesses work together and constructively find solutions, better regulation happens. There are examples of those win/win situations in my full written testimony. I would be happy to cite some of them during the questions.

Congress is on the right track, looking at ways to modernize the regulatory process. The Regulatory Accountability Act, which is H.R. 5, as well as the Regulatory Flexibility Improvements Act, H.R. 33, have already passed the House of Representatives. Together these reforms, that passed with bipartisan support, that help ensure agencies rely on credible science and data, and bringing greater transparency to the rulemaking process, and bolster the involvement of small businesses in policy making, should do the job.

America needs the economic strength job-creating power and innovative genius of small business in order to get back on track economically. Improvements to existing statutes will help calm the regulatory headwinds that prevent small business from being the economic engine of growth here in the United States.

[The prepared statement of Mr. Sullivan follows:]



Statement of the U.S. Chamber of Commerce

**Modernizing Environmental Laws: Challenges and
Opportunities for Expanding Infrastructure and
Promoting Development and Manufacturing
U.S. Chamber of Commerce**

**Thomas M. Sullivan
Vice President, Small Business**

**Before the Energy & Commerce Committee
Environment Subcommittee
U.S. House of Representatives**

February 16, 2017

1615 H Street NW | Washington, DC | 20062

The Chamber's mission is to advance human progress through an economic, political, and social system based on individual freedom, incentive, initiative, opportunity, and responsibility.

The U.S. Chamber of Commerce is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

More than 96% of Chamber member companies have fewer than 100 employees, and many of the nation's largest companies are also active members. We are therefore cognizant not only of the challenges facing smaller businesses, but also those facing the business community at large.

Besides representing a cross-section of the American business community with respect to the number of employees, major classifications of American business—e.g., manufacturing, retailing, services, construction, wholesalers, and finance—are represented. The Chamber has membership in all 50 states.

The Chamber's international reach is substantial as well. We believe that global interdependence provides opportunities, not threats. In addition to the American Chambers of Commerce abroad, an increasing number of our members engage in the export and import of both goods and services and have ongoing investment activities. The Chamber favors strengthened international competitiveness and opposes artificial U.S. and foreign barriers to international business.

Good morning Chairman Shimkus and Ranking Member Tonko, Members of the Subcommittee. My name is Tom Sullivan and I run the Small Business Council at the U.S. Chamber of Commerce. The Chamber is the world's largest business federation. We represent the interests of over 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The majority of our business members are small firms. In fact, approximately 96 percent of Chamber member companies have fewer than 100 employees and 75 percent have fewer than ten. Maxine Turner, who is the founder of Cuisine Unlimited in Salt Lake City, Chairs our Small Business Council, which works to ensure the views of small business are considered as part of the Chamber's policy-making process.

I am especially pleased to join our partners at the Pennsylvania Chamber of Business and Industry on this panel. Kevin Sunday and his colleagues are on the front line of advocating on behalf of job creation and growth in their state. They are best in class and we are honored to work alongside them on this issue, as well as a number of others. The U.S. Chamber was founded by a group of chambers of commerce in 1912. They are the backbone of our institution and that's as true today as it was 105 years ago.

I have spent most of my professional career advocating for small business. First, at the National Federation of Independent Business (NFIB), and then more recently at a law firm where I represented coalitions of small businesses and service providers. From 2002-2008, I was honored to serve as the Chief Counsel for Advocacy at the U.S. Small Business Administration (SBA). That office is charged with independently representing the views of small business before Congress and the Administration and oversees agency compliance with the Regulatory Flexibility Act.¹ It is the purpose of the Regulatory Flexibility Act that guides my testimony to the Subcommittee this morning – that early input by small businesses in the development of regulatory policy should serve as a model for modernizing environmental statutes as well as the government's role implementing the law.

Regulatory Flexibility Act

The Regulatory Flexibility Act requires federal agencies to satisfy certain requirements when they plan new regulations, including (1) identifying the small entities that will be affected, (2) analyzing and understanding the economic impacts that will be imposed on those entities, and (3) considering alternative ways to achieve the agency's regulatory goal while reducing the economic burden on those

¹ *Regulatory Flexibility Act*, Pub. L. No. 96-354, 94 Stat. 1164 (1980), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104-121, 110 Stat. 857 (1996) (codified as amended at 5 U.S.C. Sec. 601-612), also amended by Sec. 1100 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 2112 (July 21, 2010).

entities.² The Regulatory Flexibility Act was amended in 1996 by the Small Business Regulatory Enforcement Fairness Act (SBREFA).³ SBREFA requires the Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (EPA), and the Consumer Financial Protection Bureau (CFPB) to convene small business review panels (I refer to the panels as “SBREFA panels”) whenever their planned rules are likely to have a significant economic impact on a substantial number of small entities. SBREFA panels include representatives from SBA’s Office of Advocacy, the Office of Management and Budget’s Office of Information and Regulatory Affairs (OIRA) and the agency proposing the rule. The panel prepares a report containing constructive recommendations for the agency planning the rule and that report is made publicly available prior to the public providing comment on the agency’s proposed rule.

There are three basic reasons for the Regulatory Flexibility Act.

- (1) One-size-fits-all federal mandates do not work when applied to small business;
- (2) Regulations disproportionately harm small businesses; and
- (3) Small businesses are critically important to the American economy.

Prevention of one-size-fits-all federal mandates

Many times federal laws and regulations that may work for large corporations simply do not work for small firms. Several years ago, I worked with a group of small businesses in Quincy, Illinois, who found themselves in the cross hairs of Superfund. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (referred to here as, “Superfund”) was designed to fund cleanups of the nation’s most polluted sites.⁴ Rather than wait years and years to figure out what caused the pollution and who polluted, the Superfund law allowed the EPA to get funding from one or two of the largest companies that were responsible. The law then allowed those companies to seek reimbursement, through lawsuits, from other companies and individuals who may have contributed to the polluted site. While the liability scheme did expedite payment to the government and cleanup, it did not anticipate how small businesses could get caught up in a liability web with almost no choice but to pay significant fees, even if their only fault was responsibly sending household garbage, food scraps, and benign waste to their landfill. The authors of Superfund never intended to target small business owners like Greg Shierling who owned two McDonald’s and Mac Bennett who owned a furniture store in the Quincy area, or Barbara Williams who owned a diner in Gettysburg, Pennsylvania. The unintended consequences of a one-size-fits-all statute forced small business owners to spend thousands in legal fees or

² Keith W. Holman, *the Regulatory Flexibility Act at 25: Is the Law Achieving Its Goal?*, 33 *Fordham Urban Law Journal* 1119 (2006).

³ *Small Business Regulatory Enforcement Fairness Act of 1996*, Pub. L. No. 104-121, 110 Stat. 857 (1996).

⁴ *Compressive Environmental Response, Compensation, and Liability Act of 1980*, Pub. L. No. 96-510, 94 Stat. 2767 (1980).

settlements when they really had not done anything wrong. Thankfully, Congress took action and exempted innocent small businesses from Superfund in 2001. Whether it is reauthorizing a new law, creating a new agency⁵, or when agencies craft new regulations, government is well advised to solicit input and work with small businesses to devise solutions that maximize the law's or regulation's benefits and minimize harmful economic impact.

Small firms are disproportionately impacted by federal regulation

Research published in 2010 by Nicole Crain and W. Mark Crain of Lafayette College represents the latest of four government studies on the impact of federal regulations on small business.⁶ The total cost of complying with federal regulations was estimated above \$1.75 trillion. Four years later, Professors Crain and Crain updated their research for the National Association of Manufacturers and estimated the burden at \$2.028 trillion, an amount that equaled 12 % of GDP.⁷

The latest Crain study found that small businesses shoulder costs that are 2 ½ times more per employee than their larger business competitors. Firms with fewer than 50 employees paid \$34,671 per employee per year and firms with 100 or more employees paid \$13,750 per employee to comply with federal regulations. The cost difference is most severe when the study examined environmental regulations, where firms with fewer than 50 employees paid more than 3 times the amount per employee than those with 100 or more employees.⁸

Importance of small business to the U.S. economy and the threat of over-regulation

Recent figures show there are over 28 million small businesses in the United States.⁹ The 62 million people employed at small firms represent about half of America's private sector workforce and small business is responsible for creating about 2/3 of

⁵ Title X of the Dodd-Frank Wall Street Reform and Consumer Protection Act created the Consumer Financial Protection Bureau (CFPB). Section 1100G requires small business input in CFPB rulemaking. *Dodd-Frank Wall Street Reform and Consumer Protection Act*, Pub. L. No. 111-203 (July 2010).

⁶ Nicole V. Crain and W. Mark Crain, *The Impact of Regulatory Costs on Small Firms*, written for the Office of Advocacy, U.S. Small Business Administration (September 2010), available at: [https://www.sba.gov/sites/default/files/The%20Impact%20of%20Regulatory%20Costs%20on%20Small%20Firms%20\(Full\).pdf](https://www.sba.gov/sites/default/files/The%20Impact%20of%20Regulatory%20Costs%20on%20Small%20Firms%20(Full).pdf)

⁷ W. Mark Crain and Nicole V. Crain, *The Cost of Federal Regulation to the U.S. Economy, Manufacturing and Small Business*, A Report for the National Association of Manufacturers (September 2014), available at: <http://www.nam.org/Data-and-Reports/Cost-of-Federal-Regulations/Federal-Regulation-Full-Study.pdf>

⁸ *Id.*

⁹ Office of Advocacy, U.S. Small Business Administration, *Frequently Asked Questions* (June 2016), available at: https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf

the net new jobs over the past 15 years.¹⁰ However, the United States has experienced a decline in start-ups over the past decade and that trend threatens a full economic recovery.¹¹ According to data from the U.S. Census Bureau, there were 700,000 fewer net businesses created from 2005 to 2014 than from 1985 to 1994. More worrisome is recent evidence that suggests the number of transformational startups, those that contribute disproportionately to job and productivity growth, has been in decline since 2000.¹²

At the same time start-ups are struggling, regulation is a growing concern for small businesses. A quadrennial survey of 20,000 small business owners in August found that “unreasonable government regulations” is the second-most pressing concern, up from 5th in the last survey taken in 2012. Regulation’s placement as the second-most serious issue for small business is the issue’s highest ranking in the 34-year history of the survey.¹³ Last month, the National Small Business Association (NSBA) released its survey and found that more than half of small business owners held off hiring a new employee due to regulatory burdens.¹⁴

The decline in entrepreneurship and small businesses’ increasing concern with regulatory burden are trends that should be reversed in order for the United States to experience growth.

Small Business Input Can Work

When agencies and small businesses work together and constructively find solutions, better regulation happens. There are numerous examples of win/win solutions to real environmental challenges. One of my favorite examples of cooperation between small businesses and the EPA occurred shortly after I was confirmed by the Senate as Chief Counsel for Advocacy at the SBA. EPA wanted to reduce pollution from nonroad diesel engines (mostly diesel tractors). Prior to issuing a proposed rule, EPA convened a SBREFA panel and I recall one meeting we hosted between small engine manufacturers from Michigan and EPA engineers. EPA walked us through their plans that basically would have mandated a pollution-reduction device (it looked like a big muffler) attached to the engine. A small

¹⁰ *Id.*

¹¹ Ryan Decker, John Haltiwanger, Ron Jarmin and Javier Miranda, *The Secular Decline in Business Dynamism in the U.S.*, Working Paper, 2014, available at: http://econweb.umd.edu/~haltiwan/DHJM_6_2_2014.pdf.

¹² Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda, *Where Has all the Skewness Gone? The Decline in High-Growth (Young) Firms in the U.S.*, (NBER Working Paper No. 21776 (December 2015)), as described in the National Bureau of Economic Research Digest On-Line (February 2016), available at: <http://www.nber.org/digest/feb16/w21776.html>.

¹³ Holly Wade, *Small Business Problems and Priorities*, NFIB Research Foundation (August 2016), available at: <http://www.nfib.com/assets/NFIB-Problems-and-Priorities-2016.pdf>.

¹⁴ *2017 NSBA Small Business Regulations Survey*, National Small Business Association (January 18, 2017), available at: <http://www.nsbabiz/wp-content/uploads/2017/01/Regulatory-Survey-2017.pdf>.

business owner, at the meeting, pointed out that the John Deere engine hood would not fit over the device and the small businessman feared that John Deere would simply source the manufacturing overseas instead of waiting for EPA to revise its regulations. Because of that conversation, EPA re-thought their approach. EPA's decision probably saved the sector, and the revised rules still reduced pollution from diesel tractors by close to 90 percent.

Exercise Oversight to Ensure Fair Enforcement

While the bulk of my testimony focuses on policy development through legislation and regulation, I also want to strongly advise the Subcommittee to exercise its oversight to ensure EPA fairly enforces its regulations once they are finalized and small businesses are able to understand their responsibilities. Several years ago, I helped the National Association of the Remodeling Industry (NARI) partner with EPA to bolster the agency's enforcement efforts against non-certified remodelers who were putting families, and especially young children, at risk of lead poisoning by unsafe work practices when remodeling homes built before 1978. NARI worked hard to make sure its remodeler members became EPA lead paint certified and the remodelers became frustrated with the number of non-certified crews who were underpricing work and creating dangerous situations. Dave Merrick of Merrick Design and Build in Maryland and Bruce Case of Case Design/Remodeling in Virginia helped lead an effort to bolster EPA's crackdown on non-certified remodelers. The frustration remodelers like Dave and Bruce felt is a good example of why small business input is critical at the legislative stage, the regulatory development stage, and the implementation stage.

Conclusion

Congress is on the right track, looking at ways to modernize the regulatory process. The Regulatory Accountability Act (H.R. 5) has already passed the U.S. House of Representatives along with the Small Business Regulatory Flexibility Improvements Act of 2017 (H.R. 33). Together, these reforms that passed with bipartisan support will help ensure that agencies rely on credible science and data, bring greater transparency to the rulemaking process, and bolster the involvement of the small business community in regulatory policymaking.

America needs the economic strength, job-creating power, and innovative genius¹⁵ of small business in order to get back on track economically. These bills, along with improvements to existing media-specific statutes, will help calm the regulatory headwinds that prevent small business from being the economic engine of growth here in the United States.

¹⁵ Research by the U.S. Small Business Administration revealed that small firms produce 16 times the number of patents per employee than large patenting firms. Anthony Breitzman and Diana Hicks, *An Analysis of Small Business Patents by Industry and Firm Size*, written for the Office of Advocacy, U.S. Small Business Administration, Contract No. SBAHQ-07-Q-0010 (November 2008), available at: <https://works.bepress.com/anthony-breitzman/15/>.

Mr. SHIMKUS. The Chair thanks the gentleman.

The Chair now recognizes Mr. Ross Eisenberg, Vice President of Energy and Resources Policy of the National Association of Manufacturers. You are recognized for 5 minutes. Welcome.

STATEMENT OF ROSS EISENBERG

Mr. EISENBERG. Thank you very much. Good morning, Chairman Shimkus, Ranking Member Tonko, members of the subcommittee. I am very pleased to be here today representing the views of the 12 million men and women who make things in America.

We are in the midst of what we call a manufacturing moment. And it is really easy to see why. Manufacturing contributed \$2.17 trillion to the U.S. economy in the most recent year that we have data for, 2015. That is up from \$1.7 trillion in 2009.

For every dollar spent in manufacturing, another \$1.81 is filtered throughout the economy, which is the highest multiplier factor of literally any sector in the economy. Manufacturing has helped lift the country out of the Great Recession, and we have ignited a new generation economy.

Manufacturers have sharply reduced our impact on the environment through a very wide range of innovations. The results benefit not only consumers but the broader communities beyond the manufacturing shop floor. And the overall numbers are indisputably good.

I have included in my written statement EPA's latest air trends chart. And that is right off the EPA Web site. And you can see, I mean for criteria pollutants the trend lines for every single pollutant go straight down. And they have been doing straight down since, since 1990.

When you add in the progress we have made on greenhouse gasses, where we have reduced more greenhouse gasses in this country than any other nation on Earth, we have a very good, and I would say tremendous story to tell.

Now, environmental laws have been largely successful in reducing pollution. I don't think anybody really disputes that. In many cases they have been so successful that pollutants have been reduced to trace or even background levels. At the same time, these statutes were written four or five decades ago, and their drafters really couldn't have possibly envisioned how best to use these laws to tackle some of the environmental challenges in the 21st Century.

These challenges include the West Coast being in perpetual ozone non-attainment because of emissions coming over from Asia, or states literally running out of controls needed to meet some of the newest air quality standards, or the fact that EPA often uses computer models in lieu of real monitoring, and they conflict at times, or how to possibly categorize different kinds of lands and water features in this country as simply waters of the United States, or how to handle climate change and greenhouse gas emissions.

For example, in the vehicle sector we have three different agencies which lay claim to often very conflicting regulatory authority. Regulators are increasingly unable to adapt stringent programs to the progress that has been made and easily reshape them on their own to confront new environmental challenges. And when they try,

they risk imposing requirements that are just simply not legally justifiable. History is littered with a long list of creative EPA regulations that have been held up by the courts. And that transcends politics and administration.

Several recent regulations threaten to set new records for compliance costs, collectively strapping manufacturers with hundreds of billions of dollars in new regulatory burdens per year. From a manufacturing perspective we have lost a critical balance in our federal environmental policies between furthering progress and limiting unnecessary economic impacts. In our view, it doesn't have to be that way.

The NAM recommends that Congress modernize outdated environmental laws to make them perform better, or require federal agencies to regulate the environmental challenges better, or even better, both. We understand these are not remotely simple tasks. But neither was modernizing TSCA. And this committee did that last year. It was an overwhelming success. We hope the committee can leverage the success it had on TSCA and turn to other statutes and modernize them as well.

My written statement contains a long list of proposals to improve the way we regulate things like criteria pollutants and greenhouse gasses and surface water and drinking water and permitting. And we believe that doing that will help those emissions guidelines keep going down while preserving manufacturers' overall competitiveness.

In my testimony I also provide a long list of proposals to clear the way for new infrastructure, particularly in the energy space. As this committee knows, this is a very exciting time for energy in the U.S. Our abundance of all sources is driving a manufacturing renaissance which is, in turn, creating a major need for new and improved energy delivery infrastructure.

A recent report by the NAM found the total natural gas demand is poised to increase about 40 percent over the next ten years. That is double or I would say that is, that is double what, what happened the ten years before that. But, realistically, we have had a geographic mismatch. Where the gas is being produced now does not necessarily match where the pipes are going and where the energy needs to go. And that needs to be resolved.

In addition, energy infrastructure increasingly suffers from what we call permitting paralysis. Federal, state and local permitting hurdles continue to impede projects across the energy landscape. It is a challenge. It is something that continues to be a challenge despite some very, very good efforts by Congress and the executive branch that we really want to see continued attention to.

So we are happy for the measures in the FAST Act that was passed last year. We are excited about the President's recent executive memorandum on high priority infrastructure projects. I applaud this committee for your leadership on the recent passage of the bipartisan Water Infrastructure Improvements for the Nation Act, which is a first step to addressing our current drinking and wastewater infrastructure crisis. We hope this momentum continues.

Manufacturers are committed to a strong, healthy, sustainable environment. But there has to be a balance. Environmental laws

and regulations should be designed to ensure they are effective in achieving their desired outcomes without creating unnecessary adverse economic or social impacts.

Thank you very much.

[The prepared statement of Mr. Eisenberg follows:]



Leading Innovation. Creating Opportunity. Pursuing Progress.

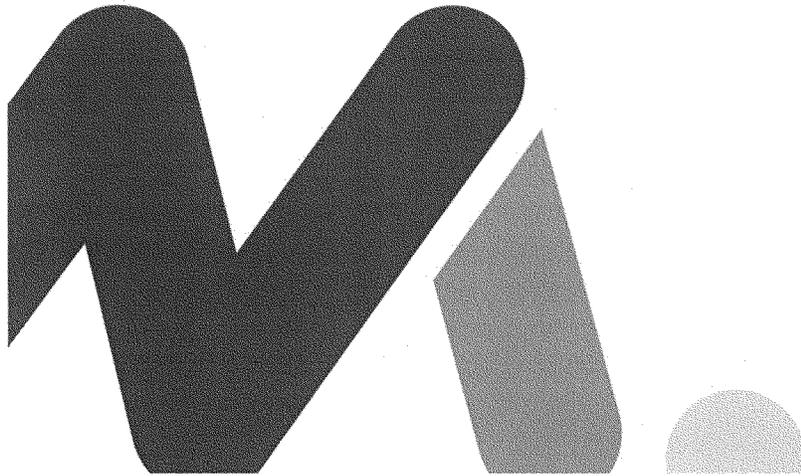
Testimony

of Ross Eisenberg
Vice President
Energy and Resources Policy
National Association of Manufacturers

*Before the House Committee on Energy and Commerce
Subcommittee on Environment*

*hearing on "Modernizing Environmental Laws: Challenges and Opportunities for
Expanding Infrastructure and Promoting Development and Manufacturing"*

February 16, 2017



SUMMARY OF TESTIMONY

Manufacturers have sharply reduced our impact on the environment through a wide range of innovations, and have helped to usher in a new era of a cleaner and more sustainable environment. The overall numbers are indisputably good. However, in spite of best-in-class efforts, the United States and the world continue to face serious environmental and sustainability challenges. There are forces far beyond the capability of manufacturers in the United States that are driving changes to the global environment.

Our environmental indicators are steadily improving. However, they are coming at an ever-increasing cost. Federal environmental regulations—many based on statutes that are decades old—are increasingly rigid, costly and harm our global competitiveness. Several recent regulations threaten to set new records for compliance costs, collectively strapping manufacturers with hundreds of billions of dollars in new regulatory burdens per year. We have lost the critical balance in our federal environmental policies between furthering progress and limiting unnecessary economic impacts. The state of our national economy, the manufacturing sector and the environment are considerably different than they were 20, 30 or 40 years ago. However, we are still operating with policies designed to address the environmental challenges of a previous era. It is time to modernize our environmental policies to better reflect and address current issues, technologies and opportunities to ensure a more sustainable future.

When agencies try to adapt laws written in the 1960s and 1970s to modern-day problems, they risk imposing requirements that are not legally justifiable. The NAM recommends that Congress modernize outdated environmental laws written in the 1960s and 1970s and make them perform better, or require federal agencies to regulate environmental challenges better—or both.

America's vast energy resources are spurring major investment by manufacturers. Our energy-fueled manufacturing renaissance has created a major need for new and improved energy delivery infrastructure. On the electricity side, innovation, regulations and market dynamics are driving rapid changes to the electric grid and the way electricity is produced in the U.S. Increased dependence on natural gas in the manufacturing and electric power sectors has also brought about a need for new pipeline infrastructure. More often than not, new energy infrastructure suffers from "permitting paralysis" that Congress can help resolve. In the case of water infrastructure, communities across the country are relying on water infrastructure that is approaching the end of its useful life.

This testimony provides the NAM's recommendations on practical ways to modernize environmental laws and regulations to improve manufacturing and infrastructure.

TESTIMONY OF ROSS EISENBERG
BEFORE THE HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENVIRONMENT

Hearing on:
“Modernizing Environmental Laws: Challenges and Opportunities for Expanding
Infrastructure and Promoting Development and Manufacturing”

FEBRUARY 16, 2017

Good morning, Chairman Shimkus, Ranking Member Tonko, and members of the Subcommittee on Environment. My name is Ross Eisenberg, and I am vice president of energy and resources policy at the National Association of Manufacturers (NAM). The NAM is the nation’s largest industrial trade association, representing nearly 14,000 small, medium and large manufacturers in every industrial sector and in all 50 states. I am pleased to represent the NAM and its members at today’s hearing examining the nation’s environmental laws and regulations and how we can modernize them to improve infrastructure and manufacturing.

We are in the midst of a “Manufacturing Moment”—and it is easy to see why. Manufacturing has fueled America’s rise like no other sector of our economy. Manufacturers in the United States are the most productive in the world, far surpassing the worker productivity of any other major manufacturing economy, leading to higher wages and living standards.

Manufacturers contributed \$2.17 trillion to the U.S. economy in 2015, the most recent data available.¹ This figure has risen since the second quarter of

¹ <http://www.nam.org/Newsroom/Facts-About-Manufacturing/>.

2009, when manufacturers contributed \$1.70 trillion. For every \$1.00 spent in manufacturing, another \$1.81 is added to the economy—the highest multiplier effect of any economic sector. In addition, for every one worker in manufacturing, there are another four employees hired elsewhere. Manufacturing has helped lift the United States out of the Great Recession and ignited a new-generation economy capable of keeping American Exceptionalism alive long into the future.

Background on NAM's Policy Recommendations

Heading into 2017, the NAM and its members recognized the growing focus from Congress and the Executive Branch on upgrading the nation's infrastructure and enacting policies that will make manufacturers more competitive. To help drive these discussions, we released *Competing to Win*, a detailed roadmap for the President and the 115th Congress, with a series of white papers containing policy recommendations on tax, trade, energy, environment, transportation and infrastructure, labor, immigration, workforce, health care, technology, and regulatory and legal reform. The *Competing To Win* white papers can be read at <http://www.nam.org/competingtowin/>. We also released *Building to Win*, a blueprint for policymakers to repair and upgrade our infrastructure and make the American Dream possible. *Building to Win* can be found at <http://www.nam.org/buildingtowin/>.

My testimony today draws heavily from the *Competing to Win* energy and environment white papers and from *Building to Win*. I encourage you to read the

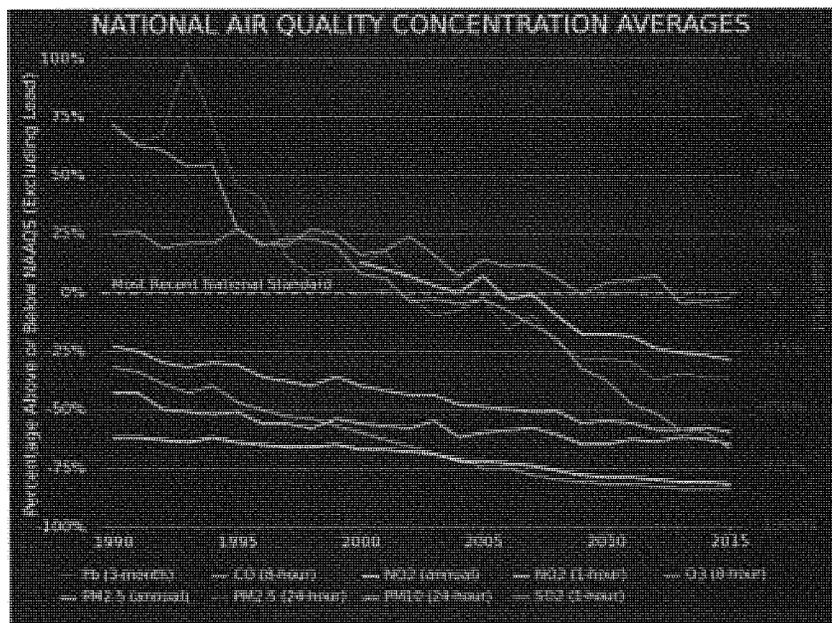
full set of white papers and follow up with NAM policy experts with questions on the issue areas not contained in my testimony.

Environment: Manufacturers are Driving Continual Improvement But Laws and Regulations Aren't Keeping Pace

Manufacturers have sharply reduced our impact on the environment through a wide range of innovations, such as increasing energy efficiency, saving and recycling water and implementing successful initiatives to reduce pollution and waste. Through these traditional and innovative measures, manufacturers have helped to usher in a new era of a cleaner and more sustainable environment.

The overall numbers are indisputably good. Since 1990—a period spanning four different presidential administrations and 14 different Environmental Protection Agency (EPA) Administrators—national pollutant concentrations have dropped dramatically. Carbon monoxide concentrations are down 77 percent; lead 99 percent; nitrogen dioxide 54 percent; ozone 22 percent; coarse particulate matter 39 percent; fine particulate matter 37 percent; and sulfur dioxide 81 percent.² The United States has reduced more greenhouse gases (GHGs) over the past decade than any other nation on earth. Manufacturers have done their part as well, reducing our emissions 10 percent over the past decade while increasing our value to the economy by 19 percent.

² U.S. EPA, "Our Nation's Air: Status and Trends Through 2015," *available at* <https://gispub.epa.gov/air/trendsreport/2016/>.



Source: EPA Air Trends Report, <https://aqs.epa.gov/air/trendsreport/2016/>.

Manufacturers will continue to lead by minimizing environmental footprints, reducing emissions, conserving critical resources, protecting biodiversity, limiting waste and providing safe products and solutions so others in the economy can do the same. Sustainability drives the efficient use of resources so that economic value to society can continue to grow while businesses remain profitable enterprises. The results benefit not only customers but also broader communities beyond the manufacturing shop floor.

Here are a few good examples.³ Covestro, formerly Bayer MaterialScience, committed to reduce its 2005 carbon dioxide (CO₂) levels by 40

³ All of the following examples and more can be found in greater detail on the NAM's Sustainability Blog, <http://www.nam.org/sustainability/>.

percent by 2020. The company has already beaten that goal and set a new goal to cut CO₂ emissions in half again by 2025. It accomplished this by making numerous production improvements at Covestro facilities across the globe, including a \$120 million investment at its largest facility in Baytown, Texas to improve energy efficiencies, minimize waste and reduce natural resource consumption. Covestro developed a new manufacturing process that allows it to replace petrochemical feedstock with CO₂ and recently opened a new plant that will utilize this technology to make polyurethane foam for mattresses and furniture.

Engineers at Kohler recently introduced a line of flush toilets that reduce water use by 38 percent compared to a traditional 1.6 gallon flush toilet. This product is the result of Kohler's Design for Environment (DfE) principles, which are incorporated into each phase of new product development. Kohler engineers also developed a manufacturing process that saves more than six million pounds of iron in bathtubs from being melted each year—as well as a 20 percent improvement in the efficiency of the energy needed to melt it.

UPS Corporation focuses its sustainability efforts on creating the most efficient network possible, using everything from multi-modal shipping, a "rolling laboratory" of alternative fuel vehicles, and even (in one test case) electric tricycles, all designed to reduce congestion and environmental impact around the world and improve the communities UPS serves. UPS' fleet of 8,100 alternative fuel vehicles has already driven more than 1 billion miles.

Smithfield Foods has set 2020 goals for water, energy, GHGs, solid waste and grain procurement and has almost met several of these targets three years early. More recently, it set a 2025 goal to cut its GHG emissions by a quarter, from 17 million metric tons to 12.5 million tons.⁴ The company has created new markets for grain sorghum, a sustainable feed, and has found industry-leading solutions to manure management. Smithfield's fertilizer and soil control practices, which include working hand-in-hand with grain farmers, providing free agronomy advice and fostering on-farm conservation practices, have benefitted more than 100,000 acres of land in the Southeast United States and are on track to benefit more 450,000 acres nationwide as the program expands.

In 2007, steel and mining company ArcelorMittal helped launch the *Sustain Our Great Lakes* public-private partnership with EPA and several other agencies with the goal support the Great Lakes region, where 70 percent of the company's employees live and work. The partnership has contributed to restoring nearly 33,000 acres and nearly 200 miles of marine and riparian habitat. ArcelorMittal also helped launch the *Millennium Reserve* public-private partnership in 2012 designed to advance sustainable development initiatives in the Calumet region of Indiana and Illinois.

Among a wide range of sustainability initiatives, General Motors recycled more than 2 million tons of waste in 2015 and has 131 landfill-free facilities. The company has taken a truly innovative approach to waste and recycling, even reusing many of these products in new and exciting ways. For example, GM

⁴ <https://www.wsj.com/articles/smithfield-sets-plan-to-cut-carbon-emissions-by-a-quarter-1480870861>.

recycles cardboard packaging into Buick Verano headliners to keep the cabin quiet; it recycles water bottles from some GM facilities to provide V6 engine covers for the Chevrolet Equinox; it recycles test tires into the manufacturing of air baffles for a variety of GM vehicles; it reused 1,600 shipping crates as raised garden beds in Detroit; and it converted 800 scrap Chevrolet Volt battery cases into wildlife nesting boxes.

These are just a few stories that highlight the leadership and innovation manufacturing provides to protect our environment. However, in spite of best-in-class efforts, the United States and the world continue to face serious environmental and sustainability challenges. There are forces far beyond the capability of manufacturers in the United States that are driving changes to the global environment. Mitigating the impacts of climate change, protecting the air, feeding the world's growing population and ensuring adequate supplies of drinking water are just a few of the significant issues facing current and future generations.

Our environmental indicators are steadily improving. However, they are coming at an ever-increasing cost. Federal environmental regulations—many based on statutes that are decades old—are increasingly rigid, costly and harm our global competitiveness. Several recent regulations threaten to set new records for compliance costs, collectively strapping manufacturers with hundreds of billions of dollars in new regulatory burdens per year. We have lost the critical balance in our federal environmental policies between furthering progress and limiting unnecessary economic impacts. The state of our national economy, the

manufacturing sector and the environment are considerably different than they were 20, 30 or 40 years ago. However, we are still operating with policies designed to address the environmental challenges of a previous era. It is time to modernize our environmental policies to better reflect and address current issues, technologies and opportunities to ensure a more sustainable future.

Recommendations on Environment: Modern, Balanced Laws and Regulations That Achieve Environmental Goals Without Holding Manufacturers Back

The choice between environmental protection and a strong economy is not an either/or proposition. We can have both. Environmental laws and regulations should be updated and designed to ensure they are effective in achieving desired objectives without creating unnecessary adverse economic or social impacts.

Environmental laws have been largely successful in reducing pollution—in many cases, so successful that pollutants have been reduced to trace or background levels. At the same time, these statutes were written four to five decades ago, and their drafters could not possibly have envisioned how best to tackle the environmental challenges of the 21st century. As a result, regulators are increasingly unable to adapt stringent programs to the progress that has been made and easily reshape them on their own to confront new environmental challenges. When agencies try to adapt laws written in the 1960s and 1970s to modern-day problems, they risk imposing requirements that are not legally justifiable. History is littered with a long list of “creative” EPA regulations that have been held up by the courts, including Bush-era programs like the Clean Air

Interstate Rule and Clean Air Mercury Rule and Obama-era regulations like the Clean Power Plan and Waters of the United States.

The NAM recommends that Congress modernize outdated environmental laws written in the 1960s and 1970s and make them perform better, or require federal agencies to regulate environmental challenges better—or both. We understand these are not simple tasks. Neither was modernizing the Toxic Substances Control Act (TSCA), which this Committee accomplished just last year. We hope the Committee can turn the success it had reforming TSCA into broader modernization efforts.

The NAM specifically recommends the following:

- Modify the National Ambient Air Quality Standards (NAAQS) review cycle to more closely align with the pace of implementation of existing standards and consider cost and technological feasibility when conducting NAAQS policy assessments and during implementation.
- Require the Clean Air Scientific Advisory Committee (CASAC) to comply with Section 109(d) of the Clean Air Act and “advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance” of NAAQS.
- Amend Clean Air Act Section 179B to more clearly provide relief for states that cannot meet federal air quality standards due to contributions from emissions from outside the United States.

- Provide flexibility to NAAQS nonattainment areas so that offset requirements are tied to reasonable and available reduction opportunities, with consideration to reasonable cost thresholds.
- Harmonize motor vehicle GHG regulations and programs issued by the EPA, Department of Transportation and California Air Resources Board to avoid inconsistencies.
- Withdraw the EPA's 2016 midnight regulation "determination" for the 2017-25 corporate average fuel economy standards for light-duty vehicles and require a new, proper midterm review.
- Led by the International Civil Aviation Organization, commit to a single global approach to reducing aircraft GHG emissions that preserves a level playing field for aircraft manufacturers.
- Specify that forest biomass energy is considered carbon neutral as long as forest carbon stocks are stable or rising on a broad geographical scale, and recognize the forest products industry's use of forest products manufacturing residuals for energy as carbon neutral regardless of forest carbon stocks.
- Simplify the New Source Performance Standards (NSPS) process to provide certainty for manufacturers that they are in compliance with the law. NSPS should be set using criteria that ensure optimal cost effectiveness and do not hinder economic growth. EPA should also allow adequate timing to demonstrate compliance once an NSPS is triggered.

- Cease using the Social Cost of Carbon, Social Cost of Methane and Social Cost of NOx calculations until they are subjected to a rigorous, unbiased third-party review and revised accordingly.
- Improve the New Source Review (NSR) process to reduce barriers to installation of energy efficient technologies.
- Streamline and reform NSR requirements, including the development of practical routine repair, replacement and maintenance exemption provisions.
- Base any Hazardous Air Pollutant (HAP) regulations on sound scientific data that clearly demonstrate a need to protect public health and consideration of welfare, energy and economic impacts. The EPA's inability to meet arbitrary deadlines should not trigger automatic regulation.
- Integrate a cumulative analysis of regulations' impacts on regulated industries, manufacturers and the economy, including the impacts on the environment and employment.
- Require federal agencies to perform an analysis of any new major rulemaking on the reliability and cost of energy for manufacturers.
- Reinforce local responsibility by clearly defining waters covered under the Clean Water Act (CWA).
- Foster cooperation by providing a means of just compensation to private property owners for regulatory takings that result from the CWA or other environmental laws.

- Adopt a balanced approach to point and nonpoint problems that focuses on the water quality of the watershed.
- Hold municipalities responsible for storm water and sewage discharges and support equitable user charges based on the true cost of treating each user's wastewater.
- Support programs that incorporate the flexibility needed to respond to local conditions in cost-effective ways to more fully meet the goals of the CWA.
- Ensure state governments retain the principal control and management responsibility for groundwater.
- Adopt a risk-based approach to water quality regulations that fully assesses the technical feasibility and economic practicability of attaining the water quality standard based on the social and economic impacts of the costs of compliance of discharges and water returns.

Energy and Water: New Manufacturing Needs New Infrastructure

America's vast energy resources are spurring major investment by manufacturers. For instance, abundant natural gas and natural gas liquids (NGLs) from shale resources have driven the chemical industry to invest in 264 new projects representing \$164 billion in capital investment in the United States.⁵

⁵ "U.S. Chemical Investment Linked to Shale Gas: \$164 Billion and Counting," American Chemistry Council, Inc., April 2016. Available at <https://www.americanchemistry.com/Policy/Energy/Shale-Gas/Fact-Sheet-US-Chemical-Investment-Linked-to-Shale-Gas.pdf>.

These energy-related chemicals are the primary building blocks for a wide range of manufacturing sectors, including, but not limited to, fertilizer, plastics, rubber, building and construction, paint and coatings, automotive and electronics.

An NAM–supported study by PricewaterhouseCoopers recently predicted that by 2040, the shale gas boom could create 1.41 million new manufacturing jobs in the United States and generate annual cost savings for manufacturers of \$34.1 billion due to lower energy and feedstock costs.⁶

The energy renaissance is not limited to oil and gas. More than 100,000 workers contribute to the energy production at the nation’s 99 nuclear power plants,⁷ including manufacturers providing on-site repair, operations and maintenance, as well as replacement components, modifications and upgrades when necessary. Pending retirements are spurring the industry to hire another 25,000 employees over the next few years, and in anticipation of new nuclear plant construction, U.S. companies have created in excess of 15,000 new U.S. jobs since 2005, which include manufactured products like turbines, polar cranes, pumps, valves, piping and instrumentation and control systems.⁸ Renewable energy sources have also steadily grown—consumption from wind, solar and geothermal energy sources have increased more than 400 percent over the past decade⁹—now accounting for about 10 percent of total U.S. energy consumption

⁶ “Shale Gas: Still a Boon to US Manufacturing?” PWC, December 2014. Available at <http://www.pwc.com/us/en/industrial-products/publications/shale-gas-transformingmanufacturing.html>.

⁷ <https://www.nei.org/Why-Nuclear-Energy/Economic-Growth-Job-Creation/Economic-Benefits>.

⁸ “Nuclear Energy’s Economic Benefits—Current and Future,” Nuclear Energy Institute, April 2014. Available at <http://www.nei.org/CorporateSite/media/filefolder/Policy/Papers/jobs.pdf?ext=.pdf>.

⁹ “Renewable Energy, Monthly Energy Review,” U.S. Energy Information Administration, June 2016. Available at <http://www.eia.gov/totalenergy/data/monthly/>.

and about 13 percent of electricity generation.¹⁰ Overall energy intensity in manufacturing (i.e., energy consumed per each dollar of goods produced) has steadily improved as manufacturers have grown more energy efficient.¹¹ Finally, while the coal industry has faced its share of headwinds in the electric power sector, coal use in the non-electric-generation manufacturing sector has remained relatively consistent, at around 43 million short tons of coal per year.¹²

Our energy-fueled manufacturing renaissance has created a major need for new and improved energy delivery infrastructure. On the electricity side, innovation, regulations and market dynamics are driving rapid changes to the electric grid and the way electricity is produced in the U.S. The electric grid has traditionally been a one-way system: power plants make electricity, and consumers use it. The grid of the future—and, increasingly, the present—is multi-directional, relying on traditional electric generation but also combined heat and power (CHP) technologies, distributed resources like rooftop solar, energy storage and microgrids, and demand-side management technologies like smart metering. The utility sector expects to invest more than \$300 billion over the next three years to enhance the grid and reshape the nations' electric generation fleet.¹³

A transforming grid provides opportunities and challenges. Utilities have expressed concerns about cost recovery when implementing demand-side

¹⁰ <http://www.eia.gov/tools/faqs/faq.cfm?id=92&t=4>.

¹¹ "Tracking Energy Efficiency Performance in the United States," 2016. Available at <http://aceee.org/ce-metrics>.

¹² <http://www.eia.gov/coal/annual/pdf/table26.pdf>.

¹³ http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/Documents/Wall_Street_Briefing.pdf.

management programs and integrating distributed resources onto the grid. Manufacturers must also adapt to new options and rules, which must be reconciled with a need for consistent, reliable energy at all times.

Increased dependence on natural gas in the manufacturing and electric power sectors has also brought about a need for new infrastructure. A recent NAM-commissioned report by IHS Economics found that total natural gas demand is poised to increase by 40 percent over the next decade—double the growth of the past 10 years.¹⁴

By improving technology and increasing productivity, supply growth continues at a strong pace despite falling prices for both gas and oil and significantly lower rig activity. But, according to IHS, “[t]here is a mismatch, geographically, in the growth in natural gas demand and supply in the U.S. lower 48.” The rapid growth of low-cost production out of the Marcellus and Utica plays has created a bottleneck, as producers are unable to find pipeline capacity to move gas from the well to consumer markets.

When pipeline access is not available, manufacturers suffer. Several NAM members, who were required to install natural gas boilers to meet the EPA’s recent Boiler MACT regulations, have struggled to meet the EPA’s deadlines because they were unsure they could gain timely approval for additional gas capacity. In the northeastern U.S., some manufacturers are forced to truck compressed natural gas (CNG) to their facilities due to stiff local opposition to new pipelines; this imposes a significant competitive disadvantage on the

¹⁴ <http://www.nam.org/Data-and-Reports/Reports/Natural-Gas-Study/Energizing-Manufacturing/>.

manufacturer, who could have relatively easy natural gas access in other parts of the country.

More often than not, new energy infrastructure suffers from “permitting paralysis.” Federal, state and even local permitting hurdles continue to impede projects across the energy landscape, including but not limited to oil and gas pipelines, electric transmission lines, crude by rail facilities, coal, nuclear and liquefied natural gas (LNG) exports, and even new renewable energy installations. Opposition groups are better funded and more driven than ever before, and the regulatory process to permit energy infrastructure affords opponents too many opportunities to delay decisions and stop agencies from doing their work.

In the case of water infrastructure, communities across the country are relying on water infrastructure that is approaching the end of its useful life. The Flint, Michigan water crisis is a stark reminder of the damage that can result when communities, states and the federal government fail to maintain fundamental infrastructure systems—but Flint is not the only community struggling with aging water infrastructure. Without major investments, breakdowns in water supply, treatment and wastewater capacity are projected to cost manufacturers and other businesses \$7.5 trillion in lost sales and \$4.1 trillion in lost GDP from 2011 to 2040.¹⁵

¹⁵ American Society of Civil Engineers. “Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure.” 2011. *Available at* http://www.asce.org/uploadedFiles/Issues_and_Advocacy/Our_Initiatives/Infrastructure/Content_Pieces/failure-to-act-water-wastewater-report.pdf.

Recommendations to Improve Energy and Water Infrastructure

Manufacturers have been encouraged by recent efforts from Congress and the President to improve the regulatory process for infrastructure projects, such as permit streamlining measures in the FAST Act and the President's recent executive memorandum for high-priority infrastructure projects. Additionally, I applaud this Committee for your leadership on the recent passage of the bipartisan Water Infrastructure Improvements for the Nation (WIIN) Act, which is a first step to addressing our current drinking and wastewater infrastructure crisis. We hope this momentum continues and policymakers continue to focus on practical solutions to improve project delivery.

The NAM's specific recommendations include:

- Fill all vacancies at the Federal Energy Regulatory Commission (FERC) so that a quorum can be obtained and regular FERC procedures can resume.
- Provide FERC additional tools to quickly and efficiently issue certificates of public convenience and necessity for new natural gas pipelines.
- Provide a consistent, reasonable scope and timeline for environmental analysis of energy projects subject to the National Environmental Policy Act (NEPA) that includes deadlines for decision making and a firm statute of limitations on actions to challenge a final record of decision.

- Expedite the licensing and permitting process for liquefied natural gas (LNG) and remove regulatory barriers to the export of nuclear, coal and clean energy technologies.
- Modify the process by which the Department of Energy sets and revises its conservation and energy-efficiency standards to allow for greater stakeholder input and more flexibility.
- Update the Nuclear Regulatory Commission's permitting process to enable faster approvals.
- Require the federal government to fulfill its legal obligation to remove used fuel from commercial nuclear power plants and manage its long-term disposal.
- Craft a coherent national coal strategy that provides a stable regulatory structure for the leasing, transport and use of coal in electric power and industrial sectors.
- Commit to research, development and demonstration of carbon capture, beneficial use and storage technology for all fossil fuel applications.
- Improve the presidential permit process set forth in Executive Order 13337—the executive order that sets forth the approval process for cross-border pipelines and other energy delivery projects—to accelerate decision-making time and eliminate delays.
- Promote new energy infrastructure investments as a means of increasing U.S. infrastructure's resilience to climate change by

designing for projected future climate conditions. Regulators should work to more quickly approve smart investments.

- Examine innovative financing mechanisms for new energy infrastructure to encourage private investment.
- Coordinate underground infrastructure work for road, water, gas, electric and broadband to yield construction savings and reduce traffic disruptions from construction work.
- Invest in regions without a developed pipeline network to bring down home heating costs in places like New England and make manufacturers more competitive.
- Promote significant investments to modernize the national utility grid and utilize advanced metering infrastructure, distributed energy resources and other advanced technologies to improve efficiency, affordability, reliability and security.
- Invest in grid improvements to ensure manufacturers have secure, flexible and competitive energy options.
- Issue model best practices for states to address barriers to combined heat and power (CHP) deployment, including guidance for assigning reasonable fees and rates for interconnection to the local distribution grid, supplementary power, backup or standby power, maintenance and interruptible power supplied to facilities that operate CHP systems that also allow for reasonable cost

recovery by an electric utility based on the costs to provide these services and do not shift costs to non-CHP customers.

- Promote cost-effective demand-side management services by customer and aggregator programs, energy-efficiency measures and distributed energy resources. Allow electric and natural gas utilities to meet future energy needs with these technologies and measures.
- Expand the use of public-private partnerships for drinking and wastewater projects, through programs like the Water Infrastructure Finance and Innovation Act, to bring added resources above and beyond current EPA State Revolving Funds and other programs.
- Eliminate state volume caps on private activity bonds for drinking and wastewater projects to leverage private capital to multiply the impact of federal efforts.
- Stem the loss of clean water by replacing pipes at the end of their useful life and introducing technology-enabled monitoring for leaks.
- Promote new technologies and engineering solutions to reduce pollution from sewer overflows and protect water sources, public health and aquatic resources.
- Promote innovative storm water solutions to enhance the resilience of U.S. cities, while also providing new public assets like waterfront parks that also serve as flood protection zones.

Conclusion: The United States Wins When Manufacturers Lead

Manufacturers are committed to a strong, healthy, sustainable environment; less waste and greater energy efficiency support competitiveness and make manufacturers good community partners. However, there must be a balance. Poorly conceived or crafted policies that fail to balance environmental, social and economic impacts will limit the ability of current generations from realizing their full potential or compromise the ability of future generations to meet theirs. To be truly sustainable means to commit not only to a strong environment but also a strong economy. For years, the scales have consistently been tipped too far in one direction or the other. Environmental laws and regulations should be designed to ensure they are effective in achieving their desired objectives without creating unnecessary adverse economic or social impacts.

Mr. SHIMKUS. Thank you.

And the Chair would like to ask a unanimous consent request that the chairman of the full committee get an opportunity to give an opening statement.

Hearing none, Chairman Greg Walden is recognized for 5 minutes.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WALDEN. Thank you very much, Mr. Chairman. Thank you, colleagues. I was detained in another important matter so I couldn't be here at the beginning. But I appreciate the testimony of all the witnesses.

Yesterday the Energy Subcommittee began to explore the great potential for American economic growth from modernizing our electricity and energy infrastructure, which is really important to do. Today this subcommittee, the Environment Subcommittee, with its expanded jurisdiction under Chairman Shimkus' experienced and able leadership, turns to the economic and environmental benefits that will flow from modernizing some key environmental laws.

The common goal here is to identify what steps are necessary to responsibly reduce the barriers to a more productive U.S. economy, and then to develop targeted legislative reforms that will provide for this economic expansion and create good-paying jobs. Doing this will ultimately benefit American consumers.

To begin delivering clear results, though, we must craft policies that will expand our infrastructure and help accelerate innovation, investment, and spur manufacturing growth. It also means taking the necessary steps to ensure our laws do what they were intended to do as efficiently and cost-effectively as possible. And it means making sure regulations are developed and implemented with transparency and predictability.

There are plenty of opportunities to make common sense changes to environmental laws and the way we implement those laws that will reduce unnecessary barriers, disincentives and delays, permitting new infrastructure and manufacturing. This is particularly the case with implementation of some of our air laws.

And there are additional opportunities for environmental cleanup that can turn old environmental dead zones into healthy, revitalized spaces for our local communities. And all of that can help spur some new economic growth.

Some barriers and burdens to development come from outdated assumptions going back decades, as some of you have testified, when many of our laws were developed. We have learned much since then about what works and what doesn't work.

Other roadblocks come from regulatory practices that have proven impractical or become outdated as environmental quality has improved to the point that additional refinements have become more costly to obtain. And the digital age has produced analytical tools that were not available when the Clean Air Act was last amended in 1990. Just look at the computing power packed in an iPhone or the developments in nanotechnology and bioscience, or all the modern technology that companies use to respond successfully to what consumers want in the information age.

Clearly, we have seen tremendous advances all around us, and we must embrace as we modernize our laws to increase the speed, effectiveness and quality of environmental decision making, all of which can produce cleaner air, cleaner water and cleaner soils. That is our common goal.

Our challenge is this: can we go bold and actually harness these new tools and technology in partnership with the inherent advantages of more localized decision making?

Can we refocus our resources on cleanup efforts rather than courtroom brawls and bureaucratic bungling?

Are there analytical tools and modeling approaches that can make for more practical risk-informed decision making that will ease unnecessary burdens and reduce the costly delays in business development?

Can analysis and decision making be decentralized to enable innovative approaches to improving public and environmental health?

We have enormous opportunities to make meaningful improvements in our environmental laws and regulations. We can join the twin engines of modern science and common sense and produce better public health and a better economy, too. They are not mutually exclusive. They do not have to be that way.

Today we will begin to identify these opportunities. Again, I appreciate the witnesses before us.

I would just say on a final note, I remember several years ago in a community that I represent there was this whole issue about what is a wetland and what is not. And we went out on this area with cheatgrass and basalt and some dirt. It was clearly a pond with some willows and all. That, to me, is a wetland.

And then the local community showed me what the agency had said was a wetland which were these two tracks left behind from a utility truck that had gone out there when the ground was soft. That had now been determined to be a wetland. And they could not work around that, they could not disturb that. And they literally were the ruts from a utility truck that had been out there a year or so before.

This is the kind of stuff that doesn't make sense at home to our communities. This is why we lose support for some of these efforts. These are the sorts of things we should be able to come together on without a lot of extreme rhetoric and figure out, can we find a better way? We want to protect these wetlands. We want to protect our drinking water. We had problems in Portland public schools where they knew about lead in the drinking water there and didn't tell the parents for a year or so. It is happening all over our country. None of us wants to drink that.

So let's find a good way through this and we will get better, we will harness this technology, we will add in common sense, and together in our communities we will get to a better place.

Thank you.

[The prepared statement of Mr. Walden follows:]

PREPARED STATEMENT OF HON. GREG WALDEN

Yesterday, the Energy Subcommittee began to explore the great potential for American economic growth from modernizing our electricity and energy infrastruc-

ture. Today, this Environment Subcommittee—with its expanded jurisdiction under Chairman Shimkus’ experienced and able leadership—turns to the economic and environmental benefits that will flow from modernizing some key environmental laws.

The common goal here is to identify what steps are necessary to responsibly reduce the barriers to a more productive U.S. economy and then to develop targeted legislative reforms that will provide for this economic expansion and create good paying jobs. Doing this will ultimately benefit American consumers.

To begin delivering clear results, we must craft policies that will expand our infrastructure and help accelerate innovation and investment and spur manufacturing growth. It also means taking the necessary steps to ensure our laws do what we intended them to do, as efficiently and cost-effectively as possible. And it means making sure regulations are developed and implemented with transparency and predictability.

There are plenty of opportunities to make commonsense changes to environmental laws and the way we implement those laws that will reduce unnecessary barriers, disincentives and delays to permitting new infrastructure and manufacturing. This is particularly the case with implementation of some of our air laws.

And, there are additional opportunities for environmental cleanup that will turn old, environmental dead zones into healthy, revitalized spaces for our local communities and all of that can help spur new economic growth.

Some barriers and burdens to development come from outdated assumptions going back decades—when many of our laws were developed. We’ve learned much since then about what works best and what doesn’t work at all. Other roadblocks come from regulatory practices that have proven impractical or have become outdated as environmental quality has improved to the point that additional refinements have become more costly to obtain.

The digital age has produced analytical tools that were not available when the Clean Air Act was last amended in 1990. Just look at the computing power packed into an iPhone, or the developments in nanotechnology and bioscience, or all the modern technology that companies use to respond successfully to what consumers want in the information age. Clearly, we’ve seen tremendous advances all around us that we must embrace as we modernize our laws to increase the speed, effectiveness, and quality of environmental decision-making. All of which can produce cleaner air, water and soils.

Our challenge is this: Can we go bold and actually harness these new tools and technologies in partnership with the inherent advantages of more localized decision-making? Can we refocus our resources on clean up efforts rather than court-room brawls and bureaucratic bungling? Are there analytical tools and modeling approaches that can make for more practical, risk informed decision-making that will ease unnecessary burdens and reduce the costly delays in business development? Can analysis and decision-making be decentralized to enable innovative approaches to improving public and environmental health?

We have enormous opportunities to make meaningful improvements in our environmental laws and regulations. We can join the twin engines of modern science and common sense and produce better public health and a better economy. Today we will begin to identify those opportunities. Let me thank the witnesses for their thoughtful testimony. You are doing a great service in helping to guide our examination of these important issues.

Mr. SHIMKUS. The gentleman yields back his time.

So here is the deal, I am going to recognize myself for 5 minutes to start asking questions. And we will just bounce back and forth.

And I will just start by saying, you know, there are some issues that we always deal with: How clean is clean? In fact, Mr. Eisenberg, you talked about trace and background. Those are words we use in this committee all the time.

And I appreciate my colleagues and their testimony. There is a desire to be efficient, use new technologies, make sure we are protecting human health, but also making sure that we can create jobs.

So I want to start with Mayor Mitchell because you have the experience. You have been taking Brownfield sites, you have been able to put solar panels on there.

From your experience as a mayor trying to help redevelop areas that are blighted or listed as you can't touch, what are some of the hurdles and what would you recommend us look at so that we can ease some of those hurdles so we can move in the redevelopment of these sites quicker?

Mr. MITCHELL. Yes, thank you, Mr. Chairman. No, it is a great question.

And, I guess the way I would start is to say that much of the low-hanging fruit, certainly in New Bedford and certainly from what I hear from other mayors in the way of Brownfield sites have been picked over in recent years. That is to say, the easy sites, that is the less contaminated sites, have been taken care of and what remains are more complicated sites, dirtier sites that in many cases across the country have economic value. There is untapped value there that, in the absence of contamination, would lead to the redevelopment of those sites.

Mr. SHIMKUS. They could be right on the shoreline. They could be right down Main Street.

Mr. MITCHELL. Yes.

They can be anywhere. We have, for example, on our waterfront, one of the, in one of the busiest ports on the East Coast, a 28-acre site that was, that had been for over a century the location of a power plant. And back in the late '90s the power plant was decommissioned and the utility continued to use it. And the utility offered it up to the city for a dollar to redevelop, right. It has enormous value but to the fact that it is soaked with 100 years' worth of oil and PCBs and other really bad things.

And the city had to turn that opportunity down. And so it has sat and continues for some 15 years later to sit there. And we're working on a number of plans to try to kickstart interest in redevelopment. But there is a hugely valuable site that could be put to any kind of purpose: mixed use development, industrial development, maritime development. But it can't move because the clean-up proposition is, to the market at least, insurmountable.

I think that is a story that has been told in a lot of cities across the United States. In the cities that right now are dotted with construction cranes, in the private sector there is less of a need for government to step in and close a funding gap. But in many cities, including, I presume, many of the districts that committee members, subcommittee members represent, there is a need for government to step in and close that gap. It has been doing so successfully in so many places across the United States, but that gap still persists for many valuable properties across the land.

Mr. SHIMKUS. So when we were talking earlier, New Bedford is about 100,000 people, and probably most communities in this country are less than that. I live in one that is about 25,000. Springfield, Illinois has got about 100,000. So, but in these communities of that size and smaller you have small business.

And I turn to Mr. Sullivan to give us the small business perspective of some of the hurdles that they have to face in this compliance because, you know, we used to quote 50 percent of all new jobs is created by small business. And if there are hurdles that are making that impossible, then we need to know what those could be.

Mr. SULLIVAN. Thank you. Thank you, Mr. Chairman.

I think the answer actually is very simple. And that is engage the small business owners toward the constructive solutions. It works. And when the agencies, whether they are the state or federal agency, when agencies ignore that opportunity for constructive input toward solutions then bad things happen and unintended consequences happen.

So, the answer to your question, Mr. Chairman, is you need commitment to engage those small businesses before the ink is dry on regulatory policies that affect our communities.

Mr. SHIMKUS. So my time is expired. And I will just sum up.

So you are saying get with them and talk to them earlier about what is the desire to achieve a blend and see how the small business can work to obtain that before the heavy hammer of government comes down?

Mr. SULLIVAN. Yes. That is correct, Mr. Chairman.

Mr. SHIMKUS. My time is expired.

The Chair now recognizes the ranking member of the subcommittee Mr. Tonko for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair.

Ms. Mays, again I thank you for being here today and sharing your family's story. I know it must be difficult. But I, for one, am very grateful that you are giving a voice to your community.

I cannot imagine what it must feel like to turn on your faucet and not expect safe water. So if I could ask you a series of questions to which you could either say yes or no.

Do you believe the situation in Flint could have been prevented had stronger environmental laws been in place?

Ms. MAYS. Absolutely. And in my personal opinion, and how the residents feel, is that had the EPA had a stronger presence the state Department of Environmental Quality could not have gotten away with exploiting these loopholes.

And the rule is outdated. There are limited resources with the EPA. And there are all of these lawsuits that EPA has been hit with and not allow them to come in and say what you are doing is wrong. Stop it. They are still, because we are stuck in an emergency situation instead of a disaster situation, the state, the people who poisoned us, are still in control of our recovery, which is why we are not having a recovery.

So, yes, I do not agree with you, Mr. Barton, because it was a failure on all levels. But because we did not have more stringent laws, and the fact that we don't have bathing and showering standards is ridiculous. Europe does. Other countries do. Because that is where we find most of our exposure.

You get two times the exposure to toxic chemicals in a 10-minute shower than you do drinking two liters of the same water because you are dealing with inhalation and absorption. So the fact that we are not even regulating this or testing for these contaminants is terrifying.

Mr. TONKO. Ms. Mays, do you believe if there had been more investment to improve and replace unsafe infrastructure these problems may have been avoided?

Ms. MAYS. Absolutely. If there was money available, if there were better revolving fund grants, if there were issues, our city would have been able to start fixing this a lot sooner.

Mr. TONKO. OK.

Ms. MAYS. We have 700 lines replaced out of about 39,000.

Mr. TONKO. What about the ability to pay? A community like Flint and the affordability to pay for necessary infrastructure upgrades is what raised concerns, so with additional rate increases to water bills, does it not?

Ms. MAYS. It is. We, the state just stopped offering credits because Governor Snyder said that our water meets federal regulation which, of course, doesn't mean, say, 12 parts per million can poison a child by far. But, yes, we really have no money. We don't, because we are a struggling city. And so the money was not available in the water fund to do this.

Plus, we are losing 40 percent of our treated water because of main line breaks. So our water costs are through the roof.

Mr. TONKO. So, therefore, is it necessary for the Federal Government to provide funds to communities so that they can address systems that are failing?

Ms. MAYS. Absolutely. And Congressman John Conyers introduced the WATER Act which, by taxing corporate offshore profits, they would be able to fund \$37 billion a year for infrastructure across the U.S. So they would be helping cities like ours that are struggling, as well as reservations, hospitals, nursing homes, day cares, the places where the most vulnerable are.

Mr. TONKO. And so it becomes apparent that it is impossible for some of these communities to respond to those needs and federal investment is required. And there are many communities like Flint across the nation.

When it comes to the negative health effects from unsafe water, can you talk about the impacts on work productivity for you and your family, children's education and the city's economy?

Ms. MAYS. Oh, absolutely. I was on unpaid sick leave for quite some time because of the seizures until we could get them under control. We missed so much work because we have to go outside of the city to find specialists to deal with what my sons are going through, what I am going through. We spend so much time and money on medication. And I miss a ton of work because I have to take my kids to constant doctor and specialist appointments.

And my husband is the same way. He gets up in the morning and has dizzy spells and so he can't go to work. And he has got two jobs. And so when he misses work it is a huge hit to our family.

Mr. TONKO. Ms. Hammond, thank you for explaining how the benefits of these protections significantly outweigh the costs. Would you say these benefits are oftentimes understated?

Ms. HAMMOND. They are. As I mentioned in my testimony, and I have some various citations in my written testimony, the benefits of many of the things that come about from environmental regulation are very difficult to value, or perhaps even priceless. We might be able to put a price tag on the cost of a new piece of pollution equipment, but how do we put a price on the kinds of stress, the dignitary harm, the lives that are impacted when they are, when people are harmed by environmental pollution? Those things, we try to price them, but we undervalue them.

Mr. TONKO. And what about strengthening the Safe Drinking Water Act or EPA issuing an improved Lead and Copper Rule? What benefits do you see? And, again, is it that same theory of benefits outweighing costs?

Ms. HAMMOND. Yes. Certainly I think that we would see far greater benefits than costs by updating the Safe Drinking Water Act to make it safer, to give EPA more authority with the funding to carry out that authority, and to direct EPA to enact these stricter regulations to ensure that our treated water is safe, that the infrastructure, the pipelines that carry that water, aren't picking up contaminants on the way to people's homes.

Mr. TONKO. Thank you. I have got to yield back.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. BARTON. Thank you, Mr. Chairman.

I am primarily going to ask Mr. Eisenberg some questions. But I feel I should talk to you a little bit, Ms. Mays, because you are obviously personally experiencing a problem, a huge problem with your family.

What is the population of Flint?

Ms. MAYS. One hundred thousand people.

Mr. BARTON. What is the expected cost? Is the problem the crumbling water lines or is the problem reprocessing or processing of the water supply? Which is it or is it both?

Ms. MAYS. Because of the loopholes in the Lead and Copper Rule the state did not have to require corrosion control, which is absurd. When water goes through a metal pipe, so what is happening, basically, is that that corrosive acidic water ate our infrastructure. It literally ate the metal. So we have holes, we have leaks, we have gushes, all the way up into people's homes. We have pipes exploding in people's walls as well.

Mr. BARTON. OK. Well, that doesn't help answer my question. I know you are trying to.

Ms. MAYS. Well, I am having hearing issues because of the ear infections from bacteria, so you have to talk a little louder.

Mr. BARTON. I can't do that.

Is it the water itself? Is it the way it is processed? Or is it the fact that the pipes that take it to your home have deteriorated and there is material in the ground around Flint that gets into the water?

Ms. MAYS. It was all of the above. The water was caustic. The water source was caustic. It was not treated properly to make it less acidic. It ate our infrastructure.

So we switched back to a cleaner water source. But it doesn't matter because the crumbling infrastructure is still releasing the toxins and re-poisoning that new water.

Mr. BARTON. Then why can't the city of Flint and the state of Michigan put the money in to do that, to clean, to put in new lines and to put in a new processing plant? Every other city in the country does, every other county, every other state.

Ms. MAYS. Well, because our state.

Mr. BARTON. Because if it is a federal issue, if you are absolutely correct and I know you have got a real problem. I am not dispar-

aging that. But if it is the Federal Government's fault, then every city, every county, every state in the country would have the same situation. They would have thousands and thousands of these. We don't.

Ms. MAYS. Well, that is not true. We actually have about 5,300 cities in the United States that are cheating and using loopholes in the Lead and Copper Rule.

Mr. BARTON. But we don't have 5,300 cities that have the problem that Flint apparently has?

Ms. MAYS. Not yet. No, not yet.

And the reason we don't have our city, first of all, our city is near bankrupt. Our state took over our city in 2011 and decided to sell off assets under the Public Act 436, which you guys know as the Emergency Manager Law. And our Republican governor feels that, the same thing as you, that if he had to spend the money to fix Flint, even though the state did it, that he would have to fix all the cities. So, therefore, he is not.

Mr. BARTON. Yes, I am not saying it is not a problem. I am not saying the Federal Government shouldn't have a role in it. What I am saying is that it is not the total responsibility of the Federal Government. If it were, we would have this replicated 100,000 times.

Ms. MAYS. And I am not aware that I actually said it was totally a Federal Government subject.

Mr. BARTON. And we don't, we don't have that. Your county, your city, your state could correct this problem. They don't need the Federal Government. May need some assistance in terms of infrastructure.

Ms. MAYS. Well, someone needs to regulate what our state is doing. They poisoned us and they are in control of our lack of recovery. And there is no one to make our governor do the right thing. So we have no oversight ourself.

Mr. BARTON. It is called voters. It is called elections. You control who your governor is.

Ms. MAYS. It is called he is in there till 2018. He is not up for reelection, and so we are stuck.

Mr. BARTON. Mr. Eisenberg, do you believe that CO₂ should be a criteria pollutant under the definition of the Clean Air Act?

Mr. EISENBERG. A criteria pollutant that we haven't asked for, I, as an association I don't believe we would be for something like that. That would be a tough thing to implement. But it is regulated under the Clean Air Act and under 111 and various other statutes.

Mr. BARTON. Because of the 5-to-4 Supreme Court decision and a very faulty endangerment finding by the Obama Administration within the first 90 days, you are correct. That might be, and I think is an error.

Would you support, if we were to reopen the Clean Air Act to clarify some things, the inclusion of a true cost-benefit analysis on major environmental regulations?

Mr. EISENBERG. We absolutely would. We absolutely would.

Our goal is that those analyses be done as well as possible. And strengthening them for everybody involved on the cost side and the benefit side could only help get the best information possible to us, the regulating community, and to everybody at the agency.

Mr. BARTON. My time has expired, Mr. Chairman.

Mr. SHIMKUS. The gentleman now recognizes the ranking member of the full committee Mr. Pallone for 5 minutes.

Mr. PALLONE. Thank you, Mr. Chairman.

There is a lot that has been discussed about what we disagree on. But I want to thank the Chairman for inviting Mayor Mitchell to talk about the Brownfields Program because I do think we can get bipartisan support.

I have been a strong proponent of the Brownfields Program from the start and have always welcomed bipartisan support. And I believe that reauthorizing and increasing the funding for Brownfields should be a part of any effort this committee moves on infrastructure.

So, Mayor Mitchell, do you agree with that, yes or no?

Mr. MITCHELL. When you phrase it that way, Congressman, absolutely.

Mr. PALLONE. OK.

Mr. MITCHELL. But, yes. And let me just elaborate. I think it is an area where there could be broad agreement here. And I say that, I come here wearing two hats. I am the Mayor of New Bedford but I am also the Chair of the Energy Committee of the U.S. Conference of Mayors. And so we talk, we, the mayors of America, talk about this.

There is broad unanimity about across America's cities for additional funding for Brownfields. And I think what most mayors would tell you is that the Brownfields Program has been very helpful in kickstarting the development of certain properties. But there are so many grants out there, so many grant applications that go unfunded. According to the EPA there have been some 1,700 viable projects that have not been issued grants in the last 5 years.

That is pretty significant. I have a list in my city. And I am sure every American could come up with a list of projects that have economic value but the negating factor is contamination. And that although some cities do have, a handful of cities in this country do have the resources on hand to help close the gap themselves or that the real estate markets are so hot that the private sector takes care of it, in the majority of American cities that is still not the case. Even in places like New Bedford, where we have had a lot of success recently in economic development, we still don't have the resources to close those gaps.

Mr. PALLONE. And I have more of these sites than any other state in New Jersey, and more in my district than any other part of New Jersey. So I understand.

I assume you support more funding for Superfund cleanups as well, obviously, as a Superfund city?

Mr. MITCHELL. Well, as a city that has two Superfund sites, the one that I mentioned, Sullivan's Ledge, but also New Bedford Harbor, which is the nation's first marine Superfund site, absolutely they could use more funding.

Mr. PALLONE. Well, when you mention the harbor I wanted to mention in my district we have a place called Laurence Harbor which is also on the national priority list. So I know first-hand how difficult and expensive it is to clean up these waterfront sites.

Now, in the case of New Bedford Harbor, a settlement was reached with the responsible party in 2013. And the funds from that settlement have increased the pace of cleanup considerably. That is correct?

Mr. MITCHELL. That is correct.

Mr. PALLONE. So, I only mention that because it illustrates what we have seen at numerous Superfund sites: when more funding is available, these cleanups can be done more quickly and more efficiently, which is so important to the communities around the Superfund sites.

But I want to, I wanted to turn to the issue of environmental protections. My Laurence Harbor Superfund site is contaminated with lead and other heavy metals that were used to build the seawall. That is something that wouldn't happen today because of the environmental protections we have in place.

And the same is true, to my understanding, for New Bedford Harbor, environmental protections ensure that PCBs are not being dumped into our rivers and harbors.

My question is if these kinds of environmental protections had been in place decades ago, I think a lot of these Superfund sites probably would never have been contaminated. So do you think it is important to preserve environmental protections so that your successor is not cleaning up new Superfund sites 50 years from now?

Mr. MITCHELL. Yes. I think the contamination that occurred in New Bedford, and many other places similarly situated, were the poster children for the whole suite of environmental legislation in the early '70s. I wish it hadn't happened. But we are living with that legacy.

And I can tell you, again just speaking as a mayor who talks to a lot of other mayors, there isn't a mayor in America that thinks, that will tell you that we should be loosening up on the kinds of regulations that would have protected us from those outcomes years ago.

Mr. PALLONE. And just one last question for Ms. Mays. What would you say to those who suggest that we need to weaken our environmental protections?

Ms. MAYS. That that is going to bring in more Flints. Had we had tighter regulations we wouldn't be where we are at now. If those loopholes didn't exist, we wouldn't be sick and poisoned at this point in time. And we don't want to see any other city go through what we are going through right now.

Mr. PALLONE. Well, thank you.

We are looking at, and hopefully on a bipartisan basis some major infrastructure initiatives for both water infrastructure, Brownfields, Superfund. So, I think that I really appreciate your testimony. And, hopefully, those initiatives will be bipartisan. Thank you.

Thank you, Mr. Chairman.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentleman from West Virginia Mr. McKinley for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman.

I would ask unanimous consent that we could introduce into the record a letter from the Association of General Contractors of America and their concern for the infrastructure and modernization of our regulatory reform.

Mr. SHIMKUS. Hearing no objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. MCKINLEY. Thank you very much.

Mayor Mitchell, we have in West Virginia over 200 Brownfield sites. And there are 60 in my district. I have got one in a building nearly adjacent to my office in Wheeling. So I am quite familiar with some of the problems with it.

And I would agree from your testimony the concern that it is a blight in your community to have one. We have had over the last 6 years since I have been in Congress a lot of discussion about that, about how we can motivate that from happening.

But what are you suggesting we do so that we can move this along through the process? Because we know like the one you were referring to is 15 or 20 years. I know the site that I am referring to is 30 or 40 years has been abandoned. And it is right on the riverfront. So what do we do about addressing the bureaucratic inefficiencies and delays and judicial delays, what would you suggest we do on Brownfields?

Mr. MITCHELL. So, putting additional funding aside, I think there are a couple of things. So one is increasing the flexibility of the use of grants. So, there are many communities, and I suspect Wheeling is like New Bedford in this way, an older manufacturing city, that have many Brownfield sites. And grants are issued to cities that, like mine and yours, was the qualification with fewer restrictions. In other words, the money wouldn't be site specific but would be city specific, and so that we might be able to use them on different sites, depending how the market shifts.

Here is what we want to avoid: we want to avoid a situation where we go through the process of applying for a Brownfield grant, getting the grant, and then the developer says we are not interested anyway. Right? And so that we have to, we, the city, have to start over again and reapply for another site through EPA's grant cycle to address somewhere else that might be developable. So that is one.

The other thing is, I think the treatment under CERCLA of the municipal ownership of sites I think would matter. If cities had the ability to take control of sites and to do planning and do environmental assessment and put through those efforts sites in the market, we would be in a better place. And one might way.

Mr. MCKINLEY. Thank you.

Mr. MITCHELL [continuing]. So wherein lies the accountability there?

Mr. MCKINLEY. I hope we can have further conversation.

Mr. MITCHELL. Sure.

Mr. MCKINLEY. I would like to go beyond those two I think, because I want to get in the timeframe down to Mr. Sunday.

You had referenced in your prepared testimony about 321(a) of the Clean Air Act. And you said that it is in the language of the statute, there is language that says continued evaluation. The EPA

is to conduct "continued evaluation of potential loss of employment that may result from administration or enforcement of the Act."

And you expressed some concern that that is not being upheld. A federal judge in October confirmed that it is not being upheld. And you said in your paper that Congress should do something. What are you suggesting we do?

Mr. SUNDAY. Well, I think, I appreciate the question, sir, the language of that opinion was I think a pretty strong upbraiding of the agency. I think Congress should step in and maybe there is administrative penalties, maybe there is some sort of sanctions against the agency if they are not done. At the very least there should be some sort of oversight.

And it is important that the continuing evaluation happens, one, because Congress said it should. And I think we should have respect for the rule of law, when Congress issues a directive to the agency that the agency carries that out.

And second, we need to consider that there are substantial public health impacts on an individual who loses their job. I reference that in my testimony that we don't fully account for the lifetime loss of earnings with the declining quality of life for somebody that loses their job.

Mr. MCKINLEY. Yes, sir, thank you.

I found it incredible, though, when I read the testimony that the EPA recognized that they were just not going to do it. Just not going to do it, even though it was a statute. So I am questioning.

How about any of the others? Mr. Sullivan, would you agree that this is a problem when the EPA chooses to enforce some portions of law and not others?

Mr. SULLIVAN. Congressman, I think it is a huge problem. And, in particular, there are instances where EPA is supposed to consult with small business prior to finalizing a proposed rule. And it does not.

I will give you one example. In the risk management plan that this subcommittee has jurisdiction over in the Clean Air Act, the Environmental Protection Agency submitted their rule to the Office of Management and Budget before the panel report that summarizes small business input was even finished. That is an example of the agency going through a check-the-box exercise versus what Congress' intent was, a constructive dialog for solutions.

And I think that this subcommittee is well situated to bring some oversight to make sure that that doesn't continue.

Mr. MCKINLEY. Sorry, my time has expired.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentlewoman from Colorado Ms. DeGette for 5 minutes.

Ms. DEGETTE. Thank you, Mr. Chairman.

Back in 1994 when I was in the Colorado legislature I passed a bill called the Voluntary Cleanup and Redevelopment Act. And this was a Brownfields bill that was targeted at cleaning up environmentally contaminated sites in Colorado.

And I remember when I did the bill, the Chamber of Commerce and the Sierra Club both supported this bill because what was happening was people who owned these contaminated sites but were not, and the mayor knows this well, these were not Superfund sites

but they were old dry cleaners, they were old mining sites, they were leaking tanks. And because of the threat of enforcement action by the state, people were just sitting on these pieces of property, fearful of cleaning them up.

And so, really until 21st Century Cures came up this was my piece of legislation that I passed in my career that I was the proudest of because what it did was it took a real problem that I described, and then it put together a regulatory framework that encouraged businesses to clean up these sites and to make them economically viable, but it also protected environmental regulation.

And every so often I talk to my colleagues in the Colorado Department of Public Health and Environment, and now, all these years later, it has been used thousands of times in my state of Colorado to clean up environmental contamination. So I have always been a big proponent of federal Brownfields legislation. And I also think that we can be doing much more at the federal level to try to figure out a way where we can enforce environmental regulations while at the same time incentivizing cleanups.

And that is sort of what I want to talk about today because it seems to me that in this Congress, and particularly with this new presidential administration, we look at environmental regulation as a blunt instrument. So we either, what we say, and I am looking at this executive order that President Trump signed which says that any federal agency issuing a new regulation must rescind at least two existing regulations to offset the cost of complying with the new regulation.

Talk about a blunt instrument. Rather than saying what regulations do we have that maybe don't exactly work and could be repealed or could be modified to work in our economy today, and how do these all work together, we just, we just make the value judgment that all these regulations are the same. So regulations are bad and so we will just repeal two of them for every one that we have. Which is, frankly, if you think about it, absolutely ridiculous from a public policy perspective.

I think Ms. Mays could completely agree with that when she sees what happened in Flint, Michigan.

So I just want to ask you, Professor Hammond, about this. I don't think there are academic underpinnings of the order but I want to ask from an academic perspective, new regulations are developed to deal with new problems or new scientific understanding. When an agency develops a regulation does that mean that existing safeguards are no longer needed?

Ms. HAMMOND. Not at all. And I think you have really characterized this 2 for 1 order quite well. It trades our future for the benefits that we have right now. It really traps agencies. They can't justify taking important existing regulations off the books, regulations that still operate to protect people. And, yet, that means they can't issue new regulations that are needed to guard against the many new risks that we face today. It really puts them in a bind.

And I argue it is a bind that is contrary to law.

Ms. DEGETTE. And you are not saying that if we have a new regulation that we should never repeal old, outdated regulations; right?

Ms. HAMMOND. Not at all. In fact, agencies are already required under many circumstances to do look-backs, to assess the regulations they have on the books, see how they are working, and see if any of them need to be rescinded. And agencies do rescind rules that they find to be outdated, or they update those rules.

So, this is not to say that we shouldn't improve what we have, it is simply to say that an unthinking rescission of very good regulations hampers progress.

Ms. DEGETTE. Thank you.

Thank you very much, Mr. Chairman.

Mr. SHIMKUS. The gentlelady's time has expired.

The Chair now recognizes the gentleman from Texas Mr. Olson for 5 minutes.

Mr. OLSON. I thank the Chair. And welcome to our six witnesses.

I hope this is not news to you all, but since I have been elected to Congress in 2009 I have been the leader in the House to fix our broken ozone rule system. It takes EPA 7 years to put out new rules for new ozone standards. And then starts the broken process over with new standards seven months later. There is no chance, no chance for local communities and businesses to comply.

When the person charged with ozone emissions in the San Joaquin Valley, in this very room right around where Ms. Hammond and Ms. Mays are sitting, tells us that nearly every single gasoline powered car in San Joaquin Valley will be banned because of those new ozone standards, there is a big problem.

When Houston, Texas, my hometown, goes from being the ozone capital of America in 1972 to within 1 year of full attainment, this year 2017, and the rules change, Houston, we have a problem. And it is not just Houston's problem, it's the San Joaquin Valley's problem. Almost 400 counties across America have that same problem.

EPA is effectively saying you can never, ever comply with those standards because they will change. And that is why I reintroduced the bill, bipartisan, bicameral bill H.R. 806 to address this problem. I am proud to have the co-sponsorship of, Chairman, of Mr. Latta, Mr. Flores; Democrats Mr. Cuellar, Mr. Bishop, and Mr. Costa; and across The Hill on the Senate side we have the West Virginia duo, Mr. Manchin and Mr. Capito.

Along those lines, my first question is for you, Mr. Eisenberg. Page 11 of your testimony you recommend that Congress require the Clean Air Scientific Advisory Committee, CASAC, to comply with the Clean Air Act, Section 109(d), and "advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of air quality standards."

I thought CASAC had to comply with the law, the Clean Air Act. Can you explain why that is so important?

Mr. EISENBERG. We think it is extremely important. So, they complied with pretty much everything you said except for the economic part, and never bothered to look at what the economic impact of this rule was.

And as you guys know, we measured it, and it was hundreds of billions to trillions of dollars. So that was something we would have liked on the front end going in. Obviously it helps, on the implementation side it helps in terms of technological feasibility.

Because, like I said, we would do it. We were just never asked to do it, so we didn't. And, obviously, that is one of the recommendations we would like to see put into place and something that becomes mandatory.

Mr. OLSON. I think that is our job to make sure the Executive Branch calls, the law will be passed. That is kind of what Article I of the Constitution says.

Next question is for you, Mr. Sunday. There is a study by a man named Michael Greenstone, National Bureau of Economic Research. It was over the time period 1972 to 1987. He did a study about the cost of non-attainment to local counties. He said counties lose \$37 billion in capital, \$75 billion in economic production, and 590,000 jobs if there in non-attainment. That was 30 years ago.

In your testimony you referenced a paper called "EPA's New Source Review Program: Time For Reform?" That was on page 14, footnote 23. The authors say that changing ambient standards, air quality standards carries delays, and in some cases canceled projects.

What is your experience back home about these delays with these changing standards over and over, are you losing jobs, losing projects?

Mr. SUNDAY. Yes. We have had, we have had economic impacts. Most recently we have had frustrations, not just with those but with the 1-hour SO₂ standard. When you go to shorter and shorter time frames it becomes really hard for states to say that if we permit a new source we are never going to have an exceedance in that 1-hour frame.

EPA promulgated the 1-hour SO₂ in 2010. Five years later they settled with Sierra Club in a sue and settle arrangement. They basically said monitoring for your designations is off the table. We have got new modeling. Modeling is extremely conservative. And, again, as I mentioned, it requires plans to account for emissions that they are not going to produce.

Mr. OLSON. How much has the Chamber lost in Pennsylvania by county? Do you think \$30-some billion in capital, like in 1979, or '87, I am sorry, \$75 billion in economic production? Anything like that in Pennsylvania, those type numbers? Because that is incredible, 30 years ago, billions.

Mr. SUNDAY. I don't have a specific number for you. But as I mentioned, we have site selection if we see non-attainment, for a lot of companies the location just gets crossed right off the list, before you even evaluate workforce, location, infrastructure, et cetera.

Mr. SHIMKUS. The gentleman's time has expired.

Mr. OLSON. That is when you get back to control ozone coming from overseas sources.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentleman from Texas, the other gentleman from Texas Mr. Green for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman. I thank you and our ranking member for holding the hearing today on infrastructure and modernizing our nation's environmental laws. Congress needs to use this opportunity to invest in our nation's infrastructure and rebuild America. And this is a bipartisan area that our subcommittee, I hope, can work together on.

Mr. Chairman, I would like to ask unanimous consent to place into the record a letter to the House of Representatives in opposition to H.J.R. 59. It comes from a number of different groups, labor groups. And ask unanimous consent to place it into the record.

Mr. SHIMKUS. Seeing no objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. GREEN. Thank you.

One, I want to welcome our panel. On any given day coming from the district I have in Houston, Texas, I can either be mad as can be at EPA or be thankful they are there. And so we have that battle.

But I am glad they are there because I have a very industrial area. We have environmental challenges in east Harris County. I have now three refineries and a lot of chemical plants. At one time I had all five in east Harris County. So we have challenges. But we need that product that those plants produce. But I also want them to comply with the law. And that is what we try to do.

Mayor Mitchell, I am glad you are here because having an older part of Houston, we have had Brownfields we have been able to utilize and turn into really something that is productive for our community. Although right now we are in the middle of a battle in our area on a Superfund site. We had a paper mill back in the '60s who they took the docks and the mash from cleaning up our paper and disposed of it, but it was abandoned. And it was done long before we had an EPA, probably in 1964 and '65.

But we are trying. EPA worked with the community. We got a good ruling on the need for the complete cleanup of that. It's called the San Jacinto Waste Pits. And I know my colleagues on the committee have heard me because whenever we had the EPA administrator for the last number of years I explained to her my first question will be What are you going to do about the San Jacinto Pits?

It was in Ted Poe's district. Now it is Congressman Babin's district. But it was in my district originally, so that is why I got to know all the people there. And but EPA took longer than I think they should have. But we did get a decision to actually remove that docks. And it is going to be very expensive. And the good news, we have a responsible party and it is not just on the taxpayers to do it.

Mayor Mitchell, in your program, in the Brownfields Program, how has that benefitted your city?

Mr. MITCHELL. Well, in general, Congressman, we have been able to generate jobs and save taxpayer dollars by smart use of available federal funds, including Brownfields funds. So I mentioned in my testimony briefly a Superfund site called Sullivan's Ledge that we were able to turn into, from a truly nasty pollution site into a premier solar farm that generated an awful lot of local jobs, inner-city jobs for guys who put together solar panels and build things, as well as to save taxpayer dollars because it is on a city-owned site. And the electricity that is generated from it, it is about a 1.8 megawatt site, allows the city to save substantially on its electricity bill. So it is really a marquee project that we are very proud of.

That is one example.

Mr. GREEN. Well, in the rules that you can do, because some of the restorations we have, you are not going to build apartments or habitats on that property?

Mr. MITCHELL. No.

Mr. GREEN. But you can use it as solar farm.

We encapsulated, and it is a community college, but it is completely covered by concrete, and but it is a community college sitting there now that, in a neighborhood, a very inner city neighborhood. So it works.

Have you all, have you worked with project labor agreements to do those kind of restorations?

Mr. MITCHELL. They can be used. We did use a project labor agreement on another Brownfields site that we turned into, with state funding, a state-of-the-art marine terminal that will be used specifically for the offshore wind industry, which is about to arrive on the East Coast, and New Bedford will be the launching pad for it.

But there was a project labor agreement on that site. And it works, it works very well. It was done, done very quickly and ready for the offshore wind industry which is really setting up shop just now.

Mr. GREEN. OK. Well, thank you. I am almost in my time.

But my colleagues from Texas on the Republican side brag about how we produce more wind power. So I am hoping the East Coast can catch up with us.

Mr. MITCHELL. That is right.

Mr. GREEN. And I yield back my time.

Mr. SHIMKUS. There is a lot of hot air in Texas. We know that here.

So the Chair recognizes the gentleman from Michigan Mr. Walberg for 5 minutes.

Mr. WALBERG. I thank the Chairman. And thank you for this hearing and thanks to the panel for being here, each of you.

And, Ms. Mays, it is appreciated to see you again. Sitting in oversight during the last Congress and having you and others in front of us numerous times to deal with the Flint issue is very important. So I don't plan to ask any questions. I think I used plenty of time in those hearings.

But I do want to say something, and hadn't planned to say this. But I want to make it very clear, the comments of one of my colleagues, that this wasn't just a local/state situation. And I want to say thank you to my colleagues that are still here, colleagues here in Congress who joined with in helping the Michigan delegation as we worked together to try to bring some resources back to deal with this issue.

It was an important issue to deal with. Certainly there were egregious failures at the local level for years, allowing a great city like Flint, probably could be defined as an auto capital, economic engine in Michigan, to go downhill to the point that we see today with infrastructure and all of the rest. So, significant blame is there at the local level, significant blame is at state DEQ in letting things slip.

Fortunately, a professor like Mark Edwards from Virginia Tech came in, brought in, assisted, bringing to light the problem that

went on with our environmental concerns there. But ultimately he said, and this is what I want to make a point of, that the number one most difficult party and party at fault was the EPA. And that is the reason why the administrator, the Region 5, resigned and left office.

But it bothered me that never did we ever get an apology or an admission of guilt from the EPA administrator or otherwise in this issue. And that resulted, along with all of the process, resulted in significant human impact, as evidenced by Ms. Mays today as well.

And so it is important for me to say this was failure at all levels. And we do well in looking at how we make sure in the future that we use our resources wisely and our powers appropriately to make sure that we carry out what we are supposed to be doing.

Having said that, let me move on here.

Mr. Eisenberg, thank you for being here. In the past, EPA has assured the public that states will have multiple years to comply with stringent air standards such as ozone standards. But what impact do those standards, like the recently issued ozone standards, have on permitting? And more specifically, is this a “few years in the future problem” or a “now problem” for domestic manufacturing?

Mr. EISENBERG. It was a 2015 problem for domestic manufacturing. So the minute, literally the minute that the new standards had the goalposts removed and the new ozone standards come into place, for permitting that is, that is what you have to hit. And so even though you have a couple years, and it really isn't that many years, but a couple years to start working on state implementation plans, for permitting purposes day one, the day EPA goes final, you've got to hit those limits.

And they are tough limits to hit. I mean they, in a lot of places half the states.

Mr. WALBERG. Even if they haven't put the full parameters in place?

Mr. EISENBERG. Yes. Even if they haven't finished their implementation guidance. And so you just have to figure out way to get there.

Mr. WALBERG. Guessing at it?

Mr. EISENBERG. Yes. Computer models and things like that.

And it is frustrating. I mean, I personally went to EPA a couple of years ago with a member of mine who was struggling with that exact same issue in PM2.5, particulate matter. They were building a green roof facility in the middle of Missouri, where there is literally nothing. I mean it is just open space. They were going to make green roof components. I mean, generally pretty good for everybody. It's a win across the board.

They couldn't figure out how to model a payment for PM2.5. They just couldn't figure it out. And the state couldn't figure it out. EPA couldn't figure it out. Nobody could figure it out.

Eventually that story had a happy ending. But it hung up the permit for a bunch of months. The company was thinking about pulling out, moving to a different site.

That is the kind of thing we need to avoid. And that is the kind of thing that you can do by just updating the Clean Air Act, updat-

ing some of these provisions, making them perform a little bit better.

Mr. WALBERG. And putting the parameters in place clearly.

Mr. EISENBERG. Without a doubt.

Mr. WALBERG. Yes. Yes.

Mr. Sunday, in the context of permitting under the Clean Air Act you raised concerns that EPA's modeling is based on unrealistic assumptions. Explain a little bit more.

Mr. SUNDAY. Right. When we say it is unrealistic or conservative what we mean is that if you compare these same expectations in the model versus actually monitoring data you will come to two different conclusions. And that is monitoring shows what the real world impacts are. And the modeling is really conservative, it assumes that a facility is cranking out emissions as high as possible, as often as possible around the clock. And then it has to account or order its operations in a way to account for those emissions, even though those emissions aren't actually going to be created.

And so when you rely on modeling, your, your outcomes are only as good as your expectations. And the current structure under modeling is the impressions or expectations that you are putting into it, those inputs, aren't reflective of real world practice.

Mr. WALBERG. Thank you. My time has expired.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentleman from California Mr McNerney for 5 minutes.

Mr. MCNERNEY. Well, I thank the Chairman.

The U.S. has clearly made environmental progress since the Clean Air and Clean Water Act. And it is clear that this progress has produced significant innovation and economic growth. So the question we now face is, are the regulations promulgated under the Clean Air Act and Clean Water Act still producing innovation and economic growth? Or is it time to revise the laws to reflect the kind of flexibility that Mr. Eisenberg advocates?

But the problem with revising the laws, from my point of view, is that we hear extreme views from the Republican party of eliminating the EPA. And so there is no way we can open up that box. There is no way we can do that because a fear that the progress we made will be lost in a deregulatory frenzy.

So the Republicans have forced us into an absolute determination to block and obstruct all and any efforts to revise these laws. That is simply where we are.

Now, Ms. Hammond, I loved your quote, and I may not get it exactly right, that the environmental regulations help correct market failures. Would you expand on that a little bit, please?

Ms. HAMMOND. Yes. Classic economic theory provides that we have these things called externalities. So, essentially, when, let us say, a manufacturing facility bears many costs internally, it fields those costs, but when it pollutes the air it is imposing the costs of the pollution on the public at large. That is a negative externality because it makes its costs external.

Environmental laws force those costs back into the entities who created them. And so it is a simple market failure and it is a very rational way of working to correct that failure.

Mr. MCNERNEY. Well, a few years ago the Center for Progressive Reform published a short article examining the question of whether regulations were resulting in job loss. The article concluded that there was no evidence to support the assertion of substantial job losses versus environmental trade-off. Could you elaborate on that one a little bit?

Ms. HAMMOND. Yes. And I am familiar with that article. The fact is, economists have been looking for decades for support for this urban myth, this false dichotomy that environmental regulation hurts our economy. The history, the facts show otherwise.

And so I think it is important to remember many of the figures that we have heard today that focus on regulatory costs don't account at all for regulatory benefits. So perhaps there are some costs imposed; again, that is a false way of looking at it because we are actually asking people to bear the costs of what they create, of their behavior.

But let's say, OK, they are bearing a cost they didn't bear before. But we have to remember what the benefits of doing that are. The benefits are the health benefits, the days that people can go to work, the days that kids can stay in school. And so, even this discussion today has focused very much on costs, but hasn't at all attempted to net the benefits into that figure. If you net the benefits in, we will find net benefits, not net costs.

Mr. MCNERNEY. Thank you.

Ms. MAYS, you said that the state used a weak rule to save pennies a day and poisoned 100,000 people. What are the weak rules? And how were those used to poison?

Ms. MAYS. Well, one of the loopholes in the Lead and Copper Rule they exploited was that they could take up to a year to evaluate whether corrosion control was necessary once they switched the water source.

The next was the testing. There is no strict testing to say you have to identify a service line. I mean it is in there, it is in the wording, but there is no follow-up. So they were testing people, like my home, and saying that, oh, she has got a lead service line. Her lead at this point in time is 8 parts per billion. It's safe. Which, of course, it is not. But I have a copper service line.

So there was that. There was the capping stagnation on how long the water can sit in the pipes.

The small bottles, they had small-mouth bottles to encourage people to use a lower flow. All these little loopholes that are being exploited in those 5,300 cities I talked about before. And if these are not tightened up and closed up, these 5,300 cities are going to be looking at a problem like Flint. Hopefully not as devastating. But, again, you can't put a price on a child's learning capabilities. You can't put a price on my liver or my lungs.

So these need to be closed up so this never happens again.

Mr. MCNERNEY. Is there a specific proposal to close those loopholes?

Ms. MAYS. We have been working on trying to reform the Lead and Copper Rule on a federal and state level. And we run into so much opposition because all we hear is how much it is going to cost. They do not talk about the health benefits, the life benefits.

All we hear is, nope, this is going to cost too much money. Nope, this person is going to have to pay. And so nothing happens.

Mr. MCNERNEY. Well, if you have specific proposals, work with us and we will try to work with you.

Ms. MAYS. Thank you.

Mr. MCNERNEY. Thank you.

I yield back, Mr. Chairman.

Mr. SHIMKUS. The gentleman's time has expired.

The Chair now recognizes the gentleman from Georgia Mr. Carter, a new member of the committee, for 5 minutes.

Mr. CARTER. Thank you, Mr. Chairman. And thank all of you for being here today. We appreciate your participation in this.

Mr. Chairman, I have a statement from the American Forest and Paper Association and the American Wood Council that I would like to submit for the record.

Mr. SHIMKUS. I hear. Give me a minute.

Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. CARTER. Thank you.

Mr. Eisenberg, I want to start with you if I could. In your testimony you mention the carbon neutrality of forest-based biomass. And that really piqued my interest because, as you know, in the state of Georgia we have quite a bit of forests and forest products industry, and specifically in the 1st District of Georgia that I have the honor and privilege of representing. So it is very important to me.

And that statement really did pique my interest. I was very interested in that.

Many of the European countries consider forest-based biomass to be carbon neutral. However, the EPA seems to have taken a different opinion of that and a different approach, and they are treating it much like fossil fuel source. Do you agree with the EPA's assessment of forest-based biomass?

Mr. EISENBERG. I do not. And until 2010 the EPA did consider forest biomass carbon neutral. In 2010 they kind of created this problem. And now we don't necessarily have an answer.

So, no, the forest products industry is reusing a resource to make energy that otherwise wouldn't be used for, really, anything valuable. So it is our position that forest biomass produces, it is a part of the sustainable carbon cycle. It harnesses this energy that would otherwise be lost. And it should absolutely be considered carbon neutral, particularly if you are seeing forest stocks rising at the same time.

Mr. CARTER. What happened? Why did the EPA change? At one time they were considering it carbon neutral. And then you said in 2010 it kind of shifted?

Mr. EISENBERG. That is exactly what happened. I wish I had a good answer for you. But they changed their position after, I think, significant external pressure. And it is, obviously, something we would like to see changed back.

Mr. CARTER. Well, it is really a problem because a lot of the forest product facilities in the state of Georgia and specifically, again, in my district they use self-generated energy as opposed to going

to the power grid that uses natural gas and coal. They use this. And it is somewhat of a byproduct.

And that seems to me to be what we would encourage and what we would want them to do. But, again, when they are using a renewable, carbon neutral biomass that is a byproduct of their manufacturing process, wouldn't you agree that EPA should recognize that as being carbon neutral?

Mr. EISENBERG. Without a doubt. I mean the Chairman said something about, How clean is clean? How renewable is renewable? This is renewable energy; let's treat it as such. You can't distinguish between different kinds. They are all good for our policy. They are part of, frankly, an all-of-the-above policy. And we should absolutely be finding ways to get these manufacturers to use something that would otherwise be waste.

Mr. CARTER. And that is very vital. In the state of Georgia we have over 200 manufacturing facilities, in Georgia alone, many of them in my district. And, again, for them to be able to use this as a reliable power source, that is essential and it is very important.

Now, Mr. Eisenberg, if I could, I want to switch gears for just a moment. A constituent with a manufacturing facility in my district has expressed to me their concern and their very real concern that energy costs are, and energy bills, the high costs of energy, are really one of the obstacles that they are having to overcome. We have struggled with this in the state of Georgia.

I served for 10 years in the Georgia state legislature. Some years ago we had a sales tax on energy that was just devastating to manufacturing. We took that off. I want to give credit where credit is due. We acknowledged that and took it off. Yes, we should have had it off long before then. But it did. And it helped immediately. It was an immediate relief to our, to our manufacturers.

But again, how can we look at energy costs? Would you agree that that is a real obstacle for businesses and manufacturers in particular?

Mr. EISENBERG. Without a doubt. For many manufacturers it is their biggest cost. In some of these very energy-intensive sectors. Chemicals, iron, steel, aluminum, things like that, it is their most significant cost. And so it is a driver for whether or not they are going to expand facilities, build facilities.

The big reason you see sort of a manufacturing boom in the Gulf region is, quite frankly, because of the energy down there. And so, so it is absolutely a cost. It is a driver, one of the many drivers, and for a lot of these companies the biggest driver.

One of the recommendations we make in our proposals here is that when EPA is putting out new regulations on manufacturing it needs to take into account energy. I mean there are certain provisions of the Clean Air Act that require that. They get danced around.

And as EPA, and realistically it has become in many ways a regulator of energy in some of these areas, OK, let's take a look at how that is impacting manufacturers' energy use. This is something they should absolutely deal with that.

Mr. CARTER. And as we talk more about—

Mr. SHIMKUS. The gentleman's time has expired.

Mr. CARTER [continuing]. Keeping manufacturing in America, energy costs should be considered.

Mr. EISENBERG. Absolutely.

Mr. CARTER. Thank you, Mr. Chairman. Appreciate your indulgence.

Mr. SHIMKUS. The Chair now recognizes the gentlelady from Michigan, Congresswoman Dingell, for 5 minutes.

Mrs. DINGELL. Thank you, Mr. Chairman. And thank you for hosting this hearing. It is a really important topic. And thank you to all the witnesses. I want you to know I read all of your testimonies last night, and I will not have time to ask all the questions that I want to.

I want to build on my colleague from Michigan's comments. I want to thank Melissa Mays for being here today. And really the comments that my colleague made, and I wish that Mr. Barton was still here, and I want to talk to him about it, I met Ms. Mays before any of you had ever heard the word Flint. And when I met her and some other people from Flint and understood what was happening, I very quickly developed a position that I still have today and, I think, really gets at what this part of this hearing is about, which is at the time, we need to figure out how we keep the people of Flint safe and what did we need to do immediately?

How did we fix the problem long term?

And how do we make sure that it never happens again in another community in this country?

Like my colleague from Michigan, I do believe the government was responsible at every level. I think the federal, state and local level all failed the people of Flint, period.

But Mr. Barton was asking questions about what happened in Flint and was it the delivery, was the lines, was it? The reality is there was a canary in the coal mine and General Motors stopped using the water in the plant long before anybody realized what was happening. And nobody shared the fact that GM's engines were being corroded. And they were given the opportunity that no Flint resident or any other Flint business was offered, which was to go to an alternate water system.

So, and as we have been talking, and I don't want to ask the same question, though I was going to, does EPA need to strengthen the Lead and Copper Rule to ensure what happened doesn't happen in any other? Everybody agrees. The question is, how do we have that discussion? How do we balance that cost-benefit ratio?

So, I think that is really an important question. And I think today reinforces the water in Flint still is not safe. And I want to ask Ms. Mays some questions about that. But how do we make sure that what is the proper role at the federal level for these other 5,300 communities?

Let me ask you this question, Ms. Mays: How are the residents of Flint taking all of this? And do they have any remaining faith the government will help remedy the situation?

Ms. MAYS. Every day that ticks by we lose our hope. We lose a bit of self worth because, like Mr. Barton was talking about, it is an argument over who is responsible instead of let's get on it and fix it. Let's save these people's lives. And let's put in the laws that are going to make sure it doesn't happen again.

And as time goes on, again, today is 1,028 that we have had to go through this. And to see that there has been very little change is terrifying. Because now I am hearing from cities all over the place. I am actually going to East Chicago to talk to them about their crisis and try to help rebuild their morale as well.

We have had an increased number of suicide attempts. We have people that have given up. People are walking away from their homes that they worked so hard to pay for. And they are just giving up. And they just can't deal with this anymore because it has gone on for so long and with such little being done. And people saying, well, we don't want to help; it is not our responsibility. While we're sitting here suffering in our showers, watching people that we love die and suffer and fall apart in front of us because, though it has been 21 years since there has been any kind of update to the laws that should have protected us. It is heartbreaking.

Mrs. DINGELL. Let me ask you one more question quickly.

We just had an incident down river, which is where I am front, where the water smelled and it was colored. It is colored and there was a number of issues. Having gone through Flint, I was not shy or retiring and immediately got on the phone with the governor. But one of the things that concerned us is that the water authority did not call us back. They were doing testing and not making it transparent. And I could go on and on and on.

But my question is, do you think we need to strengthen the Safe Drinking Water Act to provide more information to consumers about what is in their water for all contaminants? And how quickly do we tell people we are testing? How do you give that information to the consumers, et cetera?

Ms. MAYS. Absolutely. It needs to be immediate. As soon as there is an issue people need to know. If they would have told us that they failed their first Safe Drinking Water Act test in May of 2014, we could have gotten filters, we could have stopped drinking the water, and we wouldn't be where we are at. So transparency is crucial.

We need to know what is in our water because we are paying for it and we are relying on it. But, also, we need to know what changes are being made and why they are being made? What is being tested for? Because we are intelligent people. Just give us the facts and we will be able to protect our own families.

Mrs. DINGELL. Out of time. But I do want to tell Mr. Barton that there were two problems in Flint. Because nobody told people what was going on, the infrastructure corroded. Got to keep that from happening in this country.

Mr. SHIMKUS. My guess is you will, you will talk to him.

Mrs. DINGELL. I think you are right.

Mr. SHIMKUS. The Chair now recognizes the gentleman from Texas Mr. Flores for 5 minutes.

Mr. FLORES. Thank you, Mr. Chairman. I want to thank the panel for joining us today.

Mr. Eisenberg, you recommended in your testimony that Congress consider modifying the national ambient air quality standards review cycle to more closely align with the actual pace of implementation of existing standards. So the question on that: Can you explain what this would look like and why it is important?

Mr. EISENBERG. Sure.

Mr. FLORES. And, Mr. Sunday, I will have a follow-up for you in a second.

Mr. EISENBERG. So we have spent a lot of time over the years talking with air directors and the folks in the state that are actually doing the work to try to implement these things. And I think if you ask most of them whether or not 5 years is the right amount, I think they would say no. They are generally understaffed and have a lot of different regs that they are dealing with all at the same time. And in terms of the pace of when EPA gets them guidance and their ability to comply with it, we constantly wind up in this sort of, this Groundhog Day scenario.

Mr. FLORES. Right.

Mr. EISENBERG [continuing]. Where every 5 years we are barely implementing the last one.

And so, I think if you asked them, would you like more time? I think they would probably say yes.

It would probably look at lot like what is the bill you support, the bill that you and Congressman Olson put forward which, if it is signed into law, would basically ensure that all the ozone standards stay, you know, everybody basically meets, other than a few counties, by 2025.

Mr. FLORES. Right.

Mr. EISENBERG [continuing]. With less economic penalties. You get to the same place. Those numbers keep trending down, like I have been saying all morning, except there are less economic penalties. It is kind of a win for everybody.

Mr. FLORES. Yes. Based on when we looked at this last year, I mean the actual pace of implementation from the EPA was actually 10 years versus the 5 years that the law provides for. About 80 percent of the language in Mr. Olson's bill came from my bill last cycle. And H.R. 4000 did also, it resets that to fit sort of the real world. That way we could actually get to a place where we are having success versus our communities always being behind and suffering an economic penalty from that.

Also, Mr. Eisenberg, you testified that "the shale gas boom could create 1.4 million new manufacturing jobs in the United States and generate annual cost savings for manufacturing of \$34.1 billion due to lower energy and feed stock costs." So, why is it important that we maintain or that we establish, rather, a more balanced and predictable permitting and review process for complex infrastructure projects like pipelines?

Mr. EISENBERG. Because manufacturing is coming back and we need the pipes to get the natural gas where it goes. We are relying on all fuels as manufacturing, but especially natural gas.

Mr. FLORES. Right.

Mr. EISENBERG. We use it as feed stock.

Mr. FLORES. So, so it helps manufacturing. Can you give us some granularity about what types of manufacturing jobs would be particularly benefited by this?

Mr. EISENBERG. Absolutely. Certainly on the back end it is the sort of energy-intensive, the chemicals, the petrochemicals. Everything that is a building block for everything that we, that we make

and use here: trash bags and carpet, and everything that natural gas goes into.

On the front end there is the entire supply chain. There's the compressors, and valves, and paints and coatings, and cement, and all of these components that go into a large infrastructure project like that.

We have a number that we use, about 32 to 37 percent of a pipeline is manufacturing inputs. So those are all manufacturing jobs. That is straight across the supply chain. It is across the country. It is just a great story. And that is a big reason why we support some infrastructure.

Mr. FLORES. OK, thank you.

Mr. Sullivan, as an advocate for small business. Are there parts of executive orders that could address the balance between cost and benefits in a regulation that you think are worth considering putting in the statute?

Mr. SULLIVAN. Thank you, Congressman. Yes, there are provisions that should be enhanced in the executive orders and perhaps looked to by this committee legislating.

Any time an agency is required to look at costs they then need to speak with small businesses to come up with solutions. And many times that doesn't happen. So the idea of taking those cost-benefit executive orders and writing them into law, so for instance, when you are looking at updating the Clean Air Act, have tremendous benefits for small business input.

And we think that that would lead, for Main Street small businesses, to actually come up with more constructive solutions to many of the things that we were talking about this morning.

Mr. FLORES. What I would like you to do, if you could, following this hearing is send us some specific recommendations, if you don't mind. That way we can begin the statutory process of advancing the ball on these executive orders into statute that help provide the right balance between regulations and cost and benefit and economic growth.

Thank you. I yield back.

Mr. SULLIVAN. Thank you.

Mr. SHIMKUS. The gentleman yields back his time.

The Chair now wants to welcome Congressman Ruiz to the committee and recognize him for 5 minutes.

Mr. RUIZ. Thank you. I appreciate that, Mr. Chairman.

The Clean Air and Clean Water Act protect our basic necessities: clean, breathable air, and safe, drinkable water, fundamental elements we all need to survive. And we need to prioritize protecting our health.

I am an emergency medicine physician. I take care of asthma. And the worst moments I think are kids who have come in with an asthma exacerbation and gone into cardiac arrest and have passed away. And those moments of me having to tell their parents that their child just died still haunt me to this day.

Asthma is exacerbated by air pollution. It is one of the most common preexisting diseases among children in the U.S., and a leading cause of hospitalizations and school absences. There are over 34 million asthmatics in the U.S., including 7 million children. Annually, nationwide there are over 10.5 million physician visits due to

asthma, 2 million emergency room visits due to asthma, and \$11 billion spent on asthmatic treatments.

While asthma can be debilitating, or even life threatening, it can be a controllable disease. Asthma intensifies by environmental conditions such as outdoor air pollution. So why would we want to make it harder for asthmatic children in vulnerable populations to breathe clean air?

We also know many of the water systems that serve low income communities have drinking water contamination levels above federal guidelines, which can lead to a number of developmental and behavioral health issues. In my district we have rural communities that rely on well water because there is no water infrastructure, and there is high levels of contaminated arsenic.

Funding improvements to water systems would improve the lives of these families and children. Many of these families live in underserved areas and rely on healthcare, Medicaid, to get access to take care of their asthma and all of the other developmental problems that they have.

Ms. Mays, tell me, are you in Medicaid?

Ms. MAYS. Yes. We are covered by the Flint water Medicaid expansion.

Mr. RUIZ. So that was part of the expansion?

Ms. MAYS. Yes.

Mr. RUIZ. OK, lead can have acute toxicity. It can cause irritability, behavioral changes, headache, abdominal pain, nausea, vomiting, all these things. That is just if somebody takes a big swig of lead toxicity.

That is not what is happening in Flint. That is more of a higher dose but doesn't cause acute symptoms. It is more chronic in nature. Those are the silent killers, the silent things where people may have developmental delays; they have hearing problems; nervous systems; injuries to kidney, speech, language; even growth, muscle, bone development; and eventually seizures, which can be life threatening.

So if you didn't have Medicaid, what would happen to your children?

Ms. MAYS. We would not be able to take them to the rheumatologist, to the osteo specialists they have to see because of their growth plates and growth problems. They would not be able to get the blood work done to consistently see what is going on.

I deal with seizures at this point. So I wouldn't be able to see my neurologist, my gastroenterologist, my rheumatologist, our infectious diseases doctor, our toxicologist and environmental physician. We wouldn't be able to see any of them because we couldn't afford it. We just do not have that money. So if we did not have the health coverage, we wouldn't be able to try to manage the side effects of these permanent damages.

Mr. RUIZ. And are your neighbors in the same place, the other parents of children that have these calamities?

Mr. RUIZ. Absolutely. Flint is 41 percent at or below the poverty line. So we are a struggling city as it is. And access to quality medical care if you do not have Medicaid is slim to none. So we have so many people that never got tested so they don't even know how high their blood lead levels were during that first crucial 28 days.

So, we have people that are dying from seizures. There was a 29-year-old school security guard who had a seizure and died at the school.

Mr. RUIZ. Wow.

Ms. MAYS. And we have no idea what it was caused by because he didn't have insurance.

So we are absolutely terrified right now.

Mr. RUIZ. Any kids that you know of with renal failure on hemodialysis or anything?

Ms. MAYS. We have a lot. We have several different dialysis clinics that are full. There is a waiting list.

Mr. RUIZ. Oh dear.

Ms. MAYS. My oldest son now has high blood pressure because he has kidney damage. All three of my sons have low vitamin D levels because their kidneys are not producing enough because they have been hit by this.

Mr. RUIZ. That is one of the primary reasons why I ran for office to begin with. I didn't grow up in the political world, guys. I didn't run for city council and then work my way up. I came straight from the emergency department because I take care of these patients that I care so much about. And it breaks my heart to know how sometimes politicians up here are so removed from the human face of failed policies. And they are not smiling. They are on hemodialysis. They are worried.

And if we don't start prioritizing correctly our funding to help patients and help real people with real problems and kind of make that our focus instead of prioritizing, putting at the top of our list removing these protections in order to benefit, you know, some of the companies, then I think we are just going to have a worse human tragedy.

And with that, I am sorry you are going through this.

Ms. MAYS. Thank you.

Mr. RUIZ. I will be praying for you and your family. Thank you so much.

Ms. MAYS. Thank you.

Mr. SHIMKUS. The gentleman yields back his time.

A couple pieces of business. I ask unanimous consent that a letter from the American Road and Transportation Builders Association be submitted for the record.

Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. SHIMKUS. And a February 2015 Resources for the Future white paper entitled "EPA's New Source Review Program: Evidence on Processing Time 2002 to 2014."

Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. SHIMKUS. Also ask unanimous consent to submit for the record a letter from the Center for Progressive Reform, dated February 10, 2017; a Washington Post article reporting that American households have a \$15,000 regulatory burden, dated January 14, 2015; and a report from the Congressional Research Service, "Methods of Estimating the Total Cost of Federal Regulations," dated January 21, 2016.

Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. SHIMKUS. That should be all the business.

We do appreciate your testimony. These are tough issues. When we were successful in the last Congress, I think we have just got to get on the same page of what are real numbers, whether it is job loss or the science. I think we have to have transparency and trust that the numbers we bring forward are legitimate.

I think we have to have a recognition of the time frame of implementation and the burdens of changing that.

This was a committee hearing that was really broad. And I think my colleagues and I after this will start focusing down on stuff like Brownfields and some other things that we might be able to move in a more collaborative, comradely manner. And maybe we will look at some of the other tough, tough issues, too.

But we do appreciate your testimony. And I call this hearing to a close.

[Whereupon, at 12:17 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

MARK KNIGHT, President
 ART DANIEL, Senior Vice President
 B.E. STEWART, JR., Vice President
 SCOTT WILLIAMS, Treasurer
 STEPHEN E. SANDHERR, Chief Executive Officer
 DAVID LUKENS, Chief Operating Officer



Quality People. Quality Projects.

February 15, 2017

Subcommittee on Environment
 Committee on Energy and Commerce
 U.S. House of Representatives
 2125 Rayburn House Office Building
 Washington, DC 20515

Re: Hearing on "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing," held on February 16, 2017

Dear Chairman Shimkus:

The Associated General Contractors of America (AGC) appreciates the opportunity to provide written testimony in consideration of the implementation of the Clean Air Act (CAA), the Brownfields Program, and other environmental laws in the jurisdiction of the Environment Subcommittee. AGC supports modernizing environmental laws to address current challenges and create opportunities for today's businesses while continuing to safeguard our country's natural resources. AGC hopes that the 115th Congress and the new administration will look to the construction industry as an "industry partner" as opposed to an "industry opponent" in the process – recognizing that construction plays a vital role in improving our soil, water and air pollution problems. The aforementioned hearing is an important step in this paradigm shift.

AGC represents more than 26,000 firms engaged in building, heavy, civil, industrial, utility and other construction for both public and private property owners and developers. AGC members construct commercial buildings, shopping centers, factories, warehouses, highways, bridges, tunnels, airports, waterworks facilities, and multi-family housing units; and they prepare sites and install the utilities necessary for housing development. AGC and its nationwide network of 92 chapters have sought to improve and advance the interests of the construction industry for nearly a century.

AGC has reached out¹ to the Trump administration and Congress with recommendations that highlight the need for fewer and smarter regulations, greater industry assistance and involvement, and reduced barriers to approving and moving forward on important infrastructure projects. The 115th Congress plays an important and vital role in this process, and we applaud the subcommittee for holding hearings such as the one scheduled for February 16, 2017.

¹ <http://advocacy.agc.org/agc-shares-regulatory-plan-with-trump-transition-team/>

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Regulatory Challenges to the Expansion of Infrastructure and Domestic Manufacturing

For every perceived problem, many federal agencies have sought regulatory “solutions.” Oftentimes, those solutions fail to adequately—let alone comprehensively—solve the alleged ills they seek to address. Instead, a new regulation is generally stacked on top of a host of existing regulatory requirements without sufficient consideration of its overall impact on the greater regulatory compliance and enforcement scheme. The result is a chaotic patchwork of federal mandates that often create considerable economic hardship on the construction industry—especially small businesses—amounting to fewer construction projects built and fewer construction jobs available.

AGC seeks to ensure that new requirements are neither cost-prohibitive nor overly and needlessly burdensome for the construction industry, which improves our nation’s infrastructure and quality of life.

Construction Industry Regulatory Burdens Falling under this Subcommittee’s Jurisdiction

Looking at environmental programs that are under the jurisdiction of this subcommittee: The day-to-day operations of individual construction firms typically are not directly regulated under CAA stationary source permitting programs and Brownfields redevelopment decisions often occur before a contractor is brought onto a project. However, AGC members undertake redevelopment, construction, and renovation activities of industrial facilities and properties that are heavily regulated under these programs. The construction industry is sensitive to the concerns of investors who make the business decisions to build (or not build) new structures or to expand and make improvements on existing facilities. Additionally, construction costs are closely tied to materials costs, which are often adversely impacted by increases in business expenses resulting from regulatory measures necessary to receive pre-construction or operation permits. It is also noteworthy that the CAA’s National Ambient Air Quality Standards - and each state’s ability to comply with those federal air limits and planning requirements - can jeopardize funding for highways and limit new construction in areas that desperately need to be revitalized and repaired.

There are numerous other environmental programs under the jurisdiction of this subcommittee that have a direct impact on the means-and-methods of the construction process. Construction firms face huge civil penalties under federal environmental statutes for violations of the Resource Conservation and Recovery Act (RCRA) hazardous waste storage, management, and disposal requirements (reaching \$71,264 per day, per violation); for Toxic Substances Control Act (TSCA) chemical (e.g., lead-based paint dust) management, reporting, and recordkeeping violations (\$38,114 per day, per violation); and for violations under the Spill Prevention Control and Countermeasure regulations (\$44,539 per day, per violation).

Over the last decade, the U.S. Environmental Protection Agency has either promulgated a myriad of rules to expand the scope and complexity of the above-referenced programs or initiated efforts to do so. Regulations related to hazardous and non-hazardous materials affect the use and

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disposal of these and other construction materials. Ongoing regulatory efforts to expand the Lead Renovation Repair and Painting (LRRP) Program requirements could lead to onerous and redundant costs for commercial building renovations. Recent efforts to map out a brand new rule that will expand the SPCC Program beyond oil to address other hazardous substances could easily become unworkable on many jobsites without industry input. Across the board, permitting and mitigation requirements add costs and delays to new construction. The industry also is effected by a host of additional environmental regulations that are not the focus of discussion for the aforementioned hearing of the Subcommittee on Environment.

AGC Priorities for this Subcommittee's Consideration

AGC seeks legislative and regulatory solutions within many of these programs, including but not limited to –

- **Air Quality Controls** - *National Ambient Air Quality Standards Should be Scientifically Based, Attainable, and Economically Feasible. For example, AGC recommends legislation to: adjust the schedule for implementation of the 2015 ozone standard; long - term NAAQS reform to move the five-year review cycle to 10 years; expand "Exceptional Events" to cover ozone inversions; and provide more "tools" for states to implement compliant state implementation plans.*
- **Diesel Emissions Reductions** - *Oppose Diesel-Powered Construction Equipment Retrofit or Replacement Mandates that Put Unreasonable Financial Burdens on Contractors; Promote Full Funding of Voluntary Grant Programs that Provide Support to Interested Firms.*
- **Hazardous Materials** - *Ensure Spill Prevention, Control & Countermeasure (SPCC) Rules for Hazardous Substances Make Sense for the Construction Industry.*
- **Lead Paint** - *Oppose EPA Efforts to Expand Lead-Based Paint Regulation to Areas Beyond What is Currently Regulated.*
- **Mitigation** - *Ensure that as Many Environmental Mitigation Options as Possible are Available to the Contractor, and that Mitigation is Not a Barrier to Construction.*

In addition to reviewing and correcting the regulatory misadventures of the past, AGC seeks overall regulatory process reform that will help right the regulatory ship of the future. There are many reform efforts that require legislative action. AGC is supportive of reforms that enable greater congressional checks on rulemaking, increase public participation in the regulatory process, instruct agencies to choose the least costly regulatory options, require on-the-record hearings to help ensure sound scientific and economic data is put forth by agencies, and providing for more rigorous legal review of costly regulations, among other things.

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Implementation Reform: Improved, Cooperative Relationship with Industry

To help the over-regulated construction industry hire more people to build infrastructure, federal agencies must reengage with the construction industry again to develop workable regulations and effective compliance tools. Over the past several years, many federal agencies engaged with the construction industry as opponents rather than partners seeking a sensible regulatory path forward. They have not always engaged the construction industry. Yet, they have regulated it immensely. Together, the 115th Congress and the Trump administration can quickly implement a paradigm shift within federal agencies that allows them to regulate the industry and enforce the law in a coherent and reasonable manner. Policies must additionally be put forth to recalibrate enforcement initiatives and focus more agency resources on compliance education and industry collaboration efforts.

Reduce Barriers to Infrastructure Investment through Permitting Reform

AGC and the construction industry challenge the 115th Congress and this administration to put America on a path towards truly “shovel-ready” construction projects. Although not specifically on the agenda for the aforementioned hearing, foremost on the list should be permitting reforms that establish a six month time limit for completing all federal National Environmental Policy Act reviews. If no decision has been made by the end of those six months, the project should automatically be allowed to move forward. In addition, the administration and Congress should establish a loser-pays provision requiring any plaintiff who files a legal challenge to block an infrastructure project to pay all related legal fees if their challenge is unsuccessful.

AGC does not recommend the new administration or this Congress stop there. Opportunities exist to reduce permitting and regulatory review delays within the operations of U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and the Fish and Wildlife Service, among other agencies. Congress and the administration should work hand-in-hand on efforts to reduce the number of agencies involved in the various approval processes to allow construction projects to move forward. It’s difficult enough to have one agency make a decision. But, when dozens are involved—at a federal, state and local government level—it’s no wonder why we wait decades to undertake significant infrastructure improvements. Not only should the number of agencies needed to conduct the countless regulatory and permitting reviews be limited, one agency should be authorized to and held accountable for moving projects through the process.

AGC looks forward to working with the 115th Congress and the new administration on these initiatives and others to make review and permitting processes meet today’s infrastructure demands and needs.

Conclusion

In sum, AGC appreciates the opportunity to offer its insight on modernizing environmental laws to help build infrastructure, encourage job growth and cut red tape as well as fix the broken

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project review and permitting system. We hope the 115th Congress supports our efforts to change within federal agencies the paradigm of “construction industry opponent” to “construction industry partner.” We encourage Congress to help remove the roadblocks to investment in infrastructure, development, and manufacturing.

Thank you for your consideration.

Respectfully,

Jimmy Christianson

Jimmy Christianson
Regulatory Counsel
Associated General Contractors of America

February 15, 2017

U.S. House of Representatives
Washington, D.C. 20515

RE: Opposition to House Joint Resolution 59

Dear Member of Congress:

On behalf of our millions of members and supporters, we urge that you stand up for workers, first responders, and fence-line communities by opposing any the effort to use the Congressional Review Act (CRA) to overturn the Environmental Protection Agency's (EPA) recently finalized amendments to the Accidental Release Prevention Requirements for Risk Management Programs (RMP).

Americans look to Congress to protect our air, water, and families. We are counting on you to reject this ill-advised move to block safeguards that would save lives and better protect communities from facing a preventable chemical disaster.

The need to update the RMP standards became clear on April 17, 2013, when a fertilizer plant explosion in West, Texas ripped through that small town killing 15 people, injuring hundreds, and leveling dozens of homes and buildings. Among the dead were 12 first responders. Among the damaged and destroyed buildings were a nursing home and three of West's four schools. The property damage was approximately \$100 million with insurance-related losses pegged at \$230 million.

Unfortunately, there are thousands of industrial facilities throughout our country that pose a substantial risk to facility workers, emergency personnel, and neighboring communities. Tragedies like this are preventable and the need is great. From 2004 to 2013 alone, there were over 1,500 reported incidents, including chemical gas releases, liquid spills, fires, or explosions at RMP-covered facilities that caused harm to workers and communities.¹ These incidents caused over \$2 billion in property damage, resulted in orders to evacuate or shelter in place for half a million people, and caused 17,099 injuries and 58 deaths. Today, at least one in three schoolchildren in America attends a school in the vulnerability zone of a hazardous facility. At least 50 percent of students in the states of Utah, Rhode Island, Texas, Louisiana, Nevada, Delaware, and Florida are in these danger zones.² The record is clear that too frequently, too many Americans have had to evacuate, shelter in place, or race to pick up their child from school as an industrial fire burns or a toxic plume heads their way.

The public, particularly fence-line communities – often low income neighborhoods and communities of color who already bear the greatest burden of living next to polluting and high-risk facilities – are looking to Congress for actions to make them safer. Congress should not roll

¹ Data that chemical facilities reported to EPA show a total of 2,291 industrial incidents from 2004-2013, including releases where impacts on-site or to local communities were not known, not measured, or not reported to EPA. EPA-HQ-OEM-2015-0725-0002.

² Ctr. for Effective Govt, *Kids in Danger Zones* (Sept. 2014), <http://www.foreffectivegov.org/sites/default/files/kids-in-danger-zones-report.pdf>.

back the years of progress and bipartisan, interagency work it took to secure stronger chemical facility protections.

EPA's RMP updates provide modest improvements that were transparently and collaboratively crafted with expert input and are supported by overwhelming majorities of the American public. These updates would improve coordination with first responders, require analysis of serious accidents to ensure we learn from past mistakes, and ensure that plants with the worst accident records at least assess a range of options to improve their safety performance and planning.

Further, please oppose any effort to use the extreme instrument of the Congressional Review Act here. A CRA action will chill and likely cripple industrial safety protections for years to come. We cannot wait for basic federal safeguards from industrial incidents, particularly when many industry leaders have demonstrated that alternatives to the status quo are possible and are already implementing advancements in process safety, and other improvements are underway in some states, which are taking steps to ensure that high-risk industries make safety a top priority.

We request that you protect first responders, industrial workers, communities and our nation's infrastructure by vigorously opposing the CRA resolution and any other similar efforts to weaken national protections from chemical disasters.

Sincerely,

AFL-CIO
 Alaska Wilderness League
 Asbestos Disease Awareness Organization (ADAO)
 BlueGreen Alliance
 Center for Biological Diversity
 Center for Science in the Public Interest
 Clean Air Watch
 Clean Water Action
 Coming Clean
 Communications Workers of America
 Earthjustice
 Elders Climate Action
 Environmental Justice Health Alliance
 Food & Water Watch
 Green Latinos
 Greenpeace USA
 Institute for Agriculture and Trade Policy
 Interfaith Worker Justice
 International Association of Fire Fighters
 International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART)
 International Union of Bricklayers and Allied Craftworkers
 Jean-Michel Cousteau's Ocean Futures Society
 League of Conservation Voters
 Made Safe
 Mi Familia Vota
 National Employment Law Project

Natural Resources Defense Council
Physicians for Social Responsibility
Protect All Children's Environment
Rachel Carson Council
Safer Chemicals Healthy Families
Sierra Club
SustainUS
Students for a Just and Stable Future
Union of Concerned Scientists
United Steelworkers
U.S. PIRG
Utility Workers Union of America, AFL-CIO

Alaska

Alaska Community Action on Toxics

California

American Veterans (AMVETS)
Apostolic Faith Center
Azul
California Communities Against Toxics
California Kids Indoor Air Quality
California Safe Schools
Coalition for a Safe Environment
EMERGE
National Association for the Advancement of Colored People San-Pedro Wilmington Branch
#1069
Ricardo Pulido
San Pedro & Peninsula Homeowners Coalition
St. Philomena Social Justice Ministry
Wilmington Improvement Network
Worksafe

Florida

Earth Action, Inc

Illinois

Citizens Against Ruining the Environment
Respiratory Health Association

Louisiana

Louisiana Bucket Brigade

Massachusetts

MassCOSH - Massachusetts Coalition for Occupational Safety & Health

Montana

Montana Environmental Information Center

New Jersey

NJ Work Environment Council

New York

Citizens' Environmental Coalition

Greater Syracuse Council on Occupational Safety and Health

Oklahoma

Bold Oklahoma

Pennsylvania

Clean Air Council

Texas

Downwinders at Risk

Washington

SafeWork Washington

West Virginia

People Concerned About Chemical Safety



**Testimony of
American Forest & Paper Association
and
American Wood Council**

Subcommittee on the Environment, House Energy and Commerce Committee

**Hearing Entitled: "Modernizing Environmental Laws: Challenges and
Opportunities for Expanding Infrastructure and Promoting Development and
Manufacturing,"
February 16, 2017**

We appreciate the opportunity to submit testimony on the challenges and opportunities for promoting development and manufacturing.

The American Forest & Paper Association (AF&PA) serves to advance a sustainable U.S. pulp, paper, packaging, tissue and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - *Better Practices, Better Planet 2020*. The forest products industry accounts for approximately 4 percent of the total U.S. manufacturing GDP, manufactures over \$200 billion in products annually, and employs approximately 900,000 men and women. The industry meets a payroll of approximately \$50 billion annually and is among the top 10 manufacturing sector employers in 45 states.

The American Wood Council (AWC) is the voice of North American wood products manufacturing, representing over 75 percent of an industry that provides approximately 400,000 men and women in the United States with family-wage jobs. AWC members make products that are essential to everyday life from a renewable resource that absorbs and sequesters carbon. Staff experts develop state-of-the-art engineering data, technology, and standards for wood products to assure their safe and efficient design, as well as provide information on wood design, green building, and environmental regulations. AWC also advocates for balanced government policies that affect wood products.

The forest products industry is of critical importance to the U.S. economy. More than 75 percent of U.S. pulp, paper and wood product mills are located in rural counties where

they often serve as an economic driver for the community, and every person directly employed by the paper industry supports 3.25 jobs in supplier industries and local communities and every job in the wood products industry supports another 2.25 jobs

In addition to facing the challenges of an increasingly competitive global economy, American manufacturing must wrestle with an economy here at home that has become distorted by an ever-growing patchwork of mandates and incentives. The vast majority of these mandates and incentives are not enacted by elected representatives in Congress but instead are promulgated by agencies as regulations, which accumulate at the rate of roughly 3,500 each year. In addition, the cumbersome federal permit process has stymied new investment and the expansion and modernization of manufacturing facilities.

The paper and wood products manufacturing industry has met many costly regulatory challenges over the years, spending billions of dollars as part of its environmental stewardship. Those investments have led to major improvements in air quality, including a 29 percent reduction in emissions of nitrogen oxide and 53 percent for sulfur dioxide by our pulp and paper facilities since 2000. Unfortunately, the industry faces challenges from new and existing regulations — driven by lawsuits under the Clean Air Act — that together could impose more than \$10 billion in new capital obligations on the industry over the next 10 years. This cumulative regulatory burden is unsustainable.

The following are a small but important sample of the environmental regulatory challenges currently facing the U.S. forest products industry, and attached to this statement is a letter submitted to House and Senate Leadership detailing a broader picture of the cumulative regulatory burden faced by the industry.

Carbon Neutrality of Biomass

Paper and wood products mills sustainably use biomass residuals from their manufacturing operations to generate bioenergy. The energy is used to make products, and it provides significant greenhouse gas reduction benefits to the environment.

Prior to 2010, the U.S. clearly recognized forest-based biomass energy as carbon neutral, as the rest of the world does. In EPA's Greenhouse Gas (GHG) Tailoring Rule, for the first time, no such designation was made, subjecting biomass energy used in stationary sources to Clean Air Act permit program requirements. In 2011, EPA issued a rule deferring regulation of biogenic CO₂ emissions while it studied the issue and pledged to complete an accounting framework for biogenic emissions from stationary sources by July of 2014. To date, EPA has not completed its work, and the issue remains in regulatory limbo.

EPA's policy shift on biogenic CO₂ emissions ignores the manner in which the forest products industry produces and uses biomass energy as part of the sustainable carbon cycle, harnessing energy value that would otherwise be lost. EPA has missed multiple opportunities to resolve the regulatory uncertainty it created.

Forest biomass energy should be considered carbon neutral as long as forest carbon stocks are stable or rising on a broad geographical scale. EPA also should recognize the forest products industry's use of forest products manufacturing residuals for energy as carbon neutral regardless of forest carbon stocks because they would emit greenhouse gases anyway if not used for energy, and they displace fossil fuels. AF&PA and AWC urges policymakers to clearly recognize our industry's use of biomass for energy as carbon neutral.

Modernize Air Permitting to Enable Manufacturing

EPA's out of date, rigid, and time-consuming permitting process results in unnecessary delays for American manufacturing growth. Regulated industries that want to expand or modernize their manufacturing plants after installing the latest controls are approaching a permitting gridlock.

Every five years, EPA must decide whether the National Ambient Air Quality Standards (NAAQS) are sufficiently protective of public health. NAAQS (for particulate matter, ozone, sulfur dioxide and nitrogen oxides) have dropped closer to background levels and it has become increasingly difficult to demonstrate that air quality standards will continue to be achieved with the current permit and air quality modeling process that must be followed. The challenges with the ever-tighter NAAQS are exacerbated by a lack of (or inappropriate) emission measurement methods, poor estimates of emissions and inappropriate use of air dispersion models where performance has not been validated.

EPA should establish a new permitting process and adjust its modeling criteria to be more reflective of actual impacts. Regulatory air quality models have the capabilities to calculate ambient air concentrations based on variable emissions, background, and meteorological conditions; however, long-standing policies that are obsolete considering present-day standards preclude their use. Simply stated, regulatory implementation of stringent new standards has outpaced the availability of reliable implementation tools and appropriate guidance.

EPA should address the rapidly developing air permitting gridlock by committing sufficient resources and adopting more flexible policies to allow use of more realistic emissions and modeling data within the next year. In addition, states should be given more discretion in running their permitting programs including advancing new tools, models and permitting approaches through guidance to the states and Regional Administrators.

In addition, EPA should not revise current NAAQS unless evidence shows a significant public health concern and previous NAAQS revisions have been fully implemented. Moving these multiple regulatory goal posts every five years creates significant business investment uncertainty when the air quality in the U.S. is some of the best in the world and will continue to get better under current programs and trends. A ten year review cycle would be much more appropriate.

Elimination of Start-up, Shut-down, and Malfunction Provisions, including Affirmative Defense

EPA has systematically eliminated long-standing provisions in various air rules under section 111 and 112 of the Clean Air Act governing how emissions during start-ups, shutdowns and malfunctions (so-called SSM events) are treated. In the past, EPA has acknowledged that even the best operating facilities have brief periods of higher emissions during SSM events.

In June 2015, EPA finalized a rule that directed 36 states to revoke SSM-related provisions in their state rules, even though it is not required by law or necessary to meet air quality standards. The rule set a November 2016 deadline for state submittals that about twenty states met. There is a six month grace period for other states to respond.

Facilities already have a duty to minimize the occurrence and duration of SSM events, but these releases are necessary to protect process and pollution control equipment, and above all, worker safety. EPA has failed to demonstrate that these brief periods of emissions are causing any harm. No Clean Air Act regulation should treat companies as violators and subject them to possible citizen suits for events that are unavoidable even when facilities are operated according to best practices.

EPA should return to previous SSM policies where SSM emissions are covered separately from the limits governing "normal operations." In the case of the SSM SIP call, EPA should revisit the merits of the rule and in the meantime accept flexible SSM work practices and allow site-specific provisions to be incorporated in Title V permits rather than in the State Implementation Plans.

Federal Regulatory Reform

The president and Congress have an historic opportunity to dramatically improve the regulatory process to serve the public interest, promote jobs, and increase the competitiveness of the American pulp, paper, packaging, and wood products industry. We recognize that sensible regulations provide important benefits, such as the protection of the environment, health and safety. Unfortunately, poorly designed regulations unintentionally can cause more harm than good, waste limited resources, undermine competitiveness and jobs, and erode the public's confidence in government. It therefore is essential that regulations be designed to provide net benefits to the public based on the best available scientific and technical information, with due consideration of the cumulative regulatory burden.

To support the goal of increased competitiveness of the industry, AF&PA and AWC recommend the following policy proposals:

- **Do More Good Than Harm:** Congress should enact a judicially enforceable benefit-cost decision rule to ensure that regulations do more good than harm.

- **Sound Science:** Regulatory decisions should be based on the best available scientific and technical information.
- **Transparency:** Agencies should disclose data to the public early, outline models and other key information used in high-impact rulemakings and provide an adequate opportunity for meaningful public input. Moreover, court settlements between regulators and interest groups to require rulemakings should be published and disclosed to the public and reviewed by OIRA before going final.
- **Retrospective Review of Rules:** There should be an institutionalized, retrospective review to streamline and simplify existing rules and to remove outdated and duplicative rules. The retrospective review process should be the beginning of a bottom-up analysis of how agencies can best accomplish their statutory goals. This should include a careful analysis of regulatory requirements and their necessity, as well as an estimation of their value to achieve needed outcomes.
- **Accountability:** The president should direct all regulatory agencies, including the independent agencies, to promptly implement the preceding policy proposals. As all regulation starts with the delegation of lawmaking authority from Congress, Congress should elevate these proposals into binding law.

The quality of air in the U.S. is among the best in the world. Implementing the changes suggested above will allow for the continued improvement of our environment while at the same time allowing American business to thrive and grow. Thank you for the opportunity to submit this statement.



Office of the President

December 16, 2016

Majority Leader Mitch McConnell
United States Senate
S-230, The Capitol
Washington, DC 20510

Speaker Paul Ryan
US House of Representatives
H-232, The Capitol
Washington, DC 20515

Dear Majority Leader McConnell and Speaker Ryan:

Congratulations on an historic election. Paper and wood products manufacturers across the country are looking forward to working with the 115th Congress and the Trump administration to tackle the numerous regulatory challenges confronting the U.S. forest products industry. The coming year offers tremendous opportunity to make lasting changes to the regulatory structure that will help the economy reach its full potential for the benefit of all Americans.

The American Forest & Paper Association (AF&PA) represents U.S. manufacturers of pulp, paper, packaging, tissue and wood products with fact-based public policy and marketplace advocacy. More than 75 percent of forest products industry facilities are located in predominantly rural counties across America and are often the economic driver for their communities, large and small. The approximately 900,000 family wage jobs in our industry represent a \$50 billion annual payroll, making our industry among the top 10 manufacturing sector employers in 45 states. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - *Better Practices, Better Planet 2020*.

We believe that the American free enterprise system has been the greatest engine for prosperity and liberty in history, and we are optimistic about the future. We also recognize that sensible regulations provide important benefits, such as the protection of the environment, health and safety. Unfortunately, poorly designed regulations unintentionally can cause more harm than good, waste limited resources, undermine competitiveness and jobs, and erode the public's confidence in government. It therefore is essential that regulations be designed to provide net benefits to the public based on the best available scientific and technical information, with due consideration of the cumulative regulatory burden. To that end, we hope that the following list of regulatory challenges and recommended solutions are constructive for your work in the coming year.

Majority Leader McConnell
Speaker Ryan
December 16, 2016
Page 2

We would be happy to discuss the examples provided in the attached document in greater detail or to provide further information. If you have any questions, please feel free to contact me at (202) 463-5151.

Best Regards,



Donna A. Harman
President and Chief Executive Officer
American Forest & Paper Association

Enclosure

cc:

Senator Mike Crapo, Chair
Senate Committee on Banking, Housing and Urban Affairs

Senator John Barrasso, Chair
Senate Committee on Environment and Public Works

Senator Orrin Hatch, Chair
Senate Committee on Finance

Senator Lamar Alexander, Chair
Senate Committee on Health, Education, Labor, and Pension

Senator Ron Johnson, Chair
Senate Homeland Security and Governmental Affairs Committee

Representative Virginia Foxx, Chair
House Committee on Education and the Workforce

Representative Greg Walden, Chair
House Committee on Energy and Commerce

Representative Jason Chaffetz, Chair
House Committee on Oversight and Government Reform

Representative Bill Shuster, Chair
House Committee on Transportation and Infrastructure

Representative Kevin Brady, Chair
House Committee on Ways and Means



Summary of Key Regulations of the Forest Products Industry and Needed Reforms

The regulations and reforms enumerated below cut across many regulatory areas such as the environment, energy and product specific issues. While the specific regulations have their own technical aspects, a common thread across them all is the impact they have on the competitiveness and viability of the paper and wood products manufacturers, which provide family wage jobs that support rural communities from coast to coast. The forest products industry employs 900,000 men and women, and those men and women manufacture necessary paper and wood products that 300 million Americans depend on in their daily lives, as well as billions more around the world.

Environmental Protection Agency:

Air and Water Rules:

- **Carbon Neutrality of Biomass:**

EPA's recent policy shift, beginning in 2010, on biogenic CO₂ emissions ignores the manner in which the forest products industry produces and uses biomass energy as part of the sustainable carbon cycle, harnessing energy value that would otherwise be lost. EPA has missed multiple opportunities to resolve the regulatory uncertainty it created.

- **Forest biomass energy should be considered carbon neutral as long as forest carbon stocks are stable or rising on a broad geographical scale. EPA also should recognize the forest products industry's use of forest products manufacturing residuals for energy as carbon neutral regardless of forest carbon stocks because they would emit greenhouse gases anyway if not used for energy, and they displace fossil fuels.**

- **Federal Human Health Water Quality Criteria (HHWQC):**

Under the Clean Water Act, states have the primary responsibility for issuing water quality standards and establishing the acceptable risk levels in those standards. After already pressuring Oregon, EPA Region X has pressured Washington and Idaho to adopt EPA's preferred Fish Consumption Rate (one of the variables in the HHWQC derivation formula) and acceptable risk levels, which would result in extremely stringent HHWQC. In turn, those HHWQC would result in water permit limits that would impose very high compliance costs or are simply unattainable, all while not providing meaningful human health benefits. If applied to other programs, these policies will determine "how clean is clean" for Superfund cleanups and make other standards

unfeasibly stringent and expensive, without a commensurate improvement in human health.

EPA recently issued a final rule partially disapproving Washington's recently-revised criteria and imposing federal HHWQC in their place. The agency will soon do the same in Maine, based on its earlier disapproval of Maine's water quality standards. Maine sued EPA over that disapproval.

- **EPA should amend the federal rule for Washington (RIN: 2020-AF59) to fully approve the Washington water quality standards, including the HHWQC that were submitted for EPA approval, and rescind the approval/disapproval letter.**
- **Similarly, EPA should amend the Maine rule (RIN 2040-AF56) and issue a federal rule approving the existing water quality standards and HHWQC, and rescind the disapproval letter.**
- **As soon as possible, EPA should signal its intent to reconsider the rules so that Washington and Maine do not feel compelled to move forward with permitting under the federal rules.**
- **EPA also should stop insisting on overly conservative HHWQC that impose virtually no additional human health protection at enormous cost.**

- **Air Permit Gridlock:**

Every five years, EPA must decide whether the National Ambient Air Quality Standards (NAAQS) are sufficiently protective of public health. As NAAQS (for particulate matter, ozone, sulfur dioxide and nitrogen oxides) have dropped closer to background levels, it is becoming increasingly difficult to pass the test and get an approved permit. Regulated industries are approaching a permitting gridlock. EPA should establish a new permitting process and adjust its modeling criteria to be more reflective of actual impacts. The challenges with the ever-tighter NAAQS is exacerbated by a lack of (or inappropriate) emission measurement methods, poor estimates of emissions, use of unrealistic air dispersion models, and several rigid permitting policies.

- **EPA should address the rapidly developing air permitting gridlock by committing sufficient resources and adopting more flexible policies to allow use of more realistic emissions and modeling data within the next year. States should be given more discretion in running their permitting programs. One simple action EPA could take is to not require source-specific photo-chemical modeling for ozone that would thwart even more projects. Another improvement would be to allow adjustments in the modeling locations around facilities where barriers, such as roads and rivers, make exposure very unlikely. Finally, EPA should embrace the use of probabilistic methods in air modeling rather than always assume worst case.**
- **EPA also should not revise current NAAQS unless evidence shows a significant public health concern and previous NAAQS revisions have been fully implemented.**

- **Clean Power Plan:**

Increases the costs of electricity and natural gas and creates reliability challenges, putting American manufacturers at risk in a globally competitive economy. Vastly expands EPA's traditional authority far beyond specific source categories, reaching into the entire electricity supply and demand chain, and could serve as a model for future direct regulation of manufacturing industries, hitting manufacturers twice. Currently stayed by U.S. Supreme Court until litigation is resolved.

- **EPA's Clean Power Plan (RIN: 2060-AR33) should be repealed.**

- **Risk Management Plan Rule:**

This pending final EPA rule requires a Safer Technology and Alternatives Analysis for paper mills and a few other industries, including evaluation of inherently safer technologies; third-party audits rather than internal audits; evaluation of "root causes" for incidents; additional procedures around emergency response coordination; and new information sharing. The final rule is expected in December 2016.

- **EPA's Risk Management Plan Rule (RIN: 2050-AG82) should be repealed.**

- **Elimination of Start-up, Shut-down, and Malfunction Provisions, including Affirmative Defense:**

EPA is in the process of systematically eliminating long-standing provisions in various air rules under section 111 and 112 of the Clean Air Act governing how emissions during start-ups, shutdowns and equipment or process malfunctions (so-called SSM events) are treated. In the past, EPA has acknowledged that even the best operating facilities have brief periods of higher emissions during SSM events.

On June 12, 2015, EPA finalized a rule that would direct 36 states to revoke SSM-related provisions, even though it is not required by law or necessary to meet air quality standards and will impose large burdens on states with limited resources. The rule set a November 22nd deadline for state submittals that few states met.

Facilities already have a duty to minimize the occurrence and duration of SSM events, but these releases are necessary to protect process and pollution control equipment, and above all, worker safety. No Clean Air Act regulation should treat companies as violators and subject them to possible citizen suits for events that are unavoidable even when facilities are operated according to best practices.

- **EPA should either return to previous SSM policies, or where SSM emissions are inappropriately lumped into limits covering "normal operations," set separate work practices and put site-specific provisions in Title V permits and establish the framework in the State Implementation Plans.**

- **Regional Haze:**

States have been working to implement the Regional Haze (RH) program under the Clean Air Act based on EPA guidance to improve visibility, especially in National Parks. The statute gives states the primary role for implementing air quality programs, including for regional haze. Recently, ENGOs have sued EPA for failing to act on state RH proposals. As a result, EPA is now second guessing state judgments in Texas, Oklahoma and Arkansas by issuing Federal Implementation Plans (FIPs) that could result in millions of additional expenses for an imperceptible visibility improvement.

- **EPA should leave states to implement the Regional Haze program unless there are egregious oversights by states.**

Council on Environmental Quality:

- **Procurement Guideline for Paper and Paper Products Containing Recovered Materials:**

President Obama's Executive Order 13693 directs agencies to plan for federal sustainability for the next decade. Section 3(i) of E.O. 13693 requires federal agencies to be consistent with statutory mandates for purchasing preference, and then consider sustainable products with specifications, labels or standards recommended by EPA.

The White House Council on Environmental Quality (CEQ) is evaluating increasing the minimum required recycled content for printing papers. Such a change would lead to negative economic and environmental consequences, including:

- Fewer, not more, producers of recycled content printing paper;
- Forcing recovered fiber to uneconomic end uses, which in turn will have negative ripple effects on the economics of the market-based recovery system;
- Increased virgin fiber use in some products that currently use recovered fiber; and
- Less paper recovery as a result of market distortion.

In addition, E.O. 13693 has resulted in the implementation of Interim Guidelines for Environmental Standards and Ecolabels that will be required for federal purchasing that have the potential to add costs and restrict the federal market for American-made products.

- **The interim guidelines on Environmental Standards and Ecolabels should be repealed or amended to reflect all credible labeling systems; and EPA should not increase the current recycled content mandate for paper products and should eliminate the distinction between "pre-consumer" and "post-consumer" recovered fiber content in the Comprehensive Procurement Guidelines. By doing so, it would align the Comprehensive Procurement Guidelines with leading market-based certification systems, such as the Sustainable Forestry Initiative and the Forest Stewardship Council, which give equal weight to "pre-consumer" and "post-consumer" recycled content in paper products.**

- **NEPA Guidance for Greenhouse Gases:**

On August 2, 2016, the White House Council on Environmental Quality (CEQ) released final guidance on how federal agencies should consider the effects of greenhouse gas (GHG) emissions in National Environmental Policy Act (NEPA) reviews. NEPA requires federal agencies to disclose and consider potential environmental effects of proposed actions, and analyze alternatives to mitigate these effects. The guidance expanded the scope of environmental impact statements and environmental assessments under NEPA and provides additional grounds for legal challenges to federal approvals, permits and licenses, including a wide variety of infrastructure projects such as energy projects. Advocates already have cited the guidance as an additional basis to oppose needed natural gas pipelines. CEQ fails to address the unique and diverse challenges that NEPA reviews of land and resource management actions face, overlooks the negative effect this one-size-fits-all guidance will have on the land management decision-making process, and exacerbates the risk that NEPA challenges will prevent agencies from fulfilling their statutory mandates to promote and authorize multiple, diverse uses of federal land.

- **CEQ should repeal the NEPA guidance.**

- **Social Cost of Carbon:**

EPA, the Department of Energy, and other federal agencies use the social cost of carbon (SCC) to estimate the climate benefits of rulemakings. The SCC is an estimate of the economic damages associated with a small increase in carbon dioxide (CO₂) emissions (one metric ton) in a given year. This dollar figure also represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO₂ reduction). The integrated assessment models used to develop SCC estimates do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature due to a lack of precise information on the nature of damages and the delay in incorporating the most recent science into these models

- **The SCC calculation should be withdrawn and not be used in any rulemaking and/or policymaking until it undergoes a more rigorous notice, review and comment process.**

Securities and Exchange Commission:

- **Proposed SEC Rule 30e-3:**

The U.S. Securities and Exchange Commission (SEC) has issued a proposed regulation (Rule 30e-3), which would eliminate the current default requirement for mutual funds to transmit important information to investors in paper form. The new rule would: (1) permit funds to satisfy shareholder report requirements by making shareholder reports and quarterly portfolio holdings available online; (2) shift the burden on investors by requiring them to “opt-in” to paper delivery of important fund information as opposed to the current option of “opting-in” to electronic delivery; and

(3) potentially confuse millions of investors who suddenly stop seeing important fund performance material from investment firms. Shareholder reports are important investment tools, and implementing this change could harm millions of investors – the majority of whom have already expressed a preference for paper-based reports.

- **The SEC should withdraw proposed Rule 30e-3 (RIN: 3235-AL42).**

Food and Drug Administration:

- **Proposed E-Labeling Rule for Prescription Drug Inserts:**

FDA's proposed rule, "Electronic Distribution of Prescribing Information for Human Prescription Drugs, Including Biological Products," would allow distribution of the prescribing information intended for health care professionals electronically and, with few exceptions, not in paper form. This information currently is distributed in paper form on or within the package from which the medicine is dispensed, as Congress required by statute. Relying on electronic labeling as a complete substitute for paper labeling could adversely impact public health by limiting the availability of drug labeling for some physicians, pharmacists, and patients by requiring them to access drug labeling through an electronic medium with which they might be uncomfortable, might find inconvenient, or that might be unavailable. The net result could seriously harm public health. If paper drug labeling ceases to exist, costs also undoubtedly will shift from drug manufacturers to pharmacies to obtain and/or provide this information to patients who ask for it.

- **The FDA has failed to make a reasonable case for this proposed rule (RIN: 0910-AG18), and it should be withdrawn promptly.**

Occupational Safety and Health Administration:

- **Combustible Dust Rulemaking:**

OSHA is currently conducting a combustible dust rulemaking. An ANPRM was issued in 2009, and recently OSHA indicated it intends to convene a Small Business Regulatory Enforcement Fairness Act panel sometime in the near future.

Such a rulemaking is unnecessary because on April 21, 2015, OSHA provided new guidance to inspectors that more accurately reflects real world dust properties. The revised guidance explicitly acknowledges that low bulk density dust, including many types of paper and wood dust, may not create a hazard even at an accumulation level of ¼ inch or more. Instead of relying on the old 1/32 inch maximum accumulation criterion, OSHA inspectors are now asked to send dust samples collected at the site to a laboratory for bulk density determination if: (1) the material is light (such as paper dust or fabric fibers); (2) the layer thickness is greater than ¼ inch and not more than one inch; and (3) the accumulation extends over five percent of the floor area of a room or a building or 1000 ft², whichever is less.

- **OSHA should withdraw the combustible dust rulemaking (RIN: 1218-AC41) and adhere to the practical combustible dust guidance issued in 2015.**

- **Globally Harmonized Hazard Communication Standard:**

OSHA's 2012 Hazard Communication Standard seeks to align workplace hazard communication in the U.S. with the Globally Harmonized System (GHS). The new regulation requires products that are shipped as articles (such as rolls or sheets of paper or lumber/wood panels) that may be processed by downstream users in such a way that combustible dust could be generated to include an HCS-compliant label warning with the first shipment. However, companies that ship these products do not necessarily know with certainty how the products will be used/processed by customers and should not be required to provide such warnings unless they are shipping a material that is itself a combustible dust.

- **OSHA should amend its Hazard Communication Standard (RIN: 1218-AC20) so that only materials that present a combustible dust hazard in the form in which they are shipped need to carry a warning label.**

Internal Revenue Service:

- **Proposed Section 385 Regulations:**

The IRS on April 4, 2016 issued proposed debt-equity regulations under Section 385 of the Internal Revenue Code which would overturn long-standing tax principles and well-established case law and regulations, significantly increase the cost of doing business in the United States, and create further obstacles to much needed investment, job creation and economic growth. The proposed regulations go far beyond cross-border mergers and apply to a wide range of ordinary business transactions by global and domestic companies both in and outside the U.S. The proposed 385 regulations affect all aspects of both a company's capital structure and the funding of its ordinary operations and fundamentally alter the U.S. tax rules on intercompany debt by overturning the well-established facts and circumstances analysis used by the courts and the IRS to determine whether an instrument is debt or equity. Whether an instrument is debt or equity has significant, collateral consequences to business operations that go well beyond the interest deduction on the instrument and include the legal classification of an entity, eligibility for withholding tax exemptions under tax treaties and the ability to file a consolidated tax return. These issues present a severe impediment to the use of intercompany financing for even normal operations and will significantly increase the cost of capital and limit the amount of capital available to invest in the United States.

- **The IRS should withdraw the proposed Section 385 regulations (RIN: 1545-BN40).**

The American Forest & Paper Association (AF&PA) serves to advance a sustainable U.S. pulp, paper, packaging, and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative -

Better Practices, Better Planet 2020. The forest products industry accounts for approximately 4 percent of the total U.S. manufacturing GDP, manufactures over \$200 billion in products annually, and employs approximately 900,000 men and women. The industry meets a payroll of approximately \$50 billion annually and is among the top 10 manufacturing sector employers in 45 states.



**Statement
On Behalf of the
American Road and Transportation Builders
Association**

**Submitted to the
United States House of Representatives
Energy and Commerce Committee
Subcommittee on Environment**

**Hearing on Modernizing Environmental Laws: Challenges and
Opportunities for Expanding Infrastructure and Promoting
Development and Manufacturing**

February 16, 2017

Chairman Shimkus and Ranking Member Tonko thank you for holding this hearing on Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing. ARTBA, now in its 115th year of service, provides federal representation for more than 6,000 members from all sectors of the U.S. transportation construction industry. ARTBA's membership includes private firms and organizations, as well as public agencies that own, plan, design, supply and construct transportation projects throughout the country. Our industry generates more than \$380 billion annually in U.S. economic activity and sustains more than 3.3 million American jobs.

Because of the nature of their businesses, ARTBA members undertake a variety of activities that are subject to environmental laws and regulations. ARTBA's public sector members adopt, approve, or fund transportation plans, programs, or projects which are all subject to multiple federal regulatory requirements. ARTBA's private sector members plan, design, construct and provide supplies for federal-aid transportation improvement projects. As the committee examines the various environmental laws under its jurisdiction, ARTBA wishes to highlight areas in the federal Clean Air Act (CAA) where we have been a consistent advocate for sensible regulatory reform.

National Ambient Air Quality Standards (NAAQS)

Under the CAA, the United States Environmental Protection Agency (EPA) must review the NAAQS for six different pollutants every five years. NAAQS compliance is a particularly important issue for the transportation construction sector as counties which do not meet CAA standards can have federal highway funds withheld. These funds are important to areas aiming to improve air quality through transportation improvements which ease congestion.

Overall, EPA must reform the manner in which it reviews NAAQS. Local officials need some sense of predictability in order to develop long-range transportation plans to achieve emissions reduction goals. In many instances, counties are focusing on addressing existing NAAQS and any additional changes to the standards are akin to “moving the goalposts in the middle of the game.” If counties are to effectively comply with current NAAQS, new requirements will only serve to hamper these efforts by opening the door to possible litigation and sanctions potentially resulting in the withholding of federal funding for transportation improvement projects.

Regulations do not operate in a vacuum. Before deciding whether or not to tighten existing standards, EPA should take account what has already been achieved as well as expected air quality improvements from already approved initiatives. EPA’s own data indicates overall concentrations of the pollutants monitored through the NAAQS have dropped “significantly” since 1990 and “[d]uring the same period the U.S. economy continued to grow, Americans drove more miles and population and energy use increased.”¹

Further, EPA should also consider the consequences of proposed NAAQS changes on other federal activities that promote public health and economic stability. Tightening CAA standards could result in the withholding of federal highway funds in areas forced out of compliance with the new standards. This, in turn, would have negative effects on both employment and development for impacted counties where transportation improvements are delayed or cancelled. In many instances, these federal-aid projects are intended to improve demonstrated public safety threats. Once completed, transportation improvements can reduce congestion and improve air quality. Such improvements will not be realized if projects cannot go forward. A complete analysis of potential NAAQS revisions should include the effects of the potential for increased unemployment, reduced congestion relief and weakened public safety.

Transportation Conformity

Transportation conformity refers to the efforts of counties to conform to CAA standards and is arguably one of the most confusing aspects of the statute. The problem with the existing conformity process is caused by the fact that some have tried to turn these determinations into an exact science, when they are not. Rather, conformity findings are based on assumptions and “modeling of future events,” not often reflecting reality. Very few conformity lapses occur because a region has a major clean air problem. They occur because one of the parties involved cannot meet a particular deadline. Thus, the conformity process has become a top-heavy bureaucratic exercise that puts more emphasis on “crossing the t’s and dotting the i’s” than on engaging the public in true transportation planning that is good for the environment and the mobility of a region’s population.

¹ United States Environmental Protection Agency, *Our Nation’s Air: Status and Trends through 2015*, available at <https://eispub.epa.gov/air/trendsreport/2016/>.

The problems with the conformity process are amplified by transportation plans and the State Implementation Plans (SIPs) with which they are intended to conform often being out of sync with one another. Largely, this is due to transportation plans having very long planning horizons requiring frequent updates, while most air quality plans have very short planning horizons and are updated infrequently. As a result, many of the planning assumptions used for conformity determinations of transportation plans and programs are not consistent with the assumptions used in the air quality planning process to establish emissions budgets and determine appropriate control measures. In other words, because transportation plans must use the most recent air quality data, a perceived increase in emissions and possible conformity lapses can occur simply because the numbers of models relied on in the transportation plan differ from those in the air quality plan—not because an area’s air quality has changed.

Additionally, according to Federal Highway Administration (FHWA) guidance, “transportation conformity regulations specify that an air quality conformity determination can only be made on a fiscally constrained metropolitan transportation plan.”² In practical terms, this means an area trying to achieve CAA standards can only do so through projects where the funding has already been fully committed. This type of restriction actually discourages long-range planning by forcing counties to forego long-term solutions in favor of stop-gap measures because they may not have enough dedicated funding.

Conclusion

The NAAQS process and transportation conformity are just two areas of the CAA in need of reform – there are many others. As the subcommittee continues its discussion of modernizing the CAA it should do so with a view towards maximizing results while minimizing excessive regulatory requirements.

With air quality already improving, further regulation may not be necessary and, perhaps, thought should be given to altering existing requirements in a manner which would reduce regulatory burdens without sacrificing the success which has already been achieved. We look forward to continuing to work with the subcommittee towards achieving cleaner air through efforts which strike the proper balance between environmental protection and our nation’s infrastructure needs.

² Federal Highway Administration, “Financial Planning and Fiscal Constraint for Transportation Plans and Programs Questions & Answers,” available at: https://www.fhwa.dot.gov/planning/guidfinconstr_qa.cfm.

EPA's New Source Review Program: Evidence on Processing Time, 2002–2014

Art Fraas, Mike Neuner, and Peter Vail

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EPA's New Source Review Program: Evidence on Processing Time, 2002–2014

Art Fraas, Mike Neuner, and Peter Vail

Abstract

As the United States moves forward with future energy policy, it must address and resolve issues associated with a shift away from coal and toward natural gas. While natural gas offers a significant opportunity as an abundant and relatively clean fuel source, optimum development and use of this resource requires an efficient and effective permitting process. A long and difficult permit approval process unnecessarily hinders progress toward energy and environmental goals by delaying or even cancelling both additions to new capacity as well as the upgrading of existing capacity. This study provides information on the time required to obtain permits through the Environmental Protection Agency (EPA) New Source Review (NSR) program for refineries and for coal-fired and natural gas-fired electric generating plants. The study finds that processing times for NSR permits for the 2002 to 2014 period varied significantly across EPA regions. They were also significantly longer for coal-fired and combined cycle electric generating units as compared to that for combustion turbines. Finally, processing times were significantly longer over this period for electric generating units and refinery projects as compared to reported permitting times for projects from 1997 to 2001.

Key Words: regulatory policy, energy, electricity

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Discussion papers are research materials circulated by their authors for purposes of information and discussion. They have not necessarily undergone formal peer review.

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EPA's New Source Review Program: Evidence on Processing Time, 2002–2014

Art Fraas, Mike Neuner, and Peter Vail*

I. Introduction

The production and use of coal, oil, and natural gas are critical elements in the continued economic performance of the United States. As the country moves forward with future energy policy, it must address and resolve issues associated with a shift away from coal and toward natural gas.¹ In his State of the Union Address, President Obama acknowledged the importance of natural gas as it relates to the present and future of US energy:

It's the bridge fuel that can power our economy with less of the carbon pollution that causes climate change. ... I'll cut the red tape to help states get [natural gas factories] built. ... My administration will keep working with the industry to sustain production and job growth while strengthening protection of our air, our water, and our communities.²

While natural gas offers a significant opportunity as an abundant and relatively clean fuel source, optimal development and use of this resource require an efficient and effective permitting process for development, infrastructure, and industrial and electric generation use. A long and difficult permit approval process unnecessarily hinders progress toward energy and environmental goals by delaying or even canceling both additions of new capacity and the upgrading of existing capacity.

* Art Fraas is a visiting fellow at Resources for the Future (RFF), fraas@rff.org. Michael Neuner is a JD candidate (May 2015) at the Louisiana State University Paul M. Hebert Law Center. He joined the RFF staff for a 2014 summer internship, with support by the LSU John P. Laborde Energy Law Center. Peter Vail is a research assistant at RFF. The authors acknowledge helpful comments from Keith Belton, Jeff Holmstead, and Richard Morgenstern. We are solely responsible for any errors in the paper.

¹ The mix of fuels for electricity generation in the United States is changing. US ENERGY INFORMATION ADMINISTRATION (Nov. 8, 2013), available at <http://www.eia.gov/todayinenergy/detail.cfm?id=13731>. See also Fuel Mix for U.S. Electricity Generation, US ENVIRONMENTAL PROTECTION AGENCY (last updated Feb. 2, 2014), available at <http://www.epa.gov/cleanenergy/energy-and-you/>. In 2013, coal constituted 39% of the fuel for electricity generation, while natural gas was second, at 27%. EPA's proposed Clean Climate Plan will continue this shift in fuel mix. Under its proposed rule, EPA mandates a 30% cut in carbon emissions by 2030 (from 2005 levels). The agency projects that utility response to its proposed program would also reduce particle, nitrogen oxide, and sulfur dioxide emissions by more than 25%.

² Press Release, President Barack Obama's State of the Union Address, OFFICE OF THE PRESS SECRETARY (Jan. 28, 2014), available at <http://www.whitehouse.gov/the-press-office/2014/01/28/president-barack-obamas-state-union-address>.

The purpose of this study is to provide information on the time required to obtain permits through the US Environmental Protection Agency (EPA) New Source Review program for refineries and for coal-fired and natural gas-fired electric generating plants.

II. EPA's New Source Review

A. Background

In the 1977 Amendments to the Clean Air Act (CAA), Congress established regulations affecting the permitting of all new major sources of pollution.³ The basic goal of New Source Review (NSR) is to ensure that “air quality does not worsen where the air is currently unhealthy to breathe [nonattainment areas], and air quality is not significantly degraded where the air is currently clean [attainment areas].”⁴ New major sources located in nonattainment areas must provide offsets for their emissions and must show that they will install and operate pollution controls that achieve the lowest achievable emission rate (LAER).⁵ In attainment areas, New Source Review requires preconstruction review to ensure that all new major sources and major modifications of existing sources use the best available control technology to limit emissions.⁶ This review also requires air quality modeling to ensure that there is no significant deterioration in air quality in attainment areas. Section 165(c) of the CAA requires EPA to complete NSR within one year.⁷

New Source Review construction permits may be issued by state environmental agencies under State Implementation Plans (SIPs) approved by EPA. These SIPs must be at least as

³ New Source Review (NSR) applies to new facilities, additions to existing facilities, and modifications to existing facilities and processes.

⁴ NSR 90-Day Review Background Paper, NATIONAL ENERGY POLICY DEVELOPMENT GROUP, at 1 (June 22, 2001), available at <http://www.epa.gov/nsr/documents/nsr-review.pdf>. (Hereinafter, NSR 90-Day Review Background Paper).

⁵ Nonattainment areas are those EPA has determined to have air quality levels that do not meet the National Ambient Air Quality Standards (NAAQS).

⁶ Attainment areas are those EPA has determined to have air quality levels that meet (or are better than) the NAAQS. For new sources, NSR is triggered if the emissions qualify as “major,” whereas existing sources making modifications trigger NSR only when the modification results in a significant increase in emissions. See NSR 90-Day Review Background Paper, at 2.

⁷ Applicants have only rarely gone to court to force EPA action. For example, see *Avenel Avenal Power Ctr., LLC v. EPA*, 787 F. Supp. 2d 1 (D.D.C. 2011). There is no comparable requirement in the nonattainment provisions of the CAA.

stringent as the federal regulations.⁸ In nonattainment areas, a state's NSR program must be an EPA SIP-approved program meeting the criteria in EPA's NSR regulations.⁹ Where the state has failed to develop an approved SIP, NSR permits may be issued by the states through delegated programs.¹⁰ Where EPA has delegated permit authority to a state, the state must use EPA's permitting regulations.¹¹ In some cases, states have approved SIPs for some conventional pollutants but must rely on delegated authority for other pollutants.¹² Finally, some states have on occasion refused to operate an NSR permitting program, and in such cases, EPA has carried out NSR review under its NSR regulations.

Whether NSR applies to a particular construction project depends on the location (attainment or nonattainment area), amount of the emissions, and type of facility (new construction or a modification to an existing facility).¹³ Generally, New Source Review in Prevention of Significant Deterioration (PSD) areas applies to facilities that will emit over 100 tons/year if the facility falls into one of 28 specific industrial categories or 250 tons per year for other sources.¹⁴ In nonattainment areas, the trigger for NSR ranges from 10 to 100 tons per year, depending on the air quality in the area.¹⁵ New sources under construction are subject to NSR if their *potential* emissions will exceed the major threshold.¹⁶ For existing sources, only "major modifications" that result in a physical change in the plant or the method of operation that results in an increase in emissions are subject to NSR review.¹⁷ With existing sources, NSR is triggered only when the change results in a significant *net* emissions increase that surpasses the

⁸ See *id.* at 2.

⁹ *Id.*

¹⁰ *Where You Live*, US ENVIRONMENTAL PROTECTION AGENCY (last updated Dec. 11, 2013), available at <http://www.epa.gov/nsr/where.html>. Agencies at the state or local level develop individual plans for NSR permitting and submit the plans to EPA. If EPA approves the plan, the state reviews and issues permits according to its State Implementation Plan (SIP). Though SIPs may differ among states, each must be at least as stringent as the standards set by EPA. A large majority of states have permitting authority through their SIPs.

¹¹ *Id.* Currently Washington, Minnesota, Illinois, the District of Columbia, Massachusetts, Hawaii, Puerto Rico, and the US Virgin Islands are delegated authority to permit according to EPA standards.

¹² Currently, California, Arizona, Nevada, and New Jersey have NSR programs with combined SIP and EPA permitting authority.

¹³ See *supra* note 7, at 3.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ See *id.* However, these types of changes exclude routine maintenance or repair, increase in hours of operating, and so on.

significance level for the PSD or nonattainment area.¹⁸ The facility may avoid NSR if it can “offer past or future emission decreases at its other units to counterbalance the increase from the proposed change.”¹⁹ Thus the *net* increase from the facility as a whole—instead of the projected emissions increase of the modified unit(s)—is compared with the significance level for the facility.²⁰

New Source Review will play an important role as the United States moves forward in addressing climate change.²¹ The Environmental Protection Agency has proposed to lower carbon emissions from the electric generating sector—the largest single source of carbon pollution in the United States.²² EPA’s proposed Clean Power Plan aims to cut carbon emissions from the electricity generating sector by 30% from 2005 levels.²³ EPA projects that the electric utility sector will shift away from coal and rely more heavily on relatively cleaner-burning natural gas to implement the proposed rule.²⁴ An efficient NSR permit process will be important in facilitating this transition.

¹⁸ See *id.* at 3–4.

¹⁹ NSR 90-Day Review Background Paper, at 4.

²⁰ *Id.*

²¹ See Justin Gillis & Henry Fountain, *Trying to Reclaim Leadership on Climate Change*, THE NEW YORK TIMES (June 1, 2014), available at http://www.nytimes.com/2014/06/02/us/politics/obama-tries-to-reclaim-leadership-on-climate-change.html?_r=0.

²² See *Overview of Greenhouse Gases*, US ENVIRONMENTAL PROTECTION AGENCY (last updated July 2, 2014), available at <http://www.epa.gov/climatechange/ghgemissions/gases/co2.html>. Electric generating power plants emit 2.2 billion tons of carbon dioxide per year, accounting for about 40% of US emissions. See also Section 111(d), 42 US Code § 7411: “The Administrator shall prescribe regulations which shall establish . . . a plan which (A) establishes standards of performance for any existing source for any air pollutant (i) for which air quality criteria have not been issued or which is not included on a list published under section 7408(a) of this title or emitting from a source category which is regulated under section 7412 of this title but (ii) to which a standard of performance under this section would apply if such existing sources were a new source.”

²³ See Press Release, EPA Proposes First Guidelines to Cut Carbon Pollution from Existing Power Plants/Clean Power Plan is flexible proposal to ensure a healthier environment, spur innovation and strengthen the economy, US ENVIRONMENTAL PROTECTION AGENCY (June 2, 2014), available at <http://voosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceac8525735900400c27/5bb6d20668b9a18485257ceb00490c98!OpenDocument>. EPA also projects that shifts in the fuel mix within this sector will reduce sulfur dioxide, nitrogen oxides, and particulate pollutants by 25%.

²⁴ *How Much Carbon Dioxide Is Produced When Different Fuels Are Burned?*, ENERGY INFORMATION ADMINISTRATION (last updated June 4, 2014), available at <http://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11>. This report states that coal produces 228.6 pounds of CO₂ per million Btu of energy, compared with 117.0 pounds of CO₂ per million Btu of energy for natural gas.

B. Costs of the NSR Process and Permitting Delays

The permit application process can involve up to five different stages: permit preparation; determination of application “completeness”; public notice and comment; response to comments; and possible administrative and judicial appeals.²⁵ EPA’s 2001 NSR Report notes that “most developers describe [NSR] permitting as an extremely complex and time-consuming process.”²⁶ The NSR process imposes direct costs in terms of the time and resources required to prepare the permit application (and to provide responses to questions and issues that arise in the permitting process). In addition, this multistep process may impose additional costs associated with the uncertainty and delay that attend the permitting process. For example, EPA’s 2001 NSR Background Report provides the following description of the indirect costs associated with permitting delays: “Permitting (including required public hearings and comment processes) can be costly not only because of the time and human resources involved, but also because of uncertainty and delay.”²⁷

These costs could include both financial costs and penalties, as well as the opportunity costs—additional production forgone and lower emissions from these well-controlled new or retrofitted facilities—associated with delays in the project.²⁸ Longer delays and uncertainty from intangibles such as local opposition to certain types of projects could lead to suboptimal decisions in upgrading existing capacity and installing new capacity.²⁹

Some economists and industry representatives have argued that the focus of NSR on preconstruction review of new or modified plants—resulting in a “new source bias”—has penalized the construction of new plants and the retrofit of existing plants because of the significant costs associated with the NSR program. Thus it has arguably been more economic in

²⁵ NSR 90-Day Review Background Paper, at 5.

²⁶ *Id.* at 11.

²⁷ *See id.* at 22.

²⁸ EPA’s 2001 NSR Report notes that “delay, for example, can cause a developer to miss advantageous financial circumstances when interest and equity costs are low.” *Id.* at 11. In addition, the applicants may have penalty clauses associated with delays in the start of construction in their contracts with engineering and construction firms. These penalties could be as much as \$35,000 to \$40,000 per day. Private communication from Jeff Holmstead.

²⁹ These time-cost considerations may be particularly important in the petroleum refining industry, where the National Petroleum Council claimed that “the most critical factor in the U.S. refining industry’s ability to meet new fuel requirements in a timely manner is the ability to obtain permits. *Id.* at 44. National Petroleum Council, *U.S. Petroleum Refining: Assessing the Adequacy and Affordability of Cleaner Fuels*, June 2000. EPA’s 2001 Background Report also cited statements by several oil company executives claiming that the NSR process impedes the US refinery industry’s capacity to expand. *See* NSR 90-Day Review Background Paper, at 44.

some cases to continue to operate older, inefficient, dirtier plants than to install new facilities or to upgrade existing facilities with the best pollutant control technology.³⁰ EPA's 2001 NSR Report found some evidence to support this argument, reporting that NSR for existing sources "has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency, and safety of existing energy capacity."³¹ In these cases, NSR review had the perverse effect of delaying reductions in pollutants like SO₂ and NO_x.³²

C. NSR Processing Time

For the time required to obtain an NSR permit, we have chosen to focus on the processing time as measured by the number of days from the date when EPA determined that the permit application was complete to the date of final approval for the NSR permit. The primary data source for this study is the Environmental Protection Agency's RACT/BACT/LAER Clearinghouse (clearinghouse).³³

We identified the following as factors potentially affecting the time required by EPA to issue NSR permits:

³⁰ Gruenspecht and Stavins, *New Source Review under the Clean Air Act: Ripe for Review*, 20-21 RESOURCES FOR THE FUTURE, Spring 2002, Issue 147, available at <http://www.rff.org/RFF/Documents/RFF-Resources-147.pdf>; and NSR 90-Day Review Background Paper. The direct costs to add pollution controls at existing facilities are often significantly greater than the corresponding control cost for a new plant, because pollution controls can be incorporated in the initial design of a new facility, whereas compatibility problems and space constraints at existing facilities often complicate the retrofit of controls at these facilities. See *supra* note 7, at 18.

³¹ EPA, *New Source Review: Report to the President*, June 2002, at 1, available at http://www.epa.gov/nsr/documents/nsr_report_to_president.pdf. Cited by NATIONAL ACADEMY OF SCIENCES, *New Source Review for Stationary Sources of Air Pollution* (2006), at 45.

³² Clean Air Act Requirements and History, US ENVIRONMENTAL PROTECTION AGENCY (last modified Aug. 15, 2013), available at <http://www.epa.gov/air/caa/requirements.html>. To be sure, supporters of the current NSR program argue that NSR review yields important reductions in the covered pollutants. For example, EPA's 2001 NSR Report estimated that PSD best available control technology (BACT) permitting over the period 1997–1999 avoided 1.4 million tons per year in conventional pollutant emissions (largely reductions in SO₂ and NO_x emissions). NSR 90-Day Review Background Paper, at 8.

³³ US ENVIRONMENTAL PROTECTION AGENCY RACT/BACT/LAER Clearinghouse (last visited July 16, 2014), available at <http://cfpub.epa.gov/rblc/index.cfm?action=Home.Home>. RACT stands for "reasonably available control technology," BACT for "best available control technology," and LAER for "lowest achievable emission rate."

- **Type of Project:** natural gas simple cycle combustion turbines, natural gas combined cycle turbines, natural gas-fired boilers and furnaces, coal-fired boilers and furnaces, or petroleum and natural gas refineries.³⁴
- **Throughput:** the size or capacity of the project, measured in million British thermal units per hour (mmBtu/hr).³⁵
- **Year:** the year in which approval for the permit was granted.³⁶
- **PSD:** designation of the location of the facility in an attainment area (where the air quality is better than the NAAQS) versus a nonattainment area (where the air quality is worse than the NAAQS).³⁷
- **Region:** EPA region (or group of EPA regions) where the facility is located.³⁸
- **Type of Permit:** new greenfield facilities, modifications to existing processes, new additions to existing facilities, a combination of modifications and additions to existing facilities, or unspecified.

We also used a simple ordinary least squares (OLS) regression to help identify the effects of these factors on processing time. The OLS results are presented for coal and natural gas-fired EGUs and for the full sample, including refinery projects, in Table 9.

D. Data Summary

The primary data for this study are from the EPA's clearinghouse database. The clearinghouse is a compilation of the NSR permits that have been approved by local and state permitting agencies and submitted to EPA for the clearinghouse database. Our sample, covering

³⁴ Utility-grade coal and natural gas boilers and furnaces are those with a capacity greater than 250 mmBtu/hr. Industrial-size coal and natural gas boilers and furnaces have a capacity greater than 100 but less than 250 mmBtu/hr. The natural gas turbines in the dataset are all considered large combustion turbines if they have a capacity greater than 25 megawatts (MW).

³⁵ Size is listed in the clearinghouse data as mmBtu/hr, megawatts, or horsepower (though the third is rare). We have converted megawatts and horsepower to mmBtu/hr.

³⁶ The year can also be used to identify potential differences in NSR permitting for the Bush administration (2002–2008) and the Obama administration (2009–present).

³⁷ While attainment versus nonattainment status differs by pollutant group, where a facility falls in both attainment and nonattainment areas for different pollutants, we treat the facility as being located in a nonattainment area. Note that the RBL data suggests that all the permits for a facility are approved at the same time.

³⁸ We used a grouping of northeastern states (EPA regions 1, 2, and possibly 3).

the period from January 2002 to September 2014, includes 686 NSR permits: 104 coal, 416 natural gas, and 166 refinery projects.³⁹

Reporting to the clearinghouse is mandatory for projects in nonattainment areas; however, states are not required to report PSD permitting information. Because of this, EPA believes that the actual reporting rate to the clearinghouse is only approximately 50% of eligible NSR projects. We believe, however, that our sample is representative of the EPA permit process.

We compared the clearinghouse information with permitting information provided by individual state agencies, specifically those in Mississippi, Iowa, Virginia, Georgia, Missouri, Texas, Illinois, and Oregon. Cross-checking the state-level permit data showed that the permits available online from state databases were largely consistent with the clearinghouse data. The few exceptions largely involved permits that had only recently been issued and had not yet been added to the clearinghouse database. While the state-level data proved useful for verification and cross-checking purposes, the clearinghouse data proved to be much more complete and comprehensive than any of the state databases.⁴⁰ Thus, although the clearinghouse reporting rate may be only about 50%, we believe the clearinghouse data accurately reflect the available state-level data and that a further effort to collect data from state sources would not substantially augment the clearinghouse data.

E. Results

Over the period from 2002 to 2014, the nationwide average time to obtain an NSR permit for coal and natural gas-fired electric generating units (EGUs) and refineries in PSD areas was 420 days.⁴¹ The permitting time varied by the type of facility; for example, it took 377 days for natural gas-fired plants and 404 days for coal-fired plants. In PSD areas, there was a three-month difference in permitting times between combined cycle EGU (419 days) and combustion turbines (319 days). Finally, the NSR permitting time for refinery modifications and additions in PSD areas was 537 days (Table 1). The distributions are skewed—median values are less than the mean—with some projects requiring substantially longer to obtain NSR approval. Our OLS

³⁹ We excluded 47 permits identified as “unspecified.”

⁴⁰ For example, many state-level agencies list only the name of the applicant company and the date of permit approval.

⁴¹ Calculated from the date the application was determined to be complete to final agency approval. This calculation does not include any potential delays facilities faced before the permitting agency deemed the application complete. Court challenges to the approved permits—and any associated delays to the start of construction—have not been included in this calculation.

results indicate that average processing times for approval of coal-fired and combined cycle EGUs are significantly longer than for combustion turbines.

Table 1. Permitting Time (Days) by Project Type in PSD Areas

| | Mean | Median | Number |
|----------------|------|--------|--------|
| Coal | 404 | 265 | 96 |
| Natural gas | 377 | 290 | 388 |
| Simple cycle | 319 | 247 | 120 |
| Combined cycle | 419 | 369 | 131 |
| Refineries | 537 | 297 | 154 |
| Average | 420 | 294 | 638 |

The time required to obtain an NSR permit in PSD areas was significantly longer during the 2002 to 2014 period than from 1997 to 2001.⁴² Table 2 presents a comparison of NSR permitting times over the two periods. EPA reported an average time to obtain an NSR permit over the 1997–2001 period of 7.2 months, or 219 days.⁴³ The average processing time over the 1997–2001 period was 228 days for simple cycle gas turbines and 304 days for a new coal-fired EGU, as compared with approval times of 319 days for combustion turbines and 496 days for new coal-fired EGU projects over the more recent 2002–2014 period.⁴⁴ The most dramatic difference has occurred for NSR projects at refineries. EPA reported that over the 1997–2001 period, the average approval time for modifications at refineries was only 160 days,⁴⁵ but over the more recent 2002–2014 period, the time to obtain approval for refinery NSR projects averaged 480 days. Sources familiar with the NSR program have suggested several factors that may account for this substantial increase in processing time: the NSR review has become a more complex process over time; states have reduced the resources for NSR review because of budget pressures; and environmental groups are better funded and more aggressive in contesting NSR permit applications.⁴⁶

⁴² 2001 NSR 90-Day Review Background Paper.

⁴³ *Id.* at 7.

⁴⁴ *Id.* at 9.

⁴⁵ *Id.* at 30.

⁴⁶ Appeals of a permit decision to EPA's Environmental Appeals Board by interested parties may also contribute to a delay in a final NSR permit action.

Table 2. Comparison of PSD Permitting Time

| | Mean | Median | Number |
|---|------|--------|--------|
| EPA's Clearinghouse Database: 2002–2014 | | | |
| Natural gas: simple cycle | 319 | 247 | 120 |
| Coal: new construction permit | 496 | 367 | 43 |
| Refinery: modification or addition permit | 480 | 286 | 111 |
| EPA's 2001 NSR Report: 1997–2001 | | | |
| Natural gas: simple cycle | 228 | | >250 |
| Coal: new construction permit | 304 | | 10 |
| Refinery: modification or addition permit | 160 | | 10 |

The OLS results also show a statistically significant difference in permitting times across some of the EPA regions.⁴⁷ NSR projects in EPA regions 7 and 8 were approved with the shortest average permitting times—as short as 217 days for projects in region 7. Region 9 had the longest average processing time, at 777 days (Table 3). This general pattern across EPA regions also applies to PSD permitting times for natural gas-fired EGUs (Table 4). Again, the distributions are skewed, with some projects having experienced substantially longer delays in obtaining NSR approval.

Table 3. Permitting Time for All Facilities in PSD Areas by EPA Region

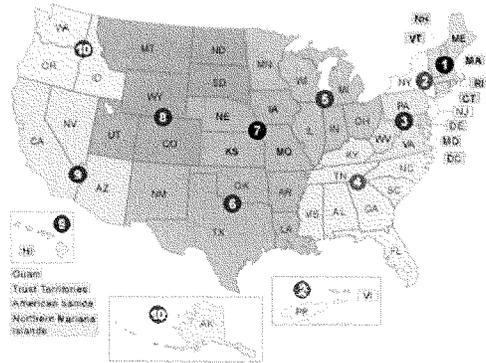
| | Mean | Median | Number |
|----------------|------|--------|--------|
| Regions 1,2,3 | 443 | 386 | 59 |
| Region 4 | 321 | 237 | 78 |
| Region 5 | 386 | 258 | 94 |
| Region 6 | 427 | 336 | 234 |
| Region 7 | 217 | 182 | 41 |
| Region 8 | 317 | 282 | 42 |
| Region 9 | 777 | 562 | 52 |
| Region 10 | 468 | 311 | 38 |
| Average | 420 | 294 | 638 |

⁴⁷ EPA regions 1, 2, and 3 were combined for analysis purposes because the state programs in these regions have been coordinated to achieve regional air quality objectives (e.g., the OTC NO_x budget program and RGGI). In addition, the RACT/BACT/LAER Clearinghouse database included relatively fewer entries for these regions.

Table 4. Permitting Time for Natural Gas Permits in PSD Areas by EPA Region

| | Mean | Median | Number |
|----------------|------------|------------|------------|
| Regions 1,2,3 | 487 | 394 | 41 |
| Region 4 | 323 | 237 | 63 |
| Region 5 | 364 | 253 | 64 |
| Region 6 | 366 | 320 | 112 |
| Region 7 | 204 | 193 | 19 |
| Region 8 | 266 | 180 | 21 |
| Region 9 | 567 | 557 | 37 |
| Region 10 | 362 | 287 | 31 |
| Average | 377 | 290 | 388 |

Figure 1. Map of EPA Regions



Substantial differences in processing times occurred for new versus existing combined cycle and coal-fired plants. Average processing times were 483 days for new combined cycle plants and 413 days for projects at existing sites. (Table 7.) There was an even greater difference in the average permitting times for new versus existing coal plant projects: 495 days for new greenfield coal-fired facilities compared with 322 days for projects at existing facilities. (Table 8.) The OLS results indicate that these differences are statistically significant.

**Table 5. Average Permitting Time for Natural Gas
(Including PSD and Nonattainment Areas)**

| Year | All natural gas | | New permits | | Additions | | Modifications | |
|----------------|-----------------|--------|-------------|--------|-----------|--------|---------------|--------|
| | Mean | Number | Mean | Number | Mean | Number | Mean | Number |
| 2002 | 321 | 73 | 324 | 47 | 299 | 25 | 769 | 1 |
| 2003 | 379 | 64 | 362 | 36 | 406 | 27 | 267 | 1 |
| 2004 | 612 | 46 | 521 | 27 | 829 | 13 | 551 | 6 |
| 2005 | 463 | 27 | 665 | 15 | 124 | 3 | 241 | 9 |
| 2006 | 290 | 23 | 355 | 6 | 286 | 11 | 231 | 6 |
| 2007 | 343 | 24 | 371 | 16 | 393 | 3 | 223 | 5 |
| 2008 | 377 | 21 | 384 | 3 | 715 | 4 | 278 | 14 |
| 2009 | 409 | 33 | 439 | 25 | 364 | 5 | 233 | 3 |
| 2010 | 468 | 24 | 554 | 14 | 372 | 5 | 321 | 5 |
| 2011 | 436 | 21 | 587 | 8 | 415 | 5 | 297 | 8 |
| 2012 | 268 | 31 | 245 | 14 | 223 | 11 | 403 | 6 |
| 2013 | 225 | 26 | 270 | 11 | 228 | 7 | 161 | 8 |
| 2014 | 235 | 3 | — | 0 | — | 0 | 235 | 3 |
| Average | 384 | 416 | 411 | 222 | 391 | 119 | 293 | 75 |

**Table 6. Average Permitting Time for Simple Cycle Natural Gas
(Including PSD and Nonattainment Areas)**

| Year | New permits | | Additions | | Modifications | |
|----------------|-------------|--------|-----------|--------|---------------|--------|
| | Mean | Number | Mean | Number | Mean | Number |
| 2002 | 241 | 18 | 171 | 5 | — | 0 |
| 2003 | 255 | 17 | 272 | 7 | — | 0 |
| 2004 | 501 | 8 | 811 | 5 | 311 | 3 |
| 2005 | 386 | 6 | 124 | 3 | 190 | 3 |
| 2006 | 78 | 3 | 263 | 4 | 153 | 1 |
| 2007 | 332 | 4 | 435 | 2 | 114 | 2 |
| 2008 | 260 | 1 | 620 | 1 | 142 | 3 |
| 2009 | 369 | 5 | 303 | 2 | 241 | 2 |
| 2010 | 576 | 4 | 673 | 1 | — | 0 |
| 2011 | 432 | 2 | 432 | 2 | 317 | 2 |
| 2012 | 128 | 3 | 128 | 1 | 631 | 1 |
| 2013 | 472 | 1 | 245 | 2 | 118 | 3 |
| 2014 | — | 0 | — | 0 | — | 0 |
| Average | 315 | 72 | 357 | 35 | 221 | 20 |

Table 7. Average Permitting Time for Combined Cycle Natural Gas (Including PSD and Nonattainment Areas)

| Year | New permits | | Additions | | Modifications | |
|----------------|-------------|--------|-----------|--------|---------------|--------|
| | Mean | Number | Mean | Number | Mean | Number |
| 2002 | 378 | 25 | 305 | 11 | 769 | 1 |
| 2003 | 523 | 14 | 522 | 11 | — | 0 |
| 2004 | 804 | 11 | 1262 | 1 | 790 | 1 |
| 2005 | 547 | 4 | — | 0 | 319 | 3 |
| 2006 | — | 0 | 330 | 3 | 281 | 3 |
| 2007 | 623 | 2 | — | 0 | 92 | 1 |
| 2008 | 881 | 1 | 964 | 2 | 323 | 7 |
| 2009 | 449 | 7 | — | 0 | 218 | 1 |
| 2010 | 550 | 8 | 167 | 1 | 241 | 2 |
| 2011 | 437 | 3 | 174 | 1 | 330 | 4 |
| 2012 | 305 | 6 | 216 | 4 | 417 | 4 |
| 2013 | 206 | 5 | 184 | 2 | — | 0 |
| 2014 | — | 0 | — | 0 | 193 | 1 |
| Average | 483 | 86 | 413 | 36 | 364 | 28 |

Table 8. Average Permitting Time for Coal (Including PSD and Nonattainment Areas)

| Year | All coal | | New permits | | Additions | | Modifications | |
|----------------|----------|--------|-------------|--------|-----------|--------|---------------|--------|
| | Mean | Number | Mean | Number | Mean | Number | Mean | Number |
| 2002 | 596 | 9 | 283 | 5 | 987 | 4 | — | 0 |
| 2003 | 787 | 7 | 874 | 6 | — | 0 | 265 | 1 |
| 2004 | 465 | 12 | 338 | 6 | 804 | 3 | 379 | 3 |
| 2005 | 306 | 12 | 302 | 4 | 90 | 6 | 961 | 2 |
| 2006 | 311 | 13 | 405 | 4 | 173 | 5 | 389 | 4 |
| 2007 | 269 | 13 | 258 | 6 | 212 | 5 | 446 | 2 |
| 2008 | 249 | 8 | 315 | 3 | 170 | 4 | 366 | 1 |
| 2009 | 579 | 7 | 767 | 4 | 329 | 3 | — | 0 |
| 2010 | 391 | 10 | 545 | 6 | 162 | 4 | — | 0 |
| 2011 | 908 | 5 | 1372 | 2 | 599 | 3 | — | 0 |
| 2012 | 215 | 5 | 164 | 1 | 228 | 4 | — | 0 |
| 2013 | 131 | 2 | — | 0 | 131 | 2 | — | 0 |
| 2014 | 73 | 1 | — | 0 | 73 | 1 | — | 0 |
| Average | 419 | 104 | 495 | 47 | 322 | 44 | 472 | 13 |

The data also show substantial year-to-year variation in processing times, with markedly longer processing times over the 2003–2005 and 2009–2011 periods. (Tables 5 and 8.) The increase in permitting time over the 2003–2005 period may reflect the uncertainty in the NSR program with the DC Circuit Court review of EPA’s 2002 and 2003 revisions to the program.⁴⁸ The longer processing times over the 2009–2011 period may reflect a transition as the Obama administration put its climate policy in place. Note that the clearinghouse database contains very few NSR projects for EGUs in the last few years

Across all project types, average permitting time for projects located in nonattainment areas was roughly five and a half months longer than the time required for projects located in attainment areas. (Table 9.) This difference was particularly marked for refinery projects in nonattainment areas. For coal-fired and natural gas-fired EGUs, the difference in processing times between nonattainment and attainment areas was roughly three months, but the difference was not statistically significant.

Finally, processing times were not sensitive to the size of the project. Instead, variations in the required time to obtain an NSR permit appear to be related to the type of project (e.g., combustion turbine or coal-fired EGU) and to site-specific factors such as location. (Table 9.)

III. Summary

Regarding the 2002–2014 period, the clearinghouse data suggest the following:

- Significant variation occurred across EPA regions in the processing time required for approval of energy-related projects at refineries and coal- and oil-fired EGUs.
- Average processing times for new combined cycle EGUs were roughly comparable to the times for new greenfield coal-fired plants. (Note, though, that the clearinghouse database had only one additional NSR permit approved for a new coal-fired plant in 2012 and no additional permits for these plants in 2013 and 2014.)
- Average processing times for NSR permits issued over the 2002–2014 period were substantially longer than the reported permitting times for the 1997–2001 period.

⁴⁸ The DC Circuit largely upheld EPA’s 2002 revisions to its NSR program in June 2005. *New York v. EPA*, 413 F.3d 3 (DC Cir., June 24, 2005). On December 24, 2003, however, the DC Circuit blocked the 2003 NSR rule revising the routine maintenance, repair, and replacement provisions from going into effect until the court reached a final decision. In *New York II*, the DC Circuit held that the 2003 NSR revision was invalid. *New York v. EPA*, Case No. 03-1380 (DC Cir., March 17, 2006).

Table 9. OLS Regression Results

| Regressors | Coal and NG facilities only | Full sample |
|---------------|-----------------------------|------------------------|
| EPA_region123 | -15.852 (53.77) | -30.046 (50.93) |
| EPA_region4 | -58.501 (40.74) | -91.374** (39.02) |
| EPA_region5 | -20.606 (51.14) | -8.945 (44.46) |
| EPA_region7 | -175.881*** (44.59) | -168.572*** (44.5) |
| EPA_region8 | -130.258*** (49.37) | -121.281** (53.5) |
| EPA_region9 | 157.708** (77.65) | 329.438*** (78.43) |
| EPA_region10 | -41.933 (47.65) | -2.867 (68.04) |
| year_2003 | 58.358 (47.31) | 5.272 (49.94) |
| year_2004 | 235.938*** (74.29) | 154.465** (67.66) |
| year_2005 | 84.499 (72.96) | 288.606*** (85.33) |
| year_2006 | -68.103 (58.2) | -160.745*** (52.05) |
| year_2007 | -14.148 (56.45) | -45.468 (72.73) |
| year_2008 | 9.709 (69.58) | -23.739 (61.18) |
| year_2009 | 58.649 (61.2) | -134.019** (54.42) |
| year_2010 | 58.596 (58.5) | 62.322 (63.73) |
| year_2011 | 132.413 (96.34) | 38.401 (90.79) |
| year_2012 | -92.399** (43.28) | -138.021*** (46.1) |

| | | |
|-------------------|-----------------------|-----------------------|
| year_2013 | -88.342* (47.09) | -112.916** (48.55) |
| year_2014 | 31.026 (67.42) | 42.238 (55.73) |
| permit_addn | -69.748* (40.54) | -78.348** (38.18) |
| permit_mod | 8.502 (36.77) | 41.108 (36.5) |
| NG_combined_cycle | 117.707*** (33.98) | 106.724*** (36.16) |
| NG_other_process | 120.628** (53.75) | 140.848** (57.56) |
| size_large | 36.128 (48.49) | 43.846 (53.83) |
| coal | 199.334** (80.13) | 214.784** (85.6) |
| coalXpermit_addn | 94.763 (118.84) | 105.44 (110.77) |
| coalXpermit_mod | -162.164* (91.22) | -219.287** (99.51) |
| nonattainment | 108.254 (79.52) | 165.601* (82.33) |
| refinery | n/a n/a | 252.626*** (65.24) |
| _cons | 261.037*** (58.24) | 263.390*** (65.18) |

| | | |
|-------|------|-------|
| r^2 | 0.18 | 0.237 |
| N | 520 | 686 |

Notes: Dependent variable is the number of days between an NSR permit application and approval for coal and natural gas facilities. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors in parentheses. Region 6 served as the “baseline” region; the regression results for the other regions are differences from the mean permitting time for region 6. The mean permitting time for Region 6 for the full sample is 443 days and for coal and natural gas the mean permitting time is 406 days.



February 10, 2017

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Via email to reducingregulation@omb.eop.gov

Dominic J. Mancini
 Acting Administrator
 Office of Information and Regulatory Affairs
 725 17th Street, NW
 Washington, DC 20503

Re: Interim Guidance Implementing Section 2 of the Executive Order of January 30, 2017, Titled "Reducing Regulation and Controlling Regulatory Costs"

Dear Acting Administrator Mancini:

Advisory Council

Patricia Bauman
 Frances Beinecke
 Eula Bingham
 W. Thompson Comerford, Jr.
 Sally Greenberg
 John Passacantando
 Henry Waxman
 Robert Weissman

President Donald Trump's disregard of his oath to faithfully execute the Office of the President and preserve the Constitution's separation of powers has wedged you between a rock and a hard place. The interim guidance the Office of Management and Budget (OMB) developed regarding the President's Executive Order on Reducing Regulation and Controlling Regulatory Costs fails to extricate your office or any other federal agency covered by the Executive Order from that tight spot. The only way out is in reverse. President Trump should revoke the Executive Order and you should revoke the interim guidance.

The comments below provide examples of the fatal flaws in the Executive Order and the interim guidance. Both the Order and the guidance are rooted in false assumptions and regressive attitudes that cut against American values. The fact is that regulations rarely slap costs on blameless actors. Instead, they prevent careless actors from cutting costs in ways that *harm innocent people*. So a regulation that limits air pollution from power plants is not really adding new costs to an industry's balance sheet; it is just *transferring back* to the power plants the costs they should never have externalized to begin with. It has never been right to inflict serious harm like asthma or heart disease on people just because it is profitable.

Implementing the Executive Order would force agencies to reintroduce major risks of harm into our society and unjustly shift the burden of the

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Comments on regulatory budgeting EO and interim guidance

underlying hazards from risk producers onto the shoulders of vulnerable communities. For example, regulations that protect our children from lead exposure have compliance costs – Congress recognized these costs as acceptable trade-offs for the benefits that these and other regulations produced. Deregulatory action encouraged by the Executive Order could reduce those costs for the companies that produce the hazard, but doing so would transfer the burden from the polluting companies to families, causing irreparable harm to the children left unprotected. At the same time, the Executive Order would produce an uneven playing field for businesses that believe in protecting consumers, the public, and our environment from harm. In short, President Trump's Executive Order does exactly the opposite of what a responsible government that works for the people and believes in a strong economy should be doing.

Before getting into the details, it is important to note the blatant inadequacy of the one-week public comment period provided for this action. If they are not revoked, the Executive Order and the interim guidance for implementing it will have profound effects on the entire federal regulatory apparatus, not to mention downstream impacts on states, tribes, businesses, and the public. As the President himself noted, the Order is the "most significant administrative action in the world of regulatory reform since President Reagan [sic] created the Office of Information and Regulatory Affairs (OIRA) in 1981." (Actually, it was President Carter who created OIRA.) Rushing the process for public participation in developing policies of such national importance is a mistake that will lead to confusion and mismanagement.

A Solution in Search of a Problem

By any reasonable measure, the regulatory system has been one of our country's most successful governing institutions. In the last 50 years, federal regulatory agencies have done a remarkable job protecting people and the environment from unreasonable risks. During the 1960s and '70s, rivers caught fire, cars exploded on rear impact, steel workers inhaled benzene as a condition of employment, and smog sent legions of urban and suburban children to the emergency room. But today, the most visible manifestations of these threats are under control. Millions of people have been spared early deaths and terrible injury as a result. Rates of environmental degradation have been slowed in many cases, and even reversed. In short, the United States is much better off because of regulations adopted over the past half century. The undeniable effect of this Order is to undo this progress and to halt future steps toward building on these past successes.¹

Indeed, it is unlikely that many of these successes would have ever been achieved had this Executive Order been in place.

¹ For more about the important successes of the U.S. regulatory system, see http://www.progressivereform.org/articles/RegBenefits_1109.pdf.

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The Executive Order and interim guidance ignore the reality that regulatory lookback programs of all shapes and sizes already abound in our government.² The Regulatory Flexibility Act requires agencies to review every rule that has “a significant economic impact upon a substantial number of small entities” within 10 years after the final rule is published. Executive Order 12866 requires agencies to develop a program “under which the agency will periodically review its existing significant regulations to determine whether any such regulations should be modified or eliminated.” Executive Order 13563 builds upon the Executive Order 12866 periodic review program and adds, among other things, time-consuming and resource-intensive procedures for carrying out the lookback program on an ongoing basis. Some regulatory lookback programs are baked right into the statutes that authorize the regulations. For example, the Clean Air Act directs the U.S. Environmental Protection Agency (EPA) to “complete a thorough review” of the agency’s existing National Ambient Air Quality Standards (NAAQSs) and “to make such revisions... as may be appropriate” at least once every five years. In the end, these existing programs take a scalpel to accomplish, through careful analysis, what President Trump’s Executive Order and the interim guidance might attack with an axe.

How Quickly It Unravels

Upon even cursory review of the details of the Executive Order and interim guidance, it quickly becomes clear that the proposed regulatory budget and “pay-go” requirements are unworkable.

Legal Problems

Carrying out the President’s stated intent behind the order would violate numerous consumer protection, environmental, and public health laws. Public interest groups and a union whose members would be harmed if the Executive Order were implemented have helpfully laid out some of those legal infirmities in a lawsuit seeking an injunction against implementation.³ Among them:

- The EPA may not consider implementation costs when establishing national ambient air quality standards for ozone, soot, and other criteria air pollutants;⁴
- The Mine Safety and Health Administration (MSHA) may not reduce the protections afforded to miners by an existing mandatory health or safety standard when it promulgates a new one;⁵ and

² Examples here drawn from Rena Steinzor, “The Real ‘Tsunami’ in Federal Regulatory Policy,” *REG BLOG*, <http://www.regblog.org/2014/05/22/22-steinzor-the-real-tsunami-in-federal-regulatory-policy/> (May 22, 2014).

³ <http://www.citizen.org/documents/Complaint-Public-Citizen-NRDC-CWA-v-Donald-Trump.pdf>

⁴ *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457 (2001).

⁵ 30 U.S.C. § 811(a)(9)

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- The National Highway Traffic Safety Administration (NHTSA) must consider a variety of issues when creating new vehicle safety standards, but the cost savings associated with repealing other vehicle safety standards is not among them.⁶

If the Trump administration wants to alter these laws, it cannot do it by executive order. Congress will need to pass new legislation in the bright light of public scrutiny.

The Administrative Procedure Act, as the Executive Order notes, would be legally binding on any offsetting deregulatory actions that an agency might propose. It is unclear whether agencies would be able to articulate a legal and policy basis, as required by the Administrative Procedure Act, in support of the deregulatory actions. This Executive Order by definition does not amend existing laws and thus cannot provide such a basis. In the end, the Administrative Procedure Act, in conjunction with the authorizing statutes that supply the legal basis for agencies' existing regulations, may pose too high a legal bar for agencies to overcome in implementing the Order's regulatory "pay-go" requirements.⁷

Administrative Problems

Beyond these conflicts with existing law, which are fatal to implementation of the Executive Order, the interim guidance has major flaws.

The interim guidance fails to define the scope of the Executive Order in a comprehensible fashion. The application of the Order's requirements to all "significant" regulatory actions, as that concept is defined by Executive Order 12866, raises major concerns. In particular, many of the components of the Executive Order 12866 definition are exceedingly vague and, if read broadly, could cover nearly any regulatory action an agency might issue. For example, the "elastic clause" of the definition includes any rule that might "Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive order." Through the broad application of this clause alone, OMB could unilaterally determine that almost any regulatory action is "significant" and thus subject to the new onerous regulatory "pay-go" and budgeting requirements. The broad definition that the Order adopts risks sweeping in too many regulatory actions, threatening to unduly impede the important work agencies must perform.

The vague nature of the definition and its exceptions risks creating substantial regulatory uncertainty, and in particular uncertainty over the enforcement and implementation of agencies' statutory missions. For instance, would a climate-related rulemaking by the EPA be covered by the Executive Order? Or would it fall within the Executive Order's stated exemption for "regulations issued with respect to ... national security?" After all, the

⁶ 49 U.S.C. § 30111(a), (b).

⁷ For more on the implementation problems of the Order's regulatory "pay-go" requirements, see http://progressivereform.org/articles/Regulatory_Pay-Go_1214.pdf and <http://progressivereform.org/articles/VerchickTestimonyReqBudgetSenateBudComm120915.pdf>.

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Pentagon has identified global climate change as “an urgent and growing threat to our national security.”⁸

Applying the Executive Order’s onerous requirements to “significant guidance or interpretive documents” on a “case-by-case basis” also raises major concerns. Neither the Order nor the interim guidance explains how such case-by-case determinations will be made. Rather, by instructing agencies to consult with an OIRA Desk Officer, this guidance suggests, albeit ambiguously, that the Desk Officer has unilateral discretion over whether a guidance or interpretive document is deemed “significant” and whether the agency may or may not issue it. The failure to explain the criteria for such determinations obscures critical aspects of regulatory decision-making, thereby systematically defeating procedural transparency and the meaningful public accountability it would provide. Even if those failures were cured in later guidance from OMB, the basic model proposed here puts extraordinary power in the hands of Desk Officers, taking it away from agencies that have both the statutory authority and expertise to carry out the laws enacted by Congress.

The interim guidance also thoroughly fails to elucidate the basic procedures for important issues like the processes and standards by which waivers will be granted, and the processes and standards by which cross-agency trades will be approved and enforced.

The regulatory budget and “pay-go” requirements also appear to be unmanageable from an administrative standpoint. In essence, they transform every rulemaking action into at least three rulemaking actions (one for the new rule and at least two more for the elimination of the existing rules). As many administrative law scholars have described over the years, the rulemaking process is extremely time-consuming and resource-intensive. Nevertheless, President Trump’s Executive Order would triple that burden, and it would do so while the administration and Congress are considering steep reductions in agencies’ budgetary resources. It is unclear how agencies would be able to fulfill their responsibilities under this Order while at the same time fulfilling even the barest minimum of their statutory missions. Whether by accident or by design, the result of the Executive Order would be even more of the same “paralysis by analysis” that is already undermining our regulatory system, bringing to a halt the creation of health, safety, and economic safeguards needed and desired by consumers, businesses, communities, and the environment.

Conclusion: Rescind It

As experts in law and public policy, our best assessment of the Executive Order and the guidance documents reveals an unworkable concept. No amount of fiddling at the margins will transform them into a coherent design for guiding our complex regulatory system.

⁸ Department of Defense Response to Congressional Inquiry on National Security Implications of Climate-Related Risks and a Changing Climate (July 23, 2015), available at <http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf>.

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The goal of regulatory policy should not be concerned with the “quantity” of regulations but with the “quality” of regulations. No matter how hard one tries to spin it — and the President certainly has tried — it is fundamentally irrational and counterproductive to attempt to divorce the costs of regulation from the benefits. This Executive Order and the interim guidance, in an attempt to limit costs of regulation, will also ration benefits. They would do so without regard for the limits on rationing that Congress has created and sustained for decades. They are tools of Executive Branch overreach and should be rescinded.

Sincerely,

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The claim that American households have a \$15,000 regulatory ‘burden’

By [Glenn Kessler](#) January 14, 2015

“That [regulatory] burden adds up to \$15,000 per American household, nearly thirty percent of average household income in 2013.”

–Rep. Bob Goodlatte (R-Va.), introducing the Regulatory Accountability Act, Jan. 7, 2015

“A recent study suggests every family has a burden of close to \$15,000 every year due to regulation. And the total cost to our economy exceeds \$1.8 trillion due to regulation.”

–Rep. Lynn Jenkins (R-Kan.), during a news conference, Jan. 13, 2015

When the same talking point starts echoing through the halls of Congress, The Fact Checker’s antenna goes up. There’s usually some think tank that has produced a report that, conveniently, comes up with a sound-bite that will grease the wheels of publicity for a particular legislative initiative.

Where does this \$15,000 statistic come from?

The **F**acts

The factoid comes from an annual report, Ten Thousand Commandments, put out by the Competitive Enterprise Institute, a

free-market group founded in 1984 to combat what it considered excessive government regulation. So already you have to take the analysis with a large grain of salt. Indeed, the report is billed as “An Annual Snapshot of the Federal Regulatory State.”

The \$15,000 is derived from an estimate that regulations cost at least \$1.8 trillion a year, the figure cited by Rep. Jenkins. (This number is calculated in a CEI working paper titled “The Tip of the Costberg.”) Then \$1.8 trillion is simply divided by the number of American households. Presto, each household “pays” \$14,974 annually in a hidden regulatory tax.

Those aren’t our quotation marks around “pays.” That’s exactly how it appears in the report. The word “spent” also appears in quotation marks when the report tries to argue that “more is ‘spent’ on embedded regulation than on health care, food, transportation, entertainment, apparel and services, and savings. Embedded regulatory costs can be said to absorb up to 29 percent of the typical household’s expenditure budget.”

The report admits this number is “not scientific,” but says “the comparison is a useful back-of-the-envelope way of reflecting on the magnitude of regulatory costs.”

But there is one huge element missing—the benefit side of the analysis. The report concedes that the \$1.8 trillion figure purposely does not subtract any potential benefits from regulations. But that’s unbalanced. Every regulations has costs—but also benefits.

Look at cars, for example. Seat belts are a regulation, but they also result in fewer deaths, which is presumably a benefit. Higher fuel-economy standards raise the initial cost of a car, but also result in savings on gasoline over time. (Note: We have previously

faulted President Obama for touting the benefits of fuel-economy standards, without mentioning the costs.)

It could well be that the costs exceed the benefits (though the annual Office of Management and Budget annual report on the issue frequently shows benefits far exceeding costs) but it seems to make little sense to completely ignore the cost side of the ledger. The “Costberg” report makes impassioned defense of the need not to consider benefits, but also, somewhat tongue in cheek, admits its tally consists of “apples and oranges,” “haphazard distinction between consumer and employer impacts,” “old data sets” and the like. In other words, the number is simply an idiosyncratic guesstimate.

Annie Dwyer, a CEI spokeswoman, pointed out that the \$1.8 trillion is similar to a \$1.7 trillion estimate made by a study for the Small Business Administration and a \$2 trillion estimate made by National Association of Manufacturers. Four years ago, The Fact Checker had looked at the SBA study, and both the SBA study and the NAM study have the same limitation of looking only at the cost side of the ledger. (The NAM study, however, appears to have a more sophisticated effort at trying to estimate the impacts of regulations on various sizes of businesses, rather than a broad-brush per-household figure.)

Dwyer said “it was a good question to ask” about the benefits, but insisted it was a complex undertaking and not enough information is available. “We are not saying that someone should not do the same analysis for benefits,” she said. “CEI would support more cost-benefits analysis.” (OMB, in its congressionally mandated report, focuses on major regulations over a 10-year period; it does not consider rules issued by independent agencies which, after all, are not bound by administration policy.)

Dwyer added that the CEI report was not suggesting that the \$15,000 figure was direct cost that families had to pay. “CEI does not say households actually pay this much money out of pocket – that’s why the word is in quotation marks (‘pay’) – because regulatory costs are embedded and spread across the economy,” she said. “We’re trying to explain a really complicated topic.”

The Pinocchio Test

When we had looked at SBA figure of \$1.7 trillion back in 2011, we noted that Thomas Donohue, president of the U.S. Chamber of Commerce, added this useful caveat when he cited it: “*Now, look, many of these rules we need, they’re important for the economy, and we support them.*” In other words, he conceded that there were indeed benefits to the regulations and that such benefits need to be acknowledged.

The \$15,000 figure has serious methodological problems — even the report admits it is “not scientific” and “back of the envelope” — and we fear these caveats are being forgotten as it is repeated in Capitol Hill news conferences and then in news reports.

In blindly citing the \$15,000 figure as a “burden,” without realizing its limitations or even admitting that there are indeed benefits that might offset at least some of the costs, lawmakers are making a misleading statement worthy of at least Two Pinocchios. These talking points are incomplete without a Donohue-like caveat.



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Methods of Estimating the Total Cost of Federal Regulations

Maeve P. Carey

Analyst in Government Organization and Management

January 21, 2016

Congressional Research Service

7-5700

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R44348

CRS REPORT
Prepared for Members and
Committees of Congress

Summary

Federal agencies issue thousands of regulations each year under delegated authority from Congress. Over the past 70 years, Congress and various Presidents have created a set of procedures agencies must follow to issue these regulations, some of which contain requirements for the calculation and consideration of costs, benefits, and other economic effects of regulations. In recent years, many Members of Congress have expressed an interest in various regulatory reform efforts that would change the current set of rulemaking requirements, including requirements to estimate costs and benefits of regulations. As part of this debate, it has become common for supporters of regulatory reform to comment on the total cost of federal regulation.

Estimating the total cost of regulations is inherently difficult. Current estimates of the cost of regulation should be viewed with a great deal of caution.

Scholars and governmental entities estimating the total cost of regulation use one of two methods, which are referred to as the “bottom-up” and the “top-down” approach. The bottom-up approach aggregates individual cost and benefit estimates produced by agencies, arriving at a government-wide total. In 2014, the annual report to Congress from the Office of Management and Budget estimated the total cost of federal regulations to range between \$68.5 and \$101.8 billion and the total benefits to be between \$261.7 billion and \$1,042.1 billion. The top-down approach estimates the total cost of regulation by looking at the relationship of certain macroeconomic factors, including the size of a country’s economy and a proxy measure of how much regulation the country has. This method estimates the economic effect that a hypothetical change in the amount of regulation in the United States might have, considering that economic effect to represent the cost of regulation. One frequently cited study estimated the total cost of regulation in 2014 to be \$2.028 trillion, \$1.439 trillion of which was calculated using this top-down approach.

Each approach has inherent advantages and disadvantages. The bottom-up approach relies on agency estimates of the effects of specific regulations and can also be used to estimate benefits, because agencies typically estimate both costs and benefits under current requirements so that they may be compared and evaluated against alternatives. The bottom-up approach does not, however, include estimates of costs and benefits of *all* rules, nor does it include costs and benefits of regulations that are not monetized—meaning that the bottom-up approach is likely an underestimate of the total cost of regulation. Furthermore, the individual estimates produced by agencies and used in the bottom-up approach may not always be accurate.

The top-down approach can be used to estimate effects of rules that are not captured by the bottom-up approach—such as indirect costs and costs of rules issued by independent regulatory agencies, which are not included in the bottom-up approach—thus theoretically capturing the whole universe of regulatory costs. Its results are, however, entirely reliant upon a number of methodological challenges that are difficult, if not impossible, to overcome. The biggest challenge may be finding a valid proxy measure for regulation: proxy measures of the total amount of regulation in a country are inherently imprecise and cannot be reliably used to estimate macroeconomic outcomes. Because of this difficulty in identifying a suitable proxy measure of regulation, even if the total cost of regulation is substantial, it cannot be estimated with any precision. The top-down method is intended to measure only costs; measuring costs without also considering benefits does not provide the complete context for evaluating the appropriateness of a country’s amount of regulation.

For these and other reasons, both approaches to estimating the total cost of regulation have inherent—and potentially insurmountable—flaws. The discrepancy between the two approaches

and their associated estimates raises the question of the utility of using such figures in the regulatory reform debate.

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Estimating the Total Costs and Benefits of Federal Regulation

Federal agencies issue thousands of regulations every year. These regulations are often the means through which various government policies and programs are implemented. Many of these regulations are administrative or routine in nature and have little or no compliance cost associated with them.¹ A number of these regulations can, however, have a substantial effect on the economy in the form of costs, benefits, and transfer payments. Over the past 70 years, Congress and various Presidents have created a set of procedures agencies must follow to issue these regulations, some of which contain requirements for the calculation and consideration of costs, benefits, and other economic effects of regulations.²

Federal regulations are the product of delegated legislative authority from Congress—agencies may promulgate regulations only with the authority from Congress to do so. As such, Congress has shown an interest in conducting oversight of those regulations, both on the individual level for particular regulations and also for the regulatory system as a whole. One way for Congress to conduct oversight of the regulatory system as a whole, some say, is to monitor the total cost and benefits of federal regulation. Comparing the estimated costs against the benefits would provide some insight into the potential tradeoffs of regulation.

In recent years, many Members of Congress have expressed interest in various regulatory reform efforts that would change the rulemaking process.³ Proponents of these efforts argue that the system under which agencies currently issue federal regulations is outdated, and that federal agencies should be required to conduct more rigorous economic analysis of their regulations.⁴ Opponents of these regulatory reform efforts argue that adding to federal rulemaking requirements could cause fewer regulations to be issued by federal agencies or could create delays in the issuance of federal regulations.⁵ As part of this debate, it has become common for supporters of regulatory reform to comment on the total cost of federal regulation.

¹ See CRS Report R43056, *Counting Regulations: An Overview of Rulemaking, Types of Federal Regulations, and Pages in the Federal Register*, by Maeve P. Carey for a more detailed discussion of the nature and quantity of regulations issued each year.

² For an overview of the federal rulemaking process, see CRS Report RL32240, *The Federal Rulemaking Process: An Overview*, coordinated by Maeve P. Carey.

³ For example, in January 2015, the House of Representatives passed H.R. 185, the Regulatory Accountability Act of 2015, which would make several changes to the current rulemaking process, including instituting more extensive cost-benefit analysis requirements.

⁴ For example, see U.S. Congress, House Committee on the Judiciary, Subcommittee on Courts, Commercial and Administrative Law, *APA at 65: Is Reform Needed to Create Jobs, Promote Economic Growth, and Reduce Costs?*, 112th Cong., 1st sess., February 28, 2011, 112-17 (Washington: GPO, 2011); and Business Roundtable, *Using Cost-Benefit Analysis To Create Smart Regulation: A Primer and Key Considerations for Congress and Federal Agencies*, December 2014, <http://businessroundtable.org/sites/default/files/reports/BRT%20Cost-Benefit%20Analysis.pdf>.

⁵ See, for example, the debate over rulemaking “ossification,” which suggests that the addition of analytical requirements—along with other procedural requirements—has slowed the rulemaking process. See Thomas O. McGarity, “Some Thoughts on ‘Deossifying’ the Rulemaking Process,” *Duke Law Journal*, vol. 41, no. 6 (June 1992), pp. 1385-1462; Jason Webb Yackee and Susan Webb Yackee, “Administrative Procedures and Bureaucratic Performance: Is Federal Rule-making ‘Ossified?’” *Journal of Public Administration Research and Theory*, vol. 20 (2010), pp. 261-282; and Richard J. Pierce, Jr., “Rulemaking Ossification Is Real: A Response to *Testing the Ossification Thesis*,” *George Washington Law Review*, vol. 80, no. 5 (July 2012), pp. 1493-1503.

Estimating the total cost of regulations is inherently difficult. Current estimates of the cost of regulation should be viewed with a great deal of caution.

Scholars attempting to identify an estimate for the total cost of regulation have taken two primary approaches that lead to radically different conclusions about the total economic effect of regulation. In this report, these two approaches are referred to as the “bottom-up” and the “top-down” approaches or methods. In short, the bottom-up approach aggregates individual cost estimates produced by federal agencies. The top-down approach relies on macroeconomic modeling to find a causal relationship between larger economic factors, such as gross domestic product (GDP), and a proxy measure intended to represent the overall amount of regulation.⁶

The two approaches use entirely different methods and produce radically different results. In 2014, the most frequently cited cost estimates resulting from each of these studies ranged from \$57-\$87 billion (using the bottom-up method) to \$2 trillion (the majority—almost \$1.5 trillion—of which was arrived at using the top-down method).⁷

This report analyzes these two approaches for estimating the total cost of federal regulations. In discussing each approach, the report provides an overview of the advantages, a brief case study, and an analysis of the potential issues or inherent problems using the case study to illustrate the concepts.

The objective of this report is not to provide an estimate of the total costs and benefits of federal regulations, but rather, to inform the broader regulatory reform debate by identifying the difficulties in providing such estimates and potential problems inherent in the methods that exist.

“Bottom-Up” Method: Aggregating Existing Cost Estimates

The first approach to aggregating the total costs and benefits of federal rules is generally referred to as a “bottom-up” approach.

What Is the Bottom-Up Approach?

This method relies on estimates of costs and benefits that agencies produce during the rulemaking process, pursuant to several requirements.⁸ The bottom-up approach aggregates these estimates of costs and benefits that agencies calculate in individual rulemakings, using the sum as a government-wide total. Understanding the requirements under which agencies conduct these estimates—specifically, knowing *when* agencies are required to estimate costs and benefits, and when they are not—is important for understanding the advantages and disadvantages of the bottom-up approach.

The primary requirement for most agencies to calculate estimates of costs and benefits when issuing rules is under Executive Order 12866.⁹ That executive order requires covered agencies to

⁶ A proxy measure is a figure that is used to represent the value of something in a calculation or a model.

⁷ To compare these figures, CRS adjusted the bottom-up numbers to be in 2014 dollars.

⁸ For a detailed explanation of these requirements, see CRS Report R41974, *Cost-Benefit and Other Analysis Requirements in the Rulemaking Process*, coordinated by Maeve P. Carey.

⁹ Executive Order 12866, “Regulatory Planning and Review,” 58 *Federal Register* 51735, October 4, 1993. For more detailed information about this and other cost-benefit analysis requirements in the rulemaking process, see CRS Report R41974, *Cost-Benefit and Other Analysis Requirements in the Rulemaking Process*, coordinated by Maeve P. Carey.

assess costs and benefits for “economically significant” rules at the proposed and final rule stage.¹⁰ Economically significant rules are defined in the executive order as those that may “have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.”¹¹ The term “effect on the economy” means that a rule may be considered economically significant if it has costs *or* benefits of over \$100 million.¹² Other provisions of Executive Order 12866 encourage agencies to consider costs and benefits during the rulemaking process for all rules, although those other provisions do not require a complete, detailed cost-benefit analysis for non-economically significant rules.¹³ Executive Order 12866, issued by President Clinton, has remained in effect since 1993, and it was reaffirmed in 2011 by President Obama in Executive Order 13563.¹⁴ The estimates that agencies produce under Executive Order 12866 are subject to review by the Office of Management and Budget (OMB). Specifically, agencies submit their rules and cost-benefit analyses to OMB’s Office of Information and Regulatory Affairs (OIRA), the agency within OMB responsible for reviewing regulations and cost-benefit analyses. OMB has issued a number of guidance documents agencies are required to follow when estimating costs and benefits of regulations.¹⁵

In addition to these executive order requirements, certain statutory requirements for cost-benefit analysis, or other types of regulatory impact analysis, sometimes require agencies to calculate costs, benefits, and other economic effects of rules. The Regulatory Flexibility Act (RFA) requires regulatory impact analyses for proposed and final rules that will have a “significant economic impact on a substantial number of small entities.”¹⁶ Title II of the Unfunded Mandates Reform Act (UMRA) requires agencies to analyze and reduce costs associated with federal mandates

¹⁰ This requirement for cost-benefit analysis in Executive Order 12866 does not extend to the independent regulatory agencies listed at 44 U.S.C. § 3502(5), which includes, for example, the Federal Reserve and the Securities and Exchange Commission. For more information about the exclusion of the independent regulatory agencies from this cost-benefit analysis requirement, see CRS Report R42821, *Independent Regulatory Agencies, Cost-Benefit Analysis, and Presidential Review of Regulations*, by Maeve P. Carey and Michelle D. Christensen.

¹¹ Executive Order 12866 § 3(f)(1).

¹² This phrase also includes transfer rules that transfer sums of over \$100 million. For a more detailed analysis of the definition of “major” rules, see CRS Report R41651, *REINS Act: Number and Types of “Major Rules” in Recent Years*, by Maeve P. Carey and Curtis W. Copeland.

¹³ For example, Section 1(b)(6) requires agencies to “assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.” Section 1(b)(11) requires agencies to “tailor [their] regulations to impose the least burden on society,” while “obtaining the regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations.” These provisions are considered to be more like guiding principles, however, rather than specific requirements for cost-benefit analysis.

¹⁴ Executive Order 13563, “Improving Regulations and Regulatory Review,” 76 *Federal Register* 3821, January 21, 2011.

¹⁵ For example, in 2003, OMB issued Circular A-4 to provide guidance to agencies on how to conduct cost-benefit analysis. See Office of Management and Budget, Circular A-4, “Regulatory Analysis,” September 17, 2003, at http://www.whitehouse.gov/omb/assets/regulatory_matters_pdf/a-4.pdf. This guidance provides information such as what discount rates agencies should use, how to choose a time period for estimating future costs and benefits, etc. Since 2003, OMB has issued several additional guidance documents to provide instruction to agencies on complying with regulatory analysis requirements.

¹⁶ The phrase “small entities” is considered in the RFA to include small businesses, local governments, and not-for-profit organizations. 5 U.S.C. §§601-612. For more information about requirements of the Regulatory Flexibility Act, see CRS Report RL34355, *The Regulatory Flexibility Act: Implementation Issues and Proposed Reforms*, coordinated by Maeve P. Carey.

upon state, local, and tribal governments and the private sector.¹⁷ However, in practice, the RFA and UMRA apply to a fairly small number of rules. Finally, agencies may be required under their own authorizing statutes to calculate and/or consider the costs and benefits of their rules.

The bottom-up approach for estimating costs and benefits aggregates the estimates produced under these requirements, producing a total, government-wide figure for the costs and benefits of regulation.

Why Use the Bottom-Up Approach?

The bottom-up approach to estimating the costs and benefits of federal regulation has several potential benefits. First, this approach sums up actual estimates of costs and benefits that agencies have calculated for individual regulations, and, as described above, most of these estimates have undergone review from OMB.

Second, under the requirements discussed above, agencies estimate both costs and benefits, which allows the bottom-up approach to compare total estimated costs to total estimated benefits. Such information can be valuable for evaluation of cost-effectiveness of regulation generally (i.e., what the benefits received are for the costs invested) and it allows for calculation and evaluation of a ratio of costs to benefits.

Third, the components of the bottom-up approach to measuring costs and benefits could be validated by conducting analysis *ex post*, or after the fact, of what the costs and benefits of specific regulations actually turned out to be.¹⁸ This could be done, for example, as part of agencies' retrospective review process, in which agencies reanalyze existing rules and may consider making amendments to those rules in light of the *ex post* analysis. Agencies do not always conduct retrospective review of their regulations, however, and a retrospective review does not necessarily include a reevaluation of the initial cost-benefit analysis to test its accuracy.¹⁹ But some such studies have been conducted in recent years by scholars and observers of the regulatory process.²⁰

Despite these and other potential advantages of using a bottom-up approach to aggregating costs and benefits, certain issues—and potential caveats—should be taken into consideration. To help illustrate some of these issues, this report first introduces a case study: the most well-known and widely cited bottom-up study of the total costs and benefits of regulation. The report then uses the case study to analyze and discuss some of the problems with a bottom-up study.

¹⁷ 2 U.S.C. §§1532-1538. For more information about UMRA, see CRS Report R40957, *Unfunded Mandates Reform Act: History, Impact, and Issues*, by Robert Jay Dilger and Richard S. Beth.

¹⁸ *Ex ante* estimates are those conducted by agencies prior to a regulation being issued or taking effect, and they reflect the agency's prediction of what the effects of the regulation will be. *Ex post* estimates are done retrospectively—that is, after the regulation has been issued and taken effect—and they are used to evaluate the accuracy of the initial estimate and/or the effectiveness of the regulation.

¹⁹ Government-wide retrospective reviews have been required since the Carter Administration, and most recently have been required by the Obama Administration in Executive Order 13563.

²⁰ See the section below entitled “Questions Over Accuracy of Individual Cost and Benefit Estimates” for an overview of this literature.

Case Study: The Annual OMB Report on the Total Costs and Benefits of Federal Rules

The most well-known bottom-up study is the report to Congress on the benefits and costs of federal rules, which OMB compiles annually.²¹

Background on the OMB Report to Congress

Since the 1990s, OMB has estimated the total costs and benefits of federal regulations pursuant to various federal requirements. The initial requirement was in Section 645 of the Treasury, Postal Service and General Government Appropriations Act, 1997,²² which required the Director of OMB to submit a report by September 30, 1997, that provided—among other things—“estimates of the total annual costs and benefits of federal regulatory programs, including quantitative and nonquantitative measures of regulatory costs and benefits.” Similar requirements were contained in other appropriations bills in subsequent years; as of 2015, the current requirement for OMB to report on the total annual costs and benefits of federal regulations is under the Regulatory Right-to-Know Act, which was enacted in 2000 as part of the Treasury and General Government Appropriations Act for FY2001.²³ That provision required OMB to submit to Congress each year, along with the President’s budget,

An accounting statement and associated report containing-

- (1) an estimate of the total annual costs and benefits (including quantifiable and nonquantifiable effects) of Federal rules and paperwork, to the extent feasible- (A) in the aggregate; (B) by agency and agency program; and (C) by major rule;
- (2) an analysis of impacts of Federal regulation on State, local, and tribal government, small business, wages, and economic growth; and
- (3) recommendations for reform.

OMB has submitted a report to Congress each year with a total of the costs and benefits produced by federal agencies pursuant to the requirements discussed above.

Summary of 2014 OMB Report on Costs and Benefits

The 2014 report to Congress on the costs and benefits of federal regulations was published in June 15, 2015.²⁴ The principal findings of the 2014 report were as follows:²⁵

- The estimated annual benefits of major federal regulations reviewed by OMB from October 1, 2003, to September 30, 2013, for which agencies estimated and monetized both benefits and costs, are in the aggregate between \$281.0 billion

²¹ These reports are available on OMB’s website. See http://www.whitehouse.gov/omb/inforeg_regpol_reports_congress/.

²² P.L. 104-208.

²³ P.L. 106-554, §1(a)(3) [title VI, §624], 114 Stat. 2763.

²⁴ The Draft 2015 report was released in October 2015, but had not yet been finalized as of the time of writing of this report.

²⁵ Office of Management and Budget, *2014 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities*, available at https://www.whitehouse.gov/sites/default/files/omb/inforeg/2014_cb/2014-cost-benefit-report.pdf.

and \$1,119.0 billion, while the estimated annual costs are in the aggregate between \$73.6 billion and \$109.3 billion.²⁶ These ranges reflect uncertainty in the benefits and costs of each rule at the time that it was evaluated (prior to promulgation).

The OMB reports demonstrate that agencies do not provide quantified and/or monetized information for every rule. For example, below is information on how frequently agencies provided quantified and/or monetized estimates of costs and benefits:

- During FY2013, executive agencies promulgated 54 major rules, of which 30 were “transfer” rules.²⁷ Transfer rules usually implement federal budgetary programs as required or authorized by Congress, such as rules associated with the Medicare Program and the Federal Pell Grant Program, and are categorized differently by OMB because they cause income transfers from federally collected tax dollars to program beneficiaries—meaning they “may not impose significant regulatory costs on the private sector.”²⁸ In all but one of the 30 transfer rules listed in the report, the issuing agencies quantified and monetized the transfer amounts.
- In 7 of the remaining 24 major rules issued in FY2013, the agencies quantified and monetized both benefits and costs. Those seven rules were estimated to result in a total of \$33.2 billion to \$87.4 billion in annual benefits, and \$2.6 billion to \$3.2 billion in annual costs.²⁹
- In two of the major rules, the agency was able to quantify and monetize only benefits. For these two rules, the agencies estimated annual benefits of \$500 million to \$655 million.³⁰
- In 11 major rules, the agencies quantified and monetized only costs, and in one case only partially. For these 11 rules, the agencies estimated total annual costs of about \$1.6 billion to \$2.3 billion.³¹
- In four major rules, the agencies did not quantify or monetize costs or benefits.

Quantification vs. Monetization

Quantification of costs and benefits involves identifying quantitative effects of regulations, such as identifying a number of persons or businesses likely to be affected by a rule. Monetization involves turning effects of rules specifically into dollar amounts so that they may be aggregated and compared. In some cases, a rule's effects may be easy to quantify but difficult to monetize.

²⁶ The numbers cited here in this CRS report are inflation-adjusted to 2014 dollars. OMB reported the totals in both 2001 and 2010 dollars.

²⁷ As explained by OMB in the report, “budgetary transfer rules are rules that primarily cause income transfers usually from taxpayers to program beneficiaries” (p.8). Examples listed in the 2014 report included various education loan programs administered by the Department of Education, major capital investment projects administered by the Department of Transportation, and rules implementing the Supplemental Nutritional Assistance Program administered by the Department of Agriculture (see pp. 29-31 for a complete list of the major transfer rules).

²⁸ 2014 OMB Report, p. 8.

²⁹ The numbers cited here were inflation-adjusted by CRS to 2014 dollars. OMB reported the numbers in 2001 and 2010 dollars (see p. 24).

³⁰ It appears, though it is not entirely clear, that these numbers are reported in 2001 dollars (see p. 2). Adjusted for inflation to 2014 dollars, the estimated range of benefits for these two rules would be \$648.8 million to \$850.0 million.

³¹ It appears, though it is not entirely clear, that these numbers are reported in 2001 dollars (see p. 2). Adjusted for inflation to 2014 dollars, the estimated range of costs for these 11 rules would be \$2.1 billion to \$3.1 billion.

Analysis of Bottom-Up Approach to Aggregating Costs and Benefits

A bottom-up approach, such as that taken by OMB, is likely to result in an underestimate of the total cost of federal regulations. Agencies are not required to conduct a cost-benefit analysis for every rule, and the bottom-up approach can only include costs and benefits that have actually been estimated. Furthermore, estimates of costs and benefits that agencies produce are primarily intended to inform decisionmakers about an individual rule, but aggregating the information causes the context and understanding of potential uncertainties in each individual estimate to be lost. Finally, a decision must be made about how many years' worth of rules to include in the aggregated estimate of costs and benefits, but this is likely to leave out costs and benefits of rules that were issued prior to the period included.

Costs Not Estimated for Every Rule

One of the main challenges to calculating accurately the total costs and benefits of federal regulations is that agencies are not required to estimate costs and benefits for all regulations. Without an estimated cost or benefit for every rule, it is impossible to arrive at a total dollar amount for all rules—the aggregated costs and benefits will only include those rules for which a monetized estimate exists.

Independent Regulatory Agencies Are Often Not Required to Estimate Costs and Benefits

First, not all agencies are subject to cost-benefit analysis requirements. The cost-benefit analysis requirement does not apply to independent regulatory agencies, a class of agencies that were created by Congress to have various characteristics of independence from the President.³²

Although some of the independent regulatory agencies have agency-specific instructions in statute to consider certain effects of their regulations, others are not specifically required to conduct cost-benefit analysis or monetize costs and benefits.³³ According to OMB's 2014 report on costs and benefits, the independent regulatory agencies issued 18 major rules in FY2013. Of those 18 rules, the agencies appear to have provided some information on either costs or benefits in 12 rules.³⁴

³² These agencies are listed at 44 U.S.C. 3502(5). When he issued Executive Order 12866, President Clinton chose not to include those agencies in the order's requirements for OMB review and cost-benefit analysis. President Reagan had made the same decision—to exclude the independent regulatory agencies—when he issued the predecessor order in 1981. See Executive Order 12291, "Federal Regulation," 46 *Federal Register* 13193, February 19, 1981. For more discussion of this decision, see CRS Report R42821, *Independent Regulatory Agencies, Cost-Benefit Analysis, and Presidential Review of Regulations*, by Maeve P. Carey and Michelle D. Christensen. For a discussion of characteristics of agency independence more generally, see CRS Report R43391, *Independence of Federal Financial Regulators*, by Henry B. Hogue, Marc Labonte, and Baird Webel, and CRS Report R43562, *Administrative Law Primer: Statutory Definitions of "Agency" and Characteristics of Agency Independence*, by Jared P. Cole and Daniel T. Shedd.

³³ For a more detailed discussion about what agency-specific requirements may apply to these agencies, see CRS Report R42821, *Independent Regulatory Agencies, Cost-Benefit Analysis, and Presidential Review of Regulations*, by Maeve P. Carey and Michelle D. Christensen, and Curtis W. Copeland, *Economic Analysis and Independent Regulatory Agencies*, report prepared for the consideration of the Administrative Conference of the United States, April 30, 2013, <https://www.acus.gov/sites/default/files/documents/Copeland%20Final%20BCA%20Report%204-30-13.pdf>.

³⁴ Office of Management and Budget, 2014 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities, available at [https://www.whitehouse.gov/sites/default/files/](https://www.whitehouse.gov/sites/default/files/...) (continued...)

Because most cost-benefit analysis requirements do not extend to the independent regulatory agencies, the bottom-up approach to estimating the costs and benefits of regulation does not include costs and benefits of regulations issued by those agencies. This includes, for example, many of the financial regulations issued pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which are primarily issued by the financial regulators—most of which are excluded from the cost-benefit requirement of Executive Order 12866.³⁵ The exclusion of certain types of agencies from cost-benefit analysis requirements is a weakness in the annual OMB reports and presents a challenge to bottom-up approaches of estimating costs and benefits. The OMB reports generally identify the number of rules issued by independent regulatory agencies that provide some information on some costs and/or benefits, but they do not typically have information about the magnitude of those costs or benefits.

Costs and Benefit Estimates Only Required for Economically Significant Rules

Second, the agencies that are subject to cost-benefit analysis requirements are not required to conduct a cost-benefit analysis for every rule—only those rules that are deemed economically significant, as defined by Executive Order 12866. Specifically, the order defines economically significant rules as those that have an annual effect on the economy of at least \$100 million.³⁶ Rules that are significant, but not economically significant, are subject to requirements for OIRA review and may have a less formal assessment of costs and benefits, but agencies are not generally required to conduct a complete cost-benefit assessment for those rules.³⁷ As such, the rules included in the OMB reports' total estimates of costs and benefits are only economically significant rules.³⁸

Monetizing Costs Can Be Challenging

Third, quantifying and monetizing certain costs and benefits can be very difficult, and agencies do not often monetize all of the expected effects of their regulations. The bottom-up approach, however, is limited to totaling only those costs and benefits that are actually monetized. Under current rulemaking requirements, agencies are encouraged, but not necessarily required, to

(...continued)

omb/inforeg/2014_cb/2014-cost-benefit-report.pdf. In the table, the report indicates that seven rules have monetized costs and benefits, but it appears that the table may have added the numbers incorrectly.

³⁵ P.L. 111-203.

³⁶ Economically significant rules are those that may “have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities” (Executive Order 12866 §3(f)(1)).

³⁷ Rules that are “significant” but not “economically significant” are required to undergo OMB review under Executive Order 12866. OMB’s website, www.Reginfo.gov, provides data on the number of “significant” rules that OMB reviews each year (but not on the number of those rules that agencies issue each year). The data on OMB reviews show that the number of such rules reviewed each year is approximately in the range of 100-250; this is likely very similar to the number of such final rules issued each year.

³⁸ These rules are referred to in the OMB reports as “major” rules. Although the definitions of “major” rules and “economically significant” rules contain slight differences, the two terms are often used interchangeably.

monetize costs and benefits.³⁹ For example, Executive Order 12866 states that agencies should provide a quantification of costs and benefits “to the extent feasible.”⁴⁰

Monetizing the effects of regulations involves converting expected effects, such as costs to consumers or changes to a population’s health or behavior, into dollar terms. Monetizing the effects of regulations involves turning costs and benefits into a common unit—dollars—so that they can be compared against one another. This can allow for an evaluation of the cost-effectiveness of a rule, such as a calculation of the cost of each life expected to be saved by a rule, or the cost-benefit ratio of a rule.

Although some of the effects of a rule can be measured fairly easily in dollar terms, such as certain types of equipment or technologies for which a market value can be easily identified, other effects are more difficult to monetize. In cases in which dollar amounts are not readily available, agencies often rely on economic techniques that attempt to simulate market exchanges. One method agencies use to monetize certain concepts is based on a formula that includes monetized values known as “willingness-to-pay” or “willingness-to-accept” to measure the value that individuals place on the change resulting from a particular regulation.⁴¹ This allows an agency to assign a dollar value to a regulatory outcome that may not otherwise have an easily identifiable value, and then the estimate can be compared against the costs of obtaining that benefit. For example, agencies sometimes use the “value of a statistical life” or “VSL” to assign a monetized amount to the benefits per life saved from certain types of regulations.⁴² The agency can then compare this monetized estimate of benefits against the costs of the rule to see whether the rule’s costs were justified by its benefits.

The executive orders and OMB guidance documents recognize that quantification and monetization can be difficult in some cases and allow agencies some flexibility in determining when effects can be quantified and monetized:

³⁹ Under Executive Order 12866, the term “significant” rule encompasses a much broader number of rules than those considered “economically significant.” For “significant” rules, agencies are asked to conduct an initial assessment of costs and benefits, but not a complete cost-benefit analysis.

⁴⁰ Executive Order 12866 §6(a)(3)(C).

⁴¹ In recent decades, as the use of cost-benefit analysis has increased, a debate has emerged about the appropriateness of monetizing certain costs and benefits in regulation. While economists generally favor the notion of assigning a monetized value to certain things like risks to life and health, others have opposed the monetization of certain effects of regulation. See, for example, W. Kip Viscusi, “Monetizing the Benefits of Risk and Environmental Regulation,” *Fordham Urban Law Journal*, vol. 33, no. 4 (2005); W. Kip Viscusi, “What’s to Know? Puzzles in the Literature on the Value of a Statistical Life,” *Journal of Economic Surveys*, vol. 26, no. 5 (2011); and Robert W. Hahn, *In Defense of the Economic Analysis of Regulation*, (AEI Press, 2005). Others argue against this type of valuation; see Frank Ackerman and Lisa Heinzerling, *Priceless: On Knowing the Price of Everything and the Value of Nothing* (New York: The New Press, 2004).

⁴² The VSL is calculated based upon a willingness-to-pay model. For example, if 100,000 people are willing to pay \$60 to eliminate a 1 in 100,000 risk of a certain event, such as dying from a particular type of disease, then an agency will multiply the \$60 payment times the number of individuals in the population (100,000), yielding a total of \$6 million. If a rule is expected to save 100 lives, then the total benefits that can be expected to come from the rule would include \$600 million in lives saved (100 lives times \$6 million). According to a 2011 OMB guidance document, current agency practice uses a VSL ranging from “roughly \$5 million to \$9 million per statistical life.” Office of Management and Budget, “Regulatory Impact Analysis: A Primer,” August 15, 2011, p. 10. See also CRS Report R41140, *How Agencies Monetize “Statistical Lives” Expected to Be Saved By Regulations*, by Curtis W. Copeland. The author of that report is no longer at CRS; questions about its content may be directed to the author of this report.

- Executive Order 12866 instructs agencies to provide information on the quantified costs of the anticipated costs and benefits of regulations “to the extent feasible.”⁴³
- OMB Circular A-4, which OMB issued in 2003 to provide guidance to agencies on how to conduct cost-benefit analysis, states that agencies “should develop quantitative estimates and convert them to dollar amounts if possible. In many cases, quantified estimates are readily convertible, with a little effort, into dollar equivalents.”⁴⁴
- Executive Order 13563, which President Obama issued in January 2011, stated that “Where appropriate and permitted by law, each agency may consider (and discuss qualitatively) values that are difficult or impossible to quantify, including equity, human dignity, fairness, and distributive impacts.”⁴⁵
- OMB’s 2011 guidance document, “Regulatory Impact Analysis: A Primer,” instructs agencies to quantify the costs and benefits in terms of units—for example, the number of premature deaths avoided each year or the number of prevented nonfatal illnesses—as well as monetizing the costs and benefits associated with each of these effects, to the extent possible.⁴⁶

As OMB explained in its 2014 report,

When agencies have not quantified or monetized the primary benefits or costs of regulations, it is generally because of conceptual and empirical challenges, including an absence of relevant information. Many rules have benefits or costs that cannot be quantified or monetized with existing information, and the aggregate estimates presented here do not capture those non-monetized benefits and costs. In some cases, quantification of various effects is highly speculative. For example, it may not be possible to quantify the benefits of certain disclosure requirements, even if those benefits are likely to be large, simply because the impact of some of these requirements cannot be specified in advance.⁴⁷

Practitioners or observers of the rulemaking process do not necessarily agree on what effects are appropriate to monetize. For example, the Obama Administration has placed greater emphasis than earlier Administrations on the value of qualitative benefits such as equity and dignity.⁴⁸ Debates in the literature have raised questions over when it may be appropriate to quantify or monetize certain qualitative effects of rules. For example, questions have been raised as to

⁴³ Executive Order 12866 §6(a)(3)(C).

⁴⁴ Office of Management and Budget, Circular A-4, “Regulatory Analysis,” September 17, 2003. The circular is available at http://www.whitehouse.gov/omb/assets/regulatory_matters_pdf/a-4.pdf.

⁴⁵ Executive Order 13563, “Improving Regulations and Regulatory Review,” 76 *Federal Register* 3821, January 21, 2011.

⁴⁶ See Office of Management and Budget, “Regulatory Impact Analysis: A Primer,” August 15, 2011, at http://www.whitehouse.gov/sites/default/files/omb/inforeg/regpol/circular-a-4_regulatory-impact-analysis-a-primer.pdf.

⁴⁷ 2014 OMB Report, pp. 1-3.

⁴⁸ For a discussion of this and other differences between the Obama, George W. Bush, and Clinton Administrations’ priorities for cost-benefit analysis and OIRA review, see Art Fraas and Richard Morgenstern, “Identifying the Analytical Implications of Alternative Regulatory Philosophies,” *Journal of Benefit Cost Analysis*, vol. 5, no. 1 (2014), pp. 137-171.

whether dignity and other psychological effects of rules, such as fear and anxiety, should be monetized in regulatory impact analyses.⁴⁹

In sum, to achieve an accurate assessment of the total costs and benefits of regulations in dollar terms using a bottom-up method, one would have to monetize all possible effects of regulation, and such an undertaking is not consistent with current rulemaking requirements or practice. OMB did state in its 2014 report, however, that OMB believes “the benefits and costs of major rules, which have the largest economic effects, account for the majority of the total benefits and costs of all rules subject to OMB review.”⁵⁰

Given that agencies do not estimate cost and benefits for every rule issued in every year, estimates that use the bottom-up approach are likely under-reporting costs and benefits. On the other hand, as discussed more below, some of the literature evaluating the quality and accuracy of cost-benefit analyses has suggested that costs and benefits for rules evaluated are overestimated by agencies.

Potential Uncertainties in Individual Cost-Benefit Analyses

Cost-benefit estimates are produced by agencies to assist with decisionmaking in individual rules, and the estimates often contain some uncertainty from not knowing precisely the potential effects of rules. For example, consider a rule in which an agency conducts a risk assessment, such as an airline safety rule intended to lower the risk of a terrorist attack on the United States. The estimate of costs and benefits for this rule would contain a great deal of underlying uncertainty, because precisely estimating the projected decrease in the risk of a terrorist attack and the precise cost of the rule is likely impossible. On the other hand, a rule that would result in changes that can be more easily predicted and measured, such as a rule requiring the purchase of new safety equipment for a vehicle fleet, is likely to contain less uncertainty.

To attempt to reduce uncertainty and produce high-quality, robust estimates, current requirements and guidance documents encourage agencies to base their estimates on the best reasonable obtainable scientific, technical, and economic information. With regard to uncertainties, agencies are instructed to analyze and present them as part of the overall regulatory analysis.⁵¹ This generally results in the agencies producing a range of estimates of costs and benefits and using certain types of analytical techniques (e.g., sensitivity analysis) to identify how benefits and costs of a rule would change due to changes in key variables.

As stated in a 1996 article outlining the challenges of uncertainty in cost-benefit analysis (also referred to as benefit-cost analysis),

Benefit-cost analysis can help decision-makers better understand the implications of decisions by identifying and, where appropriate, quantifying the favorable and unfavorable consequences of a proposed policy change, even when information on benefits and costs, is highly uncertain. In some cases, however, benefit-cost analysis

⁴⁹ See Rachel Bayefsky, “Dignity as a Value in Agency Cost-Benefit Analysis,” *Yale Law Journal*, vol. 123, no. 6 (April 2014), pp. 1732-1782, at http://www.yalelawjournal.org/pdf/1732.Bayefsky.1782_u52ftmb.pdf; and Matthew D. Adler, “Fear Assessment: Cost-Benefit Analysis and the Pricing of Fear and Anxiety,” *Chicago-Kent Law Review*, vol. 79, no. 3 (January 2004), pp. 977-1053, at <http://scholarship.kentlaw.iit.edu/cgi/viewcontent.cgi?article=3459&context=cklawreview>.

⁵⁰ 2014 OMB report, p. 23.

⁵¹ See, for example, Office of Management and Budget, “Regulatory Impact Analysis: A Primer,” August 15, 2011, p. 14.

cannot be used to conclude that the economic benefits of a decision will exceed or fall short of its costs, because there is simply too much uncertainty.⁵²

In adding the results of all the individual studies together, however, the context and uncertainties of each individual study may be lost. As OMB stated in its first report on costs and benefits,

Studies that have attempted to total up the total costs and benefits of Federal regulations have basically added together a diverse set of individual studies. Unfortunately, these individual studies vary in quality, methodology, and type of regulatory costs included. Thus we have an apples and oranges problem, or, more aptly, an apples, oranges, kiwis, grapefruit, etc., problem.⁵³

Adding together existing estimates of costs and benefits treats the individual estimates as though they are precise estimates, but they may be imprecise estimates. “CBA can sometimes produce an illusion of certainty,” as one former OIRA Administrator stated. This illusion of certainty can be misleading in individual cost and benefits estimates, and it becomes even more so when such estimates are aggregated.⁵⁴ In any individual estimate of costs and benefits, “numerous technical judgments must be made, and technical analysts might well disagree.”⁵⁵ Aggregating all of the bottom-up estimates that agencies have produced can cause the context and any important caveats or reflections of uncertainty in each regulatory impact analysis to be lost.

Questions Over Accuracy of Individual Cost and Benefit Estimates

Uncertainty in how best to estimate costs and benefits leads to the question of whether the results are *accurate*—i.e., whether agencies overestimate or underestimate costs and benefits. Proponents of regulation tend to argue that agencies overestimate costs of regulation.⁵⁶ On the other hand, opponents of regulations tend to argue that agencies underestimate costs—agencies may have incentives to underestimate the costs of regulations and overestimate the benefits, which would help to make the case for promulgating a regulation because of its positive net benefits.⁵⁷ To address this important question, a number of studies have examined the accuracy of agency estimates of costs and benefits. One academic study published in 2000 compared *ex ante* studies to *ex post* studies and found that agencies frequently overestimated both costs and benefits of regulations.⁵⁸ In 2010, the same authors performed a similar *ex post* study of several cost-benefit estimates that had been produced by agencies subsequent to their 2000 study. Again, they concluded that regulatory agencies tended to overestimate the total costs of regulations, explaining that “a variety of factors contribute to initial government agency cost estimates that

⁵² Kenneth J. Arrow, Maureen L. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G. Noll, Paul R. Portney, Milton Russell, Richard Schmalensee, V. Kerry Smith, and Robert N. Stavins, “Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?” *Science*, April 12, 1996, vol. 272, pp. 221-222.

⁵³ Office of Management and Budget, *Report to Congress on the Costs and Benefits of Federal Regulations*, September 30, 1997, ch. 2, at https://www.whitehouse.gov/omb/inforeg_chap2.

⁵⁴ Cass R. Sunstein, “The Arithmetic of Arsenic,” *Georgetown Law Journal*, vol. 90, no. 7 (July 2002), p. 2258.

⁵⁵ Cass R. Sunstein, “Financial Regulation and Cost-Benefit Analysis,” *Yale Law Journal Forum*, January 22, 2015, p. 266, at http://www.yalelawjournal.org/pdf/SunsteinPDF_4n1d4ar.pdf.

⁵⁶ See, for example, Thomas O. McGarity, “CPR Perspective: Estimating Regulatory Costs,” Center for Progressive Reform, at <http://www.progressivereform.org/perspestimatingReg.cfm>.

⁵⁷ See, for example, Stuart Shapiro, “How Much Is That Regulation In the Window?”, *The Hill*, July 31, 2014, at <http://thehill.com/blogs/pundits-blog/213538-how-much-is-that-regulation-in-the-window>, stating that “agencies have clear motivations when it comes to making the assumptions that will determine their assessment of the cost of their regulations. They don’t want a regulation to appear too costly or they risk losing political support for the regulation.”

⁵⁸ Winston Harrington, Richard D. Morganstern, and Peter Nelson, “On the Accuracy of Regulatory Cost Estimates,” *Journal of Policy Analysis and Management*, vol. 19, no. 2 (Spring 2000), pp. 297-322.

may differ from the realized results, although in some cases this is coincident with differences in benefits produced by regulations.”⁵⁹

In its 2005 report to Congress on the costs and benefits of regulations, OMB included a chapter on “validation” of cost estimates.⁶⁰ OMB examined a number of *ex ante* cost-benefit estimates and compared them with *ex post* estimates, when they were available.⁶¹ OMB’s conclusions were that the costs of regulations were more often overestimated by the agency, but that the benefits were sometimes overestimated as well.

A primary reason observers have given for the overestimation of costs is that agencies tend to underestimate industry’s ability to innovate, and therefore compliance with regulations sometimes turns out to be less costly than expected. The ability to adapt to regulatory requirements and identify more cost-effective methods of meeting compliance targets can result in lower compliance costs than initially anticipated by the agency. For example, consider the Environmental Protection Agency’s acid rain (sulfur dioxide) program in the 1990s. Mandated under the Clean Air Act Amendments of 1990, the EPA issued regulations aimed at reducing sulfur dioxide emissions. Studies suggest that the EPA’s initial cost estimates for these regulations were too high due to EPA’s underestimation of how industry would adapt and find less costly means of achieving the reduction targets. In sum, as stated in one retrospective study, “When forecasting the costs of new environmental regulations, economic analysts have routinely ignored a primary economic lesson: Markets will cut costs through innovation.”⁶²

A number of other reasons may contribute to inaccuracies in agency estimates of costs. For example, delays in implementation of regulations can help lower the compliance costs as it can allow industry more time to identify cost-effective solutions.⁶³ Over- or under-estimating certain effects of regulations can also result in inaccuracies, such as compliance rates among regulated entities. Finally, agencies first estimate costs and benefits while writing the proposed regulation, but the regulation may change in response to comments received during the public comment period.⁶⁴ As regulations are revised in response to comments, cost-benefit estimates are not always updated. Changes made in the rule after it has been proposed and before it is finalized could affect the likely costs and benefits of the rule—for example, if the final rule sets a standard that is less stringent as compared to the proposed rule, it will probably be less costly to comply.

In short, the accuracy of the bottom-up approach relies heavily on the precision of the individual cost and benefit estimates, but the accuracy of these estimates is likely to vary.

⁵⁹ Winston Harrington, Richard D. Morganstern, and Peter Nelson, “How Accurate Are Regulatory Cost Estimates?” Resources for the Future, March 5, 2010.

⁶⁰ Office of Management and Budget, *Validating Regulatory Analysis: 2005 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities*, available at https://www.whitehouse.gov/sites/default/files/omb/assets/omb/inforeg/2005_cb/final_2005_cb_report.pdf.

⁶¹ As mentioned above, *ex post* estimates of costs and benefits are not frequently conducted under current rulemaking requirements or practice.

⁶² Gabriel Chan, Robert Stavins, Robert Stowe, and Richard Sweeney, “The SO₂ Allowance Trading System and the Clean Air Act Amendments of 1990: Reflections on Twenty Years of Policy Innovation,” Cambridge, Mass.: Harvard Environmental Economics Program, January 2012, pp. 7-8, at http://www.hks.harvard.edu/m-rcbg/hceep/papers/SO2-Brief_digital_final.pdf. See also Eban Goodstein, *The Trade-Off Myth: Fact and Fiction about Jobs and the Environment* (Washington, D.C.: Island Press, 1999), pp. 26-30.

⁶³ See Winston Harrington, Richard D. Morganstern, and Peter Nelson, “On the Accuracy of Regulatory Cost Estimates,” *Journal of Policy Analysis and Management*, vol. 19, no. 2 (Spring 2000), p. 310.

⁶⁴ Agencies are generally required to accept public comments on proposed rules under the Administrative Procedure Act (5 U.S.C. §553).

Measuring Costs over Time

Another issue in aggregating the costs and benefits of individual regulations is identification of the appropriate time period. In other words, how many years' worth of regulations should be included in the total? Regulations issued many years ago typically still have some compliance costs, although the cost of complying with regulations is generally thought to decrease over time. For example, if compliance with a new regulation requires industry to invest in new types of technology, once these investments have been made, the majority of the costs may already have been incurred, and the ongoing costs will be less. The time frame under which these compliance costs are distributed varies among rules. Similarly, the distribution of benefits can vary widely as well, and benefits of regulations often are not realized until the regulation has been in place for some time. For example, this is typically the case with regulations that have health benefits, such as environmental regulations that are intended to improve air quality.

Individual cost estimates of regulations are calculated by comparing the anticipated effects of a regulation against what would be expected to happen in a world without the regulation. These *ex ante* estimates that are conducted prior to the issuance of the regulation are usually the sole source of information on regulations' costs. Under current requirements and practice, an ongoing monitoring of the costs and benefits of rules is not required once a regulation has been issued.

The annual OMB reports have typically included 10 years' worth of cost and benefit estimates. According to the 2014 report, "OMB chose a ten-year period for aggregation because pre-regulation estimates prepared for rules adopted more than ten years ago are of questionable relevance today."⁶⁵ Similar reasons are cited in earlier versions of the OMB reports.

In its 2014 report, OMB acknowledges this weakness in its approach, stating that because the estimates do not include non-major rules or rules issued more than 10 years ago, the total costs and benefits currently in effect are like to be "significantly larger" than the totals in the report.⁶⁶ Over time, however, measuring the effects of those rules issued more than 10 years ago will become increasingly difficult. As stated in a 2006 study that discussed OMB's practice of including 10 years' worth of costs and benefits in its annual reports,

If the regulation only requires small changes in behavior over a small time interval, then analysts feel confident of estimating the cost, hypothetical or not. But as the size or time interval increases, the shadow of the hypothetical looms ever larger. To take an extreme example, how would be begin to estimate the cost of federal child labor laws that were enacted during the 1930s?⁶⁷

It is certainly the case that some rules that are more than 10 years old still impose a cost, and therefore this 10-year rule may result in a lower estimate of total costs over time because it excludes those rules. However, some cutoff probably should be made, as including estimates for costs of regulations made more than 10 years ago becomes less practicable.

These potential flaws have led some to attempt to use an entirely different approach to estimating the effects of regulations: the top-down method, which is discussed next.⁶⁸

⁶⁵ 2014 OMB Report, p. 9.

⁶⁶ 2014 OMB Report, p. 18.

⁶⁷ Winston Harrington, "Grading Estimates of the Benefits and Costs of Federal Regulation: A Review of Reviews," Resources for the Future Discussion Paper, September 2006.

⁶⁸ In the Crain and Crain report discussed in detail below, the authors state that "In summary, the constraints under which OMB operates yield cost estimates for only a small proportion of regulations... The measurement challenges lead us to adopt techniques in this study that facilitate reasonable approximations of regulatory costs that have been omitted (continued...)"

“Top-Down” Method: Estimating Costs Using Macroeconomic Modeling

Some scholars have adopted an approach to estimating the costs of rules that is referred to as a top-down approach. This section explains and analyzes the top-down approach, using a case study as an illustration for several of the concepts discussed.

What Is the Top-Down Approach?

The top-down approach uses macroeconomic variables and modeling techniques to measure the effect of regulation on the economy as a whole. Rather than aggregating existing cost estimates, the top-down method uses the results of an economic model that has been used to measure the relationship between the size of an economy, or economic growth, and some proxy of the level of regulation in a country, to measure the economic effects of regulation. This method typically compares the U.S. economy, as measured by some variable such as gross domestic product (GDP), to a hypothetical scenario in which the U.S. has less regulation. The approach takes the difference in the GDP under these two scenarios—the status quo and the scenario with less regulation—and calculates the change in GDP that might occur were the U.S. to reduce its overall amount of regulation. This potential change in GDP is considered to be the cost of regulation under the top-down approach and is explained in further detail below.

Why Use the Top-Down Approach?

The benefits of using a top-down approach, in many ways, are opposite from the bottom-up approach described above. Because the top-down approach uses measurements of various economic factors, it incorporates broader, more indirect effects that are not included in the bottom-up approach. This could include indirect economic effects, as well as direct effects that are not monetized.

Case Study: Crain and Crain Report

A commonly cited study using the top-down approach to totaling the cost of regulation is entitled “The Cost of Federal Regulation to the U.S. Economy, Manufacturing and Small Business,” by W. Mark Crain and Nicole V. Crain, and it was most recently released in September 2014.⁶⁹

The Crain and Crain report estimates the total cost of regulation and also explores the distribution of those regulatory costs among regulated entities. The component of the report that is most discussed in the debate over regulatory reform is the estimate of the total cost of regulation.⁷⁰ Hence, this CRS report focuses primarily on the components of the studies that describe the total

(...continued)

in estimates by OMB and other studies” (pp. 5-6).

⁶⁹ W. Mark Crain and Nicole V. Crain, *The Cost of Federal Regulation to the U.S. Economy, Manufacturing and Small Business*, A Report for the National Association of Manufacturers, September 10, 2014, at <http://www.nam.org/CostofRegulation/>.

⁷⁰ See, for example, Cheryl Bolen, “Study Commissioned by NAM Finds Regulations Cost \$2 Trillion,” *BNA Daily Report for Executives*, September 10, 2014.

cost of regulation, and not on the portion of the report exploring the distribution of costs among different types of firms.⁷¹

The Crain and Crain estimate of the total cost of regulation is not a purely top-down measure of the cost of regulations. It combines a top-down estimate—their estimate of the cost of economic regulation—with a bottom-up estimate of environmental, tax compliance, occupational safety, and homeland security regulation. However, the estimate of the cost of economic regulation resulting from their top-down methodology is almost 75% of the total estimate, totaling \$1.439 trillion out of \$2.028 trillion in the 2014 study. This report only discusses that portion of their estimate, as it is the most widely cited top-down study in the regulatory reform debate, and therefore serves as a useful example for discussion.

Background on the Crain and Crain Report

The 2014 Crain and Crain report can be traced back to a report originally published in 1995 by Thomas D. Hopkins for the Small Business Administration's (SBA's) Office of Advocacy entitled "Profiles of Regulatory Costs."⁷² Each of the studies from 1995 through 2010 was prepared for the Office of Advocacy.

In the 1995 study, Hopkins estimated annual federal regulatory costs to be in the range of \$416 billion to \$668 billion in 1995. Six years later, in 2001, W. Mark Crain and Hopkins issued a follow-up to the 1995 Hopkins study, estimating the total annual cost of regulations to be \$843 billion in 2000.⁷³ In 2005, Crain estimated annual regulatory costs to be about \$1.1 trillion in 2004.⁷⁴ In 2010, Nicole V. Crain and W. Mark Crain issued another version of the study, which estimated the total cost of regulation to be \$1.75 trillion in 2008. They explained the increase from \$1.1 trillion in the 2005 report to \$1.75 trillion as being, in part, the result of "new methodological techniques," meaning that "direct comparisons to the results in their prior studies should be made with caution."⁷⁵

A number of concerns were raised about the methodology used in the 2010 report—and primarily the methods used to arrive at the \$1.75 trillion of the total cost of regulation. Some of the entities raising concerns included the Office of Advocacy itself, the entity that had granted the contract under which the study was conducted. For example, the Office of Advocacy posted a number of caveats on its website where the report was linked, stating that "the findings of the study have

⁷¹ For example, earlier versions of the report written for the Small Business Administration's Office of Advocacy focused on the disproportionate cost of regulations on small businesses. The 2014 version, which was prepared for the National Association of Manufacturers, intended to fill an "information gap by quantifying the costs of regulatory compliance on firms, particularly manufacturers in the United States, and to extend some of the previous efforts to measure the aggregate regulatory costs." Crain and Crain 2014, p. 1.

⁷² Thomas D. Hopkins, "Profiles in Regulatory Costs: Report to the U.S. Small Business Administration," November 1995, available at <http://www.sba.gov/sites/default/files/files/rs1995hoptot.pdf>.

⁷³ The authors explained that "subsequent regulatory developments and the availability of new data clarify and in some cases amplify the basic 1995 findings: regulatory burdens continue to climb, and to disadvantage small businesses." W. Mark Crain and Thomas D. Hopkins, "The Impact of Regulatory Costs on Small Firms: A Report for the Office of Advocacy, U.S. Small Business Administration," 2001, available at <http://www.sba.gov/sites/default/files/files/rs207tot.pdf>.

⁷⁴ Again, the increase over the earlier estimate appeared to be primarily due to a change in methodology from the 2005 report. W. Mark Crain, "The Impact of Regulatory Costs on Small Firms," available at <http://www.sba.gov/sites/default/files/files/rs264tot.pdf>.

⁷⁵ Crain and Crain re-estimated the numbers for 2004—which were presented in the 2005 report—using the methodology from the 2014 study. After the methodological adjustment, the estimate for 2005 increased by \$445 billion to a total of \$1.7 trillion, converted into 2009 dollars.

been taken out of context and certain theoretical estimates of costs have been presented publicly as verifiable facts.⁷⁶ A 2011 CRS report called into question the methods used in the report to arrive at the total estimate of the cost of federal regulation.⁷⁷ A 2014 Government Accountability Office (GAO) report also raised issues with the study related to federal data quality standards, asserting that the Office of Advocacy failed to uphold those standards.⁷⁸

Summary of the 2014 Crain and Crain Report

The 2014 Crain and Crain study estimated the total cost of federal regulation to be \$2.028 trillion in 2012 (in 2014 dollars), an amount equal to 12% of U.S. GDP. This section summarizes the methodology used to arrive at this estimate, so that the estimate may be used as an illustration throughout the rest of the discussion of the top-down methodology.⁷⁹

As mentioned above, economic regulation is the majority of the total cost of the Crain and Crain estimate: \$1.448 trillion.⁸⁰ According to Crain and Crain, economic regulations are those that

⁷⁶ These included the following: “The study is a top-down analysis of regulatory costs that uses certain assumptions to estimate totals. The study is not a bottom-up precise accounting of the overall cost of regulations. The overall figure of \$1.75 trillion in costs is derived from a number of different assumptions and sources to create an estimate. As with almost any academic methodology, it was not intended to be considered a precise finding. The study demonstrated that small businesses bear a larger burden from regulations than large businesses. It was not intended to do more than provide an estimate of this disparity.” See <https://www.sba.gov/advocacy/impact-regulatory-costs-small-firms> for these and other caveats about the study.

⁷⁷ CRS Report R41763, *Analysis of an Estimate of the Total Costs of Federal Regulations*, by Curtis W. Copeland. The author of that report is no longer at CRS; questions about its content can be directed to the author of this report, Maeve P. Carey.

⁷⁸ Specifically, GAO said that Advocacy did not retain the underlying information for the Crain and Crain study, making it “much more difficult to assess the quality of that work, including its objectivity.” When GAO asked to speak with Crain and Crain to ask them “a set of questions related to the criticisms of the methodologies, data, and models used,” Crain and Crain “would not speak with us, stating that they were no longer contractually obligated to respond to our requests for information.” U.S. Government Accountability Office, *Small Business Administration: Office of Advocacy Needs to Improve Controls over Research, Regulatory, and Workforce Planning Activities*, GAO-14-525, July 2014, <http://gao.gov/assets/670/665104.pdf>; see especially pp. 13-16.

⁷⁹ The NAM study included other elements not discussed at length here because they were not part of the estimate of the total cost of regulation and therefore are not the focus of this report. For example, the study included a survey of NAM members given over a period of two weeks in 2014 that reported a number of findings, including, for example, (1) 88% of respondents said that federal government regulations were a challenge that affected their businesses in the prior year or that their businesses would face in the future; (2) 72% of respondents indicated that their organizations employed outside advisers to ensure that their operations comply with federal rules—most of these advisers consisted of attorneys, accountants, and consultants; and (3) 48% of manufacturing firms incurred operations and maintenance expenses for capital equipment and other tangible items purchased to comply with federal government requirements during the 12 months prior to the survey.

⁸⁰ As previously described, the remaining \$580 billion in the Crain and Crain estimate is due to the remaining three categories—environmental, occupational safety and health and homeland security, and tax compliance regulation. Because they use the bottom-up approach to estimate each of these types of regulation, they are not discussed in this report.

First, Crain and Crain arrive at a total estimate of the cost of environmental regulations using two sources: the OMB annual report to Congress on the costs and benefits of regulations, and a study from 1991 by Hahn and Hird that provides an estimate of the total costs of environmental regulations prior to 1988. See Robert W. Hahn and John A. Hird, “The Costs and Benefits of Regulation: Review and Synthesis,” *Yale Journal on Regulation*, vol. 8, no. 1 (Winter 1991), pp. 233-278. Using these measures, they arrived at a total of \$330 billion for environmental regulations. Second, to measure the occupational safety and health and homeland security regulations, they added the regulations promulgated by the Department of Homeland Security and the Occupational Safety and Health Administration (OSHA) in the Department of Labor, plus some additional calculations to measure and include the effects of passenger delays tied to Transportation Security Administration screening. Using these measures and calculations, they arrived at a total of \$92 billion for occupational safety and health and homeland security regulations. Third, Crain and Crain measure the (continued...)

“govern decision-making in market transactions. These include markets for final goods and services; markets for physical and human resources; credit markets; and markets for the transport and delivery of products and factors of production.”⁸¹

To arrive at this estimate of the total cost of economic regulation, Crain and Crain conducted a cross-country comparison of 34 Organization for Economic Cooperation and Development (OECD) countries, including the United States. Specifically, they looked at the relationship between each country’s economy and a proxy measure of the amount of regulation in each country over eight years. The data Crain and Crain used for this proxy measure were derived from the World Economic Forum’s Global Competitiveness Report.⁸²

Crain and Crain used three components of the Global Competitiveness Index, a component of the Global Competitiveness Report that measures various aspects of the institutions, policies, and factors that determine a country’s level of productivity. These types of measures are sometimes referred to as governance indicators. The report uses an “Executive Opinion Survey,” which captures the opinions of business leaders around the world to construct a number of its indicators. Crain and Crain selected three indicators, each of which was constructed using the survey, to represent the amount of economic regulation in each country. The three indicators were

- burden of government regulation;
- efficiency of legal framework in challenging regulation; and
- regulation of securities exchanges.⁸³

The survey respondents provided a value for each of these indicators ranging from one to seven. As Crain and Crain explained in their report, “higher values correspond to improvements in regulatory quality—that is, reductions in the regulatory burden on product, factor and credit markets.”⁸⁴ To construct their measure for each country and each year, Crain and Crain used the mean value of these three factors. The regulation index that Crain and Crain used combined these three factors into a single measure for each of the countries in each of the years for which the data were available—2006 to 2013.

Using the mean value for the 34 countries over their eight-year period, Crain and Crain estimated a regression model in which they measured the effect of a number of variables—with their primary variable of interest being the measure of regulatory quality—on GDP per capita. The other variables, or “control” variables, were foreign trade as a share of GDP, population over 65

(...continued)

cost of compliance with the federal tax code. To do so, they relied on the number of hours required to comply with tax requirements provided by the Internal Revenue Service. They multiplied that number of hours times an hourly wage rate of individuals who would be preparing the tax paperwork—accountants and auditors for individuals and human resources professionals for businesses. Using this method, they arrived at a total estimate of \$159 billion for tax compliance. It is not exactly clear what the calculations for these figures were, because Crain and Crain did not appear to provide in their report the calculations or the hourly wages for these types of professionals.

⁸¹ Crain and Crain 2014, p. 28.

⁸² Klaus Schwab, World Economic Forum, *The Global Competitiveness Report 2013-2014, Full Data Edition*, Geneva, 2013, at <http://reports.weforum.org/the-global-competitiveness-report-2013-2014/>.

⁸³ According to Crain and Crain, not all three variables had observations for every year in their sample. For the years available, they used the average of the three components that were available.

⁸⁴ Crain and Crain 2014, p. 32.

relative to population aged 19 to 65 (the “dependency ratio”), new capital investment as a share of GDP, size of the labor force, and tax revenues as a share of GDP.⁸⁵

Based on the results of the regression model, Crain and Crain concluded that the effect of their purported proxy of economic regulation on GDP per capita was statistically significant. Further, they used the results of the regression model to estimate the total cost of the index on the GDP per capita in the United States. To do so, they compared the U.S. score on the regulation index with the average score of the five top performing (i.e., highest ranked) countries on the scale, which they referred to as the “benchmark countries.” They used this “benchmark” measure as a hypothetical measurement of what a lower level of regulation in the United States could be. The difference between the U.S. score and the benchmark countries’ average score was 26%.

Crain and Crain concluded that this 26% difference in the regulation index in the United States “implies an impact on GDP equal to \$1.439 trillion. In other words, if the burden of economic regulation in the United States matched the benchmark countries, U.S. GDP would be \$1.439 trillion higher than it was in 2012.”⁸⁶ To the \$1.439 trillion estimate, Crain and Crain added another \$8.3 billion, which was the estimated cost of import restrictions from the U.S. International Trade Commission.⁸⁷ The total estimate of the cost of economic regulation they arrived at using this methodology was \$1.448 trillion.

Analysis of Top-Down Approach to Estimating Costs and Benefits

A number of issues have been raised with the top-down approach, some of which are explained below using the Crain and Crain study as an illustration.

Importance of Accurate Measures of Regulation in Top-Down Approach

One challenge for the top-down approach to estimating the cost of regulation is that the accuracy of the findings is dependent on the validity of the proxy measure of regulation. The proxy is used to model the relationship between the size of the economy and amount of regulation, and then the parameter estimates resulting from the model are used to calculate the total cost of economic regulation.

Identifying an accurate measure of regulation, however, is a challenge. As explained in a report by the Council on Foreign Relations (CFR) on federal rulemaking policy in the United States and other countries, as well as in previous CRS reports, quantifying the total amount of regulation is an inherently difficult task.⁸⁸ As stated in the CFR report,

Economists have not settled on a good way to measure overall regulatory burden ... Because of these data limitations, the best empirical studies take on a specific regulation rather than the full stock of regulations. Largely unknown is how the average business is

⁸⁵ Each of these independent variables was lagged by one year. Crain and Crain also included tax revenues as a share of GDP squared to allow for a nonlinear effect of tax policy. This choice of independent variables was different from previous models they used, though they do not make clear why they chose different variables this time.

⁸⁶ Crain and Crain 2014, p. 33. This value appears to be adjusted to 2014 dollars.

⁸⁷ Crain and Crain do not explain why they added the cost of import restrictions. It appears they may have added it because they did not believe it would be captured in their measure of economic regulation.

⁸⁸ Rebecca Strauss, *Quality Control: Federal Regulation Policy*, Council on Foreign Relations, Renewing American Progress Report and Scorecard, New York, NY, March 2015, http://www.cfr.org/corporate-regulation/quality-control-federal-regulation-policy/p36110?cid=oth-partner_site-Reg_Blog-Renewing_America_Regulation_Policy-031015; and CRS Report R43056, *Counting Regulations: An Overview of Rulemaking, Types of Federal Regulations, and Pages in the Federal Register*, by Maeve P. Carey.

affected by the cumulative set of regulations, or whether certain regulations harm or help different kinds of business activity, such as innovation or entrepreneurship.⁸⁹

Obtaining an accurate proxy measure of regulation is key in any economic model that uses regulation as an explanatory variable, because an inaccurate measure can introduce serious uncertainty into the model's results. The term economists use to refer to whether a measure of a construct correctly represents what it purports to represent is "content validity." To illustrate the importance of content validity in the top-down approach of measuring the cost of regulation, this section will more closely examine the measure of "regulatory quality" used by Crain and Crain.

Crain and Crain referred to their measure of regulatory quality as the "Economic Regulation Index." They created the index from data from the World Economic Forum's (WEF's) annual Global Competitiveness Report—specifically, the report's Executive Opinion Survey.⁹⁰ In that survey, the WEF captured the opinions of over 13,000 business leaders in 148 different economies during a five-month period. Most of the survey questions, including the three used in the Crain and Crain study to measure regulation, involved rating on a scale of one to seven a particular aspect of the operating environment in the respondent's country. The questions covered such topics as innovation and technology infrastructure, education and human capital, and tourism. To create a measure of regulation from this survey, Crain and Crain selected three questions, each of which included an explicit reference to regulation (which appears to be how they selected them): (1) burden of government regulation, (2) efficiency of legal framework in challenging regulation, and (3) regulation of securities exchanges.

Are these three questions from the Executive Opinion Survey measuring this type of specific regulation—in other words, can the responses to these three questions be considered a useful proxy of the burden of economic regulation? This may be difficult to answer, but it is crucial to the validity of the study's conclusions. Crain and Crain state that "the reach of economic regulations is vast. This means that an encompassing methodology is required to derive an estimate of these costs."⁹¹ While their statement about the vastness of economic regulation is certainly true, whether their measurement and methodology measures it accurately is difficult to validate.⁹²

Proxy measures of governance indicators are inherently imprecise, and they cannot be reliably used to estimate macroeconomic outcomes. A recent article examining a similar cross-country set of indicators illustrates the difficulty in identifying an accurate measure for certain inherently abstract concepts related to governance, such as the "rule of law," or, in this case, regulation.⁹³ The article specifically focused on the World Bank's "Worldwide Governance Indicators" (WGI), though it argued that "the concerns raised here about the WGI apply equally to other current governance indicators."⁹⁴ The article stated that "both researchers and policymakers should

⁸⁹ *Quality Control: Federal Regulation Policy*, p. 3.

⁹⁰ For a more complete discussion of how Crain and Crain constructed this variable, see Appendix C of the 2014 report.

⁹¹ Crain and Crain 2014, p. 28.

⁹² Furthermore, an incorrectly measured variable may cause some of the other estimates to be biased as well.

⁹³ M. A. Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, vol. 22 (2010), p. 37, stating that "A proposed measure of a construct, an inherently abstract concept like the 'rule of law', is like a proxy measure in that it is a hypothesis about measurement. The hypothesis is that the proposed measure correctly measures the construct. Like proposed proxy measures, not all proposed measurements of constructs are equally valid."

⁹⁴ The WGI were part of the 2010 Crain and Crain study, and, although they used a different measure in 2014, are similar in construct to the 2014 measure described above. M. A. Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, vol. 22 (2010), p. 47.

require evidence that governance indicators are valid before employing them. In the absence of such evidence, research results obtained using such indicators are uninterpretable and should not survive peer review. For policymakers, reliance on such indicators would be arbitrary.⁹⁵ It could be argued that the use of such indicators in the top-down model of total cost of regulation may suffer from this problem of questionable measurement.

Specific concerns over this issue as it relates to top-down studies involving regulation were raised in 2010 over the Crain and Crain report and arguably still apply to the 2014 report as well, due to the similarities of their measures. For example, economist Art Kraay, one of the creators of the World Bank's Regulatory Quality Index, the measure of regulation that Crain and Crain used in their 2010 study, commented in response to their study that the measure of regulatory quality they created measured the perceptions of various regulatory environments, rather than the stringency of those environments.⁹⁶ The index used in the 2014 study uses a different proxy, although its construction was similar—it measures business leaders' *perceptions* of the regulatory environment in various countries.⁹⁷ Some research suggests that there may be key differences between perceptions of something and actual levels of it, however:

There is a substantial difference between measuring a thing and measuring perceptions of it. In the context of governance, for example, perceptions of crime risk have been shown to be quite different than actual crime levels (see, for example, Forgas, 1980; Pfeiffer, 2005); perceptions of corruption have been shown to differ from actual corruption levels (see, for example, Olken, 2006; Seligson, 2006); and trust in government has been shown to differ from administrative performance (Van de Walle and Bouckaert, 2007).⁹⁸

In sum, this question of whether a measurement based on survey responses of business leaders or other individuals, such as the Executive Opinion Survey, is measuring what it purports to measure, is an important one. With any top-down model of the economic effects of regulation, the validity of a proxy for regulation is essential—and measuring an inherently abstract concept like the stringency of regulation in a country is difficult. Without a valid proxy, which is difficult to identify for the reasons discussed above (and possibly others), the findings of any top-down study could be brought into question.

⁹⁵ M. A. Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, vol. 22 (2010), p. 51.

⁹⁶ For a summary of Kraay's comments, see CRS Report R41763, *Analysis of an Estimate of the Total Costs of Federal Regulations*, by Curtis W. Copeland.

⁹⁷ Crain and Crain did not explain why they used this different index as their main indicator in the 2014 study. They did, however, use the World Bank measurement that they had used in 2010 as an alternative proxy for the amount of regulation. The conclusions they reached with this alternative measurement were similar; see p. 71.

⁹⁸ M. A. Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, vol. 22 (2010), p. 36. Referenced articles include Joseph P. Forgas, "Images of Crime: A Multidimensional Analysis of Individual Differences in Crime Perception," *International Journal of Psychology*, vol. 15, no. 1 (1980), pp. 287-299; Christian Pfeiffer, Michael Windzio, and Matthias Kleimann, "Media Use and its Impacts on Crime Perception, Sentencing Attitudes and Crime Policy," *European Journal of Criminology*, vol. 2, no. 3 (July 2005), pp. 259-285; Benjamin A. Olken, "Corruption Perceptions vs. Corruption Reality," NBER Working Paper No. 12428, 2006; Mitchell A. Seligson, "The Measurement and Impact of Corruption Victimization: Survey Evidence from Latin America," *World Development*, vol. 34, no. 2 (2006), pp. 381-404; and Steven Van de Walle and Geert Bouckaert, "Perceptions of Productivity and Performance in Europe and the United States," *International Journal of Public Administration*, vol. 30, no. 11 (2007), pp. 1123-1140.

Questions About Proper Model Specification

Setting aside the question of how to undertake the difficult task of measuring regulation, and assuming that the measure of regulation is a valid measurement, another crucial question remains for the top-down approach to measuring the cost of regulation: how should one select the right model?

In a regression model, such as the one used by Crain and Crain, a researcher is attempting to explain a relationship between variables by analyzing the extent to which the dependent variable can be explained by changes in the independent variables. Proper selection of all variables in the model is important, as discussed below.

Selecting Independent Variables

Selecting and including the proper independent and control variables in an econometric analysis is crucial to the validity of the model's results. For example, a researcher must include all variables that are thought to be theoretically relevant and take care not to omit variables that may help explain the outcome.⁹⁹ Explaining and theoretically justifying the components of economic models, including all independent variables, is important: "It is critical that researchers explain and justify the assumptions that underlie their model, which are presumed to be informed by theory."¹⁰⁰

Failure to include all relevant variables in an economic model can result in omitted variable bias. Omitted variable bias can occur when one of the explanatory variables—those variables in the model that are helping to explain changes in the dependent variable—has its effects overstated because a variable that is related to that variable has been left out of the model. In other words, the omitted variable's explanatory power will be attributed to the variable that is included in the model, as long as the two variables are correlated. As explained in one study,

Because top-down methods [of estimating the cost of regulation] associate indicators of regulatory activity with changes in macroeconomic variables, they risk attributing to regulation the effects of other variables that are not considered in the analysis but that may be correlated with regulatory activity. There is a strong chance of omitted variable bias, in other words.¹⁰¹

In sum, were a top-down model of regulation to leave out some relevant variables, the effect of regulation could be overstated.

Selecting a Dependent Variable

Furthermore, identifying a theoretically sound dependent variable is crucial to the validity of a model's results. Crain and Crain used GDP per capita as their dependent variable, rather than GDP growth rate. Measuring GDP per capita does provide an indication of the size of a country's economy. However, it can potentially be problematic because it ignores the historical circumstances that have led each country's economy to its current size, and therefore it presumes

⁹⁹ See A.H. Studenmund, *Using Econometrics: A Practical Guide*, 6th ed. (New York: Addison-Wesley, 2011), p. 167, stating that "the primary consideration in deciding whether an independent variable belongs in an equation is whether the variable is essential to the regression on the basis of theory."

¹⁰⁰ M. A. Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, vol. 22 (2010), p. 41.

¹⁰¹ Winston Harrington, "Grading Estimates of the Benefits and Costs of Federal Regulation: A Review of Reviews," Resources for the Future Discussion Paper, September 2006, p. 12.

to explain the current size of each economy only based upon the factors in the model. Using the rate of GDP growth instead of GDP per capita would presume that the *changes* in the size of each country's economy are explained by the independent variables, not the actual size of the economy itself—which could be considered more likely.

Selecting the Correct Form

Another important issue related to model specification is whether the nature of the relationship between the dependent variable and the independent variables is properly specified: in other words, is the relationship linear or nonlinear? A linear relationship is expressed on a graph with a straight line and assumes that the *rate* of change in the dependent variable does not vary—hence the straight line on a graph. A non-linear relationship can also be expressed on a graph but does not have a straight line, and it assumes that the rate of change in the dependent variable *can* change. These concepts are discussed more below in the context of the top-down approach. Notably, however, identifying the form of the relationship between dependent and independent variables is important—“the consequences of an incorrect functional form for interpretation and forecasting can be severe.”¹⁰²

Crain and Crain ran a linear regression, which is based upon the assumption that the relationship is of direct proportionality and is expressed on a graph with a straight line.¹⁰³ Whether this is the type of relationship between regulation and size of a country's economy, or its economic growth generally, is an important question. Crain and Crain did not appear to provide a theoretical basis for assuming the relationship is linear, and some scholars have suggested that the relationship between regulation and economic growth is nonlinear. A 2012 working paper from the George Washington University Regulatory Studies Center suggested that “perhaps... up to a point, increasing the size of government may tend to increase GDP, but that the relationship reverses after a certain threshold.”¹⁰⁴ That paper examined whether a measure of the on-budget costs of federal regulation in the United States had an effect on GDP growth, which is a different objective than a top-down model of the cost of regulation, but it illustrates the important point that some effects on GDP can be nonlinear. If such model misspecification did occur in the Crain and Crain model, the results of their model could be held in question.

In sum, these three issues related to model specification—selection of independent variables, selection of dependent variables, and selection of the correct functional form for the model—are highly important to the reliability and validity of conclusions made based upon a top-down estimate of the cost of regulation.

¹⁰² A.H. Studenmund, *Using Econometrics: A Practical Guide*, 6th ed. (New York: Addison-Wesley, 2011), p. 207.

¹⁰³ There may be additional econometric issues with the linear regression that are beyond the scope of this report. For example, linear regression models rely on several other assumptions that are not discussed here; for a more detailed discussion of these assumptions, see Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, 5th ed. (South-Western - Cengage Learning, 2012).

¹⁰⁴ Tara M. Sinclair and Kathryn Vesey, *Regulations, Jobs, and Economic Growth: An Empirical Analysis*, George Washington University Regulatory Studies Center, Working Paper, Washington, DC, March 2012, p. 27, http://regulatorystudies.columbian.gwu.edu/files/downloads/032212_sinclair_vesey_reg_jobs_growth.pdf. That paper examined whether there was a relationship between changes in the on-budget costs of federal regulation in the United States and macroeconomic outcomes, and it concluded that “we found basically no evidence that the regulators’ budget has anything other than a zero effect on GDP and employment.”

Other Potential Methodological Issues

There are several additional methodological issues that may be of concern in the top-down approach, including unclear directions of causality and insufficient sample size in the model.

Questions of Causality

The first issue, which is linked to the question of identification of a dependent variable, relates to questions of causality in a top-down approach that uses a measure of regulation to explain the health of a country's economy: does the amount of regulation affect the economy, or could the economy also have an effect on the amount of regulation? This uncertainty about the direction of the causality between different components of a model is referred to by economists as "endogeneity." The presence of endogeneity can cause bias in the parameter estimates resulting from the model. As mentioned earlier in this report, it is crucial that researchers using a top-down approach explain the theory behind all of the components of their models. Having a solid theoretical foundation related to the causality question can reduce or eliminate the likelihood that a model will suffer from endogeneity.

In the case of top-down studies of regulation like Crain and Crain, the parameter estimates are used to calculate the potential difference in GDP, which is the estimate that Crain and Crain provide for the cost of economic regulation. As explained in the section above summarizing their methodology, Crain and Crain assert that the GDP per capita is a direction function of the amount of regulation in a country. They do not explore the possibility that the causality could also go in the other direction. The presence of such endogeneity can cause the results of the model to be incorrect.

The issue of correctly identifying the causal relationship is a challenge for scholars examining the relationship between regulation and other macroeconomic factors. For example, a recent study of the "regulatory volume" in states across the United States "looked at the relationship between regulatory output and a series of indicators described above meant to represent the economic health of the state." The study concluded that "citizens in more prosperous states may very well demand more regulation than citizens in less prosperous states."¹⁰⁵ A similar concern could potentially be raised about the direction of causality between the volume of regulation and the economy.

Sample Size

The second is an issue of sample size, particularly for a top-down study that uses a cross-country comparison of industrialized economies. A small sample size can have detrimental effects on the precision of the model's results: a smaller sample size makes the estimate less precise and therefore less reliable. Researchers who examine cross-country comparisons of regulation face some potential problems, including the small number of fully industrialized countries and the fairly short length of time over which regulatory measures have been constructed.

The Crain and Crain study uses 34 countries and a time period of eight years: 2006 to 2013. This is a relatively small sample size, especially given that the measures of regulation and other variables in the model are unlikely to change very much from one year to the next in just an eight-year period.¹⁰⁶ In addition, this specific eight-year period is not necessarily a typical one, as

¹⁰⁵ Stuart Shapiro and Debra Borie-Holtz, *The Politics of Regulatory Reform* (New York: Taylor & Francis, 2013), pp. 65-66.

¹⁰⁶ The R-squared in the table for "within" the countries in their sample is .01, meaning that their model is not a very (continued...)

it is the period leading up to and immediately following the Great Recession.¹⁰⁷ Therefore, conclusions made based upon this narrow time period may not be generalizable to other years or other periods.¹⁰⁸

Potential for Double-Counting Costs

In the top-down approach, another potential problem is whether costs may be double-counted. Crain and Crain separate their total estimate of the cost of regulations into four categories, as described above, although it appears that this approach may be double-counting the cost of some regulations for at least two reasons.

The first reason is an econometric one: as mentioned above, the potential for omitted variable bias exists in any econometric model. If Crain and Crain omitted a variable that is highly correlated with their measure of “economic” regulations—such as a measure of environmental or other types of regulations, which are almost undoubtedly correlated with their measure of economic regulation—then the explanatory power of the omitted variable becomes attributed to the coefficient on the economic regulation measure. In other words, the explanatory strength of that measure is inflated by the omission of other variables that are not included. By adding other measures of regulation, including environmental regulations, to the total cost they estimate for economic regulation, Crain and Crain may therefore be double-counting the effects of these other types of regulations.

Second, the potential for double-counting exists because of the nature of the questions asked to business leaders that comprise the regulatory quality measure. The questions themselves do not necessarily measure *only* economic regulation, although Crain and Crain imply that to be the case. Rather, as discussed above, they measure potentially very broad effects of all types of regulation by measuring the overall regulatory environment. Because Crain and Crain is a hybrid study that also employs a bottom-up methodology to measure certain types of regulation, they add an estimate of the cost of other types of regulation to their estimate of the cost of economic regulation. As a result, their overall number of roughly \$2 trillion could include some double counting.¹⁰⁹

No Discussion of Benefits of Regulations

To date, it appears that the top-down approach has not been used to estimate benefits of regulation—only costs. It is not clear whether the method *could* be used to measure benefits, because the approach measures cost in terms of potential economic growth that has not occurred due to the amount of regulation. A parallel approach does not seem to be applicable to benefits, which, as discussed above, are often not easily measured in dollar amounts or economic effects, and therefore may not be able to be estimated in this same way.

(...continued)

good fit to explain the changes within countries over that period.

¹⁰⁷ Crain and Crain included dummy variables for two years, 2008 and 2009, but did not explain why.

¹⁰⁸ The Crain and Crain data appear to have other issues related to sample size as well. For example, their sample appears to be missing some observations—34 countries times eight years should yield 272 observations, but they report their number of observations in Table 3 to be 219. They do not provide an explanation for why these observations are missing.

¹⁰⁹ Furthermore, it is worth noting that the portion of their model that covers the non-economic regulation—\$580 billion—may contain some of the same potential problems as those identified above for other bottom-up estimates.

Although the top-down method does not appear to be intended to measure costs *and* benefits, having an estimate of costs without an estimate of benefits does not provide the complete context for evaluating whether a country's amount of regulation is appropriate. Such a comparison of costs against benefits has been institutionalized in the regulatory process in the United States since the early 1980s. Specifically, one of the underlying components of the current regulatory system, which was formally put into place by President Ronald Reagan in 1981 when he issued Executive Order 12291, is that agencies should consider the costs of individual regulations and compare them against the benefits, and that "regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society."¹¹⁰ This general approach of comparing costs against benefits has been upheld since the Reagan Administration formalized it in 1981, and the shift to become more reliant on estimates of costs and benefits in informing regulatory decisions over the past several decades has been well documented.¹¹¹

In sum, the notion that costs and benefits must be compared to one another has remained a crucial component of the regulatory process in the United States over the past several decades. Under current rulemaking requirements, agencies are responsible for measuring costs against benefits in individual regulations, and because of the nature of the bottom-up method and its reliance on those estimates, it can be used to make overall comparisons between total costs and benefits. Such a comparison does not seem possible, however, at the macroeconomic level.

Summary: Advantages and Disadvantages of Two Approaches

Each of the two main approaches taken to estimate the total costs and benefits of regulations have pros and cons, which tend to mirror one another. This final section briefly compares the two approaches and provides some perspective on why this issue is of potential interest to Congress.

The bottom-up approach to estimating the total costs and benefits of regulations, such as the approach taken by OMB in its annual report to Congress, has several advantages. The bottom-up approach involves adding up actual cost estimates calculated by agencies pursuant to rulemaking requirements. These estimates are conducted on an individual basis for certain regulations, and, although they often contain some uncertainty, are based upon specialized information the agency has regarding expected costs and benefits.

¹¹⁰ Executive Order 12291, "Federal Regulation," 46 *Federal Register* 13193, February 17, 1981, § 2(b).

President William Clinton maintained this general principle of weighing costs against benefits when he issued his executive order on rulemaking, which replaced Executive Order 12291. Executive Order 12866 § 1(b)(6). In his executive order, President Clinton arguably took a slightly more lenient approach by changing the wording to require that the benefits to society *justify* the costs of the regulation, rather than *outweigh*.

President Barack Obama continued to uphold the practice of comparing costs against benefits when he issued Executive Order 13563 in 2011, emphasizing, among other things, that agencies must "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify)." Executive Order 13563 § 1(b).

¹¹¹ See CRS Report R41974, *Cost-Benefit and Other Analysis Requirements in the Rulemaking Process*, coordinated by Maeve P. Carey, and CRS Report RL32240, *The Federal Rulemaking Process: An Overview*, coordinated by Maeve P. Carey, and Eric A. Posner, "Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective," *University of Chicago Law Review*, vol. 68, no. 4 (Fall 2001), pp. 1137-1199, describing the "entrenchment of cost-benefit analysis in American government" in recent decades (pp. 1139-1140).

Notably, current requirements for agencies to estimate costs and benefits of their rules are intended to assist with agency decisionmaking in *individual* regulations by more fully informing decisionmakers of the likely outcomes and providing a means of evaluating and comparing regulatory alternatives. The potential utility of that information when taken out of the context of individual rules and aggregated, however, is greatly reduced.

An individual cost-benefit analysis conducted by an agency and included in the bottom-up aggregated estimate could also suffer from econometric problems similar to those described above in the context of the top-down approach. However, the individual estimates used in the bottom-up approach can be validated by comparing the *ex ante* estimates of costs and benefits to *ex post* estimates. Some such studies exist and are discussed above. In addition, agencies may—though they are not explicitly required to—revisit the original cost-benefit estimate when conducting a retrospective review of their regulations.¹¹² This provides a potential means of validating the results of the bottom-up method, whereas the top-down method does not have a similar opportunity for *ex post* validation.

The biggest potential problem with the bottom-up approach, however, is that the aggregated estimate is unlikely to represent the costs and benefits of all rules. Not all rules are included in the aggregate, because cost-benefit estimates are not currently conducted or required for all regulations. Furthermore, even for rules in which a cost-benefit analysis is required, monetizing certain types of costs and benefits can be challenging, and any effects of regulations that are not monetized are not able to be included in a bottom-up aggregate.

Because of these limitations about what may be missing from the bottom-up estimate, a top-down approach may be more likely to capture fully the overall cost of regulations, as the top-down approach could conceivably provide a way to include in its estimate of indirect costs and effects of regulations that are not included in the bottom-up approach. However, the top-down approach has several potential problems when it comes to implementation, most of which are conceptual and methodological. Any estimates of the cost of regulation resulting from a top-down approach are entirely reliant on the validity of the model, identification of its components and structure, and the theory behind it. The validity of an estimate is especially reliant upon the validity of the proxy measure of regulation. In practice, overcoming these conceptual and methodological hurdles is difficult, if not impossible, meaning that the results of a top-down approach should be treated with a great deal of caution.

Finally, the top-down approach does not make a comparison of costs to benefits. Such a comparison appears to be outside the purpose of the top-down approach, but having both estimates of costs and benefits can provide a more complete representation of the cost-effectiveness of a country's regulation.

Issues for Congress

Because of the role Congress plays in delegating legislative authority to federal agencies to issue regulations, Congress has shown an interest in conducting oversight of those regulations, both for

¹¹² A government-wide retrospective review is currently required under the Obama Administration, and similar reviews have been required by previous administrations. It is unclear, however, the extent to which agencies re-examine or recalculate their *ex ante* cost-benefit estimates. For more information on the current retrospective review initiative under the Obama Administration, see Joseph E. Aldy, *Learning from Experience: An Assessment of the Retrospective Reviews of Agency Rules and the Evidence for Improving the Design and Implementation of Regulatory Policy*, report prepared for the consideration of the Administrative Conference of the United States, November 17, 2014, at http://www.hks.harvard.edu/fs/jaldy/img/aldy_retrospective.pdf.

individual regulations and the regulatory system generally. One way for Congress to conduct oversight of the regulatory system as a whole is to monitor the total cost and benefits of federal regulation.

Inaccuracies in cost-benefit estimates conducted by agencies could have the effect of undermining public confidence in the regulatory process.¹¹³ So, too, could a misunderstanding or over-reliance on estimates of the total cost of regulation that are not intended to be considered precise findings. For the reasons discussed throughout this report, both approaches to estimating the total cost of regulation have inherent—and potentially insurmountable—flaws. The true cost of regulation is incredibly difficult to estimate for the many reasons discussed in this report, and perhaps others as well. The discrepancy between the two approaches and their associated estimates raises the question of the utility of using such figures in the regulatory reform debate.

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¹¹³ Winston Harrington, Richard D. Morganstem, and Peter Nelson, "On the Accuracy of Regulatory Cost Estimates," *Journal of Policy Analysis and Management*, vol. 19, no. 2 (Spring 2000), p. 298.

ARTICLES

EPA's New Source Review Program: Time for Reform?

by Art Fraas, John D. Graham,
and Jeff Holmstead

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Summary

This Article examines the complex CAA program known as new source review (NSR), which affects virtually every major manufacturing facility and power plant in the United States. The NSR program provides important health and environmental benefits but has become a significant impediment to the growth and modernization of the U.S. manufacturing sector. Because of a new, more stringent air quality standard for ozone, the resulting changes in the NSR program may effectively prevent industrial development in some parts of the country. The authors propose administrative reforms that EPA could take to address some of the major concerns about NSR while still maintaining the environmental benefits of the program: (1) replace current deterministic, upper-bound modeling requirements with a probabilistic approach to air quality modeling; (2) expand the pool of emission reduction credits that may be used to offset emissions from new or expanded facilities; and (3) take actions to facilitate NSR permitting when there are changes to national ambient air quality standards. The authors also offer two potential statutory reforms.

The administrations of both George W. Bush and Barack Obama recognized that manufacturing is one of the most heavily regulated sectors in the U.S. economy. Since 1981, manufacturers have become subject to more than 2,200 unique regulations, almost one-half attributable to one federal agency, the U.S. Environmental Protection Agency (EPA).¹ Both administrations also sought to streamline existing federal regulations that apply to the manufacturing sector in order to reduce economic burdens that threaten the competitiveness of U.S. manufacturing. However, a recent report by the Regulatory Studies Center at George Washington University found that the retrospective reviews of manufacturing regulations under both presidential administrations have had limited impact. Indeed, some of the retrospective reviews appear to have led to greater rather than diminished regulatory burdens.²

EPA's new source review (NSR) program is of special interest because it affects virtually every major manufacturing facility and power plant in the United States—and any company that might want to build such a facility in the future.³ In this Article, we discuss the major concerns about the NSR program that have been raised by industry and the policy community, and also highlight the expanding burdens of the program resulting from increasingly stringent national ambient air quality standards (NAAQS). However, since the NSR program is also recognized as a source of significant environmental benefits, the simple option of deregulation does not seem to be particularly promising. We argue that creative regulatory reforms can accomplish most or all of the anticipated environmental benefits at considerably reduced cost to the regulated industry and the U.S. economy.

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1. PAUL BERNSTEIN ET AL., MACROECONOMIC IMPACTS OF FEDERAL REGULATION OF THE MANUFACTURING SECTOR (NERA Economic Consulting & Manufacturers Alliance for Productivity and Innovation 2012).
2. Sofie Miller, *EPA's Retrospective Review of Regulation: Will It Reduce Manufacturing Burdens?*, 14 ENGAGE 4-14 (2013), available at <http://www.fed-soc.org/publications/detail/epas-retrospective-review-of-regulations-will-it-reduce-manufacturing-burdens>.
3. NATIONAL RESEARCH COUNCIL, NEW SOURCE REVIEW FOR STATIONARY SOURCES OF AIR POLLUTION 68-76 (2006).

We start with a brief summary of certain key features of the Clean Air Act (CAA) and a brief discussion of how the NSR program fits within the structure of the Act. We then identify aspects of the current NSR regulatory approach that are likely to impose increasing costs on manufacturers in the near future. We propose options for regulatory reform that are designed to streamline and modernize regulatory requirements and reduce regulatory costs, while still allowing the regulatory program to achieve significant environmental results. We recognize that reforms that can be adopted through executive action are more likely to occur than those that require new legislation by the U.S. Congress, but we also outline two variants of a potentially promising legislative reform that could replace the existing case-by-case NSR review process with a system of economic incentives.

I. Background

A. NAAQS

The CAA requires that EPA establish NAAQS for certain pollutants known as “criteria pollutants”; pollutants that come from a variety of sources, are widespread in many geographic areas, and “reasonably may be expected to endanger public health or welfare.”⁴ EPA has identified and set NAAQS for six such pollutants, including ozone and particulate matter (PM). The statutory language requires primary health-based NAAQS to be set at levels “which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.”⁵ This requirement has yielded an underlying health science based on an increasingly sophisticated set of studies focused on sensitive subpopulations and more subtle health endpoints.

The CAA also requires EPA review of NAAQS every five years.⁶ Although EPA has not been able to meet the five-year deadline in recent years, environmental groups have used litigation effectively to force EPA into what amounts to almost continuous review of NAAQS, especially NAAQS for ozone and PM. The result has been a series of more stringent standards over the past decade. And given the focus on sensitive subpopulations and more subtle health effects, it appears likely that there will be continuing pressure to ratchet down NAAQS even further in future years.

4. 42 U.S.C. §§7401-7671q, §7408; ELR STAT. CAA §§101-618, §108.

5. 42 U.S.C. §7209. Secondary standards are required to protect welfare; EPA has generally set welfare standards at the same level as the primary health NAAQS.

6. *Id.*

Since 2009, EPA has set more stringent NAAQS for four of the six criteria pollutants: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), PM, and ozone. These NAAQS impose substantial costs on the U.S. economy and, in particular, on the manufacturing sector. For the recently revised ozone NAAQS, for example, EPA estimated annual costs of \$1.4 billion (not including the cost in California, which faces a particularly difficult challenge in reducing ozone levels), but some experts believe that the cost will be much higher.

Some major metropolitan areas such as Los Angeles, Houston, and the East Coast megalopolis have had a continuous classification as “nonattainment” (NA) for the ozone and fine PM NAAQS.⁷ These areas face continuing pressure to reduce emissions from the transportation and manufacturing sectors and severe restrictions on the siting of major new sources. Other large cities find that, with the lowering of NAAQS, they are in NA again (after spending years to meet an earlier standard) and must adopt even more stringent emissions controls for their manufacturing, commercial, and transportation sources.⁸ In addition, as discussed below, the continuing ratcheting downward of NAAQS is making it increasingly difficult to site major new manufacturing sources.

Studies of the historical effect of the CAA on economic activity report significant economic costs in NA areas.⁹ For example, Michael Greenstone estimated that, as compared to attainment counties in the United States, NA counties lost \$37 billion in capital, \$75 billion of economic production (in 1987 dollars), and 590,000 jobs during the period from 1972 to 1987.¹⁰ In a more recent study, Greenstone et al. estimated a significant decline in total factor productivity for pollutant-intensive plants in NA areas.¹¹ They report that this decline in productivity translates into a loss of

7. While classified as nonattainment areas, the air quality in these areas is better than the NAAQS for a significant number of days in the year.

8. To be sure, additional health and welfare benefits are associated with more stringent NAAQS. In the case of ozone, EPA estimates that benefits increase significantly with successively more stringent standards. And even net benefits (benefits minus costs) arguably increase with the more stringent ozone standards. This result is largely driven on the benefit side by the substantial additional reductions in premature mortality with successively more stringent ozone NAAQS. On the cost side, EPA assumes that the cost of needed emissions reductions will be capped at \$15,000 per ton, arguing that technological innovation and the ability of states and local governments to delay unreasonably costly measures will mitigate the cost of NAAQS.

9. Michael Greenstone, *The Impacts of Environmental Regulations on Industrial Activity: Evidence From the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures*, 110 J. POL. ECON. 1175-1219 (2002); J. Vernon Henderson, *Effects of Air Quality Regulation*, 86 AM. ECON. REV. 789-813 (1996); John A. List et al., *Effects of Environmental Regulation on Manufacturing Plant Births: Evidence From a Propensity Score Matching Estimator*, 85 REV. ECON. & STAT. 944-52 (2003).

10. Greenstone, *supra* note 9, at 1176.

11. MICHAEL GREENSTONE ET AL., *THE EFFECTS OF ENVIRONMENTAL REGULATION ON THE COMPETITIVENESS OF U.S. MANUFACTURING* (NBER Working Paper Series No. 18392, National Bureau of Economic Research 2012), available at <http://www.nber.org/papers/w18392.pdf>.

\$450 billion for manufacturing plants in NA areas during the 1972 to 1993 period of study.¹²

While these studies suggest a substantial shift of pollution-intensive industry away from NA areas in the United States, these studies may simply reflect a shift of activity within the United States from NA areas to attainment areas. In other words, although the CAA has clearly imposed significant economic costs on NA areas, it may have created commensurate economic gains in manufacturing activity and employment in attainment areas.

Unfortunately, relatively few studies in the economic literature evaluate the effect of environmental regulation on the competitiveness of the U.S. manufacturing sector as a whole. A variety of other factors likely play an important—even dominant—role in decisions on whether to locate in the United States versus another country. These factors include, for example, access to (and cost of) important factors of production, transportation costs, existing investment in facilities and infrastructure, tax considerations, and exchange rate effects.

Any empirical evaluation of the effect of environmental regulations is difficult to do because it must account for these other factors in teasing out any regulatory effect. Only a few studies have attempted to do it. This limited empirical literature suggests that environmental regulation has been a relatively minor factor in decisions as to whether manufacturing plants will be located in the United States or another country.¹³ On the basis of this limited set of studies, Joseph Aldy and William Pizer have suggested that the adverse effect of CAA requirements in shifting economic activity and jobs away from NA areas to “clean” areas within the United States has been more important than the effects in terms of forcing this economic activity offshore to countries with less stringent environmental requirements.¹⁴

However, these economic studies have looked at the past history of the CAA in the decades before 2000. With the substantial tightening of NAAQS in more recent years, the difficulty of siting or expanding major manufacturing facilities in the United States may have created a more significant incentive to shift industrial activity to other countries with less burdensome regulatory requirements.

B. New Source Review

The CAA requires that, before a company can construct a new industrial facility or expand an existing facility in the United States, it must first go through the NSR permit-

ting process and obtain a permit that, among other things, ensures that the new or expanded facility will employ up-to-date pollution control technology. The NSR program creates somewhat different requirements depending on whether the facility is located in an attainment area (an area that meets NAAQS or is unclassifiable due to the lack of data) or an NA area (an area that does not meet the NAAQS).

In NA areas, new plants and major modifications to existing plants are required to meet the lowest achievable emission rate (LAER), meaning that the plants must install state-of-the-art pollution controls in order to match or exceed the emission rate achieved by the lowest-emitting similar facility in the country. In addition, they must obtain pollution “offsets” from other facilities in the same area. These requirements reportedly make it difficult or even impossible to site new plants in certain NA areas.¹⁵

In particular, discussions with industry sources suggest that the cost of emissions offsets effectively prohibits the siting of major new industrial plants in certain NA areas. The idea behind offsets is that, in order to build a new industrial facility in an NA area, a company must pay someone else to reduce emissions in that same area by an amount that exceeds the emissions that will come from the new facility. Depending on the area, it must obtain offsets that are between 10% and 50% greater than the projected emissions from the new facility.

Not surprisingly, offsets cannot be created on the basis of actions already required by EPA or state regulations. To be counted as an offset, an emissions reduction must go beyond what is required by law. But for more than 40 years, EPA and states have been looking for every conceivable way to reduce emissions related to ozone. In many areas, all the cost-effective emissions reductions have been mandated by regulation. Where any reductions can be made, they are very expensive.

For example, the Houston area, especially near the Houston Ship Channel, has numerous industrial facilities, but they are generally well-controlled. Because there is so much industry, it is possible to purchase offsets, but they are very expensive. Houston-area offset prices vary from \$150,000 to \$200,000 per ton for volatile organic compounds (VOCs) and \$80,000 to \$100,000 per ton for nitrogen oxide (NO_x).¹⁶ Even a relatively small facility with state-of-the-art controls will emit more than 100 tons per year of these pollutants. The so-called “offset ratio” in the Houston area is 1.4 to 1, meaning that the new facility would need to offset 140% of its projected emissions. Thus, even if the new facility will emit only 100 tons per year of NO_x and VOCs, the company trying to build it

12. GREENSTONE ET AL., *supra* note 11, at 2.

13. ALAN B. JAFFE ET AL., *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, 33 J. ECON. LITERATURE 132-63 (1995); ARIK LEVINSON & M. SCOTT TAYLOR, *Unmasking the Pollution Haven Effect*, 49 INT’L ECON. REV. 223-54 (2008).

14. JOSEPH E. ALDY & WILLIAM A. PIZER, *THE COMPETITIVENESS IMPACTS OF CLIMATE CHANGE MITIGATION POLICIES* (NBER Working Paper 17705, 2011), available at <http://www.nber.org/papers/w17705>. See also BRUCE G. CARRUTHERS & NAOMI R. LAMOREAUX, *Regulatory Races: The Effects of Jurisdictional Competition on Regulatory Standards*, 54 J. ECON. LITERATURE 52-97 (2016).

15. Existing plants in these areas may also find it difficult to make major modifications.

16. MIKE TAYLOR, *UPDATE ON SCARCITY OF HOUSTON-GALVESTON-BRAZORIA (HGB) EMISSION REDUCTION CREDITS (ERCs) AND ALLOWANCES, AND USE OF NO_x ERCs FOR VOC ERCs* (2014), available at <http://www.wmaggcc.org/docs/Sept2014Presn.pdf>; TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), *TRADE REPORT* (2015), available at www.tceq.texas.gov/assets/public/implementation/air/banking/reports/eccrtradereport.pdf.

would need to purchase 140 tons of NO_x offsets and 140 tons of VOC offsets. At current offset prices, this means an upfront cost of \$32 million to \$52 million just to purchase emissions offsets.

In the South Coast NA area in California, average offset prices in 2014 were \$23,500 per ton for VOCs and \$63,000 per ton for NO_x.¹⁷ Table 1 provides reported prices and quantities for major areas in California. In addition, the quantities involved in these emissions offset transactions

for any pollutant; and (2) even if projected emissions will not violate NAAQS, they will not result in an increase in ambient concentrations of any pollutant that exceeds the allowable PSD “increments” set by the CAA.¹⁹

The requirement to show that emissions from a new facility will not “cause or contribute” to a violation of any NAAQS will be more challenging now that the ozone standard has been lowered from 75 to 70 parts per billion (ppb), because many areas of the country that have always

Table 1. 2014 California Offset Prices for Emission Reduction Credits (\$/ton)

| | VOC (\$/ton) | VOC (tons) | NO _x (\$/ton) | NO _x (tons) |
|---------------|------------------------------|------------|------------------------------|------------------------|
| Bay Area | \$1,200-\$9,500 [\$6,196] | 212 | \$14,500-\$15,000 [\$14,643] | 73 |
| San Joaquin | \$900-\$6,000 [\$3,877] | 255 | \$18,000-\$44,000 [\$36,519] | 177 |
| Santa Barbara | \$125,000 | 0.06 | \$125,000 | 0.56 |
| South Coast | \$7,400-\$32,880 [\$23,462] | 26 | \$63,014 | 5.5 |
| Ventura | \$15,000-\$70,000 [\$50,938] | 21 | | |

Source: CALIFORNIA AIR RESOURCES BOARD (CARB), EMISSION REDUCTION OFFSET TRANSACTION COSTS: SUMMARY REPORT FOR 2014 (2015), available at <http://www.arb.ca.gov/nsr/erco/erc14.pdf>. Brackets denote average (mean) price.

are relatively small compared with the emissions from a new major source coming into an NA area.¹⁸ If the applicant does not have a facility in the NA area that it can readily control (or tear down) to provide offsets, then emissions offsets for five or more years in the future are reportedly hard or even impossible to find.

More stringent NAAQS standards will also have an important effect on the siting of new sources in attainment areas. Under the “prevention of significant deterioration” (PSD) provisions of the CAA, new plants and major modifications in attainment areas must also go through a pre-construction permitting process. This process requires that these plants:

- Adopt the best available control technology (BACT) to control all pollutants (not just criteria pollutants) that are regulated under the CAA. BACT is sometimes no different from LAER but may be less stringent, and less costly, for certain types of facilities.
- Provide an analysis of the effect of anticipated plant emissions on ambient air quality, including both pre-construction monitoring of air quality in the area and air quality modeling of the effect of the plant emissions on ambient air quality.

To obtain a permit, the permit applicant must show, to the satisfaction of the permitting authority (generally the state environmental agency), that (1) projected emissions from the new plant will not result in changes in ambient air quality that would cause the area to exceed NAAQS

been in attainment do not meet the new standard. Until these areas are designated as NA areas, a permit applicant would need to show that the proposed plant will not “contribute to” a violation of the new standard, which would appear to be impossible in or near areas that are already in violation of the standard. EPA has said that it intends to create at least two options that would address this concern: (1) by setting certain de minimis emissions thresholds below which a new facility would be deemed not to “contribute” to a violation of the NAAQS; or (2) by allowing the permit applicant to purchase offsets.

Given the history of CAA regulation, it is likely that these options, when finalized by EPA, will be challenged in court. Even if they pass muster in the courts, it remains to be seen whether either of these options will be practically viable—especially for large industrial facilities.²⁰ If not, it will not be possible to build or expand a new industrial facility in certain areas, even if the facility would use state-of-the-art technology to control its emissions and even if the local community desperately wants it to be built.

II. Analyses of the NSR Program

A. Costs of the NSR Process and Permitting Delays

In a 2001 report on NSR, EPA observed that the permit application process can involve up to five different stages: preparation of a permit application; agency determination of application “completeness” (a process that may include extensive discussion between the applicant and permitting officials and the preparation and submission of additional information); public notice and comment on a draft

17. CALIFORNIA AIR RESOURCES BOARD, EMISSION REDUCTION OFFSET TRANSACTION COSTS: SUMMARY REPORT FOR 2014 (2015), available at <http://www.arb.ca.gov/nsr/erco/erc14.pdf>.

18. NSR generally applies to sources emitting 100 tons/year of a precursor ozone pollutant.

19. The CAA established PSD increments for PM and SO₂ for the three classes of attainment areas: Class I (pristine), Class II (intermediate), and Class III (growth). EPA has established PSD increments for the other conventional pollutants through rulemaking.

20. For example, it appears that a number of rural areas may exceed the new 70 ppb ozone standard—not because of local emissions, but because of background ozone and pollution transported from distant sources. Some areas have no local stationary sources and thus no way to generate offsets that can be used by new plants. In such cases, the offset requirement will impose a de facto ban on most types of industrial development.

permit; issuance of a final permit along with response to comments; and administrative and judicial appeals.²¹ This same report notes that “most developers describe [NSR] permitting as an extremely complex and time-consuming process.”²² A recent comment filed by an industry coalition stated: “Sources generally invest years in engineering, design and assessment studies before submitting a permit application for a major source. Even under optimistic conditions, it can take at least two years from the beginning of the frontend engineering work until public notice of the draft permit is published.”²³

The NSR process imposes direct costs in terms of the time and resources required to prepare the permit application and to provide responses to questions and issues that arise in the permitting process. The uncertainty and delay that attend the permitting process may impose additional costs, including financial costs and penalties.²⁴ The opportunity costs associated with delays or cancellation of projects include the additional production forgone and, in some cases, forgone emissions reductions from retrofitted facilities. In addition, the potential for long delays and the uncertainty that attends the NSR process could lead to suboptimal decisions in upgrading existing capacity and installing new capacity.²⁵

Some economists and industry representatives have argued that the focus of NSR on preconstruction review of new or modified plants, and the attendant significant costs associated with the NSR program, have penalized the construction of new plants and the retrofit of existing plants—resulting in a “new source bias.”²⁶ Thus, it has arguably been more economic in some cases to continue to operate relatively old, inefficient, and high-polluting plants than to

install new facilities or upgrade existing facilities with better pollutant control technology.²⁷ To the extent this has occurred, NSR review has had the perverse effect of delaying reductions in pollutants such as SO₂ and NO_x.²⁸

B. The Time Needed to Obtain an NSR Permit

Under the CAA, EPA and other permitting agencies are required to either grant or deny an NSR permit within one year of receiving a permit application, but there is no practical way to enforce this deadline, and the permitting process often takes longer—sometimes much longer—than a year. A 2015 Resources for the Future discussion paper provides a snapshot of the NSR process from the date EPA or state authorities notify applicants that the NSR application is complete to the issuance of the final permit.²⁹ During the period from 2002 to 2014, the nationwide average time to obtain an NSR permit for coal- and natural gas-fired electric generating units (EGUs) and refineries was roughly 14 months.³⁰ This represents a substantial increase in average processing time for NSR permits compared with the reported permitting times for the 1997-2001 period. The distributions are skewed—median values are less than the mean—with some projects requiring substantially longer to obtain NSR approval.³¹ In addition, there was a significant variation across EPA regions in the processing time required for approval of new natural gas-fired EGUs—from seven months for Region 7 (Iowa, Kansas, Mississippi, and Nebraska) to 19 months for Region 9 (Arizona, California, and Nevada).

The data also show substantial year-to-year variation in processing times, with markedly longer processing times during the 2003-2005 and 2009-2011 periods (Table 2). The increase in permitting time during the 2003-2005 period may reflect the uncertainty in the NSR program

21. U.S. EPA, NSR 90-DAY REVIEW BACKGROUND PAPER 5 (2001).

22. *Id.* at 11.

23. SHANNON BROOME & BOB MOREHOUSE, COMMENTS OF THE AIR PERMITTING FORUM: NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE (2015), available at <https://www.regulations.gov/documentDetail;D=EPA-HQ-OAR-2008-0699-3578>.

24. U.S. EPA, *supra* note 21, at 11. “Permitting (including required public hearings and comment processes) can be costly not only because of the time and human resources involved, but also because of uncertainty and delay.” “Delay, for example, can cause a developer to miss advantageous financial circumstances when interest and equity costs are low.” *Id.* at 11. In addition, the applicants may have penalty clauses associated with delays in the start of construction in their contracts with engineering and construction firms. According to industry sources, these penalties can be as much as \$35,000 to \$40,000 per day.

25. These time-cost considerations may be particularly important in the petroleum refining industry, where the National Petroleum Council claims that “the most critical factor in the U.S. refining industry’s ability to meet new fuel requirements in a timely manner is the ability to obtain permits.” *Id.* at 44. ARCHIE W. DUNHAM ET AL., U.S. PETROLEUM REFINING: ASSESSING THE ADEQUACY AND AFFORDABILITY OF CLEANER FUELS (National Petroleum Council 2000). EPA’s 2001 background report also cites statements by several oil company executives claiming that the NSR process impedes the U.S. refinery industry’s capacity to expand. See U.S. EPA, *supra* note 21, at 44.

26. Howard K. Gruenspecht & Robert N. Stavins, *New Source Review Under the Clean Air Act: Ripe for Review*, 147 RESOURCES 19, 20-21 (2002). See also U.S. EPA, *supra* note 21, at 18, 29. The direct costs to add pollution controls at existing facilities are often significantly greater than the corresponding control cost for a new plant, because pollution controls can be incorporated in the initial design of a new facility, whereas compatibility problems and space constraints at existing facilities often complicate the retrofit of controls at these facilities.

27. EPA’s 2001 NSR report found some evidence to support this argument, reporting that NSR for existing sources “has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency, and safety of existing energy capacity.” U.S. EPA, NEW SOURCE REVIEW: REPORT TO THE PRESIDENT 1 (2002), available at https://www.epa.gov/sites/production/files/2015-08/documents/nsr_report_to_president.pdf (cited by NATIONAL ACADEMY OF SCIENCES, NEW SOURCE REVIEW FOR STATIONARY SOURCES OF AIR POLLUTION 45 (National Academies Press 2006)).

28. U.S. EPA, *Clean Air Act Requirements and History*, <https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history> (last visited Nov 15, 2016). To be sure, supporters of the current NSR program argue that NSR review yields important reductions in the covered pollutants. For example, EPA’s 2001 NSR report estimated that PSD BACT permitting during 1997-1999 avoided 1.4 million tons per year in conventional pollutant emissions (largely reductions in SO₂ and NO_x emissions). U.S. EPA, *supra* note 21, at 8. See also RICHARD L. REVEZ & JACK LIENKE, STRUGGLING FOR AIR: POWER PLANTS AND THE “WAR ON COAL” (Oxford University Press 2016).

29. ARTHUR FRASAS ET AL., EPA’S NEW SOURCE REVIEW PROGRAM: EVIDENCE ON PROCESSING TIME (Resources for the Future 2015).

30. The difference in processing times between NA and attainment areas was small and not statistically significant. These data are taken from EPA’s RACT/BACT/LAER Clearinghouse (RBLC). EPA staff believe only one-half of the approved NSR projects are reported to the RBLC database.

31. However, the clearinghouse database had few entries for new plants in recent years—only one additional NSR permit for a new coal-fired plant in 2012 and no additional permits for coal-fired plants in 2013 and 2014.

due to the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit review of EPA's 2002 and 2003 revisions to the program.³² The longer processing times during the 2009-2011 period may reflect a transition as the Obama Administration put its climate policy in place (meaning that sources for the first time had to use BACT to control their carbon dioxide emissions) and as sources faced new air quality modeling requirements with EPA's revision of the NO₂, SO₂, and fine PM NAAQS. During the 2010-2014 period, for example, one-third of the combined cycle plants received NSR permits after processing delays by the state or EPA permitting authorities ranging from more than one year—the statutory deadline for action—to three years.³³

III. Historical Concerns About the NSR Program

A. Delays Caused by Regulatory Overlap

For NSR, several different layers of government are likely to be involved. Where EPA has approved the state implementation plan (SIP) provisions for NSR, the state is the primary permitting authority. However, under EPA regulations, EPA retains authority over air quality modeling, and the states may be required to consult with the EPA region (and EPA headquarters in some cases) on modeling issues.³⁴

In states that have not obtained EPA SIP approval for their NSR process, EPA is the permitting authority. In most of these states, EPA has delegated the NSR process

Table 2. Average Permitting Time for Natural Gas EGUs (Including PSD and NA Areas)

| Year | All natural gas | | New permits | | Additions | | Modifications | |
|---------|-----------------|--------|-------------|--------|-----------|--------|---------------|--------|
| | Mean | Number | Mean | Number | Mean | Number | Mean | Number |
| 2002 | 321 | 73 | 324 | 47 | 299 | 25 | 769 | 1 |
| 2003 | 379 | 64 | 362 | 36 | 406 | 27 | 267 | 1 |
| 2004 | 612 | 46 | 521 | 27 | 829 | 13 | 551 | 6 |
| 2005 | 463 | 27 | 665 | 15 | 124 | 3 | 241 | 9 |
| 2006 | 290 | 23 | 355 | 6 | 286 | 11 | 231 | 6 |
| 2007 | 343 | 24 | 371 | 16 | 393 | 3 | 223 | 5 |
| 2008 | 377 | 21 | 384 | 3 | 715 | 4 | 278 | 14 |
| 2009 | 409 | 33 | 439 | 25 | 364 | 5 | 233 | 3 |
| 2010 | 468 | 24 | 554 | 14 | 372 | 5 | 321 | 5 |
| 2011 | 436 | 21 | 587 | 8 | 415 | 5 | 297 | 8 |
| 2012 | 268 | 31 | 245 | 14 | 223 | 11 | 403 | 6 |
| 2013 | 225 | 26 | 270 | 11 | 228 | 7 | 161 | 8 |
| 2014 | 235 | 3 | — | 0 | — | 0 | 235 | 3 |
| Average | 384 | 416 | 411 | 222 | 391 | 119 | 293 | 75 |

to the states (meaning that state officials take the administrative steps to process permit applications) but retains ultimate permitting authority and must be consulted on all substantive issues, including modeling, the selection of BACT, emissions limits, and monitoring and record-keeping requirements. In a relatively few cases, a state has refused to do NSR for one or more pollutants, and in these cases, EPA issues the NSR permit.³⁵

B. Changes in NAAQS: Problems in Transition and Lack of Timely EPA Guidance

The recent changes in the NO₂, SO₂, fine PM, and ozone NAAQS have further complicated the NSR process, resulting in permitting delays and, in some cases, the decision by industry to defer or cancel projects.³⁶ New or revised NAAQS must be addressed immediately in the NSR permit process, even before EPA makes formal designations as to which areas of the country are in attainment or NA with the new standard.³⁷

As a result, the new NAAQS can have an immediate impact on pending permit applications.³⁸ Even if a permit

32. The D.C. Circuit largely upheld EPA's 2002 revisions to its NSR program in June 2005. *New York v. Environmental Prot. Agency*, 413 F.3d 3, 35 ELR 20135 (D.C. Cir. 2005). On Dec. 24, 2003, however, the D.C. Circuit blocked the 2003 NSR rule revising the routine maintenance, repair, and replacement provisions from going into effect until the court reached a final decision. In *New York II*, the D.C. Circuit held that the 2003 NSR revision was invalid. *New York v. Environmental Prot. Agency*, 443 F.3d 880, 36 ELR 20056 (D.C. Cir. 2006).

33. Section 165(c) of the CAA requires completion of NSR within one year of the completeness determination. Combined cycle EGUs are the "cream of the crop" in terms of low-cost, efficient, clean generation of electricity. ARTHUR FRASAS ET AL., *supra* note 29, at 2. See also ARTHUR FRASAS & JOHN D. GRAHAM, REGULATORY REFORMS TO NURTURE THE RESURGENCE OF THE US MANUFACTURING SECTOR 20 (working paper 2015), <https://spea.indiana.edu/doc/research/manufacturing-initiative/frasas-graham-2015.pdf>.

34. 40 C.F.R. §51 app. W (2005).

35. For example, EPA issued NSR permits for greenhouse gas emissions in Texas from 2010-2014, while the TCEQ issued NSR permits for the other regulated NSR pollutants.

36. For example, the Baton Rouge Area Chamber reported that four major industrial projects were either put on hold or redirected to another location after EPA proposed to revise the ozone NAAQS in December 2015. Baton Rouge has monitored ozone levels of 72 ppb, a level above EPA's revised standard of 70 ppb. Baton Rouge Area Chamber, BRAC Public Policy Commentary: Eighteen of Twenty Top-Performing Metro Economies at Risk From New Ozone Standards (Mar. 2, 2015), http://www.brac.org/brac/news_detail.asp?article=1947.

37. See *Sierra Club v. Environmental Prot. Agency*, 762 F.3d 971 (9th Cir. 2014).

38. In some cases, EPA has adopted a grandfathering provision that applies to permit applications that EPA or the state permitting authority found to be

application has been pending for months or years and the permit applicant has shown that the new facility will not cause or contribute to the violation of any NAAQS, EPA has often required the permit applicant to redo its modeling analysis using the new standard.

In some cases, this has proven difficult, costly, and rife with delays because EPA's practice has been to adopt a revised, more stringent NAAQS and begin work on implementation and modeling guidance only after adopting the newly revised NAAQS. Although EPA staff have claimed that state environmental agencies know how to proceed when a NAAQS is changed, the state agencies have disagreed in comments to the Agency, and have sometimes delayed action on permit applications until EPA issues the necessary guidance.³⁹

In the case of EPA's 2010 revision of the NO₂ NAAQS, for example, EPA adopted stringent one-hour primary standards—the 98th percentile one-hour daily maximum averaged over three years—to supplement the existing annual standard. Shortly after the one-hour NO₂ NAAQS was issued, EPA put out a memorandum stating that anyone with a pending permit application—even with applications that had been pending for several years—would need to redo a modeling analysis to demonstrate that projected plant emissions would not cause or contribute to a violation of the new one-hour NO₂ NAAQS.⁴⁰

However, the adoption of the short-term NO₂ standard greatly complicated the air quality modeling that new sources were required to provide in obtaining an NSR permit. The standard air quality models in place incorporate overly conservative assumptions for modeling single source effects on ambient NO₂ levels. This over-conservatism was not a problem with the annual NO₂ NAAQS but, with the new, stringent one-hour NO₂ NAAQS, it effectively prevented showing that these new plants would not cause or contribute to NA.⁴¹

³⁹ "complete" before the new standard was established. U.S. EPA, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65291, 65431-34 (Oct. 26, 2015). In such cases, permit applicants are not required to redo their modeling under the new standard. Importantly, EPA did adopt this type of grandfathering approach under the new ozone standard—although not for the earlier revisions to the NO₂, SO₂, and PM standards.

³⁹ For example, in the case of the proposed ozone NAAQS, the Association of Air Pollution Control Agencies (AAPCA) reports that 26 state agencies raised background ozone as an achievability or implementation challenge, and 21 of these states reported concerns and limitations with the tools identified by EPA for permitting or regulatory relief. AAPCA, STATE ENVIRONMENTAL AGENCY PERSPECTIVES ON BACKGROUND OZONE REGULATORY RELIEF (2015), available at http://www.csg.org/aapca_site/documents/AAPCASurvey-StateEnvironmentalAgencyPerspectivesonBackgroundOzoneandRegulatoryRelief-June2015.pdf; Dylan Brown et al., *Air Pollution: Strong Opinions, Shaky Data in Arguments Over Permitting*, GREENWIRE, May 14, 2015, <http://www.enr.com/stories/1060018570>. In the final ozone NAAQS, EPA acknowledges that it received comments from states and organizations requesting that the Agency issue implementation rules and guidance in a timely manner. 80 Fed. Reg. at 65435.

⁴⁰ Memorandum from Stephen D. Page to Air Division Directors and Deputies Regions I-X (Apr. 1, 2010) (on file with EPA), available at <https://www.epa.gov/sites/production/files/2015-07/documents/pdnaqs.pdf>.

⁴¹ EPA identifies these de minimis levels as ozone significant impact levels and model emission rates for precursors.

⁴¹ Similar problems also arose with EPA's promulgation of a one-hour SO₂ NAAQS in June 2010. For a case study of one plant's problems with

the SO₂ NAAQS, see Ashley Jones, Presentation at the 10th Modeling Conference, Challenges With Modeling for the 1-hr SO₂ NAAQS Standard: An Aluminum Plant Case Study (Mar. 15, 2012), available at https://www3.epa.gov/ttn/scram/10thmodconf/presentation/3-24-Challenges_with_Modeling_1hr_SO2_NAAQS-An_Aluminum_Plant_Case_Study_03-15-12.pdf.

It appears that EPA did not fully anticipate these issues, but Agency officials have been working through the modeling issues raised by the short-term one-hour NO₂ NAAQS ever since it was adopted. A year after setting the revised NO₂ NAAQS, EPA provided initial guidance on some of the modeling issues (e.g., the treatment of intermittent, auxiliary sources) and additional flexibility in terms of modeling the cumulative effect of other sources within the region. But EPA still has not provided the modeling tools that, according to many state environmental officials, should have been in place before the new standard was adopted. EPA finally issued a notice of proposed rulemaking in July 2015 to address these remaining issues—five years after promulgating the one-hour NO₂ NAAQS—and a final rule is expected in the next few months.⁴²

The Avenal Power Center, one of the combined cycle projects affected by the 2010 NO₂ NAAQS revision, provides a stark lesson in the obstacle course associated with the NSR permitting process. Avenal was a proposed state-of-the-art combined cycle electric generating project to be located in California, and an EPA regional office was the permitting authority. EPA's Region 9 notified Avenal that its NSR permit application was complete on March 19, 2008.

On February 9, 2010, EPA revised the NO₂ NAAQS by adopting a new stringent one-hour NO₂ standard to supplement the existing annual NO₂ NAAQS, and EPA took the position that the Avenal developers were now required to show that it would not cause or contribute to a violation of the one-hour NO₂ NAAQS. The developers submitted a new modeling analysis to demonstrate compliance with the new standard, but EPA said it could not determine whether it was acceptable because the Agency had not yet adopted a new modeling protocol for use with the one-hour standard. On March 9, 2010, two years after Region 9 found that its NSR application was complete, Avenal filed suit in federal district court charging that EPA had failed to act within one year as required by §165(c) of the CAA.⁴³ The developers took the position that, because EPA had been legally required to take final action on the permit application well before the new one-hour standard was even proposed, it should not be required to redo its permit application to demonstrate compliance with the new standard. In January 2011, after briefing and oral argument on these issues but before the court reached a decision, EPA informed the court that it had decided to grandfather certain PSD applications, including the Avenal application, from the NSR requirement that projects meet the one-hour

⁴² EPA proposed its revisions to the guideline on July 29, 2015 (80 Fed. Reg. 45339, 45346-49). The existing guideline is published as 40 C.F.R. §51 app. W (2005).

⁴³ Jeff Holmstead, one of the authors of this Article, represented the plaintiff in this case.

NO₂ NAAQS, and explained that it would request comments on its grandfathering proposal.

On May 26, 2011, the court issued an order requiring EPA to take final action on the NSR permit within 60 days (i.e., by August 27, 2011). The EPA regional office issued the NSR permit to Avenal one day later, on May 27, but this did not constitute final action because of the possibility for opponents of the project to appeal the permit to EPA's Environmental Appeals Board (EAB). Project opponents did appeal to the EAB in early June, submitting four petitions seeking a review of the permit.

On August 18, 2011, the EAB issued its decision, declining to review the permit given the time constraints imposed by the district court order requiring the Agency to make a final permit decision by August 27. The environmental opponents of Avenal also filed suit with the U.S. Court of Appeals for the Ninth Circuit. The Ninth Circuit agreed with the environmental groups that Avenal must show that it would not cause or contribute to a violation of the one-hour NO₂ NAAQS.⁴⁴ It appears that, after the Ninth Circuit decision, Avenal decided not to go forward with the project.

IV. Heightened NSR Concerns Under the New Ozone Standard

The new ozone standard illustrates some of the difficulties that arise when EPA adopts a new standard before deciding how it should be implemented. There are several areas of concern with siting new sources under NSR given the interaction with the revised ozone NAAQS, including the effect of modeling requirements, the difficulty of securing needed emissions offsets, and the issues associated with the adoption of a standard at or near background levels of ozone.

A. Modeling Requirements

In the past, EPA's approach has been to "assess the ozone impacts of an individual source . . . on a case-by-case basis in consultation with the appropriate EPA Regional Office and/or permit reviewing authority."⁴⁵ There has not been a "preferred or recommended analytical technique or modeling system," and analyses of single-source effects for NSR have usually involved only a qualitative assessment (although in a few cases, applicants have been required to use sophisticated chemical transport modeling).

In its July 2015 proposal to revise its Guideline on Air Quality Modeling, EPA asserts that advances in photochemical modeling have reached the point where it is reasonable to identify specific air quality models appropriate for use in assessing the ozone effects of individual

sources seeking an NSR permit. As a result, EPA states that it plans to require more rigorous single-source modeling for ozone under the PSD permitting program.⁴⁶ Thus, a qualitative evaluation will no longer be sufficient, and new sources must provide air quality modeling to show that the plant will not cause or contribute to a violation of the new ozone NAAQS.

If the final air quality modeling rule—expected in the next few months—retains a requirement for single-source modeling for the ozone NAAQS, nothing will be in place in terms of clear direction on the specific modeling required. New sources and the permitting authorities will face continuing uncertainty about the modeling required to demonstrate that plant emissions will not cause or contribute to a violation of the ozone NAAQS. Coupled with the more stringent ozone standard, the new modeling requirements for ozone will likely create a significant new challenge for many companies seeking to build new manufacturing plants or industrial facilities in the United States. The bottom line is that new sources will be in a kind of limbo.

EPA has suggested that it will address this concern in part by creating a new de minimis exemption for proposed sources whose emissions are too low to have a meaningful impact on ozone formation. However, EPA does not yet have anything in place to help identify de minimis sources that would be exempt from modeling requirements. Instead, in its recent air quality modeling proposal, EPA explains that it will undertake a new rulemaking that will provide a technical basis to identify emissions levels and ambient impacts that would not be expected to contribute significantly to ambient ozone levels.⁴⁷ EPA has set a schedule for this rulemaking that will take at least another two years—substantially lagging behind last October's change to the ozone NAAQS.

B. Finding Emissions Offsets in PSD Areas

As noted above, EPA policy allows new sources in PSD areas to use emissions offsets to address cases where the plant emissions would cause or contribute to a violation of NAAQS. In theory, this would provide an option for sources located in areas that meet the prior ozone standard of 75 ppb but have monitored levels that exceed the new 70 ppb standard. Until these areas are designated as NA (a process that takes several years), sources located in these areas will be subject to the PSD provisions for NSR, including the requirement that sources show that they will not cause or contribute to a violation of the new ozone NAAQS. Since monitored levels in these areas exceed the new standard, the only recourse these sources may have is to obtain emissions offsets.

44. *Sierra Club v. Environmental Prot. Agency*, 762 F.3d 971 (9th Cir. 2014).

45. Memorandum from Tyler J. Fox, to the Proposed Regulatory Docket No. EPA-HQ-OAR-2015-0310 (June 30, 2015) (on file with EPA), *available at* https://www3.epa.gov/ttn/scram/11thmodconf/20150630-Ozone_Docket_Memo.pdf.

46. 80 Fed. Reg. at 45346. In 2012, EPA granted a Sierra Club petition and committed to undertake a rulemaking to evaluate whether updates to the guideline are warranted and, if so, to incorporate new analytical techniques in the guideline for ozone and fine PM.

47. Memorandum from Tyler J. Fox, *supra* note 45.

The problem, however, is that these areas will not have the arrangements in place to generate offsets for several years. History has shown that it takes several years for an area to develop the institutional arrangements necessary for the generation of acceptable offsets. EPA does, at least in theory, allow offsets from other areas under certain circumstances, but the opportunity to use these “trades” across areas has historically been constrained by EPA. In particular, the applicant must demonstrate a “net air quality benefit” across the region—a showing that must be made through detailed computer modeling to EPA’s satisfaction. Some commenters on the ozone NAAQS proposal highlighted the difficulty of obtaining EPA approval of such trades.⁴⁸ Finally, it should be noted that rural areas with ozone levels exceeding 70 ppb that do not have any other controllable sources may never be able to generate the needed emissions offsets. As a result, the recent ozone NAAQS may effectively ban the construction of new sources in these rural areas.

C. Dealing With Background Ozone

In the case of the recent ozone NAAQS, the new 70 ppb standard likely approaches background levels in some areas of the United States, leaving little “headroom” for new manufacturing facilities in terms of showing that their residual emissions, even after installing the best available pollution control technology, will not violate the ozone NAAQS. Recent research has found that stratospheric intrusions and long-range transport—particularly in western states—have resulted in daily maximum eight-hour ozone levels of 70 ppb or more.⁴⁹ With the ozone NAAQS at or below background, sources will find it impossible to show that they will not “contribute to” a violation of the standard.

EPA has argued that stratospheric intrusions can be dealt with through its exceptional events policy, which allows EPA to disregard exceedances of a NAAQS caused by certain types of exceptional events. However, states that

have tried to use the policy in the past claim that it has been extremely difficult, costly, and time-consuming to get EPA recognition of any exceptional events—perhaps in part because EPA has established a high hurdle for accepting state claims of exceptional events. In any event, the existing rule sets restrictive requirements for such claims, in part by requiring the affected states to show a “clear causal relationship” between the measured level and the event that has affected air quality in the area.

This requirement necessitates extensive monitoring and modeling to establish a clear causal relationship in a context where there continue to be significant questions about the accuracy of ozone air quality modeling. Further, the state must show that the exceedance is in excess of normal historical fluctuations. It is not clear that states will be able to meet these restrictive conditions because little historical data exist on such intrusions. In the final ozone rule, EPA signaled that it intended to complete revisions to the Exceptional Events Rule and guidance document before October 2016.⁵⁰

In October 2016, EPA issued revisions to its existing Exceptional Events Rule as promised. The rule addresses some of the issues raised by stakeholders since promulgation of the current rule in 2007, with the objective of providing clarity on the criteria needed to prove an exceptional event and increasing the administrative efficiency of the process. Unlike existing EPA policy, however, the rule restricts the scope of the Exceptional Events Rule to specific regulatory actions, such as the designation of areas subject to a NAAQS as attainment or NA and determinations of attainment of a NAAQS by NA areas. EPA explains in the preamble that it is preparing a guidance document to address the exclusion of data for other applications, such as NSR.⁵¹ EPA has not announced a schedule for issuing such a guidance document and, if history is a guide, there may be uncertainty for many years about ways in which exceptional events will affect the NSR program.

V. Potential Administrative Reforms

Past efforts to reform the NSR program have largely focused on changes that would ease the burden on existing sources by reducing the number of projects and activities that would be treated as major modifications of an existing source that require an NSR permit. For example, the most recent changes—issued in 2002—allow the use of projected future actual emissions, rather than potential emissions, in measuring emissions increases; a longer look-back period in selecting the baseline against which future projected actual emissions are compared; and a new program referred to as the plantwide applicability limitations (PAL) program, which creates an incentive for sources to

48. For example, the South Carolina agency in charge of implementing the CAA commented:

One result of recent emission control measures is that there are minimal potential offsets available for any potential major new source review projects in future nonattainment areas. Unless the EPA broadens its acceptance of offset opportunities, most, if not all future offsets may only be obtained from closed facilities. In practical terms, the opening of a new business means the closure of another business.

See Letter from South Carolina Department of Health and Environmental Control to U.S. Environmental Protection Agency (Mar. 17, 2015), http://www.scdhec.gov/HomeAndEnvironment/Docs/NAAQS/15_Ozone_Comment_20150317a_hp.pdf; BROOME & MOREHOUSE, *supra* note 23.

49. Meiyun Lin et al., *Springtime High Surface Ozone Events Over the Western United States: Quantifying the Role of Stratospheric Intrusions*, 117 J. GEOPHYSICAL RES.: ATMOSPHERES (2012), available at <http://onlinelibrary.wiley.com/doi/10.1029/2012JD181511/abstract>; Allen S. Lefohn et al., *Quantifying the Importance of Stratospheric-Tropospheric Transport on Surface Ozone Concentrations at High- and Low-Elevation Monitoring Sites in the United States*, 62 ATMOSPHERIC ENV'T 646, 646-56 (2012); ALLEN S. LEFOHN ET AL., *BACKGROUND OZONE AND ITS IMPORTANCE IN RELATION TO THE HEALTH RISK AND EXPOSURE ASSESSMENT FOR OZONE ASSESSMENT DOCUMENT 7* (2014).

50. U.S. EPA, *supra* note 38, at 80 Fed. Reg. 65437.

51. 81 Fed. Reg. 68229-30 (Oct. 3, 2016).

reduce their emissions as a strategy for avoiding NSR in the future.⁵²

There certainly is merit in exploring additional NSR reforms for existing sources, but this Article is primarily focused on the ways in which the current NSR program may impede construction of new facilities, even with state-of-the-art emission controls. Below, we discuss a set of reforms designed to address these issues and to make the NSR program more sensible when it comes to new sources.

A. A More Realistic Approach for Air Quality Modeling

EPA's current modeling guidance requires deterministic air quality models using the maximum allowable emissions rate and the maximum allowable operating conditions for each averaging time.⁵³ It also requires the use of modeling assumptions that yield the maximum impact on air quality in calculating background, including the effect of other sources in the area. However, sources typically operate well below their maximum allowable emission rates, and it would be highly unusual for all the sources in an area to be emitting at their highest allowable rates at the same time—and during a period when weather conditions would maximize the ambient impacts of their emissions. As a result, EPA's current modeling guidance substantially overstates the ambient air quality effects of a potential new source.

One solution to the over-conservatism of the current approach would be to adopt a probabilistic modeling approach. Adoption of probabilistic methods would allow the use of distributions to reflect the variability in actual emissions, meteorology, and background. One common approach is to use Monte Carlo analysis to combine the information from the various probability distributions to provide an estimate (in the form of a distribution) of the effect on air quality. Thus, probabilistic analysis provides information on the variability and uncertainty in the estimated air quality effects and on the extent to which current deterministic modeling requirements overestimate the actual air quality impacts of a new source.

Adoption of probabilistic air quality modeling approaches would be particularly appropriate with the statistical form adopted for the short-term NAAQS.⁵⁴ Where

a short-term NAAQS has been established to protect a sensitive subpopulation, it might also be possible to use probabilistic modeling to predict the likelihood that a member of such a subpopulation might be present and potentially exposed to peak concentrations caused by unusual circumstances related to weather or emission events.

Obviously, in order for probabilistic modeling to be helpful, EPA must indicate a receptivity to such modeling. But the Agency should also provide guidance on what probabilistic cutpoint must be met when making a determination that a new source will not contribute to adverse air quality impacts. EPA is already using probabilistic modeling to various degrees in other programs, so it should be feasible to develop guidance for appropriate use of such modeling in the NSR program.

B. Reforms to the Offset Program

The statutory offset requirements for the NSR program were established in 1977 and were based on the assumption that, if an area was in NA, the problem was largely caused by local industrial sources that needed to install pollution controls. Therefore, if a company wanted to locate a new facility in that area, it could pay for pollution controls at another facility and thus obtain the emissions reduction credits it would need to offset emissions from the new facility.

Although this may be the case in some areas of the country, it is not the case in many others—especially when it comes to ozone. With the lowering of the ozone standard to 70 ppb, it appears that a number of rural areas will become NA areas, including areas that currently have no industrial facilities at all. In such areas, violations of the ozone standard are typically caused by a combination of natural background, motor vehicles that travel through the area, and pollution transported from long distances. Here, no offsets are available and, depending on how the offset program is implemented, the offset requirement may well serve as an effective prohibition on the construction of any industrial facilities.

The other scenario in which the offset requirement may effectively ban new industrial facilities arises from the fact that some areas of the country have been very aggressive over many years in their regulatory efforts to reduce ozone levels. It may be true, as some critics suggest, that some of these areas did not take aggressive regulatory action until passage of the 1990 CAA Amendments, but states with persistent ozone problems have spent the past 25 years looking for every conceivable way to reduce emissions related to ozone. In these areas, all the cost-effective emissions reductions (and some very costly ones as well) have already been mandated by regulation, and EPA does not allow such emissions reductions to be used as offsets. Where there are any offsets to be had in these areas, they are very expensive and often make it economically infeasible to locate any

ozone NAAQS requires that areas not exceed 70 ppb for the average fourth high eight-hour ozone level over three years.

52. 67 Fed. Reg. 80189 (Dec. 31, 2002). In 2005, the D.C. Circuit upheld these provisions—but rejected two other provisions intended to ease the burden of NSR for existing plants. *New York v. Environmental Prot. Agency*, No. 02-1387, 35 ELR 20135 (D.C. Cir. 2005) (*New York I*). The D.C. Circuit also turned down a separate 2003 EPA rule—the “Safe Harbor Rule”—in 2006. *New York v. Environmental Prot. Agency*, 443 F.3d 880, 883, 36 ELR 20056 (D.C. Cir. 2006) (*New York II*).

53. This means the modeling must reflect allowable operating conditions as set out by “federally enforceable emission limits, operating level, and operating factor” for each pollutant and averaging time. U.S. EPA, *NEW SOURCE REVIEW WORKSHOP MANUAL*, C.44-45 (draft 1990). Similar language in EPA’s rule revising its Guideline on Air Quality Models requires the use of the operating conditions causing the “maximum ground-level concentrations.” 70 C.F.R. §51.

54. The one-hour NO₂ and 24-hour fine PM NAAQS require areas to meet the 98th percentile averaged over three years; the one-hour SO₂ NAAQS requires areas to meet the 99th percentile averaged over three years. The

new industrial facility in the area, even a relatively small facility with state-of-the-art pollution controls.

Fortunately, potential administrative reforms would help address both concerns—rural areas where no offsets are available and heavily regulated areas where offsets, if they are available at all, are very costly. First, the CAA allows the developer of a proposed new facility to obtain offsets from another area (i.e., an area outside the NA area where the new facility will be located) as long as (1) the other area is also in NA and has “an equal or higher nonattainment classification” and (2) emissions from the other area contribute to NA in the area in which the new source will be located. Historically, it has been very difficult to obtain permission to use out-of-area offsets because EPA and states have required extensive modeling studies to show that emissions from the offset-producing area contribute to pollution levels that exceed NAAQS in the area in which the new facility is to be located. Industry representatives also report that, even where such modeling has been done, EPA has been reluctant to approve it.

However, advances in our understanding of air pollution have shown that ozone and fine PM (often referred to as PM_{2.5}) are more a regional issue than a local issue, and that elevated levels of these pollutants in a particular area are caused in part by emissions from many other areas, including some that are very distant. This finding—based on EPA modeling studies showing that there is long-range transport of emissions that contribute to ozone and fine PM NA—is the basis for EPA’s recent Cross-State Air Pollution Rule. The Rule required substantial emissions reductions from power plants in 28 states because EPA has found that they contribute to ozone and fine PM NA in other states.

Thus, instead of requiring case-by-case modeling studies to justify the use of out-of-area offsets, EPA and states could in many cases rely on the long-range transport studies that EPA has already done to show that emissions from 28 states contribute to ozone and fine PM NA in many other states. Even where EPA has not already done such modeling, companies seeking to rely on out-of-area offsets should be able to employ similar studies to justify the use of such offsets. This reform would not address all the concerns about current offset requirements, but it would significantly expand the pool of potential offsets in many parts of the country (especially in rural areas) while still achieving the program’s environmental goals.

Unfortunately, the use of out-of-area offsets may not be an option for some heavily regulated areas such as the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley in California because of the requirement that such offsets must come from an area that has “an equal or higher nonattainment classification.” For the purposes of ozone, there are five different NA classifications—marginal, moderate, serious, severe, and extreme—and a developer who might want to build or expand a facility in an extreme area like SCAQMD would be able to use

out-of-area offsets only from another extreme area, where offsets will also be very costly and may not be available.

Even in these areas, however, other reforms to the offset program may expand the pool of offsets and allow the development of some new manufacturing facilities. For example, EPA has historically insisted that emissions reductions required by regulation may not be used as offsets. This may be true when it comes to regulations promulgated by EPA, but states are also required to adopt their own sets of regulations, SIPs, to show how they will come into attainment. If an area wanted to preserve the option of attracting new manufacturing facilities, it could be allowed to set aside some of its SIP emissions reductions to be used as offsets, as long as the SIP shows that other reductions would allow the area to continue making reasonable further progress toward attainment.

As discussed above, a number of studies have shown that NA areas have lower levels of economic growth than attainment areas. This is likely caused, to a large extent, by current offset requirements, which have been developed over many years in a series of restrictive EPA policies and guidance documents. It may be time, especially in light of the new ozone standard, to revisit these requirements to ensure that they strike the right balance between improving air quality and allowing continued economic growth in NA areas.

C. Adoption of a Consistent Treatment for Pending Permit Applications

EPA has been inconsistent in its treatment of NSR permit applications that are pending when a new NAAQS comes into effect. Before 2010, it appears that such decisions were generally made on an ad hoc basis by individual state agencies. Some would require permit applicants to redo their air quality modeling to show compliance with a new standard, but others believed that this approach was not required. In their view, if an applicant had done the necessary modeling to show compliance with the standards in place when the permit application was submitted, no additional air quality modeling was required.

EPA did not address this issue when it adopted its one-hour NO₂ standard in 2010, but it became a point of contention between several permit applicants and environmental groups that were opposing their proposed projects. In response, EPA said that it did have authority to grandfather pending permit applications whenever a new or revised NAAQS was adopted, so applicants would not need to redo their air quality studies based on the standard. However, the Agency said, because it did not explicitly include a grandfathering provision as part of the new NO₂ NAAQS, all applicants with pending permit applications were required to do another air quality study to show that emissions from their proposed projects would not cause or contribute to a violation of the new standard.

Perhaps, because of the problems that this created for many permits that were pending back in 2010, the Agency did include an explicit grandfathering provision as part of the 2015 ozone standard. The Agency could easily adopt this approach in connection with any future NAAQS revisions and grandfather those NSR applications that are reasonably complete before the new NAAQS comes into effect as a part of its final rule. In its ozone NAAQS proposal, EPA is already moving in this direction. It could also extend this approach to protect applicants for projects that are proposed for attainment areas, as long as their applications are complete before the area is designated NA.

Without this type of protection, project opponents will have an incentive to delay the permitting process as long as possible in the hope that the area will be designated NA before a final permit can be issued. A more consistent grandfathering approach would ensure that companies do not spend years trying to obtain a PSD permit, only to reach the end of the process and find they now need to get an NA NSR permit (with offsets that may not be available) rather than a PSD permit.

D. *Timely Issuance of Implementation Rules and Modeling Guidance*

As mentioned earlier, one of the most important reforms EPA could make is simply to make sure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect. This would require a commitment of EPA resources that the Agency has so far not been willing to make, but it certainly could be done.

Part of the problem may be that the nuts and bolts of implementing a new standard are not terribly “sexy.” The most senior EPA officials, those who are politically appointed, understand that they will be in place for only a few years, and they generally want to spend their time and attention on higher-profile issues. When it comes to NAAQS, they receive praise from the environmental community for lowering the standards, but not for the difficult task of actually figuring out how a lower standard can be implemented. It is rare to have political leaders at EPA, either Republican or Democratic, who want to make their mark on the world by dealing with air quality modeling and the arcane world of offsets.

On the other hand, it would be relatively simple to address this issue with a basic structural reform at EPA. The Agency already has a well-established process for reviewing NAAQS—a process that normally takes several years. At present, this process does not involve key stakeholders in implementing the NSR permitting program. The NAAQS review process should be structured so that by the end of the process, the necessary implementation rules and modeling guidance have also been finalized. This simple step would address many of the concerns that have arisen over the past few years.

VI. Potential Statutory Reforms

A. *A Narrow Fix: Emissions Fees in Lieu of Offset Requirements*

Current modeling and offset requirements may be the most significant regulatory impediment to the development of new and expanded manufacturing plants in the United States. In attainment areas, more stringent NAAQS coupled with conservative models and modeling assumptions make it difficult (and sometimes impossible) for a permit applicant to show that a new facility will not “cause or contribute to” a violation of any NAAQS. Even where it may be possible to make such a showing, the process is uncertain, lengthy, and burdensome.

When a new or expanded source in an attainment area cannot make such a showing, it must obtain emissions offsets in order to obtain a permit. In this sense, it is treated just like a facility in an NA area. In either case, a new facility may not be built unless the permit applicant can obtain sufficient pollution offsets. However, as outlined above, offsets are not available in many areas, and in areas where they are available, they can be prohibitively costly.

We propose a narrow statutory reform that could address these issues while still obtaining most or perhaps even more of the environmental benefits of the current program: allow permit applicants to pay emissions fees in lieu of meeting the current offset requirements, and require the state or local environmental agency to use these fees to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.⁵⁵

Depending on the size of the fee, states may or may not be able to obtain the emission offsets required by the current NSR program, but they may be able to obtain even more because they could seek emissions reductions from a much broader range of sources than allowed under the current program. Current EPA practice favors offsets that come from other industrial sources—not from “mobile sources” (including cars, trucks, and construction equipment) and not from “area sources” (such as dry cleaners, auto body shops, and other paint and coating operations). Our proposal would have emissions fees paid into a fund that would be under the control of the state or local environmental agency, which could use the proceeds to finance emissions reductions and other air quality programs. In some cases, this might include subsidizing diesel retrofits or other emissions reductions from mobile or area sources

55. Both California and Texas run Clean Air Investment Funds (the Carl Moyer Memorial Air Quality Standards Attainment Program and the Texas Emission Reduction Plan (TERP), respectively) that have proven effective in implementing novel emission reduction approaches. For example, the Carl Moyer Program provides grants to owners of heavy-duty vehicles to replace older heavy-duty engines with new and cleaner engines, and to install electric idling-reduction equipment. The TERP has funded alternative fuel and natural gas fueling stations, among other projects. See <https://www.arb.ca.gov/msprog/moyer/moyer.htm> and <https://www.tceq.texas.gov/airquality/terp>.

that can be more important in terms of improving ambient air quality than traditional offsets.

In some cases, states could use their existing regulatory authority to obtain emissions reductions that could be used as offsets. Under current law, existing sources do not necessarily have an incentive to make even cost-effective emissions reductions because (1) they do not have to pay for their emissions and (2) they may want to “hoard” potential reductions to offset future emission increases.⁵⁶ As a result, existing plants have an incentive to retain any potential reductions to support their own plans for plant expansion, instead of generating emission offsets for a new plant.⁵⁷ States could use their existing regulatory authority to obtain such reductions and create offsets that could be used by anyone seeking to build a new source (or expand an existing one).

Under the approach that we are proposing, a new or expanded facility would still need to obtain a permit to ensure that it will be built with modern pollution control technology—BACT in attainment areas and LAER technology in NA areas—but instead of obtaining offsets, it would make a payment to the state or local environmental agency based on its projected emissions. We anticipate that such per-ton emissions fees would be different for different pollutants based on the “reasonable cost” of a technology-based level of control. Some examples of identifying a “reasonable” control cost include the following:

- Section 185 of the CAA (adopted in 1990), which established an emissions fee of \$5,000 per ton adjusted annually by the Consumer Price Index. In 2013, the fee was \$9,400 per ton for NO_x and VOC emissions for severe and extreme NA areas.
- EPA’s regulatory impact analysis for the recently adopted ozone standard, which used a control cost of \$15,000 per ton as a reasonable estimate of the highest per-ton cost that would be necessary for the cost of “unknown” controls required to meet the current ozone NAAQS.

We anticipate that these numbers (\$9,400-\$15,000 per ton) would be at the upper end of the range of potential emissions fees, since they reflect the projected cost of obtaining emissions reductions in the areas with the most serious air quality problems.

B. Broader Structural Reform: Emissions Fees in Lieu of NSR

A more sweeping statutory reform could replace the entire NSR permitting program with a system of industrial emissions fees. The fees could be based on the projected per-ton cost of controlling different pollutants, or they could

instead be damage-based. Damage-based fees could vary based on geographic location, insofar as reasonable estimates of damages are available. Different fees would be applied to different pollutants, based on the best available knowledge of their relative toxicity to human health and the environment. Emissions near population centers would likely be assessed a higher fee than emissions in rural areas.⁵⁸

A virtue of emissions fees compared with the NSR process is that companies can build the fees into their cost structures, creating a clear economic incentive to control or modify their production processes to reduce emissions. Because the fee is automatic, it circumvents all the costly preparations and delays associated with NSR and reduces the power of EPA and state officials over specific companies involved in new construction or in the upgrade or repair of existing facilities. With emissions fees, the company does not face any uncertainty about how the regulator will react to a facility that is new or undergoing repair and maintenance. With NSR, there is considerable uncertainty as to how state or EPA officials will define the NSR obligation for a specific facility. And it is this regulatory uncertainty that may discourage a company from making investments in new facilities. Note that an emissions fee could also be extended to apply to existing sources, removing new source bias.

However, there are important barriers and hurdles to implementing an emissions fee approach. First, a growing body of scientific evidence calls into question a key assumption of the CAA: that there is a “safe” amount of pollution that can be established by environmental science. While a threshold dose for adverse effects seems likely for each individual, there is a wide range of susceptibility to adverse effects, considering the differences among healthy adults, senior citizens, asthmatics, children, and people with cardiopulmonary problems. If the safe population dose threshold is defined as the safe dose for the most susceptible individual, then the population threshold may be very close to zero or background levels.

As a result, the environmental community may oppose the adoption of an emissions fee approach in place of NSR modeling requirements to ensure protection of air quality, out of their concern for the adequacy of protection of public health. On the other hand, some environmental groups are simply looking for the most effective way to reduce emissions, and they may see emissions fees as more effective than an NSR program that is politicized, fragmented, and under constant litigation.

56. Plants do pay nominal Title V fees based on their emissions.

57. This asymmetry between the grandfathering of emissions for existing plants while new plants must obtain emission offsets serves as an important wedge in terms of cleaner new firms buying out the dirtier existing plants in NA areas.

58. In fact, current estimates suggest a substantial variation in damages from one location to another. Further, the damage estimates even vary significantly across locations within the same urban area, by season, and even by time of day. Neal Funn et al., *The Influence of Location, Source, and Emission Type in Estimates of the Human Health Benefits of Reducing a Ton of Air Pollution*, 2 AIR QUALITY, ATMOSPHERE & HEALTH 169, 169-76 (2009); Nicholas Z. Muller & Robert Mendelsohn, *Efficient Pollution Regulation: Getting the Prices Right*, 99 AM. ECON. REV. 1714, 1714-39 (2009); Arthur Fraas & Randall Lutter, *Efficient Pollution Regulation: Getting the Prices Right: Comment*, 102 AM. ECON. REV. 602, 602-07 (2012).

To the extent that fees would be based on estimated damages, an emissions fee approach would require a rigorous benefit analysis. While EPA has developed benefit estimates for the ozone and fine PM NAAQS pollutants, debate is ongoing (and controversial) over the uncertainty in EPA's estimates of the health effects of ozone and PM exposure.⁵⁹ In particular, considerable uncertainty exists in the estimated health effects associated with exposures at the low ambient levels of ozone and fine PM that characterize U.S. air quality. Even EPA acknowledges significant uncertainty associated with mortality estimates for exposures at the low ambient levels of ozone and fine PM that are present in the United States.⁶⁰ Nonetheless, EPA knows how to use tools of uncertainty analysis and those tools could be applied to help develop appropriate emissions fees.

Second, current NSR requirements are designed to protect against short- and long-term violations of the several NAAQS. However, there is substantial seasonal, day-to-day (and even hourly) variability in the effect of emissions from a major plant on ambient air quality. This variability arises from variations in such factors as background emissions and meteorological conditions. As a result, a fixed emissions fee may approximate the effect of emissions in terms of long-term average ambient air concentrations of pollutants such as ozone and fine PM, but such fees would have to vary substantially on a day-to-day (and even hourly) basis across different locations within an urban area to track the daily effect of plant emissions on air quality and the associated air pollution damages.

Thus, a stable annual emissions fee would only rarely be "right" on a day-to-day (or hourly) basis in protecting against short-term violations of NAAQS and in reflecting the damages of plant emissions. A short-term, variable emissions fee responding to variations in meteorological and atmospheric conditions would more closely approximate (although still imperfectly) the damage effects of emissions from a major facility, but implementation of such a variable fee would be challenging. The variability in the fee would also give up some of the "certainty" advantages that would accompany a stable long-term emissions fee.

Nonetheless, with modern computer technology and "big data" systems, a variable emissions fee may be feasible and could prove to be less administratively onerous for industry and EPA than the current NSR program.

Clearly, however, it would have to be structured in a way that provides certainty and predictability for source owners, perhaps by limiting the range in which the fee can fluctuate and setting the fee far enough in advance that they can plan their operations based on the amount of the fee.

The air chemistry associated with NO_x emissions is particularly complicated. The resulting non-convexity in the relationship between reductions in NO_x emissions and ambient ozone and fine PM levels yields negative benefits in some major metropolitan areas. In other words, reducing NO_x emissions can actually make air quality worse in some areas. As a result, it is not clear how best to implement an emissions fee program for NO_x emissions in these major urban areas.⁶¹ However, such modeling difficulties are also a conundrum in the command-and-control approach to NSR that EPA is now implementing.

Third, an emissions-fee approach will require that covered facilities estimate or monitor their emissions of multiple pollutants on a continuing basis. Much of this information is already reported by companies to state environmental agencies, EPA, or both. Since companies would know that under this new approach, fees would be charged for emissions, they would have an additional incentive to understate their emissions to EPA. A rigorous EPA enforcement system—with substantial penalties for false reporting—will be required to ensure the integrity of reported emissions.

Although intensive monitoring and enforcement programs are feasible for major manufacturing plants (the kinds of sources subject to the NSR program), these intensive programs would not be feasible for the large number of smaller stationary/area sources and the transportation programs required to achieve and maintain air quality that meets NAAQS. Thus, for these smaller sources, something like the current CAA processes to implement NAAQS (e.g., SIPs) will continue to be necessary.

VII. Conclusion

The NSR program has become a significant impediment to the construction and expansion of manufacturing facilities in the United States. With increasingly stringent NAAQS, and especially under the new ozone standard, it may effectively prevent industrial development in some parts of the country. We have identified several administrative actions that EPA could take to address these issues while still maintaining the environmental benefits of the program.

We start with two reforms that would be beneficial even if none of the NAAQS is revised again. First, EPA could adopt a probabilistic approach to air quality modeling to replace its current deterministic, upper-bound modeling requirements. Such an approach would more

59. NATIONAL RESEARCH COUNCIL, ESTIMATING THE PUBLIC HEALTH BENEFITS OF PROPOSED AIR POLLUTION REGULATIONS (National Academies Press 2002); Arthur Fraas, *The Treatment of Uncertainty in EPA's Analysis of Air Pollution Rules: A Status Report*, 2 J. BENEFIT COST ANALYSIS 1, 1-27 (2011); Kerry Krutilla et al., *Uncertainty in the Cost-Effectiveness of Federal Air Quality Regulations*, 6 J. BENEFIT COST ANALYSIS 66, 66-111 (2015); Neal Fann et al., *Letter in Response to Fann & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 755, 755-56 (2013); Arthur Fraas & Randall Lutter, *Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 434, 434-49 (2013); Arthur Fraas & Randall Lutter, *Reply to Letter by Fann, Lamson, Avenberg, and Hubbell Regarding Fann & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 757, 757-59 (2013).

60. Krutilla et al., *supra* note 59.

61. Fann et al., *supra* note 58; Muller & Mendelsohn, *supra* note 58; Arthur Fraas & Randall Lutter, *Do Some NO_x Emissions Have Negative Environmental Damages? Evidence and Implications for Policy*, 45 ENVTL. SCI. & TECH. 7613, 7613-14 (2011); Fraas & Lutter, *supra* note 58.

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accurately predict the air quality impacts of a new or expanded facility and thus make it easier to obtain permits for new and expanded facilities in attainment areas. Second, EPA could adopt reforms that would expand the pool of offsets and allow more clean development in both attainment and NA areas while preserving the program's environmental benefits.

We also recommend two simple reforms that would explicitly address the NSR issues that arise when a NAAQS is revised. First, EPA should revise its regulation to clarify that permit requirements and standards will be based on the date a complete permit application is submitted (which is within the control of the permit applicant) and not on the date the permit is actually issued (which may be years later and is solely within the control of the permitting authority). Second, the Agency should adopt internal staffing reforms to ensure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect.

Additionally, we offer two potential statutory reforms. The first would be fairly narrow but would significantly improve the NSR program by allowing permit applicants to pay emissions fees in lieu of meeting the current offset requirements. These fees would go into a fund that the state or local environmental agency would use to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.

Finally, we note that a more fundamental reform would be to change the statute and replace the NSR program for major manufacturing facilities with a system of emissions fees for each of the NSR pollutants. By monitoring emissions, each company would know its financial responsibility for pollution and could take steps to reduce or prevent emissions and thereby avoid fees. Such an approach would eliminate the uncertainty and unpredictability of the NSR process and encourage the expansion of existing manufacturing plants and the construction of new ones.

Appendix: Chronology for PSD Application for Footprint Power Salem Harbor Development LP Gas-Fired Combined Cycle EGU (630 MW)

| | |
|---|------------------|
| Initial application | Dec. 21, 2012 |
| Additional information submitted | Apr. 12, 2013 |
| | June 10, 2013 |
| | June 18, 2013 |
| | Aug. 6, 2013 |
| | Aug. 20, 2013 |
| | Sept. 4, 2013 |
| | Sept. 9, 2013 |
| Draft PSD permit issued for public comment | Sept. 9, 2013 |
| Public hearing | Oct. 10, 2013 |
| Public comment extended | Nov. 1, 2013 |
| Revised General Electric (GE) guarantee | Nov. 1, 2013 |
| Response to EPA & other comments; emissions update with additional GE guarantee | Dec. 11, 2013 |
| Additional letter on startup/shutdown | Jan. 10, 2014 |
| Additional air quality monitoring for PM, & updated emissions rates for carbon monoxide & sulfuric acid | Jan. 16-21, 2014 |
| Draft final permit issued | Jan. 30, 2014 |
| Petition submitted to EAB | Mar. 3, 2014 |
| Petition denied | Sept. 2, 2014 |
| Final permit issued | Sept. 11, 2014 |

GREG WALDEN, OREGON
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

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Majority (2021) 225-2927
Minority (2021) 225-3641

March 6, 2017

Mr. Kevin Sunday
Director of Government Affairs
Pennsylvania Chamber of Business and Industry
417 Walnut Street
Harrisburg, PA 17101

Dear Mr. Sunday,

Thank you for appearing before the Subcommittee on Environment entitled "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Monday March 20, 2017. Your responses should be mailed to Giulia Giannangeli, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, DC 20515 and e-mailed in Word format to Giulia.Giannangeli@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



John Shimkus
Chairman
Subcommittee on Environment

cc: Paul Tonko, Ranking Member, Subcommittee on Environment
Attachment



The Honorable John Shimkus
 C/O United States House of Representatives
 Committee on Energy and Commerce
 Subcommittee on Environment
 2125 Rayburn Office Building
 Washington, DC 20515-6115

March 10, 2017

RE: "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing" Hearing and Questions for the Record

Dear Chairman Shimkus,

I am writing in response to your letter sent following a hearing held by the committee on Feb. 16 regarding modernizing our environmental laws, at which I had the opportunity to testify. This letter contains a response to the following questions for the record that you have forwarded on behalf of Representative Marsha Blackburn.

1. **The authors of this whitepaper raise concerns that when EPA revises National Ambient Air Quality Standards, the agency does not typically provide implementation rules and modeling guidance at the same time, and this can lead to permitting delays. They recommend that when EPA revise a standard, it also makes available the necessary implementation rules and modeling guidance.**
 - a. **Why are implementation rules and modeling guidance important?**
 - b. **Would more timely implementation rules and guidance help avoid permitting delays?**

Implementation rules and modeling guidance are not just important but necessary to both applicants and air quality permitting agencies. These rules and guidance documents help agencies gather the necessary information to define non-attainment areas and to make permitting decisions that conform to the law. Applicants also need the rules and guidance to make informed business decisions, as the cost and operational restrictions to comply with applicable regulatory requirements in non-attainment areas can significantly alter the economic feasibility of a project.

As EPA develops more stringent National Ambient Air Quality Standards that are applied in shorter and shorter periods of time (for example, a 1-hour SO₂ standard and an 8-hour ozone standard versus daily, rolling three month or annual standards for other pollutants), monitoring data may not be robust enough or even available to define non-attainment areas, requiring agencies to instead rely on modeling. The modeling itself relies on a vast number of assumptions and inputs, and federal modeling guidance defines what EPA believes to be appropriate for these types of assumptions and inputs. The absence of guidance places any project permitted without it at significant litigation risk.

Per the Clean Air Act Section 110, states may not permit projects that would operate in a manner that places an area that is attaining a National Ambient Air Quality Standard out of attainment or inhibits its progress towards attainment if it is already out of attainment. As discussed in the testimony submitted to

the committee for the hearing, projects constructed in non-attainment areas must accept more stringent emissions limits and secure emissions reduction credits. Non-attainment areas must first be defined before permitting decisions regarding projects within them can be made. Absent finalized implementation rules and modeling guidance, project applicants and agencies are left in an extremely difficult position: proceed with permitting (in the face of significant legal risk) or wait until guidance is finalized. Undoubtedly, more timely implementation rules and guidance would help avoid permitting delays and minimize litigation risk.

The Pennsylvania Chamber of Business and Industry supports any legislative measure that would obligate the Environmental Protection Agency to publish final implementation rules and modeling guidance documents in conjunction with any final revision to the National Ambient Air Quality Standards.

Sincerely,

A black rectangular redaction box covering the signature of Kevin Sunday.

Kevin Sunday
Director of Government Affairs

GREG WALDEN, OREGON
CHAIRMAN

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RANKING MEMBER

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March 6, 2017

Mr. Thomas M. Sullivan
Vice President of Small Business Policy
U.S. Chamber of Commerce
1615 H Street, N.W.
Washington, DC 20062

Dear Mr. Sullivan:

Thank you for appearing before the Subcommittee on Environment entitled "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

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Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,


John Shinkus
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Attachment

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

SMALL BUSINESS COUNCIL
THOMAS M. SULLIVAN, EXECUTIVE DIRECTOR



March 29, 2017

The Honorable John Shimkus
Chairman
Subcommittee on Environment
United States House of Representatives
Washington, DC 20515

Re: Questions for the Record, Hearing Entitled, "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing."

Chairman Shimkus:

On behalf of the Small Business Council of the U.S. Chamber of Commerce, I am responding to your questions that arose from your hearing on February 16th, 2017. Thank you for allowing the U.S. Chamber of Commerce to appear before your Subcommittee and I hope you find this information responsive.

Responses to Representative Gregg Harper:

Question on whether the U.S. Chamber of Commerce has assessed the cost of regulation on small business:

Yes, the U.S. Chamber of Commerce Foundation recently issued a report entitled, "The Regulatory Impact on Small Business." The study shows how federal regulations cost the American economy as much as \$1.9 trillion a year in direct costs, lost productivity and higher prices. The impact on small businesses is nearly 20 percent higher than the average regulatory burden shouldered by the Business community as a whole. The Chamber Foundation's full report can be found online at: <https://www.uschamberfoundation.org/smallbizregs>.

Question on the impact of regulatory delays in the permitting of new energy or other major infrastructure projects:

My colleague, William Kovacs, who is the Chamber's Senior Vice President for Environment, Technology, and Regulatory Affairs, presented testimony to your Subcommittee on July 14, 2011 at a hearing entitled, "Regulating Chaos: Finding Legislative Solutions to Benefit Jobs and the Economy." Mr. Kovacs's testimony detailed an examination of the lost economic value of 351 projects that were

stopped, stalled or killed outright due to regulatory and permitting delays. The economic study is part of the “Project No Project” initiative that can be found online at: <http://www.projectnoproject.com>. Researchers Steve Pociask of TeleNomic Research, LLC and Joseph P. Fuhr, Jr. of Widener University found that successful construction of the identified projects could produce a \$1.1 trillion short-term boost to the economy and create 1.9 million jobs annually. According to The Associated General Contractors of America, only 1 percent of the construction industry has businesses larger than 100 employees, so the impact of regulatory delays in the construction business is felt almost entirely by small businesses.

The U.S. Chamber of Commerce supported permit streamlining provisions that were enacted as part of the FAST Act because of the economic harm caused by delay.¹ We would like to work with Congress to ensure those permit streamlining sections of the FAST Act are effective.

Responses to Representative Richard Hudson:

Question on whether the Federal government has been transparent about the costs and benefits it calculates for environmental rules:

The Federal government has not been transparent about the costs and benefits it calculates for environmental rules. Susan Dudley, the former Administrator for the Office of Information and Regulatory Affairs (OIRA), explained the lack of transparency in how the Federal government currently assesses costs and benefits in a recent publication by Cato.² I share the views of Ms. Dudley and have testified numerous times before Congress on the need for the Federal government to better assess the impacts of regulation on small businesses in a transparent manner.³

1. Fixing America’s Surface Transportation (FAST) Act, Pub. L. No. 114-94, 129 Stat. 1312 (2015)

² Susan E. Dudley, *OMB’s Reported Benefits of Regulation: Too Good to be True?*, Regulation Magazine, Cato Institute (Summer 2013), available at: <https://object.cato.org/sites/cato.org/files/serials/files/regulation/2013/6/regulation-v36n2-4.pdf>.

³ See recommendations for indirect impact analysis in testimony by Thomas Sullivan:

- U.S. House of Representatives, Committee on Small Business, *The RFA at 25: Needed Improvements for Small Business Regulatory Relief*, Serial No. 109-5 (March 16, 2005).
- U.S. House of Representatives, Committee on Small Business, *Improving the Regulatory Flexibility Act – H.R. 2345*, Serial No. 108-62 (May 5, 2005).
- U.S. House of Representatives, Committee on Small Business, *Legislation to Improve the Regulatory Flexibility Act*, Serial No. 110-62 (December 6, 2007).
- U.S. House of Representatives, Committee on the Judiciary, Subcommittee on Courts, Commercial and Administrative Law, *Regulatory Flexibility Improvements Act of 2011: Unleashing Small Businesses to Create Jobs*, Serial No. 112-16 (February 10, 2011).

Question on whether environmental regulations should take costs into account in more than a perfunctory way:

There is an imbalance in how the Federal government assesses costs and benefits with regard to small businesses and how they are impacted by federal regulations. While the U.S. Environmental Protection Agency (EPA) emphasizes its view that its regulations benefit human health (an assessment of the secondary impact of how pollution reductions benefit human health), the EPA does not adequately assess the secondary (or indirect) costs for the same regulations. For instance, when EPA issues mandates on fuel content, it does not adequately assess how the rise in gas prices impact the transportation sector, an industry dominated by small firms. The Regulatory Flexibility Act should be amended to ensure that regulatory impacts on small businesses are disclosed by EPA in a balanced and transparent manner.⁴

Responses to Representative Bill Johnson:

Question on whether EPA's existing guidance on outreach to small businesses should be updated:

The 92-page guidance issued by the EPA in November of 2006 is certainly comprehensive.⁵ Unfortunately, the guidance seems to be missing a key ingredient for EPA to engage constructively with small businesses and that is a cooperative relationship with the Office of Advocacy at the U.S. Small Business Administration (SBA). SBA's Office of Advocacy is charged with implementing the Regulatory Flexibility Act and its positive relationship with the small business community should be relied upon as a resource for Federal agencies, including EPA, to constructively engage with the small business community.⁶ EPA's guidance should be updated by instructing its staff to coordinate with SBA's Office of Advocacy as early as possible when EPA is formulating how a regulation may impact small businesses.

Chapter 4 of EPA's November 2006 guidance covers small business outreach. In this section, EPA does encourage cooperation with SBA's Office of Advocacy. However, the guidance should be updated to instruct EPA staff that such cooperation take place as early as possible in the regulatory development process.

⁴ *Id.*

⁵ Alexander Cristofaro, *Final Guidance for EPA rulewriters: Regulatory Flexibility Act as amended by the Small Business Regulatory Flexibility Act*, Office of Policy Economics, and Innovations, U.S. Environmental Protection Agency (EPA) (November 30, 2006), available at: <https://www.epa.gov/sites/production/files/2015-06/documents/guidance-regflexact.pdf>.

⁶ Regulatory Flexibility Act, Public Law No. 96-354, 5 U.S.C. 601 (September 19, 1980), amended by the Small Business Regulatory Enforcement Fairness Act, Public Law. No. 104-121 (March 29, 1996), amended by Public Law No. 110-28 (May 25, 2007), available at: <https://www.sba.gov/advocacy/small-business-regulatory-enforcement-fairness-act-sbrefa>.

EPA should be complimented for including references to the value of trade and membership associations that represent small businesses in the technical aspects of rulemaking. EPA benefits from engagement with trade and membership organizations that represent small businesses and are relied-upon for technical advice. When EPA updates its guidance, the constructive and cooperative relationship between EPA and trade and membership organizations should be highlighted as a key element in small business outreach.

Questions about when EPA “got-it-right” when listening to and addressing small business concerns when issuing new regulations under the Clean Air Act and when EPA didn’t “hit-the-mark:”

EPA Got it Right: When EPA truly listens to small businesses and changes its approach to regulation, the agency can reduce pollution and minimize economic harm to small businesses. In the summer of 2002, EPA notified SBA’s Office of Advocacy that it would seek to reduce emissions from diesel powered non-road engines. With help from SBA’s Office of Advocacy, EPA met with several small business stakeholders who raised concerns about the technical and cost feasibility of EPA’s contemplated rule. EPA made changes that allowed for a phase-in of new technology and an exemption for engines with less than 25 horsepower. EPA’s flexibility helped small engine manufacturers afford technology upgrades and still resulted in considerable pollution reductions.

EPA Missed the Mark: My colleague, Keith Holman, who is a Senior Policy Counsel for Environment, Technology, and Regulatory Affairs at the U.S. Chamber of Commerce, presented testimony before the Congress a few years ago and provided several examples of where EPA missed the mark.⁷ The most egregious examples of EPA ignoring small business concerns is when the agency refuses to convene a panel of small businesses because EPA “certifies” that its rule will not have a significant economic impact on a substantial number of small entities.⁸ In 2008 and 2009, numerous small business stakeholders and SBA’s Office of Advocacy petitioned EPA to formally consult with small businesses on its proposed greenhouse gas endangerment finding, but EPA refused.

EPA also misses the mark when it ignores the recommendations from the Small Business Advocacy Review Panel convened under the Small Business Regulatory Enforcement Fairness Act (SBREFA).⁹ As outlined by Keith Holman before the House Small Business Committee, the regulatory alternatives proposed by small

⁷ Keith W. Holman, *Regulatory Flexibility Act: Is EPA Failing Small Businesses?*, U.S. House of Representatives, Committee on Small Business (June 27, 2012).

⁸ See explanation of SBREFA “certification” at: <https://www.epa.gov/laws-regulations/summary-regulatory-flexibility-act-amended-small-business-regulatory-enforcement>

⁹ See explanation of Small Business Advocacy Review Panels under SBREFA at: <https://www.epa.gov/reg-flex/small-business-advocacy-review-sbar-panels>.

business stakeholders in the Boiler MACT rulemaking would have minimized costs without compromising EPA's environmental objective.¹⁰ However, EPA refused to include the recommended small business flexibilities.¹¹

Thank you again for the opportunity to present the views of the Chamber's Small Business Council. Please do not hesitate to contact me for any additional information about the views expressed in this letter.

Sincerely,



Thomas M. Sullivan
Executive Director
Small Business Council

cc: The Honorable Paul Tonko, Ranking Member, Subcommittee on Environment

¹⁰ See, Holman (June 27, 2012).

¹¹ Winslow Sargeant, Ph.D., *Letter to EPA Administrator, Lisa P. Jackson, Comments on EPA's Proposed Rules, "National Emission Standards for Hazardous Air Pollutants for Major and Area Sources: Industrial, Commercial, and Institutional Boilers* (August 23, 2010).

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Minority (202) 225-3641

March 6, 2017

Mr. Ross E. Eisenberg
Vice President of Energy and Resources Policy
National Association of Manufacturers
733 10th Street, N.W.; Suite 700
Washington, DC 20001

Dear Mr. Eisenberg,

Thank you for appearing before the Subcommittee on Environment entitled "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Monday March 20, 2017. Your responses should be mailed to Giulia Giannangeli, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, DC 20515 and e-mailed in Word format to Giulia.Giannangeli@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



John Shimkus
Chairman
Subcommittee on Environment

cc: Paul Tonko, Ranking Member, Subcommittee on Environment
Attachment



Ross E. Eisenberg
Vice President
Energy & Resources Policy

March 20, 2017

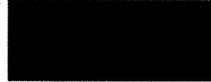
The Honorable John Shimkus
Chairman
Subcommittee on Environment
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

The Honorable Paul Tonko
Ranking Member
Subcommittee on Environment
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Shimkus and Ranking Member Tonko:

Thank you for your follow-up questions for the record from the Subcommittee's recent hearing, "Modernizing Environmental Laws: Challenges and Opportunities for Expanding Infrastructure and Promoting Development and Manufacturing." Enclosed are my responses. The National Association of Manufacturers looks forward to working with the Subcommittee on these and other issues affecting manufacturers.

Sincerely,



Ross Eisenberg
Vice President
Energy and Resources Policy



RESPONSES TO QUESTIONS FOR THE RECORD
ROSS EISENBERG, NATIONAL ASSOCIATION OF MANUFACTURERS

HOUSE COMMITTEE ON ENERGY AND COMMERCE, SUBCOMMITTEE ON ENVIRONMENT
HEARING ON "MODERNIZING ENVIRONMENTAL LAWS: CHALLENGES AND OPPORTUNITIES FOR
EXPANDING INFRASTRUCTURE AND PROMOTING DEVELOPMENT AND MANUFACTURING"

MARCH 20, 2017

Question from the Honorable John Shimkus (R-IL)

1. Mr. Eisenberg, you testify that "the state of our national economy, the manufacturing sector and the environment are considerably different than they were 20, 30 or 40 years ago. However, we are still operating with policies designed to address the environmental challenges of a previous era."

- a. Could you elaborate how some policies may not work for today's regulated sectors?

Every five years, EPA must decide whether the National Ambient Air Quality Standards (NAAQS) are sufficiently protective of public health. As NAAQS (for particulate matter, ozone, sulfur dioxide, carbon monoxide, lead and nitrogen oxides) have dropped closer to background levels, it is becoming increasingly difficult to pass the test and get an approved permit. Regulated industries are approaching a permitting gridlock. EPA should establish a new permitting process and adjust its modeling criteria to be more reflective of actual impacts. The challenges with the ever-tighter NAAQS are exacerbated by a lack of (or inappropriate) emission measurement methods, poor estimates of emissions, use of unrealistic air dispersion models, and several rigid permitting policies.

In the water space, the EPA continues to struggle with how to apply the Clean Water Act's provisions to nonpoint source pollution. The relationships between and relative impacts of point and nonpoint sources differ regionally, and sometimes locally, making it difficult to establish a uniform program. What is needed is a balanced approach to point and nonpoint problems that focuses on the water quality of the watershed in question. More extensive treatment should not be required of any dischargers if such treatment will have no appreciable impact on the quality of the receiving waters. The NAM recommends improving capabilities for assessing the nation's water quality that aid in determining the relative impact of point and nonpoint sources on water quality and the ability of waters to meet their designated uses. Conclusions derived from the data can then be used to better allocate the nation's resources in achieving our water quality goals. Effective management of nonpoint sources of water pollution should be achieved through state and regionally developed programs. The EPA should provide technical assistance, but should not attempt to assume the role of developing a uniform federal nonpoint program or of directly regulating nonpoint sources.

Finally, the current regulatory requirements under CERCLA do not allow contaminated properties to be resolved in an efficient manner. Despite completing remediation activities, the property owners are often unable to get clearance from the regulatory agencies in a timely manner to sell or develop their properties. EPA should interpret regulatory requirements under

the Superfund program in a manner that would speed the remediation of these sites while reducing costs, while still ensuring the necessary environmental protections.

Question from the Honorable Marsha Blackburn (R-TN)

1. **In a recent white paper entitled “EPA’s New Source Program: Time for Reform,” the authors state that EPA’s new ozone standards ‘may effectively prevent development in some parts of the country.’”**
 - a. **Do you agree that EPA’s new ozone standards threaten to prevent development in certain parts of the country?**

I agree that the EPA’s most recent ozone standards threaten to prevent development in certain parts of the country. In fact, in some areas the standards are already causing problems. In Colorado, the state environmental agency proposed, for the first time ever, to set specific permit limits for 49 individual manufacturing facilities, since there are no other possible reductions to be had. This move would more or less lock into place those permit limits and make it extremely difficult to expand. What is worse: Colorado believed it needed to take these actions just to meet the 2008 ozone standard of 75 parts per billion. Manufacturers are very nervous about what measures might be required to meet the 2015 standard in the Denver metro area.

Colorado’s struggles are not unusual: half of the states in the continental U.S. have at least one area in nonattainment with the 2015 ozone standard. The Georgia Department of Natural Resources noted in its comments on the 2015 ozone standard that there were no effective control measures left available to the state, beyond those already identified and being implemented, to reduce ozone levels in the Atlanta nonattainment area.

Recall also the testimony of the San Joaquin Valley Air Pollution Control District, which testified before the Energy and Commerce Committee just last year. This area has already taken such extreme steps as banning residents from using their fireplaces in most winter months and limiting the amount of time lids can be off paint cans. Yet officials have concluded that they will not meet the 2015 ozone standards even if they eliminate emissions from all stationary and area sources, off-road equipment, farm equipment, passenger vehicles and heavy-duty trucks.

Questions from the Honorable Buddy Carter (R-GA)

1. **In your written testimony, you recommend that Congress “[s]pecify that forest biomass energy is considered carbon neutral as long as forest carbon stocks are stable or rising on a broad geographical scale, and recognize the forest products industry’s use of forest products manufacturing residuals for energy as carbon neutral regardless of forest carbon stocks.” Could you elaborate?**

The carbon neutrality of biomass harvested from sustainably-managed forests has been recognized repeatedly by an abundance of studies, agencies, institutions, legislation and rules around the world, including the guidance of the Intergovernmental Panel on Climate Change and the reporting protocols of the United Nations Framework Convention on Climate Change.

When measuring carbon neutrality, it is important to focus on broad regions rather than specific plots of land. It is true that if the focus is on a single plot of forest, emissions from burning biomass for energy can take years to recapture. But that is not how biomass sustainability should be assessed, because in the same year that particular plots of land may be harvested, many other plots are growing, thus offsetting the loss of carbon from the harvested plot. As a result, carbon stocks across the region are continuing to increase even if several individual plots may have been harvested that year.

Moreover, one of the most significant impacts to forest carbon stocks is the shifting of forest lands to development or agriculture. Robust demand for wood products, including using biomass to generate energy, provides economic incentives to keep forest land forested.

In keeping with these principles, a report by the World Business Council for Sustainable Development (WBCSD) recommends that wood coming from a forest that has stable or rising carbon stocks should be deemed carbon neutral. In particular, the report defines carbon neutrality as “a property of wood or other biomass harvested from forests where new growth completely offsets losses of carbon caused by harvesting. Under these conditions, as carbon is released from harvested wood back into the atmosphere, usually as biogenic CO₂, growing trees are removing CO₂ from the atmosphere at a rate that completely offsets these emissions of biogenic CO₂, resulting in net biogenic CO₂ emissions of zero or less.”¹

Forest product manufacturing residuals such as bark, sawdust, wood shavings, and black liquor associated with the Kraft pulping process would need to be disposed of if they are not combusted to produce useful energy. Disposing of these residuals by incineration without energy recovery would constitute a blatant waste of energy resources, and disposal by landfilling would generate methane, which is also a greenhouse gas.

A study by the National Council for Air and Stream Improvement (NCASI) found that, considering fossil fuel displacement, the forest products industry’s use of manufacturing residuals avoids approximately 181 million metric tons a year of CO₂e emissions. That is the equivalent of removing about 35 million cars from the road.²

The forest products industry has created a highly efficient, market-based system of managed forest use with significant carbon benefits. Those benefits include: (1) providing biomass power by utilizing forest and mill residuals; (2) efficiently using biomass residuals through combined heat and power systems to assure forest biomass resources minimize total forest system GHG emissions; (3) diversifying manufacturers’ energy portfolios and reducing GHG emissions while simultaneously meeting society’s needs for forest products; (4) avoiding GHG emissions that otherwise would result from residual disposal; (5) balancing forest supply and demand through market-based systems for biomass due to forest planting and re-growth, as evidenced by net increases in forest carbon stocks over most of the last 50 years; and (5) recycling paper to reuse valuable biomass resources.

¹ World Business Council for Sustainable Development, “Recommendations on Biomass Carbon Neutrality,” at 3 (Oct. 2015), available at <http://www.wbcd.org/Projects/Forest-Solutions-Group/Resources/Recommendations-on-Biomass-Carbon-Neutrality>.

² National Council for Air and Stream Improvement, “Greenhouse Gas and Fossil Fuel Reduction Benefits of Using Biomass Manufacturing Residuals for Energy Production in Forest Products Facilities,” Technical Bulletin No. 1016, available at <http://www.ncasi.org/Downloads/Download.ashx?id=9603>.

2. Does use of forest and agricultural biomass currently play an important role in addressing energy needs in the United States, including for the manufacturing sector?

According to the Energy Information Administration (EIA), biomass accounted for 49 percent of total U.S. renewable energy consumption in 2015 (biofuels, 22 percent; wood 21 percent; and biowaste 21 percent).³ Data from the Energy Information Administration's 2010 Manufacturing Energy Consumption Survey (MECS) suggest that more than sixty percent of the energy used by the forest products industry is accounted for by biomass. Pulp, paper, packaging and wood products facilities account for 62 percent of the renewable biomass energy consumed by all manufacturing sector facilities.

With respect to agricultural biomass, the United States Department of Agriculture (USDA) found that the bioeconomy contributes \$393 billion in economic activity, provides 4.2 million American jobs, and is the leading source of domestic renewable energy.⁴ Crops grown by farmers store CO₂ from the atmosphere; when agricultural feedstocks are used for food, fuel and fiber, the stored CO₂ returns to the atmosphere in a natural biogenic cycle.

3. Is it important to manufacturers that Federal policy relating to forest and agricultural biomass for energy be consistent across Federal departments and agencies? And would more consistent Federal policy relating to biomass energy serve to promote domestic manufacturing in the United States?

Manufacturers need regulations that are consistent and predictable; the federal government's stance on biomass energy has been anything but. Disparate policies across government agencies, such as the confusing patchwork of positions regarding biomass energy, create regulatory uncertainty and impede capital planning and investment. The government's current approach also undermines the sustainability of the industries that use biomass and discourages beneficial biomass use. A coherent, consistent policy regarding forest and agricultural biomass would help U.S. manufacturing industries use more biomass in a more certain and cost-effective manner and thus help the environment and manufacturing competitiveness.

³ www.eia.gov/energyexplained/?page=renewable_home.

⁴ USDA, "An Economic Impact Analysis of the U.S. Biobased Products Industry" (Oct. 2016), available at <https://www.usda.gov/media/press-releases/2016/10/03/usda-report-shows-growing-biobased-products-industry-contributes>.