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ENERGY CONSUMERS RELIEF ACT OF 2013

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRTEENTH CONGRESS

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ENERGY CONSUMERS RELIEF ACT OF 2013

FRIDAY, APRIL 12, 2013

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

The subcommittee met, pursuant to call, at 9:35 a.m., in room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Hall, Shimkus, Terry, Burgess, Latta, Cassidy, Olson, McKinley, Gardner, Pompeo, Kinzinger, Griffith, Upton (ex officio), Rush, McNerney, Tonko, Green, Capps, Barrow, and Waxman (ex officio).

Staff present: Nick Abraham, Legislative Clerk; Charlotte Baker, Press Secretary; Allison Busbee, Policy Coordinator, Energy and Power; Patrick Currier, Counsel, Energy and Power; Tom Hassenboehler, Chief Counsel, Energy and Power; Mary Neumayr, Senior Energy Counsel; Andrew Powaleny, Deputy Press Secretary; Jeff Baran, Democratic Senior Counsel; Alison Cassady, Democratic Senior Professional Staff Member; Greg Dotson, Democratic Staff Director, Energy and Environment; and Caitlin Haberman, Democratic Policy Analyst.

OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. WHITFIELD. I would like to call the hearing to order this morning. And I certainly want to welcome the panel members who were braving the weather to get here this morning. We appreciate that. Our ranking member Mr. Rush has been caught in traffic and is on his way, and when he gets here I am sure he will want to give an opening statement as well.

But today's hearing, we are going to be focusing on the Energy Consumers Relief Act of 2013, which was introduced by our colleague Mr. Cassidy, who is a member of this committee. A couple of days ago we had a debate on the Keystone pipeline; we had a hearing on the Keystone pipeline, which I might say the American people in a recent Pew poll showed that they support by a margin of 66 percent to 23 percent. And I think during that hearing, it really brought to the focus two different views of the way we should be proceeding in developing energy in America.

One view supported by many people in America, including some of our Democratic colleagues, view climate change as the most important issue facing mankind. And they support more mandates

and more regulations relating to energy, forcing energy cost upward. They support new energy taxes and a strong cap-and-trade system.

Another vision supported by many in this committee is that we want a pathway to energy self-sufficiency focused on maximizing abundant, affordable, and diverse energy resources, reducing emissions through technological development, economic competition, and market-based efficiencies. Now, I would say that in America we don't have to take a backseat to anyone about being focused on the environment. Our CO_2 emissions are the lowest that they have been in 20 years.

EPA reports that total emissions of toxic air pollutants have decreased by approximately 42 percent between 1990 and 2005. EPA has said that since 1990, nationwide air quality has improved significantly for the six common air pollutants. Between 1980 and 2010, total emissions of the six principal air pollutants have dropped by 63 percent.

Now, I don't know if any of you focused on this, but next year, the Dakota Prairie refinery is going to open up in North Dakota. This is the first new refinery in America since 1976. Now, the reason that this has happening is that because of fracking on nonfederal lands in the Bakken formation, there is a bountiful production of this oil and a refinery is absolutely necessary. Now, what many people don't know is that the tribes have submitted an application to build a refinery in North Dakota over 10 years ago, and it has taken 10 years to obtain this permit.

And while everyone is excited about this refinery opening up, the problem is that it has been dramatically downsized because everyone is concerned about the new greenhouse gas rule that is expected to be coming out of EPA. So on one side, people are excited; on the other side it is being artificially remaining a low-scale plant.

Now, the great thing about this development in North Dakota and other parts the country is that in North Dakota, the unemployment rate today is 3.2 percent, the lowest in the country. And since 2009, employment in North Dakota has increased by 60 percent. So I think those two visions of America is what we are really talking about today. We have an opportunity to be energy efficient. We do not have to be dependent upon the Middle East or anyone else. As a matter of fact, we are the number one oil-producing country in the world today, having passed Saudi Arabia in late 2012.

Now, today, we are going to take up a bill that would require EPA to be more transparent. There was a news release yesterday put out by the Society of Environmental Journalists that said that EPA is one of the most closed, opaque agencies in the Federal Government. And that is the view of many of us as well.

So the legislation that Mr. Cassidy is introducing today simply requires a more thorough review of cost and the impact on jobs, energy prices if the overall cost of the regulation will exceed $1 billion. So I think this is a very important piece of legislation and we look forward to your testimony about it.

[The prepared statement of Mr. Whitfield follows:]

PREPARED STATEMENT OF HON. ED WHITFIELD

On Wednesday, when the rest of us were gathered to talk about increasing U.S. energy security through legislation that would finally approve the 1,666 day-long delayed Keystone Pipeline, a pipeline that according to Pew, the American public supports by a margin of 66–23 percent, my colleagues, as they have done in every other hearing this subcommittee has conducted so far this Congress, were asking to debate the science of climate change.

You couldn't paint a picture that is more in contrast to two visions for the future. Some of my colleagues on the other side of the aisle vision a future, which they claim is driven by scientific models, of continued demand destruction mandates, new energy or carbon taxes, and back door cap-and-trade regulations. While our vision, a pathway to energy self-sufficiency, is focused on maximizing abundant, affordable, and diverse energy resources. Reducing emissions through technological development, economic competition, and market-based efficiencies, things that allow our economy and jobs to prosper, are very different from the solutions the current EPA and my colleagues on the other side of the aisle recommend.

The Waxman-Markey cap-and-trade bill failed in the Democratically-controlled Senate for a reason, and it is because consumers and the American public understand that we don't have to choose between the environment, and jobs and the economy with a command-and-control Washington-centric energy vision. Policies that increase energy costs on consumers only seek to drive more innovation and jobs offshore. And I would note, since the time of that bill's failure, we have seen innovation and job creation flourish in the U.S. energy sector, but the EPA is now regulating what the Obama administration failed to legislate and their regulatory assault on coal is only beginning to be realized.

We are now at the cusp of an industrial and manufacturing renaissance—- but this future can only be realized if we are able to continue to successfully harness our resources and maintain a diverse energy portfolio. New taxes, mandates, and back-door cap-and-trade policies only hold us back—and we can look to Europe and other economies as a real world case study on where that path takes us.

We are here today to debate a bill that seeks to keep us on this path to self-sufficiency by putting some inter-agency checks and balances on what many view as an agency who is single handedly controlling nearly all of the energy and environment issues facing our nation. The number of major new rules is like nothing I have seen before and is doing serious economic damage by reducing energy supplies, raising energy prices, risking job growth, jeopardizing competitiveness, and compromising reliability. It is time to restore balance to EPA's rulemaking process, and that is the goal of the "Energy Consumers Relief Act of 2013."

Specifically, the "Energy Consumers Relief Act" would require that, prior to finalizing a rule estimated to cost at least a billion dollars; EPA must first submit a concise cost analysis to Congress. This analysis will provide the public with greater transparency by requiring the inclusion of such things as the impact of the rule on gasoline or electricity prices, as well as any potential job losses.

At the same time, the rule would be subject to an independent analysis led by Department of Energy in consultation with the Federal Energy Regulatory Commission and the Energy Information Administration. DOE would then make an initial determination whether the rule increases energy prices for consumers, including low-income households, small businesses, and manufacturers.

Then, if the Secretary of Energy determines the rule would raise energy prices or impact fuel diversity, he is required to conduct a more extensive analysis in consultation with the Secretaries of Commerce and Labor and the Administrator of the Small Business Administration to determine if the identified energy impacts will have significant adverse effects on the economy, including impacts on jobs and economic growth. If the effects are in fact significant, then EPA may not proceed with the proposed rule.

And of course, this bill would increase the scrutiny of EPA's assault on coal. We have seen a number of costly rules affecting coal-fired electricity generation, and many more are in the works. But the agency's own discussion of the impacts of these rules on electricity costs, reliability, coal-related jobs, and American competitiveness has been woefully inadequate. Indeed, we are already seeing coal-fired power plant shutdowns at a much faster pace than anything EPA ever suggested. Under the "Energy Consumers Relief Act," these rules would finally be getting the cumulative analysis they warrant.

Overall, this bill would empower DOE to take a commonsense, look-before-you-leap approach to EPA's energy-related billion dollar rules. And given the prolonged weakness in the economy and stubbornly high gasoline prices and unemployment rates, it's a level of scrutiny that is long overdue and critical.

# # #

[H.R. ———— follows:]

[DISCUSSION DRAFT]

113TH CONGRESS
1ST SESSION

H. R. _____

To protect consumers by prohibiting the Administrator of the Environmental Protection Agency from promulgating as final certain energy-related rules that are estimated to cost more than $1 billion and will cause significant adverse effects to the economy.

IN THE HOUSE OF REPRESENTATIVES

M__. _____ introduced the following bill; which was referred to the Committee on _____

A BILL

To protect consumers by prohibiting the Administrator of the Environmental Protection Agency from promulgating as final certain energy-related rules that are estimated to cost more than $1 billion and will cause significant adverse effects to the economy.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the "Energy Consumers Re-
5 lief Act of 2013".

1 **SEC. 2. PROHIBITION AGAINST FINALIZING CERTAIN EN-**
2 **ERGY-RELATED RULES THAT WILL CAUSE**
3 **SIGNIFICANT ADVERSE EFFECTS TO THE**
4 **ECONOMY.**

5 Notwithstanding any other provision of law, the Ad-
6 ministrator of the Environmental Protection Agency may
7 not promulgate as final an energy-related rule that is esti-
8 mated to cost more than $1 billion if the Secretary of En-
9 ergy determines under section 3(3) that, with respect to
10 the rule, significant adverse effects to the economy will
11 be caused.

12 **SEC. 3. REPORTS AND DETERMINATIONS PRIOR TO PRO-**
13 **MULGATING AS FINAL CERTAIN ENERGY-RE-**
14 **LATED RULES.**

15 Before promulgating as final any energy-related rule
16 that is estimated to cost more than $1 billion:

17 (1) REPORT TO CONGRESS.—The Administrator
18 of the Environmental Protection Agency shall sub-
19 mit to Congress a report containing—

20 (A) a copy of the rule;

21 (B) a concise general statement relating to
22 the rule;

23 (C) an estimate of the total costs of the
24 rule, including the direct costs and indirect
25 costs of the rule;

1 (D) an estimate of the increases in energy
2 prices, including potential increases in gasoline
3 or electricity prices for consumers, that may re-
4 sult from implementation or enforcement of the
5 rule; and
6 (E) a detailed description of the employ-
7 ment effects, including potential job losses and
8 shifts in employment, that may result from im-
9 plementation or enforcement of the rule.
10 (2) INITIAL DETERMINATION ON INCREASES
11 AND IMPACTS.—The Secretary of Energy, in con-
12 sultation with the Federal Energy Regulatory Com-
13 mission and the Administrator of the Energy Infor-
14 mation Administration, shall prepare an independent
15 analysis to determine whether the rule will cause—
16 (A) any increase in energy prices for con-
17 sumers, including low-income households, small
18 businesses, and manufacturers;
19 (B) any impact on fuel diversity of the Na-
20 tion's electricity generation portfolio or on na-
21 tional, regional, or local electric reliability; or
22 (C) any other adverse effect on energy sup-
23 ply, distribution, or use (including a shortfall in
24 supply and increased use of foreign supplies).

1 (3) SUBSEQUENT DETERMINATION ON ADVERSE
2 EFFECTS TO THE ECONOMY.—If the Secretary of
3 Energy determines, under paragraph (2), that the
4 rule will cause an increase, impact, or effect de-
5 scribed in such paragraph, then the Secretary, in
6 consultation with the Secretary of Commerce, the
7 Secretary of Labor, and the Administrator of the
8 Small Business Administration, shall—
9 (A) determine whether such increase, im-
10 pact, or effect will cause significant adverse ef-
11 fects to the economy, taking into consideration
12 impacts on economic indicators, including those
13 related to gross domestic product, unemploy-
14 ment, wages, consumer prices, and business and
15 manufacturing activity; and
16 (B) publish the results of such determina-
17 tion in the Federal Register.
18 **SEC. 4. DEFINITIONS.**
19 In this Act:
20 (1) The terms "direct costs" and "indirect
21 costs" have the meanings given such terms in chap-
22 ter 8 of the Environmental Protection Agency's
23 "Guidelines for Preparing Economic Analyses"
24 dated December 17, 2010.

1 (2) The term "energy-related rule that is esti-
2 mated to cost more than $1 billion" means a rule of
3 the Environmental Protection Agency that—
4 (A) regulates any aspect of the production,
5 supply, distribution, or use of energy or pro-
6 vides for such regulation by States or other gov-
7 ernmental entities; and
8 (B) is estimated by the Administrator of
9 the Environmental Protection Agency or the
10 Director of the Office of Management and
11 Budget to impose direct costs and indirect
12 costs, in the aggregate, of more than
13 $1,000,000,000.
14 (3) The term "rule" has the meaning given to
15 such term in section 551 of title 5, United States
16 Code.

SECTION-BY-SECTION

H.R. ___, "Energy Consumers Relief Act of 2013"

Section 1: This section provides the short title of "Energy Consumers Relief Act of 2013."

Section 2: This section prohibits the Administrator of the Environmental Protection Agency (EPA) from finalizing any energy-related rule estimated to cost more than $1 billion if the Secretary of Energy determines that the rule will cause significant adverse effects to the economy.

Section 3: This section provides for certain reports and determinations prior to the finalizing of EPA energy-related rules estimated to cost more than $1 billion.

Section 3(1) of the Act directs that before such a rule may be promulgated as final, the EPA Administrator shall submit a report to Congress that includes: (1) a copy of the rule; (2) a concise general statement relating to the rule; (3) an estimate of the total costs of the rule, including direct and indirect costs; (4) an estimate of the increases in energy prices, including potential increases in gasoline or electricity prices for consumers, that may result from implementation or enforcement of the rule; and (5) a detailed description of the employment effects, including potential job losses and shifts in employment, that may result from implementation or enforcement of the rule.

Section 3(2) provides that before such a rule may be promulgated as final by EPA, the Secretary of Energy, in consultation with the Federal Energy Regulatory Commission and the Energy Information Administration, shall prepare an independent analysis to determine whether the rule will cause: (a) any increase in energy prices for consumers, including low-income households, small businesses, and manufacturers; (b) any impact on fuel diversity of the Nation's electricity generation portfolio or on national, regional, or local electric reliability; or (3) any other adverse effect on energy supply, distribution, or use (including a shortfall in supply and increased use of foreign supplies).

Section 3(3) specifies that if the Secretary of Energy determines that the rule will cause an increase, impact, or effect described in section 3(2), then the Secretary, in consultation with the Secretary of Commerce, the Secretary of Labor, and the Administrator of the Small Business Administration, shall: (a) determine whether such increase, impact, or effect will cause significant adverse effects to the economy, taking into consideration impacts on economic indicators, including those related to gross domestic product, unemployment, wages, consumer prices, and business and manufacturing activity; and (b) publish the results of such determination in the Federal Register.

Section 4: This section contains the following definitions:

(1) "Direct costs" and "indirect costs" have the meanings given such terms in chapter 8 of EPA's "Guidelines for Preparing Economic Analyses" dated December 17, 2010.

(2) "Energy-related rule that is estimated to cost more than $1 billion" means a rule of the EPA that (a) regulates any aspect of the production, supply, distribution, or use of energy or provides for such regulation by States or other governmental entities; and (b) is estimated by the Administrator of EPA or the Director of the Office of Management and Budget to impose direct costs and indirect costs, in the aggregate, of more than $1 billion.

(3) "Rule" has the meaning given to such term in section 551 of title 5, U.S. Code.

Mr. WHITFIELD. And at this time, I will recognize the gentleman from Illinois, Mr. Rush, for his opening statement.

OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. RUSH. I want to thank you, Mr. Chairman. And let me begin by commending you for agreeing at our last panel on Wednesday to hold a hearing hopefully sometime in the very near future and dedicated solely for the purpose of hearing from scientific experts on the science of climate change. Mr. Chairman, as you know from 24 letters that Ranking Member Waxman and I have sent to you and Chairman Upton, since May 2011, we have requested a hearing on this matter.

Climate change is an issue that the minority side takes very seriously and we believe that hearing from actual scientists and climatologists rather than industry representatives will benefit and inform every member of this subcommittee.

Mr. Chairman, we all understand that just because one might not like what the facts or the science is telling us does not mean that we can simply ignore science or facts or wish them away. Last year's record temperatures, record droughts, record wildfires, and record levels of flooding prove this point. Still, we are here holding yet another hearing on yet another Republican bill designed to gut the Clean Air Act and tie EPA's hands and prohibit this agency from doing exactly what it was established to do. And that is to protect the public.

Mr. Chairman, we know that the EPA does not simply propose regulations willy-nilly, or just pull them out of thin air. In fact, in a rule that EPA has proposed has been mandated by law specifically to protect the public health by ensuring that all citizens have access to clean air, land, and water. My constituents do not always have the means and wherewithal to hire expensive lobbyist to influence the debate in the Congress in order to enact policies favorable to their futures, nor their financial interest.

So it is imperative that we allow the EPA to act as an impartial referee and ensure that the playing field is level for all Americans. This bill before us is flawed in so many ways but one of its biggest deficiencies is that it will give the Secretary of Energy unprecedented authority to effectively veto public health regulation if the Secretary found that the rule will cause "any significant, adverse effects to the economy."

The analysis called for in this legislation is so skewed that even if the economic benefits of a rule dramatically outweigh any significant adverse effects to the economy or rather to industries' profits, the rule will still be blocked.

Mr. Chairman, I find it is curious that my colleagues on the other side of the aisle are quick to point out that carbon emissions in the U.S. are down to mid-1990 levels but refusing to acknowledge that the EPA regulation implemented under the Clean Air Act have played a key role in reducing harmful air pollutants by 60 percent, while at the same time our economy has grown over 200 percent.

Mr. Chairman, my Republican colleagues, you can't have it both ways and attack the EPA for issuing regulations while at the same

time pointing to progress that we have made as a country, both environmentally and economically, due in large part to these very same EPA rules.

The bill today is simply another sham that may serve as a good messaging piece for the majority and its allies but will never, ever see the light of day in the Senate and will never, ever be signed into law by President Obama. But if getting through today's hearing will help bring us a step closer to holding a real meaningful, a real climate change hearing where we can really tackle the issues that most Americans truly feel about it, then, Mr. Chairman, I say let's begin the hearing.

Thank you and I yield back the balance of my time.

Mr. WHITFIELD. Thank you very much.

At this time I recognize Mr. Upton, chairman of the full committee for 5 minutes.

OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. UPTON. Well, thank you, Mr. Chairman.

You know, common sense dictates that we should fully understand the cost of new regs to jobs and the economy before they are implemented, especially the highest cost regs as the Nation continues to endure high energy prices and unemployment. Maybe the EPA doesn't present a full economic analysis now because they know the public would not like what it hears. But transparency and regulatory costs is a reasonable expectation. And the Energy Consumers Relief Act will make sure that the EPA, in fact, provides it.

Having worked in President Reagan's OMB, I have long been interested in the proper oversight of federal regs, and I cannot think of a set of regs more in need of additional oversight that EPA's energy-related rules.

I want to commend Bill Cassidy for his Energy Consumers Relief Act, which is a commonsense solution that bolsters EPA transparency and puts American consumers first. For an agency that was never granted any energy policy-setting authority, EPA, nonetheless, has taken charge of directing the Nation's energy agenda. They are seeking to regulate where they have been unable to legislate, evidenced by EPA's avalanche of coal regs seeking to effectively regulate out of existence the use of abundant resource without any regard for electricity prices, reliability, or jobs.

At a time when most Americans haven't seen gasoline under $3 a gallon in years, we now have a proposed Tier 3 gas rule that would put forward upward pressure on prices at the pump, creating a disproportionate hardship for the country's most vulnerable, those most likely not to be able to afford those higher prices.

But gas prices aren't alone in being stubbornly high. With just 88,000 jobs created last month, it looks like 2013 is going to be yet another year with unemployment staying well above 7 percent. The Energy Consumers Relief Act gives the Department of Energy the lead role in conducting a multiagency analysis of EPA's energy-related rules estimated to cost at least $1 billion, $1 billion.

No longer will the impacts of these measures on energy prices, jobs, or manufacturing competitiveness be a secondary consider-

ation that is hidden from view. It is now more important than ever to weigh the consequences of the EPA's actions. The U.S. is on a pathway to unprecedented energy self-sufficiency, a pathway that has seen technology and innovation in the energy sector drive new energy resource abundance, diversity, and affordability, all for the benefit of consumers. Without the additional checks and balances this bill provides, the pathway will remain threatened by an agency that sometimes fails to provide an adequate and complete picture of the sweeping cumulative impacts of its own regs.

And I would yield to other members of the committee that might—Mr. Cassidy, I yield the balance of my time.

[The prepared statement of Mr. Upton follows:]

PREPARED STATEMENT OF HON. FRED UPTON

Common sense dictates that we should fully understand the cost of new regulations to jobs and the economy before they are implemented—especially the highest-cost regulations as the nation continues to endure high energy prices and unemployment. Maybe the EPA does not present a full economic analysis now because they know the public would not like what it hears. But transparency in regulatory costs is a reasonable expectation, and the Energy Consumers Relief Act will make sure the EPA provides it.

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For an agency that was never granted any energy policy setting authority, EPA nonetheless has taken charge of directing the nation's energy agenda. They are seeking to regulate where they have been unable to legislate, evidenced by EPA's avalanche of coal regulations seeking to effectively regulate out of existence the use of an abundant American resource without any regard for electricity prices, reliability, or jobs.

At a time when most Americans haven't seen gasoline under $3.00 a gallon in years, we now have a proposed Tier 3 gasoline rule that would put further upward pressure on prices at the pump, creating a disproportionate hardship for the country's most vulnerable. But gas prices aren't alone in being stubbornly high. With just 88,000 jobs created last month, it looks like 2013 is going to be yet another year with unemployment staying well above 7 percent.

The Energy Consumers Relief Act gives the Department of Energy the lead role in conducting a multiagency analysis of EPA energy-related rules estimated to cost at least one billion dollars. No longer will the impacts of these measures on energy prices, jobs, or manufacturing competitiveness be a secondary consideration that is hidden from view.

It is now more important than ever to weigh the consequences of EPA's actions; the U.S. is on a pathway to unprecedented energy self-sufficiency-a pathway that has seen technology and innovation in the energy sector drive new energy resource abundance, diversity and affordability, all for the benefit of consumers. Without the additional checks and balances this bill provides, this pathway will remain threatened by an agency that fails to provide an adequate and complete picture of the sweeping cumulative impacts of its own regulations.

# # #

OPENING STATEMENT OF HON. BILL CASSIDY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF LOUISIANA

Mr. CASSIDY. Thank you, Mr. Chairman.

I am offering the bill this week or next week. And the bill is actually about transparency.

Dr. Rom, I read your testimony and it is all very nicely referenced, but there is nothing to prevent that from impacting or influencing or encouraging EPA to address the situation. All it is is going to require is transparency. Your article was so beautifully reference peer-reviewed. I will note that EPA's work is not peer-reviewed. That is not me saying it; it is actually the National Academy of Science, which found on something regarding formaldehyde, that the draft assessment has not adequately supported its conclusions et cetera, et cetera, et cetera. You would never accept EPA's document in a peer-reviewed journal.

With that said, EPA science can be specious. So this is about transparency. And the stakes are high. People are losing their jobs over specious science. Now, maybe the science is good, and maybe the science is not, but I see nothing wrong with transparency and accountability. Why should the EPA be a dictator over our lives? Why shouldn't the EPA answer to somebody?

Ultimately, Mr. Rush spoke about how folks back home don't have high-powered lobbyists. I totally agree. So therefore, it is incumbent upon us to make sure that every bureaucracy has someone to whom they are accountable. In this case it is the same administration. We would be saying that President Obama appointed somebody who is going to deep-six his environmental agenda if he was the Department of Energy Secretary, or if she was. I don't think that is very practical, very reasonable, or very likely.

The fact is that everybody should be accountable. There are an incredible number of jobs on the line here and the science at times has not been adequate. So therefore, I see nothing wrong with putting in transparency for those thousands, millions of Americans who cannot afford a lobbyist but whose livelihood may be threatened by dictatorial powers which have no accountability.

Thank you, I yield back.

Mr. WHITFIELD. Thank you.

At this time I recognize the gentleman from California, Mr. Waxman, for 5 minutes.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you, Mr. Chairman. When I woke up this morning I noticed it had been raining. I was pretty sleepy. I didn't really want to come to work, and there was a cost to me because I had to do a lot of things to get ready. But I didn't realize the benefits. And the benefit is to sit here at a hearing to talk about a bill that doesn't make sense. So if I knew the full facts, I could have weighed the costs and benefits. If I just looked at the costs, that would be one way to make a decision, but you should look at the costs and benefits.

Anyway, this bill says we are not going to look at the costs and the benefits. We are only going to look at the costs. And if the costs are high, well, forget about it. But that doesn't make sense because a lot of regulations weigh costs and benefits and say that the benefits outweigh the costs.

During the 1990s, a lot of people looked at regulations and they said, oh, we have got to have a cost-benefit analysis. Well, cost-ben-

efit analysis is far from perfect. Important benefits can't always be reduced to a dollar figure. The estimates of compliance costs are frequently inflated. But cost-benefit analysis, at least attempts to capture both sides of the equation.

The problem with this bill is it says that when EPA does this cost-benefit analysis, they should then be accountable to the Department of Energy to make the decision. Well, why? Why should the Department of Energy be superior to the Environmental Protection Agency? The benefits of most important rules dwarf the costs.

Let me give you some examples. The benefits of the Mercury and Air Toxics Rules are between four and nine times greater than the costs. EPA's tailpipe standards for reducing carbon pollution produced net benefits to society of up to $451 billion by saving car owners money at the gas pump. The benefits of these and other rules are huge.

Faced with these facts, opponents of EPA rules now say we should simply ignore the benefits and consider only the costs. That is what the discussion draft before us requires. This is an extreme and nonsensical approach. Imagine applying this bill's premise to everyday decisions. Not my decision on whether to come this morning, but would somebody decide not to pay for a child's college tuition, even though college opens doors of opportunity? If we look only at the price of medical care and not its benefits, would we forgo medical care?

Every day, Americans look at both the pros and cons of making even the smallest decisions. But this bill would require decision-makers in the Federal Government to look only at the downside of making critical investments to protect public health and the environment.

This discussion draft is hopelessly flawed. It gives the Department of Energy a veto over EPA regulations. Is that giving one bureaucracy some accountability because it has to satisfy another bureaucracy which has an other purpose than environmental protection when the agency in charge of environmental protection, after weighing costs and benefits, decides to go forward with a regulation?

This is an unprecedented intrusion on the authority of the EPA. It is not common sense. It is not providing transparency. It is providing barriers to do something to protect public health and the environment if there is a cost that the industries don't like. And therefore, the industries can simply go and stop regulations.

Now, let's see this bill more in detail. It requires the Department of Energy to conduct a skewed analysis of only the costs of EPA rules without any consideration of the benefits. So if the Secretary of Energy determines that a rule will cause any "significant adverse effects to the economy"—that means the cost—EPA would be blocked from finalizing its rule, after they went through a cost-benefit analysis, even if the economic benefits of the rule dramatically outweigh the costs.

I have further comments in my opening statement that I would like to put in the record, but Mr. Chairman, the American people want us to solve problems not waste our time with partisan posturing, taking up nonsensical message bills that stand no chance

of becoming law. This just deepens and justifies the cynicism of the American people. We have two problems within our committee's jurisdiction that are crying out for attention, cybersecurity and climate change. And instead, we are wasting our time telling people regulations are no good if special interests don't like it and they can convince the Department of Energy, which has no expertise on doing these regulations to be able to veto them if there is any cost whatsoever. I think this is a real waste of time and I wish I would have stayed in bed.

[The prepared statement of Mr. Waxman follows:]

PREPARED STATEMENT OF HON. HENRY A. WAXMAN

National Defense Magazine recently examined the latest intelligence forecasts to identify the five biggest challenges to U.S. and global security in the coming decades. The Energy and Commerce Committee has jurisdiction to address two of the top five threats: climate change and cybersecurity.

Today, the Subcommittee is ignoring these urgent threats in order to spend its time considering what can only be described as a dumb bill. This bill relies on an outlandish premise: that EPA's public health and environmental protections provide no benefits at all to the American people.

During the 1990s, opponents of EPA rules saw cost-benefit analysis as a way of weakening public health and environmental protections. Cost-benefit analysis is far from perfect. Important benefits cannot always be reduced to a dollar figure. And the estimates of compliance costs are frequently inflated. But cost-benefit analysis at least attempts to capture both sides of the equation.

The problem for opponents of EPA's public health rules is that the benefits of the most important rules dwarf the costs. The benefits of the mercury and air toxics rule are between four and nine times greater than the costs. EPA's tailpipe standards for reducing carbon pollution produce net benefits to society of up to $451 billion by saving car owners money at the gas pump. The benefits of these and other rules are huge.

Faced with these facts, opponents of EPA rules now argue that we should simply ignore the benefits and consider only the costs. That's what this discussion draft requires. It is an extreme and nonsensical approach. Imagine applying this bill's premise to everyday decisions. You would choose not to pay your child's college tuition, even though college opens doors of opportunity. You would look only at the price of medical care, not its benefits.

Every day, Americans look at both the pros and cons of making even the smallest decisions. But this bill would require decision-makers in the federal government to look only at the downside of making critical investments to protect public health and the environment.

The discussion draft is hopelessly flawed. It gives the Department of Energy (DOE) a veto over EPA regulations. This is an unprecedented intrusion on the authority of EPA.

And it then requires DOE to conduct a skewed analysis of only the costs of EPA rules without any consideration of the benefits. If the Secretary of Energy determines that a rule would cause any "significant adverse effects to the economy," EPA would be blocked from finalizing the rule—even if the economic benefits of a rule dramatically outweigh the costs. This gives the Secretary of Energy authority to block EPA public health protections that are required by law.

Even if the Secretary of Energy ultimately decides that the rule does not hurt the economy, this new process could indefinitely delay important public health protections. The bill bars EPA from finalizing a rule before DOE completes its analysis. But it establishes no deadline for DOE to act and provides no resources to DOE to undertake these analyses.

Moreover, this bill simply adds more bureaucracy to the rulemaking process. Numerous statutes and executive orders already require EPA to conduct rigorous cost-benefit analysis of its rules, which are subject to public comment and extensive interagency review. This bill would require the same agencies to look at the same rules again, but this time ignoring all of the pages that talk about how the rules would benefit Americans.

Mr. Chairman, the American people want us to solve their problems, not waste our time with partisan posturing. Taking up a nonsensical message bill that stands no chance of becoming law just deepens and justifies their cynicism. We should

spend our time developing real solutions to real problems. A good place to start would be with the recommendations of National Defense Magazine and holding hearings on climate change and cybersecurity.

Mr. WHITFIELD. Thank you, Mr. Waxman.

And that concludes the opening statements, so once again, I want to welcome the panel of witnesses today. We had invited representatives from EPA and DOE to attend but they do not have witnesses here. But EPA did submit a testimony, a statement and I would ask unanimous consent that we introduce into the record the EPA statement.

[The information follows:]

House Energy and Commerce
Energy and Power Subcommittee Hearing
Statement for the Record
from the
Environmental Protection Agency
on the
Energy Consumers Relief Act
Legislative Hearing
April 12, 2013

The Administration makes it a priority to ensure that our federal regulatory system is guided by science and that it protects the health and safety of all Americans in a pragmatic and cost effective manner.

The core mission of the EPA is protection of public health and the environment. That mission was established in recognition of a fundamental fact of American life – regulations can and do improve the lives of people. We need these rules to hold polluters accountable and keep us safe. For more than 40 years, since the Nixon administration, the Agency has carried out its mission and established a proven track record that a healthy environment and economic growth are not mutually exclusive.

The Clean Air Act is one of the most successful environmental laws in American history and provides an illustrative example of this point. For 40 years, the Clean Air Act has made steady progress in reducing the threats posed by pollution and allowing us to breathe easier. In 2010 alone, programs implemented pursuant to the bipartisan-enacted Clean Air Act Amendments of 1990 are estimated to have reduced premature mortality risks equivalent to preventing over 160,000 premature deaths; spared Americans more than 100,000 hospital admissions and emergency department visits; and prevented millions of cases of respiratory problems, including bronchitis and childhood asthma attacks.

Few of the emission control standards that gave us these huge gains in public health were uncontroversial at the time they were developed. Most major rules have been adopted

amidst claims that they would be bad for the economy, increase energy prices, and lead to unemployment.

For example, an early industry study of EPA's Acid Rain Program estimated the cost at $7.5 billion annually. However, multiple recent analyses show that the Acid Rain Program has been implemented at a fraction of that estimate -- between $1 and 2 billion annually (2011 National Acid Precipitation Assessment Program Report to Congress). The resulting emission reductions are providing substantial health and ecosystem benefits with a monetized value of between $170 billion and $430 billion per year (2008$).[1] In contrast to doomsday predictions, history has shown, again and again, that we can clean up pollution, create jobs, and grow our economy all at the same time. Over the same 40 years since the Clean Air Act was passed, the Gross Domestic Product of the United States grew by more than 200 percent. At the same time, the Clean Water Act has kept tens of billions of pounds of sewage, chemicals and trash out of American waterways. America's urban waterways have gone from wastelands to centers of redevelopment and activity, and we have doubled the number of American waters that meet standards for swimming and fishing. In the process, we've advanced environmental science and spurred countless innovations in technology.

We must regulate sensibly - in a manner that, when allowed by statute, carefully considers both the benefits and the costs. EPA's detailed regulatory impact analyses help us accomplish that goal in a manner that best supports the reasons for implementation of environmental regulations: to ensure that American families have clean air to breathe and clean water to drink and in which to swim and fish.

Although the Administration does not have a position on the draft legislation at this time, EPA has serious concerns with the legislation that the Agency believes merit close consideration. First, the draft legislation before the committee today departs from the

[1] http://www.whitehouse.gov/sites/default/files/microsites/ostp/2011_napap_508.pdf

principle that both the benefits and costs of regulations should be considered together. Second, it would waste limited analytical resources on duplicative analysis that could needlessly delay important public health protections at an additional cost to taxpayers. And third, in the worst case, it could permanently block EPA from fulfilling its statutory obligations to protect public health and the environment.

The draft legislation directs the EPA to report to Congress only on the costs of a regulation, but not on the benefits. Similarly the Secretary of Energy is directed to conduct an analysis of energy price impacts and their effects on the economy, but is not directed to take into account benefits to the economy such as cleaner air and water, fewer premature deaths and fewer days of work missed due to illness. Health and environmental benefits are the driving rationale for our environmental laws and for the regulatory actions taken to implement these laws. By ignoring benefits, the draft legislation instructs policy makers to adopt an inherently biased approach that is inconsistent with the fundamental principles of environmental law and would lead to flawed decision making.

A second serious concern with the draft legislation is that it would require duplicative economic analysis. Executive Order 13211[2], issued in 2001, already requires agencies to examine energy effects. EPA already examines impacts on energy prices and output, changes in electricity generation mix, impacts on reserve margins for reliability, and other energy-related metrics where relevant for regulations. After the proposed rule is published, these analyses receive public comment and are revised as appropriate. Despite this analysis, the legislation directs DOE to conduct its own analysis of the same regulation for key energy impacts. EPA encourages the committee to consider whether it is wise to require DOE to fully duplicate analyses that EPA already performs and the added costs of such analyses.

[2] http://www.gpo.gov/fdsys/pkg/FR-2001-05-22/pdf/01-13116.pdf

A third concern is that this legislation could result in delay of EPA regulations – creating regulatory uncertainty and, potentially, leading to lengthy (and potentially indefinite) delays in important protections for public health and the environment. The draft legislation calls for detailed economic analysis by DOE, in consultation with the Federal Energy Regulatory Commission (FERC) and the Energy Information Administration (EIA), and further consultation with three additional Federal agencies if certain determinations are made. Section 3 directs that these analyses and determinations are to be done "before promulgating as final" any energy-related rule of EPA's, but it does not set a timeline for the length of this process and this could create regulatory uncertainty.

Even if this process were to result in a determination of no "significant adverse effects to the economy," the process could take substantial time, while leaving the public and the regulated community in doubt as to the outcome. This may create uncertainty for the regulated community, which cannot fully plan regulatory compliance investments until the rule is finalized. As the Agency has moved to finalize rules such as the Mercury and Air Toxics Standards (MATS) under the Clean Air Act, we have heard from regulated entities that urge us to proceed with prompt finalization so that they can move forward with compliance. An extra layer of review may extend the period where industry must place plans to invest in new pollution control equipment on hold. In addition to the costs that such uncertainty imposes on the regulated community, this could delay creation or support of jobs by delaying anticipated increases in both short- and log-term job opportunities from installation of air pollution control equipment.

The impacts could be even more severe for members of the public. Each year, implementation of the MATS rule, for example, will avoid thousands of premature deaths, prevent thousands of heart attacks and thousands of hospital visits for respiratory and cardiovascular disease, and alleviate tens of thousands of childhood asthma attacks and other respiratory illnesses. EPA estimates that this rule will yield tens of billions of dollars in net benefits in 2016 alone. The draft legislation could place an additional procedural hurdle in the path of finalizing important public health rules such as this one.

Finally, this bill appears designed to override every environmental law that EPA administers that authorizes energy-related regulation estimated to cost more than the specified threshold – even when the benefits of taking action justify the costs. Energy-related rules could be blocked by a determination based on analysis and consultation specified in the bill by agencies without the direct responsibility for implementing the Clean Air Act, Clean Water Act, and other landmark environmental protection laws.

In conclusion, the draft legislation being discussed today could delay or even block public health and environmental protections for Americans based on misplaced concerns that EPA standards would be bad for the economy and bad for employment. In contrast to doomsday predictions, history has shown that we can clean up pollution, preserve jobs, and help grow our economy all at the same time. Over the 40 years since the Clean Air Act and Clean Water Act were passed, our air and water has become enormously cleaner, and the economy of the United States more than doubled. EPA already undertakes robust analysis of the costs and benefits and energy impacts of its significant rulemakings, consistent with relevant Executive Orders, and history has shown that American ingenuity and innovation can allow us to continue environmental progress while we grow our economy.

Mr. WHITFIELD. And at this time I would like to introduce members of the panel. We have Mr. Paul Cicio, who is the president of the Industrial Energy Consumers of America. We have Mr. Brendan Williams, who is vice president, Advocacy for the American Fuel and Petrochemical Manufacturers. We have Dr. William Rom, who is professor of medicine and environmental medicine at the New York University School of Medicine, and he is testifying today, I believe, on behalf of the American Thoracic Society. We have Ms. Rena Steinzor, who is a professor of law at the University of Maryland and is also president of the Center for Progressive Reform. And we have Dr. Anne Smith, who is senior vice president of NERA Economic Consulting. And we have Mr. Scott Segal, who is the director of the Electric Reliability Coordinating Council.

So we have some real experts with us today and we look forward to your testimony about this legislation.

And Mr. Cicio, I will recognize you first for an opening statement. Each one of you will be given 5 minutes, and there is a little box on the table that has green, yellow, and red, and red means stop. So if you all would pay some attention to that, we would appreciate it.

Mr. Cicio, you are recognized for 5 minutes.

STATEMENTS OF PAUL CICIO, PRESIDENT, INDUSTRIAL ENERGY CONSUMERS OF AMERICA; BRENDAN WILLIAMS, VICE PRESIDENT, ADVOCACY, AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS; DR. WILLIAM N. ROM, PROFESSOR OF MEDICINE AND ENVIRONMENTAL MEDICINE, NYU SCHOOL OF MEDICINE, ON BEHALF OF THE AMERICAN THORACIC SOCIETY; RENA STEINZOR, PROFESSOR OF LAW, UNIVERSITY OF MARYLAND, AND PRESIDENT, CENTER FOR PROGRESSIVE REFORM; ANNE E. SMITH, NERA ECONOMIC CONSULTING; AND SCOTT H. SEGAL, DIRECTOR, ELECTRIC RELIABILITY COORDINATING COUNCIL

STATEMENT OF PAUL CICIO

Mr. CICIO. Thank you. Thank you, Chairman Whitfield, Ranking Member Rush, for the opportunity to testify before you and other subcommittee members.

My name is Paul Cicio and I am president of the Industrial Energy Consumers of America. The IECA member companies have over $1.1 trillion in revenues. We have over 1,000 major manufacturing facilities across the country, and we employ over 1.4 million employees. IECA supports the draft bill entitled "Energy Consumers Relief Act of 2013," because transparency of the cost of compliance is critically important to cost-effective regulation. Under this legislation, in the event that the review of cost finds that the EPA regulation would be harmful to the economy, we would hope that the EPA would reconsider the rule and seek alternative low-cost regulation.

IECA has three points we would like to share with you this morning. Point number one, the EPA should not fear transparency of economics of regulation. They should embrace it as part of their regulatory reform effort. And EPA should also embrace pursuit of a more accurate and less controversial method for calculating

health benefits. Too much is at stake to not get these right; both must be credible.

The EPA must be mindful that the manufacturing companies have a choice as to where they build their facilities around the world. The U.S. and its policies are in competition with other countries for these investments and jobs. This means that U.S. regulations must compete as well. That is, to regulate in a manner that is cost-effective and implemented in a time horizon that are responsible to public health but mindful of market realities.

The most fundamental element is transparency of the cost of regulation. And in our view, the EPA scorecard is very poor. The EPA provided leadership decades ago in reducing emissions. They now need to lead again by addressing the cost and transparency issues. Congressmen, this is a win-win. There are no losers.

Point number two, besides the cost of EPA regulations placed directly on our own facilities, when the EPA promulgates rules and costs on, for example, the electric utility industry, it is us consumers that pay for that. When the EPA promulgates rules on oil and the gas industry, it is us the consumers that pay for those. When the EPA chooses fuel mix strategies that give preference of one fuel over another, it is we consumers that pay for that. And there appears to be an insensitivity or a disconnect to this point as EPA proceeds to roll out a multiplicity of new regulations. Someone has to pay for these regulations and that someone is the industrial sector and other U.S. consumers.

As the only sector of the economy that competes with global competition, the pass-through of these costs to us is significant, and it is getting greater all the time, continually eroding at our ability to compete and create jobs.

Point number two, this is not 1970 when emissions were relatively high and significant action was needed to reduce any omissions. Emissions have dramatically been slashed since then and that is the good news. The bad news is that now that emissions are small, the cost of the next increment of reduction is very expensive, so expensive that manufacturing companies could be forced to make decisions on whether to comply or shut down facilities and move production offshore.

The reality is that manufacturers face a significant number of existing, new, or proposed EPA regulations all at the same time, with overlapping requirements and additive and compounding costs. This plethora of regulations has resulted in business investment uncertainty.

Point three, we encourage policymakers—all policymakers—to be mindful of another reality: that when companies spend capital on regulatory compliance, it consumes capital that would otherwise be used to create jobs, producing manufacturing products and exports, both of which are desperately needed to revive our weak economy and job creation.

Thank you for considering our points.

[The prepared statement of Mr. Cicio follows:]

"Energy Consumers Relief Act of 2013"

Before the House Committee on Energy and Commerce, Subcommittee on Energy and Power

Friday, April 12, 2013

Testimony of
Paul N. Cicio
President
Industrial Energy Consumers of America

Thank you Chairman Whitfield and Ranking Member Rush for the opportunity to testify before you and other Subcommittee Members. My name is Paul Cicio and I am the President of the Industrial Energy Consumers of America (IECA). As significant consumers of energy, our competitiveness is dependent upon the cost of energy. For this reason, we welcome the opportunity to comment on the proposed legislation "Energy Consumers Relief Act of 2013."

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with $1.1 trillion in annual sales, over 1,000 facilities nationwide, and with more than 1.4 million employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of energy intensive industries including: chemical, plastics, steel, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, brewing and cement. IECA companies do not include producers of natural gas, oil, coal, or electric utilities.

IECA supports the draft bill entitled the "Energy Consumers Relief Act of 2013," which would require the U.S. Department of Energy (DOE), the Federal Energy Regulatory Commission (FERC) and Energy Information Administration (EIA) to make a determination as to the direct and indirect costs of any energy-related EPA regulation that may cost one billion dollars or more, prior to finalizing the rule. If, in the event that the review of the costs by the U.S. Department of Commerce, the Department of Labor (DOL), and the Small Business Administration (SBA) finds that the Environmental Protection Agency (EPA) regulation would be harmful to the economy – we would hope that the EPA will reconsider the rule and seek alternative lower-cost regulation.

The EPA should not fear transparency of the economics of regulation – they should embrace it as part of their regulatory reform efforts. Policymakers, including the EPA, must be mindful that manufacturing companies have choices as to where they build their facilities around the world. In this regard, the U.S. and its policies are in competition with other countries for these investments and jobs. This means that U.S. regulations must compete as well – that is, to regulate in a manner that is cost-effective and implemented in time horizons that are responsible to the public health, but mindful of market realities. The most fundamental element is transparency of the cost of regulation. In our view, EPA's scorecard is very poor. The EPA provided leadership decades ago in reducing emissions; they now need to lead again by addressing the cost and transparency issues. This is a win-win and there are no losers.

IECA SUPPORTS THE LEGISLATION FOR THE FOLLOWING REASONS:

1. All costs associated with EPA regulations that are energy-related, whether through regulations directly upon the industrial sector company or indirectly on our energy suppliers – are passed onto to us and can greatly impact our competitiveness, U.S. investment levels, jobs and exports.

When the EPA is promulgating rules and costs on the electric utility industry – we consumers pay for it. When the EPA promulgates rules on the oil and natural gas industry – consumers pay for it. When the EPA chooses fuel mix strategies that give preference of one fuel over another – consumers pay for it.

There appears to be insensitivity or disconnect to this point as EPA proceeds to roll out a multiplicity of new regulations. Someone has to pay for these regulations and that someone is the industrial sector and other U.S. consumers. As the only sector of the economy that competes with global competition, the

pass through of these costs to us is significant and getting greater all the time – continually eroding our ability to compete and create jobs.

2. The manufacturing sector competes globally, often with unfair or subsidized global competition, and even a relatively small cost increase can impact competitiveness and result in lost jobs and exports.

This is not 1970 when U.S. emissions were relatively high and significant action was needed to reduce emissions. Emissions have been drastically slashed since then and that is the good news. The bad news is that now that emissions are so small, the cost of the next increment of reduction is very expensive. So expensive that manufacturing companies could be forced to make decisions of whether to comply or shut down the facility and move its production offshore.

The reality is that manufacturers face a significant number of existing, new or proposed EPA regulations, all at the same time with overlapping requirements, and additive and compounding costs. This plethora of regulations has resulted in business investment uncertainty.

We encourage policymakers to be mindful of another reality – when companies spend capital on regulatory compliance it consumes capital that would otherwise be used to create new jobs producing manufacturing products and exports. Both are desperately needed to revive our weak economy and weak job creation.

3. Congress never intended for the EPA to set energy policy – but that is what is happening.

EPA rules can and are having a significant impact on both the production and consumption of energy. EPA rules can have direct and indirect impact to energy production levels, costs, reliability and national security. Likewise, EPA rules can increase direct and indirect demand for energy that impact energy prices.

EPA rules have absolutely become intertwined with reducing emissions and our nation's energy production and consumption. And, EPA does not have expertise in energy markets. Because emissions and energy production and consumption are intertwined, policy checks and balances are needed. The capabilities of the DOE, FERC and EIA will provide expertise necessary to determine direct and indirect cost impacts. Congressional oversight is needed because one agency should not have the power to dictate energy policy that could significantly and negatively impact the economy, jobs and the competitiveness of the industrial sector.

4. A key cornerstone of responsible public policy is that the cost of the regulation is transparent (in advance of implementation) and that it is implemented using the lowest cost policy alternative.

EPA has shown either the inability or unwillingness, or both, to determine the full cost of their regulations. As stated above, the stakes are much too high for our country not to make this policy change. We are not saying do not regulate – we are saying – do it better and at less cost.

5. With this legislation in place, we are hopeful that if in the event that the DOE, FERC, and EIA cost evaluation clearly shows that the EPA regulation costs exceed one billion dollars, and that the DOC, DOL and SBA finds the regulation would be harmful to the economy – that the EPA will consider alternative and less expensive policy alternatives.

6. Weak economy and job growth are reasons enough.

If the above reasons are not sufficient, then we hope that the reality of U.S. weak economic gains and lack luster job growth will spur support for this legislation. There are multiple studies, too long to list here, all of which confirm, EPA regulations are indeed costly and that these costs are accelerating in a time of weak economic growth. As said before, unnecessary high costs divert business capital away from investment that create needed jobs.

SUPPORT MATERIAL

About the manufacturing sector

- Manufacturing is the *most diverse* end-use sector —in terms of energy services required, sources of energy used, technologies needed, and product output.
- Contributes about 12% of gross domestic product (GDP)
- Directly employs approximately 12 million people
- Accounts for 60% of U.S. engineering and science jobs
- Supplies about 57% of U.S. exports
- Produces nearly 20% of the world's manufacturing output

The cost and implications of regulations to the manufacturing sector

On August 21, 2012, the Manufactures Alliance for Productivity and Innovation commissioned a study entitled "Macroeconomic Impacts of Federal Regulation on the Manufacturing Sector" that illustrates why the "Energy Consumers Relief Act of 2013" is needed. Below are some of the key points:

- The average number of major regulations
  - 1993 to 2000: 36
  - 2001 to 2008: 45
  - 2009 to 2011: 72

- All manufacturing subsectors are impacted by increased costly regulations
  - Energy-intensive sectors are most impacted. Output could fall by about 9% to 10% per year on average
  - Total value of shipments could be reduced by $200B to $500B in constant 2010 dollars in 2012
  - EPA imposes the largest number of regulations on manufacturing: (972); including 122 major regulations
  - EPA imposes the largest regulatory costs totaling $117B in constant 2010 dollars

- Growth in the cost of regulation has exceeded economic growth and especially manufacturing sector growth
    - From 1998 through 2011, cumulative inflation adjusted cost of compliance grew by an annualized rate of 7.6% while GDP growth averaged 2.2% per year; annual growth of physical volume of manufacturing output averaged a mere 0.4%

- Exports are being held down by regulatory burden. Exports in 2012 could be 6.5% to 17% lower than they would be without the estimated regulatory burden.

Thank you.

Mr. WHITFIELD. Thank you, Mr. Cicio.

And Mr. Williams, you are recognized for 5 minutes.

STATEMENT OF BRENDAN WILLIAMS

Mr. WILLIAMS. Thank you, Chairman Whitfield, Ranking Member Rush, and members of the subcommittee, for this opportunity to be here today.

The Energy Consumers Relief Act is a commonsense measure that will inject transparency and scientific vigor back into the regulatory process. While not stopping EPA's ability to regulate emissions, the legislation would inject a more rigorous review of the most costly regulations and foster a more robust, public debate about the costs and benefits of the proposals.

My written testimony details some of the nebulous costly and conflicting regulations that fuel and petrochemical manufacturers are facing. These regulations pose significant costs often with questionable benefit and ultimately impact consumers. The consumer impact of regulation is where I would like to focus my remarks today.

Energy is truly the lifeblood of our economy. Affordable, abundant supplies of energy make modern life possible and have made America the most prosperous nation on Earth. Abundant energy and a clean environment are not mutually exclusive. The air is cleaner today than it ever has been and it is getting even cleaner. EPA notes that between 1990 and 2011, emissions of the six principal pollutants drop 63 percent while vehicle miles traveled increased 94 percent and energy consumption increased 26 percent in that period.

Today, emissions are so low the new requirements for incremental reductions become extremely costly. Given this reality, it is important to develop objective assessments on costs and energy supply impacts of additional regulations. Energy cost increases carry significant implications for consumers and our economy. Consider the following facts: every penny increase in gasoline prices translates into a more than $1 billion increase in household energy spending. And this is money that, as my colleague noted, consumers could spend elsewhere on other goods and services.

In 2011, the trucking industry consumed more than 35 billion gallons of diesel fuel. A .01-per-gallon increase would have translated into an additional $365 million annually for truckers. Every dime increase in gasoline or diesel prices sustained over a year costs domestic agriculture over $381 billion annually. In fact, 65 percent of farmer's costs are dedicated to fuel, electricity, fertilizer, and chemicals.

Increased energy costs not only affect what consumers pay for transportation and for operating their businesses but also manufactured goods. Petrochemicals are the basis for most consumer goods and energy represents one of the largest costs for petrochemical manufacturers. To highlight the significance of petrochemicals for consumer products, consider the following: an average vehicle contains almost 600 pounds of petrochemical derived plastics, composites, rubber coating, and textile products. Home electronics, such as TVs, computers, and cell phones contain up to 40 percent or more of plastics derived from petrochemicals. Nearly 14 percent of con-

struction materials used in the U.S. are made from synthetic materials and derived from petrochemicals. Even renewable energy products—windmills—about 15 percent of them are derived from petrochemical products.

These facts make it easy to see how energy cost increases have significant ripple effects throughout the economy. The potential for such ripple effects is why we need to ensure regulation takes a balanced approach and maximizes environmental protection without disproportionately raising consumer costs or sending manufacturing jobs overseas.

The Energy Consumers Relief Act will help restore such balance. As previously stated, today's regulatory environment is characterized by costly and conflicting regulations with questionable benefit justifications. The legislation today establishes a thorough review of the most costly regulations by federal departments with expertise in energy economic ramifications of regulations. Such a structure will serve as a check against a potential for EPA to overstate benefits while minimizing costs.

Most importantly, by requiring a report to Congress, this legislation will increase transparency and give policymakers and consumers alike the opportunity to better understand the tradeoffs between increased regulation and economic activity. Such measures will create a more balanced approach to environmental rulemaking that could significantly impact consumers and our economy.

AFPM supports the Energy Consumers Relief Act and appreciate the opportunity to voice our opinion today, and I will be happy to answer any questions at the appropriate time.

[The prepared statement of Mr. Williams follows:]

WRITTEN STATEMENT OF THE

AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS

AS SUBMITTED TO THE

SUBCOMMITTEE ON ENERGY AND POWER

Committee on Energy and Commerce
United States House of Representatives

For a Hearing on

The "Energy Consumers Relief Act of 2013"

April 12, 2013

Testimony Summary of Brendan Williams, Vice President of Advocacy of the American Fuel & Petrochemical Manufacturers (AFPM)

House Committee on Energy and Commerce – Subcommittee on Energy and Power
Hearing on the "Energy Consumers Relief Act of 2013"

This hearing comes at a critical time for energy producers and the consumers they serve. There are many reasons to be optimistic about the future of U.S. energy production. For the first time in modern memory, the national conversation about our energy potential has shifted from one of scarcity to one of abundance.

As a result, U.S. workers now face the prospect of manufacturing jobs returning to the U.S. as abundant and affordable energy attract billions of dollars in planned new investment. Such developments are happening against a backdrop of tremendous investment and advances in environmental performance within the refining industry.

Last week, the Environmental Protection Agency (EPA) reported that energy-related emissions are at their lowest since 1994 and that refineries reduced emissions by 13.5 percent since 2006. A peer-reviewed report from Sage Environmental Consulting likewise found that refinery emissions of criteria air pollutants decreased as much as 80 percent between 1990-2010.

Despite such progress, the EPA is advancing an onslaught of costly regulations that provide minimal, if any, benefit. EPA pushes such an agenda forward with limited transparency, questionable economic analysis, and without consideration for inherent conflicts among major energy rules. These regulations, some of which are completely discretionary, threaten to chill investment and require companies to divert capital from job-creating projects to comply with unnecessary and burdensome regulations.

The Energy Consumer Relief Act is a common sense measure that would inject transparency and scientific rigor back into the regulatory process.

In relation to regulatory conflicts, EPA's Tier 3 standards will impose costly new gasoline regulations on consumers, while providing minimal, if any, benefit. In addition to potentially adding 6 to 9 cents per gallon to the cost of producing fuel, it will require refiners to increase GHG emissions.

Additionally, new GHG tailpipe standards are leading to lower gasoline demand, which creates conflicts with the federal Renewable Fuels Standard (RFS). Meeting both requirements will lead to more ethanol being forced into the fuel supply than existing engines and refueling infrastructure can safely accommodate. Studies also show the RFS could lead to increases in emissions EPA specifically regulates in other rules.

Planned GHG regulations for refineries, as well as upcoming ozone requirements layer on additional all cost, little-to-no benefit regulations that will have significant cost implications for the fuel supply and manufacturers.

The Energy Consumers Protection Act will help better ensure energy costs and regulatory conflicts are given appropriate consideration in relation to future EPA regulations. Independent and thorough review by federal departments with expertise in energy and economic ramifications of regulations will serve as a check against EPA overstating or double counting benefits, minimizing costs.

Most important, by requiring a report to Congress, it will increase transparency and give policymakers and consumers alike the opportunity to better understand the tradeoffs between increased regulation and economic activity.

The American Fuel & Petrochemical Manufacturers (AFPM) appreciates the opportunity to express its support for the Energy Consumers Relief Act. AFPM is a trade association representing high-tech American manufacturers of virtually the entire U.S. supply of gasoline, diesel, jet fuel, other fuels and home heating oil, as well as the petrochemicals used as building blocks for thousands of products vital to everyday life. AFPM members make modern life possible and keep America moving and growing as we meet the needs of our nation and local communities, strengthen economic and national security, and support 2 million American jobs.

This hearing comes at a critical time for energy producers and the consumers they serve. There are many reasons to be optimistic about the future of U.S. energy production. For the first time in modern memory, the national conversation about our energy potential has shifted from one of scarcity to one of abundance. Innovation and feats in engineering—rather than mandates and subsidies—now allow U.S. oil and gas producers to develop energy from areas once considered impossible. Last year, the U.S. Energy Information Administration (EIA) reported that the U.S. is on track to become the world's largest oil producer, surpassing Russia and Saudi Arabia. Due in large part to these innovations, imports of oil as a percent of demand have already fallen from 60 percent in 2006 to 40 percent in 2012.[1]

As a result, U.S. workers now face the prospect of manufacturing jobs returning to the U.S. as abundant and affordable energy attract billions of dollars in planned new investment.[2] Such developments are happening against a backdrop of tremendous investment and advances in

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[1] Energy Information Administration, *Monthly Energy Review*, Table 3.3a http://www.eia.gov/totalenergy/data/monthly/pdf/sec3_7.pdf

[2] *See* Michael Birnbaum, *European Industry Flocks to U.S. to Take Advantage of Cheaper Gas*, Washington Post, April 1, 2013; Jack Kaskey, *LyondellBasell May Spend $1 Billion to Boost Production*, Bloomberg, March 13, 2013.

environmental performance within the refining industry. Last week, the Environmental Protection Agency (EPA) reported that energy-related emissions are at their lowest since 1994 and that refineries reduced emissions by 13.5 percent since 2006.[3] Moreover, the refining sector spent $132 billion since 1990 to improve environmental performance.[4] A peer-reviewed report from Sage Environmental Consulting likewise found that refinery emissions of criteria air pollutants decreased as much as 80 percent between 1990-2010.[5]

Despite such progress, the EPA is advancing an onslaught of costly regulations that provide minimal, if any, benefit. EPA pushes such an agenda forward with limited transparency, questionable economic analysis, and without consideration for inherent conflicts among major energy rules. These regulations, some of which are completely discretionary, threaten to chill investment and require companies to divert capital from job-creating projects to comply with unnecessary and burdensome regulations. The Energy Consumer Relief Act is a common sense measure that would inject transparency and scientific rigor back into the regulatory process. The legislation does not stop EPA's ability to regulate. It would simply inject more rigorous review of the most costly regulations and foster more robust public debate about the costs and benefits of such proposals.

One need look no further back than 2012 to understand the impact of the regulatory environment on the nation's refineries. Until new investors and agreements between businesses, labor and policymakers, several Philadelphia region refineries faced the prospect of closing. In

[3] Edward Felker, *Energy Sector Carbon Output Declined Again Last Year*, Energy Guardian, April 5, 2013.
[4] American Petroleum Institute, *Environmental Expenditures by the Oil and Gas Industry 1990-2011*, December 2012.
[5] Thomas. P. Nelson, *An Examination of Historical Air Pollutant Emissions from US Petroleum Refineries*, Sage Environmental Consulting (2012).

discussing the many factors behind its refinery closures, one of the companies noted that environmental regulatory costs consumed approximately 15 percent of its operating budget. Similarly, over the ten years prior to selling its Trainer refinery in Philadelphia, ConocoPhillips[6] invested 100 percent of its cash flow to meet regulatory requirements before making the difficult decision to idle the plant and put it up for sale. While the Philadelphia area situations were resolved, that has not always been the case. A Hovensa refinery that closed in the U.S. Virgin Islands was located in a region already in attainment with the Clean Air Act. EPA nevertheless required the company to spend $700 million replacing turbines. After losing $1.3 billion over three years due to several factors, the refinery could not afford the additional regulatory compliance costs and decided instead to close its doors.

2013 Regulatory Environment

A brief examination of the regulatory landscape underscores the high-cost, conflicting nature of the U.S. regulatory regime. For example, the following three current regulations are inherently in conflict and are, or will, disadvantage consumers—Tier III fuel standards, the Renewable Fuels Standard (RFS), and Corporate Average Fuel Economy (CAFE) standards.

On March 29, 2013, EPA proposed its long anticipated Tier III fuel standards, requiring refiners to remove trace amounts of sulfur from gasoline despite the fact that the industry already removed 90 percent of the sulfur in gasoline since 2004. The incremental reduction to remove the trace amounts of sulfur will cost refiners almost as much as the original reduction, which removed 15 times more sulfur than the current regulation will require. While not completely

[6] ConocoPhillips has since split into separate upstream and refining companies.

analogous to the parameters of the proposed rule, a Baker and O'Brien analysis estimates that a sulfur only reduction will cost refiners $10 billion in capital costs and $2.4 billion a year in operating costs—equating to 6 to 9 cents per gallon in additional cost. EPA has still failed to sufficiently demonstrate the justification for this discretionary rule.

Incongruously, as a result of the equipment needed to remove additional sulfur, Baker O'Brian estimates that greenhouse gas emissions will increase by 1 to 2.3 percent as a result of the Tier III rule. This occurs because required technologies such as hydrotreating result in increased energy consumption with associated greenhouse gas and other emissions. In addition, the production of extra hydrogen necessary for the hydrotreater results in an increase in GHG emissions because the hydrocarbon source (natural gas or refinery fuel gas) must be "cracked" to recover the hydrogen - releasing large amounts of CO_2. Therefore, a further gasoline sulfur reduction standard will increase the carbon footprint at refineries. Such carbon emission increases conflict with EPA's attempts to regulate GHGs under the Clean Air Act.

EPA characterizes this proposed rule as necessary for public health and as helpful to automakers in meeting increasing fuel efficiency standards. These are both laudable goals, but unfortunately EPA does not show all of its math, so the public and other policy makers cannot appropriately judge the true costs and true benefits. For example, as part of the proposed rule, EPA includes new tailpipe emissions standards. Yet in its recital of benefits arising from Tier III, EPA does not delineate among the tailpipe, evaporative, or gasoline sulfur standards. If the benefits flow primarily from the tailpipe emission reductions, the fuel sulfur reduction is tremendously expensive with little return on public health. We already know that mobile source

emissions have declined because of the Tier 2 standards, and this will continue because not all cars and light-duty trucks are Tier 2 vehicles. However, the air quality benefits of Tier III will be much smaller than Tier 2. For ozone, this reduction is estimated to be no more than 0.5 ppb by 2022 compared to a 12 ppb reduction from Tier 2, or one twentieth of the reduction achieved from moving to Tier 2.[7] Stated differently, Tier 2 will help reduce ozone emissions 10 percent below 2008 levels by 2022. Moving to Tier III would only achieve another 0.7 percent reduction. In other words, EPA proposed Tier III before all the benefits of Tier 2 have been realized, the cost of both rules will be similar despite Tier III yielding only a fraction of the benefit of Tier 2, and despite the increase in GHG emissions stemming from Tier III compliance, dampening the impact of other EPA programs.

EPA claims that the proposed Tier III standard is necessary for states to attain the existing national ambient air quality standards (NAAQS). Last year, EPA promulgated nonattainment areas for the 2008 ozone NAAQS. Most (36 are marginal out of 46 total nonattainment areas) must be in compliance by 2015 based on monitoring data for 2013, 2014 and 2015. Therefore, EPA's stated justification for Tier III is suspect since it will not help the 36 marginal nonattainment areas because it will not be effective until 2017.

Similarly, EPA contends that Tier III will help automakers meet CAFE standards by helping catalytic converters to run more efficiently. Again, EPA declines to place a value on the incremental efficiency gain and does not allow consumers to consider whether 9 cents per gallon is worth (hypothetically) a tenth of a mile in fuel economy gains. Moreover, EPA should have

[7] ENVIRON, *Effects of Light-duty Vehicle Emissions Standards and Gasoline Sulfur Levels on Ambient Ozone*, September 2012.

analyzed the ability of auto manufacturers to achieve CAFE in the context of that earlier rulemaking. If a fuel change is necessary for CAFE standards to be achieved, then EPA had the obligation to incorporate that analysis and the costs that flow from it into its CAFE rulemaking. This is a perfect example of the problems caused by the agency's silo approach to rulemaking.

CAFE standards will likewise create an inherent conflict with the RFS that will disadvantage consumers. In particular, domestic gasoline demand will continue to decline in large part due to fuel efficiency standards. However, the volumes of ethanol mandated in the RFS will continue to increase to a point where there will be a de facto government mandate for transportation fuels to contain more than 10 percent ethanol. When the RFS was passed in 2007, EIA projected gasoline demand would be nearly 150 billion gallons in 2012 and nearly 155 billion gallons in 2022. Instead, U.S. consumers used 134 billion gallons of fuel in 2012 and EIA projects only 124 billion gallons of demand in 2022. The RFS grows to a 36 billion gallon consumption mandate by 2022—including 15 billion gallons of corn ethanol and 21 billion gallons of advanced biofuels, which includes 16 billion gallons of cellulosic biofuels, 1 billion gallons of biomass based diesel, and other advanced biofuels. The 10 percent limit at which ethanol can safely be introduced into the fuel supply is called the "blendwall."

A recent NERA report highlighted that breaching the blendwall alone will significantly increase gasoline costs.[8] Additionally, several groups have expressed concern over the adverse impacts higher ethanol blends in the fuel supply could have on consumers. These problems range from potential engine damage, to food price inflation, to lower fuel economy and increased

[8] NERA Economic Consulting, *Economic Impacts Resulting from Implementation of RFS2 Program*, (October 2012).

emissions. Several comments the Committee has and will receive on its RFS white papers – including those AFPM recently submitted - go in detail about these individual problems. AFPM's comments detail problems with the blendwall and E15, but one particular aspect is worth noting. A 2009 study by the Environmental Working Group (EWG) concluded that a higher ethanol blend may damage non-road engines and emission control systems, worsen health risks from air pollution, pose safety risks and higher fuel costs, and compromise performance of non-flex-fuel vehicles.[9] EWG found that E15 increases emissions of acetaldehyde, $PM_{2.5}$ particulate air pollution, ground-level ozone and other toxic air pollutants.[10] These pollutants are precisely the targets of other regulations, notably national ambient air quality standards discussed below.

In short, the conflicts between the RFS and CAFÉ will force more ethanol into the fuel supply than existing engines and refueling infrastructure can safely accommodate. This reality will create significant fuel supply and consumer cost concerns. Increased vehicle purchasing costs, combined with requirements that will force consumers to pay more per mile for fuel could have significant economic impacts, while potentially increasing emissions and resulting in costly repairs.

Anticipated Regulations

[9] Olga V. Naidenko, Ph.D., *Ethanol-Gasoline Fuel Blends May Cause Human Health Risks and Engine Issues*, Environmental Working Group at 1 (2009).
[10] *Id.* at 3.

Despite substantial progress in industry environmental performance and existing regulatory programs to combat greenhouse gas emissions, President Obama indicates that he plans to move forward with additional unilateral measures to layer on new regulations.

> "But if Congress won't act soon to protect future generations, I will. I will direct my Cabinet to come up with executive actions we can take, now and in the future, to reduce pollution, prepare our communities for the consequences of climate change, and speed the transition to more sustainable sources of energy."
>
> -President Obama, 2013 State of the Union Address

Although this statement is not surprising, for those industries already navigating an onerous, conflicting and costly maze of regulations, it is nonetheless disappointing. It also underscores the need for more robust public debate that the Energy Consumers Protection Act would afford. In addition to ongoing compliance challenges with the aforementioned regulations, AFPM anticipates EPA will seek to promulgate at least two costly new environmental standards: revised ozone national ambient air quality standards (NAAQS) and refinery greenhouse gas New Source Performance Standards (NSPS).

This year, the Clean Air Scientific Advisory Committee (CASAC) will advise the EPA Administrator on new ozone NAAQS, following the five-year review process that started in 2008. The Clean Air Act (CAA) calls on EPA to revise NAAQS every five years "as may be

appropriate" in accordance with sections 108 and 109(b) of the CAA. NAAQS regulates six criteria pollutants, namely ozone, carbon monoxide, lead, sulfur dioxide ("SO_2"), nitrogen oxides ("NOx") and particulate matter ("PM"). In relation to the ozone NAAQS, EPA seeks to control emissions of volatile organic compounds ("VOCs") and NOx, because they are ozone precursors. Primary NAAQS must be set at a level "requisite to protect the public health" with "an adequate margin of safety." Secondary NAAQS must specify a level of air quality "requisite to protect the public welfare from any known or anticipated adverse effects." Failure to achieve NAAQS has significant ramifications for states and localities. If an area is designated "non-attainment," it becomes subject to several new regulations, such as a requirement to use reformulated gasoline in a given area, much more stringent stationary source permitting, and required implementation of "Reasonably Achievable Control Technology" ("RACT") on major stationary sources emitting VOCs and NOx. The potential fuel modifications alone could have significant cost ramifications for businesses and consumers. Depending on the level of non-attainment severity, states and localities can actually be denied federal transportation funding.

EPA finalized a new NAAQS ozone standard of 0.075 ppm in 2008 following substantial and rigorous scientific review. This standard itself is extremely stringent and will be difficult to meet. Further tightening of already stringent ozone levels with expedited compliance schedules could have a significant and adverse impact on all aspects of the economy. A Manufacturers Alliance study found that lowering the standard to 0.060 ppm would cost over $1.6 trillion and could lead to the loss of 7.2 million jobs economy wide over the next decade. EPA's own numbers indicated the cost of a revised ozone NAAQS standard would range from $19-$90 billion annually. To emphasize how stringent a 0.060 ppm standard is, Yellowstone National

Park, with no industrial development in it or for miles around, would be nonattainment if the standard were set that low.

Moreover, ambient air quality is, and has been, dramatically improving, even as the nation's economy has grown. According to the EPA, between 1980 and 2008 total emissions of the six principal air pollutants has dropped 54 percent. Measures of ambient concentrations of ozone dropped 25 percent in that time, while national GDP increased 126 percent, vehicle miles traveled were up 91 percent and energy consumption increased 29 percent. A tighter standard could have significant adverse health and welfare impacts associated with continued unemployment and economic decay.

In addition to GHG and emissions controls implemented through CAFE, RFS, Tier III, NAAQS, and other policies not mentioned herein, in late 2010 EPA agreed to a settlement with environmental groups and several states that will require EPA to propose regulating GHGs under a section of the CAA that calls for the creation of New Source Performance Standards (NSPS). EPA has proposed a GHG NSPS for electric utilities currently focusing only on new units and still has not reached agreement on a schedule for the refinery GHG NSPS. Under the Clean Air Act, a New Source Performance Standard requirement applies to new, modified and reconstructed, and existing facilities subject to regulation under the act. A GHG NSPS would require any regulated facility to install Best Demonstrated Technology ("BDT") and EPA is required to consider cost in determining BDT.

AFPM members have concerns with this action. The Agency continuously mentions that utilities and refiners together account for upwards of 40 percent of GHG emissions. This statement is misleading, because the overwhelming majority of that figure is attributable to utility emissions (2.4 billion tons for electricity generation versus 183 million tons annually for refineries). Stationary source refinery GHG emissions comprise roughly only 4 percent of our nation's GHG emissions.

Finally, it is important to remember that the Clean Air Act was never designed or intended to regulate carbon emissions. It is, at best, a blunt instrument to address an issue that should remain within the purview of Congress, which answers to constituents and is in a better position to understand the real-world impacts of such policies. Congress has, on numerous occasions, explicitly rejected new carbon control legislation.

Energy Consumers Protection Act

The foregoing examples highlight a few of the current and upcoming regulations AFPM is closely monitoring. Viewed individually, each poses a unique challenge and added cost to refineries. However, collectively, these laws and regulations are often in conflict with each other and their aggregate compliance costs rise exponentially. Reducing emissions to comply with one regulation compels refiners to deal with higher emissions and associated compliance challenges in another.

The Energy Consumers Protection Act will not stop regulatory activity and does not remove EPA's ability to regulate emissions. It is also not specific to fossil fuel regulations. In fact, one can imagine a scenario where a proposed EPA energy regulation would affect the renewables industry. However, independent, and thorough review by federal departments with expertise in energy and economic ramifications of regulations will serve as a check against EPA overstating or double counting benefits, while minimizing costs. Most important, by requiring a report to Congress, it will increase transparency and give policymakers and consumers alike the opportunity to better understand the tradeoffs between increased regulation and economic activity. In short, the bill will act as a check against a "fox guarding the henhouse" scenario in relation to an agency that is incentivized to increase regulation, acting as its own judge of the impact of those regulations.

Finally, in its justification for new regulations, EPA typically claims that the costs of such regulations are only a few pennies per gallon (including its recent Tier III proposed rule). Even if one did not take issue with such rosy estimates (and AFPM takes issue with many), what EPA fails to consider, however, is the cumulative cost those pennies and that of the broader Administration policy limiting energy production and manufacturing. For example, a one cent increase in gasoline prices translates to more than $1 billion increase in household energy spending that could otherwise be used for other goods and services.[11]

[11] Bloomberg, *The Impact on U.S. Consumers of Every 1¢ Increase in Gas Prices: $1 billion*, March 19, 2012 (citing 2011 Deutsche Bank report), accessed April 9, 2013, available at: http://www.bloomberg.com/portfolio-impact/2012-03-19/the-impact-on-u-s-consumers-of-every-1-increase-in-gas-prices-1-billion.html#what%27s_happening

Conclusion

The U.S. is in the midst of an energy revolution. New technology—driven by private sector ingenuity without the benefit of mandates and subsidies—has placed the U.S. in a position to become the world's largest energy producer, led by the oil and gas industry. The air is cleaner than it has been in decades, driven by continuous improvements in the energy production, fuel and petrochemical manufacturing and vehicle technology. Yet an onslaught of conflicting and costly laws and regulations threatens these positive developments. The Energy Consumer Protection Act, while not stopping EPA's ability to regulate emissions, would inject more rigorous review of the most costly regulations and foster more robust public debate about the costs and benefits of such proposals. AFPM fully supports the Energy Consumers Protection Act and appreciates the opportunity to share its views.

Mr. WHITFIELD. Thank you very much, Mr. Williams.

Dr. Rom, you are recognized for 5 minutes.

STATEMENT OF DR. WILLIAM N. ROM

Dr. ROM. Thank you, Mr. Chairman. Congressman Whitfield and Congressman Rush, I am Dr. Bill Rom. I am a professor of medicine and environmental medicine at New York University. I direct a division of pulmonary critical care and sleep medicine. I direct what is called the Chest Service at Bellevue Hospital. This is the Nation's largest and oldest public hospital in the country. I have done this for the past three decades.

I am testifying today on behalf of the American Thoracic Society. It is a medical professional organization of 15,000 doctors dedicated to protecting lung health in the U.S. and around the world.

I have three important messages I would like to convey to the committee. First, air pollution inflicts significant health risks to my patients; second, reducing air pollution is good for public health and the economy; and third, Congress should let EPA do its job. As a pulmonary doctor, I spend my days treating patients who struggle to breathe. They have serious long diseases like asthma, COPD, pneumonia, and a number of other conditions like sarcoidosis and IPF that most people have never heard of. Through a combination of medications, interventional procedures and GC's management, I work with my patients to help control their lung disease. However, there is one thing that neither I nor my patients can control and that is the air they breathe, and it can be deadly.

So let me share with you what I do on a daily basis. I am an attending now at the University Hospital and then after that I am an attending at Bellevue, and I always attend at Bellevue during the month of July. That is when the new interns come, that is when the ozone peaks, and that is when the PM accumulates. We have the largest emergency room in this city and patients are admitted from there to my service and I also oversee all the intensive care units.

So I had a patient a while back during the summer. He was 53. He had both asthma and COPD. COPD is chronic obstructive pulmonary disease and the chronic and the obstructive parts in that disease mean his lungs can't breathe well on a regular basis. Despite that, he went to the gym four to five times a week and works full-time as a computer programmer. One morning he walked to the bus stop near his home to go and visit a friend. While waiting for his bus to arrive, he stood near the exhaust of an idling bus for approximately 5 minutes. Soon thereafter, he developed the acute onset of severe shortness of breath and a bystander called the emergency medical services.

In the emergency room, he was in extreme distress. He couldn't get air in or out of his lungs and his blood pressure shot up to 200/139. He was emergently intubated and admitted to the intensive care unit. In the ICU he required near continuous bronchodilators, high-dose intravenous steroids, a neuromuscular blockade for management of his severe exacerbation of asthma and COPD. He remained intubated in the ICU for 9 days. He stayed in the hospital for 24 days. He was discharged to acute pulmonary rehabilitation

to regain strength and conditioning. Eight weeks later, he was finally able to return to work.

Absent the exposure to air pollution, my patient could have expected to live a fairly healthy life. Instead, air pollution nearly killed him. His brief exposure to diesel particulate and gases combine with his underlying asthma and COPD led to this 9-day intensive care stay, 24-day hospital stay with all the associated costs, approximately about $413,000. So these are my costs.

And there are 86,000 hospital admissions per year, 86,000 emergency room visits, 1.7 million asthma attacks and on top of that, 160,000 deaths. So these are my costs. But on this ledger, they are called benefits, but they are real costs. And I would just as soon not incur these costs as a physician. We really should prevent all of these diseases.

So when the air pollution is bad, the above scenarios are repeated across the U.S. My written testimony is full of the research articles that show air pollution causes a host of adverse health effects including mortality and morbidity in the form of asthma attacks, heart attacks, COPD exacerbations, birth defects, low birth weight. Recent studies also link air pollution to loss of diabetes control, even in-utero exposure leading to cancer in children, presented this week.

The evidence is clear. Air pollution is bad for human health. The research is equally clear that reducing air pollution is good for human health and the economy. Recently, EPA stated the direct benefits of the 1990 Clean Air Act amendments and associated programs significantly exceed their direct costs. And even under the most conservative cost-benefit analysis that assumes no mortality from ozone and particulate matter, the $137 billion in economic benefits of the 1990 Clean Air Act protections more than double the $65 billion in costs. If we include the mortality benefits, is a 30-to-1 ratio.

Lastly, I would note that in the past few years the House of Representatives has frequently passed legislation that would block, weaken, or delay EPA's authority to improve our Nation's air quality. Often the legislation is justified on avoiding the economic burden of compliance costs. Such thinking is shortsighted and it fails to recognize the wealth of studies that show clean air standards actually improve our economy by preventing death and disease. Such thinking also fails to recognize that we as a society are already paying for air pollution indirectly through avoidable emergency room visits, hospital stays, missed work and school days, and death. Both our Nation and our economy would be better served by paying the compliance costs up front and reaping the benefits of a healthier population. Thank you.

[The prepared statement of Dr. Rom follows:]

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Testimony of the American Thoracic Society before the House Energy and Power Subcommittee of the House Energy and Commerce Committee Presented by William N. Rom M.D., MPH On Friday, April 12, 2013

On behalf of the 15,000 members of the American Thoracic Society, I want to thank the committee for opportunity to testify before the Energy and Power Subcommittee of the House Energy and Commerce Committee.

The goal of my written comments is to provide a brief summary of the overwhelming evidence that air pollution – especially fine particulate matter pollution (PM2.5) and ozone – has a severe and negative impact on human health. Additionally, I will provide some summary information on the cost effective of science-based Clean Air Act standards.

Adverse Health Effects Caused By Particulate Matter

Research has shown definitively that $PM_{2.5}$ causes premature mortality in infants and adults; triggers systemic inflammation, alters vascular reactivity, and alters cardiac rhythms; and worsens asthma, chronic bronchitis, and other cardiopulmonary illnesses.[1] These conclusions are widely-accepted in the scientific community and are further supported by recently released studies.

$PM_{2.5}$ kills.[2] The risk of premature mortality caused by exposure to $PM_{2.5}$ is widely accepted.[3] Chronic exposure to $PM_{2.5}$ increases the risk of dying from lung cancer and cardiovascular diseases.[4]

[1] Pope CA III, Dockery DW. Health Effects of Fine Particulate Air Pollution: Lines that Connect. *J Air Waste Mange Assoc* 2006; 56:709-742.
[2] U.S.EPA, Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between $PM_{2.5}$ Exposure and Mortality: Final Report, vii, 3-23, 3-24 (September 21, 2006).
[3] Health Effects Institute. *Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality*, 2000.
[4] C. Arden Pope III et al., Cardiovascular Mortality and Year-round Exposure to Particulate Air Pollution: Epidemiological Evidence of General Pathophysiological Pathways of Disease, 109 Circulation 71 (2004) (10μg/m^3 increase in $PM_{2.5}$ increased mortality risk by 8-18%); C. Arden

Acute exposure increases the risk of death from respiratory and cardiovascular causes. [5] It is important to note that these premature deaths do not represent the culling of unhealthy and frail individuals who would have likely succumbed to death from other caused. Rather these premature deaths are in people who could have otherwise continued to live full and productive lives.

Recent studies not only support this conclusion regarding the morbidity effect of $PM_{2.5}$, but also indicate that the risk of mortality from particulate matter is greater than previously believed.[6] An observational study of 66,000 women in 36 U.S. cities (the first study to rely on direct measurements of $PM_{2.5}$) found an increased relative risk of death from cardiovascular disease of 1.76 for every 10 $\mu g/m^3$, where previous, less specific studies only found an increased relative risk of 1.12 per 10 $\mu g/ m^3$.[7] These studies show that even incremental reductions in $PM_{2.5}$ exposure save lives. [8]

$PM_{2.5}$ induces a number of biological processes that contribute to cardiovascular morbidity and other life-threatening diseases. [9] Systemic inflammation caused by $PM_{2.5}$ affects the vascular system in a variety of ways.[10] Changes in platelet function can contribute to clots, heart attacks or strokes.[11] Changes in vascular reactivity can change the caliber of blood vessels and affect

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Pope III et al., Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution, 287 J. Am. Med. Ass'n 9 (2002).

[5] Meredith Franklin et al., Association Between $PM_{2.5}$ and All-Cause and Specific-Cause Mortality in 27 U.S. Communities, 17 J. Exposure Sci. and Envtl. Epidemiology 279, 285 (2007) (finding association between $PM_{2.5}$ and daily mortality three times larger than mortality risk from PM_{10}); Cathryn Tonne et al., A Case Control Analysis of Exposure to Traffic and Acute Myocardial Infarction, 115 Envtl. Health Persp. 53, 53 (2007) (exposure to $PM_{2.5}$ and other traffic emissions was associated with increased risk of heart attack); Yun-Chul Hong et al., Effects of Air Pollutants on Acute Stroke Mortality, 110 Envtl. Health Persp. 187, 190 (2002) (demonstrating link between air pollution and stroke mortality)

[6] Henry A. Roman et al., Expert Judgment Assessment of the Mortality Impact of Changes in Ambient Fine Particulate Matter in the U.S., 42 Envtl. Sci. Tech. 2268 (2008) (EPA-conducted "expert elicitation" of 12 of the world's leading experts on health effects of air pollution revealed substantial agreement regarding likelihood of causal connection between exposure and premature death and suggesting larger estimates of saved lives from improved air quality); C. Arden Pope III, Mortality Effects of Longer Term Exposures to Fine Particulate Air Pollution: Review of Recent Epidemiological Evidence, 19 Inhalation Toxicology 33 (2007) (reviewing recent epidemiological studies to conclude that short-term exposure studies capture only a small amount of the overall health effects of long-term repeated PM exposure). See also Michael Jerrett et al., Spatial Analysis of Air Pollution and Mortality in Los Angeles, 16 Epidemiology 727, 732 (2005) (reviewing data from past study and finding that people living in more polluted neighborhoods are at greater risk than previously believed).

[7] Kristen A. Miller et. al., Long-Term Exposure to Air Pollution and Incidence of Cardiovascular Events in Women, 356 New England J. Med. 447 (2007); Douglas W. Dockery & Peter H. Stone, Cardiovascular Risks from Fine Particulate Air Pollution, 365 New Engl. J. Med. 511, 511 (2007) (editorial explaining significance of study).

[8] Francine Laden, et al., Reduction in Fine Particulate Air Pollution and Mortality: Extended Follow-up of the Harvard Six Cities Study, 173 Am. J. of Respiratory and Critical Care Med. 667 (2006) (In cities where the long-term average concentrations were below 13.4 $\mu g/m^3$, the linear dose-response association between $PM_{2.5}$ concentrations and total mortality persisted even at lower concentrations).

[9] Antonella Zanobetti & Joel Schwartz, The Effect of Particulate Air Pollution on Emergency Admissions for Myocardial Infarction: A Multicity Case-Crossover Analysis, 113 Envtl. Health Persp. 978 (2005); Daniela D'Ippoliti et al., Air Pollution and Myocardial Infarction in Rome: a Case-Crossover Analysis, 14 Epidemiology 528 (2003).

[10] See, e.g., Robert D. Brook et al., Air Pollution and Cardiovascular Disease: A Statement for Healthcare Professionals from the Expert Panel on Population and Prevention Science of the American Heart Association, 109 Circulation 2655, 2663-2665 (2004) (describing physiological responses to pollution leading to mortality and morbidity); Jiu-Chiuan Chen & Joel Schwartz, Metabolic Syndrome and Inflammatory Responses to Long Term Particulate Air Pollutants, 116 Envtl. Health Persp. 612, 616 (2008) (inflammatory response associated with long-term exposure to particulate matter); Andrew J. Ghio et al., Concentrated Ambient Air Particles Induce Mild Pulmonary Inflammation in Healthy Human Volunteers, 162 Am. J. Respir. & Critical Care Med. 981 (2000) (airway inflammation induced in healthy volunteers after short-term exposure to $PM_{2.5}$ indicated risk for vascular events).

[11] Andrea Baccarelli et al., Exposure to Particulate Air Pollution and Risk of Deep Vein Thrombosis, 168 Archives of Internal Med. 920, 926 (2008) (finding association between blood clots in legs and exposure to PM10); Andrew J. Ghio et al., Exposure to Concentrated Ambient Air Particles Alters Hematologic Indices in Humans, 15 Inhalation Toxicology 1465 (2003) (blood changes in healthy volunteers after PM exposure).

the amount of blood that gets to organs like the heart or brain.[12] $PM_{2.5}$ can also inhibit the body's ability to vary the heart rate in response to environmental or situational changes,[13] which can result in arrhythmia, the immediate cause of death for most heart attacks.[14] In fact, studies have linked short-term increases in PM to increased hospitalization for cardiovascular diseases.[15]

$PM_{2.5}$ can also affect blood vessel reactivity,[16] reducing the ability of blood vessels to provide adequate blood flow, and potentially reducing the effectiveness of medicines designed to increase blood flow. Year-round exposure to PM can significantly damage the small airways of the lungs.[17]
More recent studies have strengthened the conclusion that exposure to PM causes decreased lung function, even at levels below the NAAQS,[18] and that improvement in air quality can improve lung function.[19]

$PM_{2.5}$ can be particularly dangerous for vulnerable populations. Exposure to $PM_{2.5}$ and ozone increases the risk of pulmonary exacerbations and a significant loss in lung function for patients with cystic fibrosis.[20] $PM_{2.5}$ also affects children and infants.[21] Infants face 9% greater risk of bronchiolitis for each 10 $\mu g/m^3$ increase in $PM_{2.5}$.[22]

Exposure to $PM_{2.5}$ also has non-morbid effects that are expensive, harmful, and inconvenient. It can aggravate asthma.[23] Asthma is a medical condition in which the smooth muscles of the bronchial wall tighten in response to stimulants, like allergens, or pollutants.

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[12] Miriam Lemos et al., Chronic Exposure to Urban Air Pollution Induces Structural Alterations in Murine Pulmonary Coronary Arteries, 18 Inhalation Toxicology 247 (2006) (study of mice exposed to PM and other traffic pollutants developed significant thickening of arterial wall); Robert D. Brook et al., Inhalation of Fine Particulate Air Pollution and Ozone Causes Acute Arterial Vasoconstriction in Healthy Adults, 105 Circulation 1534, 1535 (2002) (vasoconstriction caused by short-term inhalation of $PM_{2.5}$ reflects risk for myocardial infarction, stroke, or other cardiovascular events).
[13] R.B. Devlin et al., Elderly Humans Exposed to Concentrated Air Pollution Particles Have Decreased Heart Rate Variability, 21 European Respiratory. J. 76s (Supp. 2003);Y.C. Huang et al., The Role of Soluble Components in Ambient Fine Particles-Induced Changes in Human Lungs and Blood, 15 Inhalation Toxicology 327 (2003).
[14] S. Vedal et al., Air Pollution and Cardiac Arrhythmias in Patients with Implantable Cardioverter Defibrilators, 16 Inhalation Toxicology 252 (2004) (link between SO_2 exposure and implanted defibrillator activation).
[15] Francesca Dominici et al. Fine Particulate Air Pollution and Hospital Admission for Cardiovascular and Respiratory Diseases, 295 J. Am. Med. Assoc. 1127 (2006) (increase in hospital admissions associated with $PM_{2.5}$); Shang-Shyue Tsai et al., Evidence for an Association Between Air Pollution and Daily Stroke Admissions in Kaohsiung, Taiwan, 34 Stroke 2612 (2003).
[16] Bruce Urch, Relative Contributions of $PM_{2.5}$ Chemical Constituents to Acute Arterial Vasoconstriction in Humans, 16 Inhalation Toxicology 345 (2004) (exposure to $PM_{2.5}$ and ozone increased blood pressure).
[17] Andrew Churg et al., Chronic Exposure to High Levels of Particulate Air Pollution and Small Airway Remodeling, 111 Envtl. Health Persp. 714, 718 (2003).
[18] Morton Lippman, Health Effects of Airborne Particulate Matter, 357 New Engl. J. Med. 2395, 2396 (2007) (data from two recent studies indicate that low levels of airborne particles have adverse effects on human health).
[19] Sara H. Downs et al., Reduced Exposure to PM10 and Attenuated Age-Related Decline in Lung Function, 357 New Engl. J. Med. 2338, 2346 (2007) (concluding that relatively small reductions in particulate pollution could have measurable benefits for lung function). Schindler C, Keidel D, Gerbase MW, et al. Improvements in PM10 Exposure and Reduced Rates of Respiratory Symptoms in a Cohort of Swiss Adults (SAPALDIA). Am. J. Respiratory and Critical Care Med, 2009; 179: 579-587.
[20] Christopher H. Goss et al., Effect of Ambient Air Pollution on Pulmonary Exacerbations and Lung Function in Cystic Fibrosis, 169 Am. J. Respiratory and Critical Care Med. 816 (2004).
[21] See, e.g., Thais Mauad, Chronic Exposure to Ambient Levels of Urban Particles Affects Mouse Lung Development, 178 Am. J. Respiratory and Critical Care Med. 721, 727 (2008) (research findings suggest that exposure to ambient levels of $PM_{2.5}$ and other urban pollutants may adversely impact lung growth and development).
[22] Catherine Karr et al., Effects of Subchronic Exposure to Ambient Air Pollutants on Infant Bronchiolitis, 165 Am. J. Epidemiology 553, 557 (2007).
[23] Verena Morgenstern et al., Atopic Diseases, Allergic Sensitization, and Exposure to Traffic-Related Air Pollution in Children, 177 Am. J. Respiratory and Critical Care Med. 1331 (2008) (finding link between allergic sensitivity, including asthma, and $PM_{2.5}$ exposure).

The decreased radius of the bronchial tube increases the effort of breathing by the power of four. Asthma attacks can be frightening. The onset is often sudden, and it feels like breathing through a straw. Patients often say that they feel like they are suffocating or smothering. Besides this painful suffering and inconvenience, untreated asthma can scar the lungs and bronchial tubes, reducing lung function by as much as sixty percent.

These non-fatal health effects exact a toll on lives and budgets. Short-term increases in PM are linked to a rise in hospitalizations for children with aggravated asthma attacks.[24] Hospitalization is expensive. It can also cause lost work or lost school days. Reductions in $PM_{2.5}$ yield public health benefits.[25] In 2009, a study explored the effect of improved air quality by comparing data on $PM_{2.5}$ pollution and life expectancy in 51 cities throughout the U.S. for two periods of time—from the late 1970s and early 1980s and from the late 1990s to the early 2000s. After controlling for socioeconomic, demographic, and social factors (like smoking), the study revealed that a decrease of 10 $\mu g/m^3$ of fine particulate matter was associated with an increase in life expectancy of six months to two years, and reductions in air pollution accounted for as much as 15% of the overall increase in life expectancy seen in the study areas.[26] Following up on those communities, a study published this winter looked at mortality in 545 counties in the U.S. in 2000-2007 and found that cleaner air in those counties was associated with four additional months added to the average person's life.[27] Other studies released since trial also show that reductions in air pollution could be expected to produce substantial improvements in public health.[28]

Adverse Health Effects Caused By Ozone

Like $PM_{2.5}$, ozone endangers and inconveniences the health of children and adults, even at levels below the NAAQS. The EPA recently published it Integrated Science Assessment for Ozone, concluding that ozone causes respiratory harm, and likely causes premature death, cardiovascular harm, and is suggestive of causing central nervous system effects and

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[24] James C. Slaughter et al., Effects of Ambient Air Pollution on Symptom Severity and Medication Use in Children with Asthma, 91 Annals of Allergy, Asthma, & Immunology 346 (2003) ($PM_{2.5}$ associated with aggravated asthma attacks); S. Lin et al., Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic, 88 Envtl. Res. 73 (2002); Gary Norris et al., An Association Between Fine Particles and Asthma Emergency Department Visits for Children in Seattle, 107 Envtl. Health Persp. 489 (1999); Paige E. Tolbert et al., Air Quality and Pediatric Emergency Room Visits for Asthma in Atlanta, Georgia, 151 Am. J. Epidemiology 798 (2000).

[25] Joel Schwartz et al., The Effect of Dose and Timing of Dose on the Association between Airborne Particles and Survival, 116 Envtl. Health Persp. 64, 68 (2008) (finding no evidence of a threshold in the association between exposure to PM2.5 and the risk of death, suggesting that efforts to reduce particle concentrations as low as feasible is the most effective way to improve public health).

[26] C. Arden Pope III et al., Fine Particulate Air Pollution and Life Expectancy in the United States, 360 New Eng. J. Med. 371 (2009).

[27] Corriea AW, Pope CA III, Dockery DW, Wang Y, Ezzarti M, Domenici F. Effect of Air Pollution Control on Life Expectancy in the United States: An Analysis of 545 U.S. Counties for the Period from 2000 to 2007. *Epidemiology,* 2013; 24: 23-31.

[28] Antonella Zanobetti & Joel Schwartz, The Effect of Fine and Coarse Particulate Air Pollution on Mortality: a National Analysis, 117 Envtl. Health Persp. 898, 902 (June 2009) (concluding that the strong association between particle pollution and deaths suggests that tens of thousands of early deaths per year could be avoided by reducing particle concentrations and recommending controls on power plants); Robin C. Puett et al., Chronic Particulate Exposure, Mortality and Coronary Heart Disease in the Nurses' Health Study, 168 Am. J. Epidemiology 1161, 1167 (Oct. 2008) ("[O]ur findings add to a growing coherence of literature across multiple time scales indicating that the public health benefits of reducing particle concentrations will be realized within years, not decades, of the reduction."); Antonetta Zanobetti et al., Particulate Air Pollution and Survival in a COPD Cohort, 7 Environ Health 48 (Oct. 2008) (concluding that results of study heightens the urgency for pollution control measures because "reductions in air pollution should be followed quickly by improvements in public health").

reproductive and developmental effects.[29] These conclusions reflect consensus in the scientific community and are further supported by recently released studies.

Short-term exposure to high levels of ozone can shorten life.[30] "A series of recently published meta-analyses and primary national scale epidemiological studies have documented consistent associations between premature mortality and ozone exposures below the current 8-hour national ambient air quality standard."[31] In 2008, a report by the National Academy of Sciences confirmed that the premature deaths caused by ozone are not restricted to people who are already near death, and that the relationship between reductions in ozone concentrations and reductions in premature mortalities is generally linear, even below the NAAQS.[32] In other words, reducing ozone concentrations saves lives.

Exposure to ozone endangers children and adults. It has been linked to increased hospitalizations, emergency room visits, and decreased pulmonary function in children.[33] "The relation between ozone and respiratory illness is so well-established that emergency admissions have been suggested as a surrogate measure of ozone."[34] In Canada's largest cities, ozone was associated with increased hospitalization for respiratory problems in babies under 1 month.[35] In another study, Virginia infants had difficulty breathing when exposed to ozone levels lower than the current NAAQS.[36] Children are among those most vulnerable to ozone pollution because they have a higher level of activity and higher minute ventilation, increasing the effective dose of inhaled pollutant.[37]

Additionally, because 80% of the essential air sacs in the lungs (alveoli) grow after birth and because lung growth continues through adolescence, exposure to pollution, including ozone, is particularly harmful to children.[38] Harm from this exposure to high ozone levels can stay with

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[29] U.S. EPA. Integrated Science Assessment of Ozone and Related Photochemical Oxidants (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/076F, 2013.

[30] Michelle L. Bell et al., A Meta-Analysis of Time-Series Studies of Ozone and Mortality with Comparison to the National Morbidity, Mortality, and Air Pollution Study, 16 Epidemiology 436, 442 (2005); Jonathan I. Levy et al., Ozone Exposure and Mortality: An Empiric Bayes Metaregression Analysis, 16 Epidemiology 458 (2005); Kazuhiko Ito et al., Associations Between Ozone and Daily Mortality: Analysis and Meta-Analysis, 16 Epidemiology 446 (2005); Steven N. Goodman, The Methodologic Ozone Effect, 16 Epidemiology 430 (2005); Michelle L. Bell et al., Ozone and Short-Term Mortality in 95 US Urban Communities, 1987-2000, 292 J. Am. Med. Ass'n 2372, 2377 (2004); Alexandros Gryparis et al., Acute Effects of Ozone on Mortality from the "Air Pollution and Health: A European Approach" Project, 170 Am. J. Respiratory & Critical Care Med. 1080, 1083 (2004).

[31] Kent E. Pinkerton et al., Ozone, a Malady for All Ages, 176 Am. J. Respiratory and Critical Care Med., 107 (2007).

[32] National Research Council, Estimating Mortality Risk Reduction and Economic Benefits from Reducing Ozone Air Pollution: Executive Summary 8, 9 (April 2008).

[33] Jennifer L. Peel et al., Ambient Air Pollution and Respiratory Emergency Department Visits, 16 Epidemiology 164 (2005); Toby C. Lewis et al., Air-Pollution Associated Changes in Lung Function Among Asthmatic Children in Detroit, 113 Envtl. Health Persp. 1068 (2005); Richard T. Burnett et al., Association Between Ozone and Hospitalization for Acute Respiratory Diseases in Children Less than 2 Years of Age, 153 Am. J. Epidemiology 444, 449 (2001); George D. Thurston et al., Summertime Haze Air Pollution and Children with Asthma, 155 Am. J. Respiratory & Critical Care Med. 654 (1997).

[34] David V. Bates, Ambient Ozone and Mortality, 16 Epidemiology 427, 428 (2005).

[35] Robert E. Dales et al., Gaseous Air Pollutants and Hospitalization for Respiratory Disease in the Neonatal Period, 114 Env. Health Persp. 1751, 1754 (2006);

[36] Elizabeth W. Triche et al., Low-level Ozone Exposure and Respiratory Symptoms in Infants, 114 Env. Health Persp. 911, 915 (2006).

[37] Pinkerton et al., supra 30 at 107.

[38] Janice J. Kim et al., Ambient Air Pollution: Health Hazards to Children, 114 Pediatrics 1699, 1699-1700 (2004) (policy statement by American Academy of Pediatrics, Committee on Environmental Health); W. James Gauderman et al., The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age, 351 New Engl. J. Med. 1057, 1063 (2004) ("the greatest effect of pollution-related deficits may occur later in life, since reduced lung function is a strong risk factor for complications and death during adulthood.").

children for life. In California, a study followed 3535 children from schools in twelve southern California communities for up to five years and found that children who played team sports in communities with high daytime ozone concentrations had a 3.3% greater risk of developing asthma.[39] A study of 255 college freshmen found that students who grew up in areas with more ambient ozone had decreased lung function, a risk factor for lung disease later in life.[40]

Ozone endangers adults as well,[41] leading to decreased lung function[42],increased susceptibility to respiratory infections,[43] and asthma exacerbations.[44] Controlled human exposure studies of healthy adults demonstrate reduced lung function, respiratory symptoms, changed airway responsiveness, and airway inflammation following exposure to ozone at and, for some, below the current NAAQS.[45] A clinical study published this summer confirmed that healthy adults exposed to ozone concentrations below the current NAAQS experienced significant reductions in lung function and subjective respiratory symptoms—the higher the level of ozone exposure, the greater the decrease in lung function.[46]

Ozone also exacerbates asthma. Health experts warn that air pollution, including ozone, is "one of the most under-appreciated contributors to asthma exacerbation."[47] Asthma exacerbations are dangerous, expensive, and inconvenient because they can lead to hospitalization, increased medicine use, and potentially permanent scarring.

Dr. Peden's testimony that he typically sees a rise in hospitalizations and receives more requests for inhalers or anti-inflammatory asthma medication refills 24 to 48 hours after an ozone event is consistent with the studies cited above.[48] Hospitalization and medication are expensive. An emergency visit begins at $1,300 to $1,500, and admission to the hospital averages a minimum of $5,000. Asthma medication is also expensive.

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[39] Rob McConnell et al., Asthma in Exercising Children Exposed to Ozone: a Cohort Study, 359 Lancet 386 (2002).
[40] Ira B. Tager et al., Chronic Exposure to Ambient Ozone and Lung Function in Young Adults, 16 Epidemiology 751 (2006).
[41] Helene Desqueyroux et al., Effects of Air Pollution on Adults with Chronic Obstructive Pulmonary Disease, 6 Archives Envtl. Health 554 (2002); Peter Höppe et al., Environmental Ozone Effects in Different Population Subgroups, 206 Int'l J. Hygiene & Envtl. Health 505 (2003); Ralph J. Delfino et al., Emergency Room Visits for Respiratory Illnesses Among the Elderly in Montreal: Association with Low Level Ozone Exposure, 76 Envtl. Res. 67 (1998); John M. Peters et al., A Study of Twelve Southern California Communities with Differing Levels and Types of Air Pollution II: Effects on Pulmonary Function, 159 Am. J. Respiratory & Critical Care Med. 768 (1999); Patrick L. Kinney & Mortin Lippmann, Respiratory Effects of Seasonal Exposures to Ozone and Particles, 55 Archives Envtl. Health 210 (2000).
[42] Chang-Chuan Chan & Tsung-Huan Wu. Effects of Ambient Ozone Exposure on Mail Carriers' Peak Expiratory Flow Rates. *Environ Health Perspec* 2005; 113:735-738. Ira Tager, et al. Chronic Exposure to Ambient Ozone and Lung Function in Young Adults. *Epidemiology* 2005; 16:751-759.
[43] John Hollingsworth et al., Ozone and Pulmonary Innate Immunity, 4 Proc. Am. Thoracic Soc'y 240, 243-44 (2007).
[44] Helene Desqueyroux et al., Short-Term Effects of Low-Level Air Pollution on Respiratory Health of Adults Suffering from Moderate to Severe Asthma, 89 Envtl. Res. 29 (2002); Richard T. Burnett et al., Association Between Ozone and Hospitalization for Respiratory Diseases in 16 Canadian Cities, 72 Envtl. Res. 24 (1997).
[45] See, e.g., William C. Adams Comparison of Chamber 6.6 Hour Exposures to .04-.08 PPM Ozone Via Square-Wave and Triangular Profiles on Pulmonary Responses, 18 Inhalation Toxicology 127 (2006); Williams C. Adams, Comparison of Chamber and Face-Mask 6.6 Hour Exposures to Ozone on Pulmonary Function and Symptoms Responses, 14 Inhalation Toxicology 745 (2002) (finding effects on lung and respiratory symptoms as low as .06 ppm); R.B. Devlin et al., Exposure of Humans to Ambient Levels of Ozone for 6.6 Hours Causes Cellular and Biochemical Changes in the Lung, 4 Am. J. Respiratory Cell Molecular Biology 72 (1991); D.H. Horstman et al., Ozone Concentration and Pulmonary Response Relationships for 6.6 Hour Exposures with Five Hours of Moderate Exercise to 0.08, .10, and .12 ppm, 142 Am. Rev Respir Dis 1158 (1990).
[46] Edward S. Schelegle et al., 6.6-Hour Inhalation of Ozone Concentrations from 60 to 87 Parts Per Billion in Healthy Humans, 180 Am. J. Respiratory & Critical Care Med. 265 (2009).
[47] George D. Thurston & David V. Bates, Air Pollution as an Underappreciated Cause of Asthma Symptoms, 290 J. Am. Med. Ass'n 1915, 1915 (2003).
[48] See, e.g., National Research Council supra note 32.

A patient with mild symptoms may take only one type of medicine, at $200 a month; while more severe asthmatics or asthmatics with allergies may spend up to $800 a month for as many as six types of medicine. This cost is borne by the state and federal government in Medicare, Medicaid and other federal health program payments as well as individuals. Ozone exacerbates reactions to allergens, which can also trigger asthma attacks and increased use of medication.

Even in healthy adults, ozone can inflame the lungs and cause immediate discomfort, including shortness of breath, chest pain, wheezing and coughing.[49] William Steven Harlan, a competitive distance runner who runs everything from marathons to 100-mile races, found himself incapacitated by this effect. On July 19, 2003, as he ran along the Tennessee-North Carolina border through the Great Smoky Mountains National Park, he began feeling light-headed, tightness in his chest, and an inability to inhale deeply. Id. at 873-74. Eventually, his breathing became so labored that he could only walk 100 yards at a time before he had to sit down on the trail to catch his breath. This experience, the first time in Mr. Harlan's life that he could not breathe, happened on an ozone alert day.[50]

Other Pollutants

While most research has focused on ozone and PM2.5 other air pollutants, like mercury, lead, acid gases, NOx, SOx, and heavy metals are equally well documented in their adverse human health effects.

Recently, studies have found more evidence linking air pollution to birth defects and pediatric cancers. A study published in the American Journal of Epidemiology linked exposure to air pollution – in this case carbon monoxide and nitrogen oxides - in the first two months of pregnancy to increased chance of neural tube defects. [51] In a study presented Tuesday at the American Association of Cancer research, scientist presented evidence linking exposure to from roadway vehicle exhaust with increased odds of developing pediatric cancer of the eyes and cells that develop into the reproductive system.[52]

Benefits of the Clean Air Act

The health and economic benefits of the Clean Air Act far exceed compliance costs. External analysis of 1990-2020 benefits of the Clean Air Act standards estimate that the $65 billion spent to comply with pollution standards will result in $2trillion in avoided health expenditures by 2020. Even under the most conservative cost benefit analysis – which removes the cost savings attributed to air pollution control driven reductions mortality – Clean Air Act standards will still generate $137 billion in benefits versus an estimated $65 billion in compliance costs.

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[49] Ian S. Mudway & Frank J. Kelly, An Investigation of Inhaled Ozone Dose and the Magnitude of Airway Inflammation in Healthy Adults, 169 Am. J. Respiratory and Critical Care Med. 1089, 1093 (2004); W.F. McDonnell et al., Ozone-Induced Respiratory Symptoms: Exposure-Response Models and Association with Lung Function, 14 European Respiratory J. 845 (1999).

[50] Trial Tr. vol. 4A, 864-65. (July 17, 2008).

[51] Padula AM, Tager IB, Carmichael SL, Hammond K, Lurmann F, Shaw GM. The Association of Ambient Air Pollution and Traffic Exposures with Selected Congenital Anomalies in the San Joaquin Valley of California. Am J Epidemiology 2013; doi: 10.1093/aje/kws367.

[52] Ostrow, Nicole. "Air Pollution Expousre in Pregnancy Linked to Cancers." Bloomberg, April 9, 2013. Available at http://www.bloomberg.com/news/print/2013-04-09/air-pollution-exposure-in-pregnancy-linked-to-cancers.html.

Below is a table that list the estimated adverse health events avoided by Clean Air Act standards.

Health Effect Reductions (PM2.5	Pollutant(s)	Year	Year 2020
PM2.5 Adult Mortality	PM		160,000
PM2.5 Infant Mortality	PM		230
Ozone Mortality	Ozone		4,300
Chronic Bronchitis	PM		54,000
Acute Bronchitis	PM		130,000
Acute Myocardial Infarction	PM		130,000
Asthma Exacerbation	PM		1,700,000
Hospital Admissions	PM, Ozone		86,000
Emergency Room Visits	PM, Ozone		86,000
Restricted Activity Days	PM, Ozone		84,000,000
School Loss Days	Ozone		3,200,000
Lost Work Days	PM		13,000,000

(*source: The Benefits and Costs of the Clean Air Act from 1990 to 2020: Summary Report, page 14*)

Summary

The adverse health effects of air pollution are well known and fully documented in the scientific literature. Equally well established are the health and economic benefits associated with reductions in air pollution. For these reasons, the American Thoracic Society strongly urges Congress to reject any legislation that limits, weakens or delays the ability of the Environmental Protection Agency to implement the science based standards of the Clean Air Act.

Mr. WHITFIELD. Thank you. Ms. Steinzor, you are recognized for 5 minutes.

STATEMENT OF RENA STEINZOR

Ms. STEINZOR. Mr. Chairman, Ranking Member Rush, and members of the subcommittee, I appreciate the opportunity to testify today. My testimony makes four points.

One, the Energy Consumers Relief Act has no basis in law or fact and would enable some of the largest companies in the world to continue making record profits at the expense of public health and the environment.

Two, the real danger we face is under-regulation. In fact, rampant deregulation of Wall Street is the reason why we have hurtled into the persistent recession that has impoverished millions.

Three, regulation is vital to the quality of life we take for granted in America. Most of the rules targeted by this bill were not dreamed up in the basement of EPA, by an administrator drunk on her own whiskey, but rather were required by the Clean Air Act amendments that were crafted by members of this committee. The beauty of the legislation from a corporate perspective is that it would gut the Clean Air Act, which remains overwhelmingly popular with the public, without ever mentioning its name.

Four, Congress should focus on ways to reinvigorate the EPA rather than pursuing legislation that would kneecap the agency. The ECRA is nothing more and certainly nothing less than the latest attempt to shield some of the wealthiest and most heavily subsidized corporations in the history from the relatively modest cost of preventing the chronic harm to people and the environment caused by toxic air pollution. It would force a shotgun wedding between EPA, the beat cop that polices the most intractable sources of pollution; and the Department of Energy, the government's booster for energy products nationwide. The inevitable outcome would be a marriage made in hell that stymies EPA's most important efforts to carry out its regulatory mission, indifference to its salesperson spouse.

The best way to think about ECRA is as a huge subsidy for companies that are already pocketing billions in government largess. The energy companies that would reap this giant windfall include the big five oil companies—BP, Chevron, ConocoPhillips, ExxonMobil and Shell—which raked in more than $119 billion in profits in 2012. Among the most profitable corporations, ExxonMobil finished at the top of the 2012 Fortune 500 list bringing in profits of more than 41 billion. Chevron and ConocoPhillips finished third and fourth on the list, bringing in annual profits of nearly 27 billion and over 12 billion, respectively.

The legislation would relieve these companies from internalizing the high social cost of their pollution. This regulatory subsidy comes on top of the massive subsidies that highly profitable fossil fuel producers already receive. In 2012, the big five oil companies received more than $2.4 billion in various tax breaks from the Federal Government. The International Monetary Fund estimates that the fossil fuel industry receives more than 1.9 trillion in total global subsidies annually, an amount equal to 2.5 percent of the global gross domestic product.

The rules in the legislation's crosshairs are among the most beneficial safeguards the U.S. regulatory system has ever produced. A 2011 report assessing the EPA's Clean Air Act regulations found that in 2010, these rules saved 164,000 adult lives and prevented 13 million days of work loss and 3.2 million days of school loss due to pollution-related illnesses such as asthma and cardiovascular disease, as Dr. Rom explained so eloquently. Even when measured against the rubric of cost-benefit analysis, the EPA's regulations revealed to be huge winners for society.

The 2011 report on EPA's Clean Area Act regulations concluded that these safeguards have produced benefits worth $2 trillion annually by 2020, dwarfing the $65 billion in compliance costs.

My written testimony gets into more specific criticisms of the bill. It also offers some suggestive reforms for the EPA that would help the Agency carry out its statutory mission of protecting the people and the environment in a more effective and timely manner.

Thank you. I would be pleased to answer any questions.

[The prepared statement of Ms. Steinzor follows:]

TESTIMONY OF

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before the

Committee on Energy and Commerce
Subcommittee on Energy and Power
U.S. House of Representatives

Legislative Hearing on
The Energy Consumers Relief Act of 2013

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Mr. Chairman, ranking member Rush, and members of the subcommittee, I appreciate the opportunity to testify today on the importance of the Environmental Protection Agency's (EPA) safeguards and how the legislation under consideration today would unduly inhibit the agency's ability to carry out its congressionally-mandated mission of protecting people and the environment against unreasonable risks.

I am a law professor at the University of Maryland Carey School of Law and the President of the Center for Progressive Reform (CPR) (http://www.progressivereform.org/). Founded in 2002, CPR is a network of sixty scholars across the nation dedicated to protecting health, safety, and the environment through analysis and commentary. We have a small professional staff funded by foundations. I joined academia mid-career, after working for the Federal Trade Commission for seven years and the House Energy and Commerce Committee for five years. For seven years, I served as the lawyer for small, publicly-owned electric systems. My work on environmental regulation includes four books, and over thirty articles (as author or co-author). My most recent book, published by the University of Chicago Press, is *The People's Agents and the Battle to Protect the American Public: Special Interests, Government, and Threats to Health, Safety, and the Environment*, co-authored with Professor Sidney Shapiro of Wake Forest University's School of Law, which comprehensively analyzes the state of the regulatory system that protects public health, worker and consumer safety, and natural resources, and concludes that these agencies are under-funded, lack adequate legal authority, and consistently are undermined by political pressure motivated by special interests in the private sector. I have served as consultant to the EPA and testified before Congress many times.

My testimony today makes four points:

The Energy Consumers Relief Act would only reinforce and amplify the problem of under-regulation, enabling some of the largest companies in the world to continue making record-making profits at the expense of public health and the environment.

Regulation is vital to the quality of life we take for granted in America, saving lives, preserving health, and safeguarding the natural environment for our children.

The real danger we face is one of under-regulation, particularly with respect to public health and environmental safeguards.

Congress should focus on ways to invigorate the EPA, rather than pursuing legislation that would to kneecap the agency.

The Energy Consumers Relief Act Puts Corporate Profits Ahead of Public Health and Environmental Protection

The Energy Consumers Relief Act (ECRA) would block certain EPA regulations that corporations in the energy industry find inconvenient. We could evaluate this bill in stuffy economic terms—that is, we could talk about how the bill prevents the EPA from advancing economic efficiency goals by forcing energy industry corporations to internalize the full costs of their polluting activities. While undoubtedly correct, this narrow economic view fails to capture the moral outrage that this bill richly deserves. The ECRA is nothing more—and certainly nothing less—than yet another attempt by certain members of Congress to shield some of the wealthiest and most heavily subsidized corporations in history from the relatively modest financial costs associated with carrying out their businesses in a manner that does not place people and the environment at unreasonable risk of harm.

Let's take a closer look at some of the energy industry companies that would reap a giant windfall from the ECRA. They include the Big 5 oil companies—BP, Chevron, ConocoPhillips, Exxon Mobil, and Shell—which raked in more than $119 billion in profits in 2012.[1] Exxon Mobil finished at the top of the 2012 Fortune 500 list, bringing in profits of more $41 billion; Chevron and ConocoPhillips finished third and fourth on the list, bringing in annual profits of nearly $27 billion and over $12 billion, respectively. Electric utilities would also benefit greatly from the Energy Consumers Relief Act. Exelon was number 145 on the Fortune 500 list, the highest ranking among electric utilities, bringing in profits of nearly $2.5 billion. Other high-profiting utilities include AES Corporation (151 on the Fortune 500 list with profits of $58 million in 2012) and Southern Company (152 on the Fortune 500 list with over $2.2 billion in profits in 2012).

The best way to think about the ECRA is as a huge subsidy for the highly profitable companies that comprise the fossil fuel industry—adding to the already massive subsidies these companies already receive. The ECRA has the effect of a subsidy, because it systematically shields these companies from some of the costs of doing business—namely, doing their part to

[1] Jackie Weidman, *BP Rakes In $11.6 Billion In Profits For 2012*, CLIMATEPROGRESS, Feb. 5, 2013, http://thinkprogress.org/climate/2013/02/05/1542701/bp-rakes-in-116-billion-in-profits-for-2012/ (last visited Apr. 8, 2013).

ensure that their activities don't harm people and the environment. In 2012, the Big 5 oil companies received more than $2.4 billion in various tax breaks from the federal government.[2] A January 2013 report by the International Monetary Fund estimates that every year the fossil fuel industry receive more than $1.9 trillion in total global subsidies—an amount equal 2.5 percent of the global gross domestic product.[3] Roughly, $480 billion of those subsidies come in direct form—that is, in the form of tax breaks and other government handouts. The remaining $1.4 trillion comes in indirect form—that is, through the absence of government policies that would force energy companies to internalize the costs of their harmful side effects. In other words, the "regulatory subsidy" that the ECRA seeks to provide the energy industry would fall into this second category.

Beyond this large fundamental objection to the ECRA, my more specific criticisms include the following:

The ECRA ignores regulatory benefits. The ECRA requires that certain EPA regulations be subjected to two new sets of analyses—one by the EPA and a second by the head of the Energy Department. By intentional designed, however, neither set of analyses accounts for regulatory benefits. As a result, these analyses are guaranteed to distort the true value of these regulations, just as the drafters of this legislation had intended. After all, even the best policies—including ones that generate enormous net benefits—will appear to be a huge drain on the economy if only their costs are considered. The cost-only focus of the ECRA's analyses reveals a telling shift in strategy by the anti-regulatory crowd. For years, they espoused cost-benefit analysis, confident that its inherently anti-regulatory methodology (*i.e.*, the systematic overestimation of regulatory costs combined with systematic underestimation of regulatory benefits) would be sufficient to quash effective regulations. They hadn't counted on regulations being such a good deal for society that they still managed to pass this dubious and biased test. So now, regulatory foes have moved the goalposts again in the regulatory debate by seeking to focus on the discussion entirely on the costs side of the ledger. This cost-only analysis of regulation can provide no useful information about regulations, and therefore serious policymakers should disregard the misleading results it produces.

The ECRA could capture a lot of the EPA's rules. Under the ECRA, any EPA rule meeting the $1 billion statutory trigger is eligible to be blocked. The drafters of the ECRA have cleverly designed this trigger to be as expansive as possible. First, the definition is not limited to annual costs, much as other laws and policies impacting the regulatory process do. (For instance, Executive Order 12866 defines "economically significant" regulations as those having an annual economic impact of $100 million or more.) Consequently, a rule that has recurring costs of $100 million or more for 10 years can be subject to the ECRA. To put this in perspective, the U.S. Census estimated that there were nearly 115 million households in the United States in 2011.[4] If a rule raised energy costs for each of these households by an average of just $0.87 per year for ten

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[2] *Id.*

[3] INT'L MONETARY FUND, ENERGY SUBSIDY REFORMS: LESSONS AND IMPLICATIONS (2013), *available at* http://www.imf.org/external/np/pp/eng/2013/012813.pdf.

[4] *See* U.S. Census Bureau, *State & County QuickFacts: USA*, http://quickfacts.census.gov/qfd/states/00000.html (last visited Apr. 9, 2013).

years (or $8.70 total), then it would be sufficient to trigger the ECRA's requirements. In addition, the ECRA $1 billion trigger includes the aggregate of both a rule's direct and "indirect" costs. The sheer expansiveness of the ECRA's statutory definition of indirect costs is mindboggling. It includes any costs that might be "incurred in related markets or experienced by consumers or government agencies not under the direct scope of the regulation." With a little creativity, there's almost no limit to how far this open-ended definition could be stretched. As a result, a generous application of the concept of indirect costs could sweep in a huge number of the EPA's rules, making them all eligible to be blocked under the ECRA.

The ECRA would subject EPA regulation to still more rounds of meaningless analysis. The additional EPA and Energy Department analyses mandated by the ECRA come on top of the slew of analytical and procedural requirements that already clog up the rulemaking process, preventing timely and effective regulatory action.[5] These anew nalyses will do nothing to improve the quality of EPA regulations; instead, they will simply waste scarce agency resources on quixotic attempts to determine some of the rules' highly attenuated—and fundamentally unknowable—future impacts. Here are the future impacts that these analyses must somehow divine:

- "Indirect costs";
- Impacts on future energy prices (including gasoline and electricity prices);
- Employment effects ("including potential job losses and shifts in employment");
- Impacts on energy prices for consumers ("including low-income households, small businesses, and manufacturers");
- "Impacts on fuel diversity of the Nation's electricity generation portfolio or on national, regional, or local electrical reliability"; and
- "Any other adverse effect on energy supply, distribution, or use (including a shortfall in supply and increased use of foreign supplies)."

Ultimately, the analyses required by the legislation would be so ridden with uncertainty that their numbers would be not just meaningless but deceptive.

The ECRA would authorize the head of the Energy Department to make monumental decisions based on technical matters outside his field of expertise. The bill gives the head of the Energy Department ultimate veto authority over certain EPA rules. Amazingly, the bill charges him to wield this authority based upon his decidedly non-expert determination of whether the regulation at issue "will cause significant adverse effects to the economy, taking into consideration impacts on economic indicators, including those related to gross domestic product, unemployment, wages, consumer prices, and business and manufacturing activity." These sorts of assessments would likely overwhelm even the best economists in the country, let alone the head of a department that lacks any institutional expertise in such matters. For decades, Congress

[5] *See* PUBLIC CITIZEN, THE FEDERAL RULEMAKING PROCESS, *available at* http://www.citizen.org/documents/Regulations-Flowchart.pdf.

has trusted EPA's expert judgment on developing environmental and public health safeguards. That this bill would now seek to empower the head of the Energy Department to overrule this expert judgment based on considerations well outside the scope of his expertise defies any rational explanation.

The ECRA is a textbook example of poor legislative draftsmanship, which would lead to needless litigation and regulatory uncertainty. This bill is rife with poorly defined terms and vague concepts. Here are just a few examples:

- With respect to the bill's definition of "energy-related rule that is estimated to cost more than $1 billion," it is unclear what is meant by a rule that "regulate any aspects of the . . . *use* of energy" (emphasis added). An EPA regulation to restrict uses of a particular toxic chemical could plausibly have an indirect effect on energy use (*e.g.*, the user of the chemical might have to use an alternative that involves greater energy use). Does that rule trigger this bill's applicability?
- When the head of the Energy Department makes his "determination on adverse effects to the economy," what exactly constitutes a "significant adverse effect[] to the economy"? In other words, how adverse an effect must it be before it crosses the line into "significant" territory? The bill doesn't specify. Does it have to be equal to at least a certain percentage of the GDP? Does it have to result in some minimal increase in the unemployment rate? What if the rule is projected to significantly reduce the employment rate (a beneficial economic effect) but significantly increase energy prices (possibly an adverse economic effect)?

In addition, how, if at all, will the provisions of this bill be enforced? Can the public challenge the quality of the EPA's or Energy Department's analysis of a rule? What if the public disagrees with a determination by the head of the Energy Department that a particular rule should be blocked because it will have an adverse economic impact?

Until these and other questions are resolved, this bill would lead to needless litigation wasting scarce agency and judicial resources. It could also perpetuate regulatory uncertainty, as the final status of pending rules remain indeterminate, pending the outcome of relevant litigation.

The Vital Importance of Effective Regulatory Safeguards

One does not need to look far to see how essential regulations are. Just ask anyone whose life was saved by a seat belt, whose children escaped brain damage because the EPA took lead out of gas, who turns on the faucet knowing the water will be clean, who takes drugs for a chronic illness confident the medicine will make them better, who avoided having their hand mangled in machinery on the job because an emergency switch was there to cut off the motor, who has taken their kids on a trip to a heritage national park to see a bald eagle that was saved from the brink of extinction—the list goes on and on.

The EPA's regulations—which the legislation under consideration today would attempt to block—are among the most beneficial safeguards the U.S. regulatory system has ever produced. For example, a 2011 report assessing the EPA's Clean Air Act regulations found that in 2010 these rules saved 164,300 adult lives and prevented 13 million days of work loss and 3.2

million days of school loss due to pollution-related illnesses such as asthma. By 2020, the annual benefits of these rules will include 237,000 adult lives saved as well as the prevention of 17 million work loss days and 5.4 million school loss days.[6]

Even when measured against the rubric of cost-benefit analysis—the inherently anti-regulatory yardstick espoused by corporate interests and small government ideologues—the EPA's regulations are revealed to be huge winners for society. The 2011 report on EPA's Clean Air Act regulations concluded that these safeguards would produce benefits worth $2 trillion annually by 2020, dwarfing the $65 billion in compliance costs.[7] Similarly, a recent report by the Economic Policy Institutes (EPI) evaluated the total impact of major EPA rules developed during the Obama Administration. The report derived its results by simply aggregating the cost-benefit analyses that the EPA has prepared for these rules. It found that the major EPA rules issued during the first two years of the Obama Administration produced total annualized benefits of between $44 billion and $148 billion, as compared to total annualized costs of between just $6.7 billion and $12.5 billion. The EPI report also found that four of the EPA's then-pending proposed major rules generated total annualized benefits of between $173 billion and $457 billion, as compared to total annualized costs of between just $14 billion and $15 billion.[8]

The damage that the ECRA would do to the public health and environment is immediately apparent when one looks at some of the recent or pending EPA regulations this bill seeks to block. For example, EPA's boiler MACT rule, which sets strong limits on toxic air pollution from industrial and commercial boilers, will annually prevent up to 8,100 premature deaths, 5,100 non-fatal heart attacks, and 52,000 asthma attacks. In addition, EPA's greenhouse gas standards for cars and light trucks together are projected to save Americans more than $1.7 trillion in fuel costs. For a comprehensive summary of the benefits of EPA's recent and pending rules, please see the chart produced by the Natural Resources Defense Council, which I have attached to this testimony as Appendix A.

Importantly, these EPA rules have brought great benefit to the United States without any significant economic dislocation. A recent CPR report reviewed all 30 of the available retrospective rule reviews that the EPA has conducted pursuant to section 610 of the Regulatory Flexibility Act, and each of these reviews concluded that the regulations were still necessary and that they did not produce significant job losses or have adverse economic impact on the regulated industries, including on small businesses. Specifically, all of these reviews reached the following findings:

- There is a "continued need" for the regulation, meaning that a significant risk to public health or the environment exists, and that the controls called for in the regulation continue to be successful in reducing that risk.
- The regulations did not require any major modification to increase their effectiveness or reduce their costs.

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[6] *See* ENVTL. PROTECTION AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT FROM 1990 TO 2020 (Mar. 2011), *available at* http://www.epa.gov/oar/sect812/feb11/fullreport.pdf.
[7] *Id.*
[8] Isaac Shapiro, *Tallying Up the Impact of New EPA Rules: Combined Costs of Obama EPA Rules Represent a Sliver of the Economy and are Far Outweighed by Cumulative Benefits* (Econ. Pol'y Inst., Briefing Paper No. 311, 2011), *available at* http://w3.epi-data.org/temp2011/BriefingPaper311.pdf.

- The regulations have not been unduly costly on industry nor did it have a significant adverse impact on the industry.
- Existing regulations were often supported by regulated entities, and when this was not the situation, regulated entities supported reform of the regulation, not its elimination. In several cases, the EPA received no comments from regulated entities when it reviewed a regulation.

Despite the vast evidence supporting the value of regulation, self-righteous crusaders against regulation have become accustomed to telling only half the story to the American people: they pretend that exaggerated regulatory costs are the only result of the system, and ignore the considerable benefits described above. Conversely, they suggest that if we dismantled the regulatory system, we would suffer no negative consequences and instead reap a windfall in saved money.

The ECRA is clearly intended to advance this strategy of willful deception. The analyses it mandates are clearly calculated to present the EPA's regulations in the worst light possible—as senseless drains on the economy that invariably impose large costs on businesses, kill jobs, and raise energy prices. Meanwhile, the bill makes no effort to account for the overwhelmingly larger benefits these rules produce. Worse still, it pretends that there are no costs to blocking or delaying the EPA's rules. There are, of course. Preventable deaths, heart attacks, aggravated asthma symptoms, and chronic lung disease, to say nothing of quashing our last best efforts at averting the worst consequences of climate change, will be the inevitable result if the ECRA should become law.

In short, the ECRA does not eliminate regulatory costs for polluting industries. Rather, it ensures that American public continues to shoulder these burdens, in the unconscionable form of a degraded environment, debilitated health, and, in too many cases, lives cut tragically short.

The Problem of Under-Regulation

The regulatory system created by Congress and implemented by agencies is designed to protect the American people against unacceptable risks to important values such as a safe and healthy environment, but the destructive convergence of inadequate resources, political interference, and outmoded legal authority often prevents regulatory agencies from fulfilling this task in a timely and effective manner. Unsupervised industry "self-regulation," which has often filled the resulting vacuum, is not an adequate substitute, as the predictably catastrophic results of inadequate regulation regularly demonstrate.

The consequences of inadequate regulation and enforcement are obvious—from the BP oil spill in the Gulf of Mexico to the Upper Big Branch Mine disaster that claimed the lives of 29 men; from the decaying natural gas pipeline networks running beneath our homes to the growing risk of imported food tainted with salmonella, botulism, or other contaminants showing up on grocery store shelves. And, of course, inadequate regulation of the financial services industry helped trigger the current economic recession and left millions unemployed, financially ruined, or both.

The EPA provides a clear illustration of the problem of under-regulation, as the agency has been prevented from adequately addressing several pressing environmental and public health threats:

- **Climate change.** The EPA has made some important strides toward addressing the threat of climate change through strengthened controls on mobile sources and by encouraging energy efficiency. The agency's efforts to limit greenhouse gas emissions from the largest sources—including fossil-fueled power plants and oil refineries—will likely remain delayed for several years.
- **Toxic chemicals.** Of the 40,000 unique chemicals in existence, the EPA has managed to test only a few hundred, and has imposed adequate restrictions to protect public health and the environment on far less. The agency has barely even scratched the surface of addressing the threats human health consequences that can result when people are exposed to combinations of these chemicals.
- **Fracking.** The EPA has thus far taken only a few small steps toward addressing the various environmental and public health risks associated with fracking, which include conventional and toxic air pollution, water pollution, and drinking water contamination.
- **Ozone.** Excessive ground-level ozone can trigger asthma attacks and cause permanent lung damage. The EPA has not updated its national ozone standard in more than 15 years, even though the agency's science advisors have known since at least 2006 that the existing standards were inadequate to protect public health and the environment. Under the Clean Air Act, the EPA is supposed to update this standard at least once every five years.

Even the EPA's most recent regulatory successes—including first-time limits on toxic air pollution from power plants and a further tightening of its nationwide fine particulate matter standards—were the subject of several years of inexcusable delays.

If enacted, the ECRA would only reinforce and amplify the problem of under-regulation at the EPA, preventing the agency from addressing many of the environmental and public health risks noted above. This result would no doubt elate corporate interests by helping them protect their already healthy bottom lines. But, the toll it would take on the general public would be unconscionable.

The EPA Must Be Invigorated, Not Blocked

The proponents of this bill are partially right one thing: The EPA is not carrying out its statutory mission of protecting people and the environment as well as it could be. Their diagnosis of the problem, however, is completely off the mark. To fix the problem, the EPA must be reinvigorated, not burdened with new analyses and threatened with unilateral vetoes of their pending rules by non-expert officials in other executive branch agencies.

To reinvigorate the EPA, I suggest the following reforms:

Empower the EPA Administrator to run EPA. It sounds somewhat absurd, but the reality of the situation is that that the EPA Administrator does not in fact run the EPA.

Instead, the head of the White House Office of Information and Regulatory Affairs (OIRA) has *de facto* authority over the final substance of EPA rules and whether the rules even see the light of day, as detailed in a recent law review article by former EPA official Lisa Heinzerling.[9] The ECRA would in fact worsen the situation by deputizing yet another non-expert in the executive branch to squash the EPA's pending rules. The EPA alone has the unique expertise to design regulations that best comport with applicable law and the best available science. The EPA Administrator must be permitted to ensure that this expertise provides the sole basis for regulatory decision-making.

Provide agencies with the resources they need. One of the reasons that the EPA cannot fulfill its statutory mission is that its financial resources and available personnel have been reduced or maintained at constant levels in recent years. This has been occurring as the EPA's mission has become more complex, forcing the agency to effectively do more with less. And the situation is getting worse, not better. For example, the recent sequestration cuts slashed EPA's already inadequate $8.4 billion budget by another $700 million. Among other things, these new cuts would force the agency to scrap several air pollution monitoring sites and scale back its program for assessing the human health impacts of several potentially harmful chemicals. To reverse this situation, the President and Congress must work together to identify and actually provide the minimal resources that the EPA needs to fulfill its mission in as effective and timely manner as possible.

Reform the rulemaking process to reduce corporate dominance and level the playing field for the general public. Over the past few decades, the rulemaking process has become encumbered by a growing number of analytical and procedural requirements. These analytical obstacles draw upon the EPA's already stretched resources and distract the agency from focusing on its regulatory missions without meaningfully improving the quality of agency decision-making. More problematically, corporate interests have leveraged their superior financial resources to dominate key steps in the rulemaking process, enabling them to delay rulemakings and unduly influence the rule's final substance. In short, the regulatory process works for corporate interests rather than the public interest. This must change. The President and Congress should carefully evaluate the various analytical and procedural requirements with an eye toward eliminating or consolidating them as much as possible. For the remaining analytical and procedural requirements, the President and Congress should consider reforms that would ensure meaningful participation by the general public, including providing the public with tools such as petition rights to dislodge rules that have become stuck at any chokepoints in the rulemaking process.

Thank you. I'd be pleased to answer any questions you may have.

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[9] Lisa Heinzerling, *Who Will Run the EPA?*, 30 YALE J. ON REG. 39 (2013), *available at* http://jreg.commons.yale.edu/who-will-run-the-epa/.

Appendix A

Chart Summarizing the Benefits of Recent and Pending Environmental Protection Rules That Could Potentially Be Blocked by the Energy Consumers Relief Act

Prepared by the Natural Resources Defense Council

EPA Rule	Projected Costs and Benefits	Benefit to Cost Ratio	Health Benefits
Tier III standards for motor vehicles, proposed March 2013 (*not yet final*)	$3.4 billion in costs[1] $8 to 23 billion in benefits[2]	2.2 to 6.8:1[3]	Once implemented in 2030, each year will avoid[4]: • Between 820 and 2,400 premature deaths • 3,200 hospital admissions and asthma-related emergency room visits • 22,000 asthma exacerbations •23,000 upper and lower respiratory symptoms in children • 1.8 million lost school days, work days and minor-restricted activities
Final Toxic Air Pollution Standards for Industrial Boilers ("Boiler MACT"), finalized Dec. 20, 2012	Benefits: $27 to 67 billion[5] Costs: annual costs of approximately 2 billion[6]	Up to 29:1[7]	Once implemented in 2015, each year will avoid[8]: • up to 8,100 premature deaths, • 5,100 heart attacks, and • 52,000 asthma attacks.
Final Standards for PM2.5	Estimated annual costs of implementing the	Up to 171:1	Once implemented in 2020, each year will prevent:

[1] U.S. EPA, Draft Regulatory Impact Analysis: Tier 3 Motor Vehicle Emission and Fuel Standards, March 2013, at Table 8-3 *available at* http://www.epa.gov/otaq/documents/tier3/420d13002.pdf.
[2] *Id.*, at 8-31.
[3] *Id.*
[4] U.S. EPA, Fact Sheet: EPA Proposes Tier 3 Motor Vehicle Emission and Fuel Standards, *available at* http://www.epa.gov/otaq/documents/tier3/420f13016a.pdf.
[5] U.S. EPA, Fact Sheet: Final Adjustments to the Air Toxics Standards for Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Source Facilities, *available at* http://www.epa.gov/airquality/combustion/docs/20121221_boiler_major_recon_fs.pdf.
[6] U.S. EPA, Fact Sheet: Emission Reductions Remain Significant for Comparable Cost, *available at* http://www.epa.gov/airquality/combustion/docs/20121220_emissions_reductions_cost.pdf.
[7] U.S. EPA, Fact Sheet: Adjustments for Major and Area Source Boilers and Certain Incinerators Summary Overview, *available at* http://www.epa.gov/airquality/combustion/docs/20121221_sum_overview_boiler_ciswi_fs.pdf.
[8] *Id.*

("PM2.5 NAAQS") Finalized Dec. 14, 2012	standard: $53 million to $350 million[9] Benefits of $4 billion to $9.1 billion per year in 2020[10]	(minimum of 12:1).[11]	• Up to 1000 premature deaths • 480 non-fatal heart attacks • 40,000 asthma exacerbations • 27,000 asthma exacerbations • 420,000 restricted activity days
National Greenhouse Gas standards and CAFE standards to reduce GHG emissions from motor vehicles (Model Years 2017 and later finalized Aug. 2012; Model Years 2012-2016 finalized April 2010)	Combined standards: projected to save Americans $1.7 trillion in fuel costs Model Year 2017-2025 standards: Benefits: $326 billion to $451 billion $150 billion Model Year 2012-2016 standards: Benefits up to $240 billion Costs: less than $52 billion		Model Year 2017-2025 Standards: • 110 to 280 lives saved per year by 2030 Model Year 2012-2016 Standards: • 60 to 150 lives saved per year by 2030
Mercury and Air Toxics Standards, finalized Dec. 14, 2011	$9.6 billion to implement[12] $37 to 90 billion in health benefits[13]	up to 9:1 (minimum of 3:1)[14]	Once Implemented, per year will prevent[15]: • Premature Deaths: Up to 11,000 • Chronic Bronchitis: 2,800 • Heart Attacks: 4,700 • Asthma Attacks: 130,000

[9] U.S. EPA, Fact Sheet: Overview of EPA's Revisions to the Air Quality Standards for Particle Pollution (Particulate Matter), *available at* http://www.epa.gov/pm/2012/decfsoverview.pdf.
[10] *Id.*
[11] *Id.*
[12] U.S. EPA, Fact Sheet: Mercury and Air Toxics Standards, *available at* http://www.epa.gov/mats/pdfs/20111221MATSsummaryfs.pdf.
[13] U.S. EPA, Fact Sheet: Benefits and Costs of Cleaning Up Toxic Air Pollution from Power Plants, *available at* http://www.epa.gov/mats/pdfs/20111221MATSimpactsfs.pdf.
[14] *Id.*
[15] *Id.*

			• Hospital & Emergency Room Visits: 5,700 • Restricted Activity Days: 3,200,000
Cross- State Air Pollution Rule, finalized July 6, 2011	$120 to $280 in health benefits[16]. $800 million in annual costs; $1.6 billion underway as a result of implementation of Clean Air Interstate Rule.[17]		Once implemented, per year will prevent[18]: • Up to 34,000 premature deaths • 19,000 cases of acute bronchitis • 15,000 nonfatal heart attacks • 19,000 hospital and emergency room visits • 1.8 million days when people miss work or school • 400,000 cases of aggravated asthma, and • 420,000 cases of upper and lower respiratory symptoms.
Proposed Cooling Water Intake Rule (not yet finalized)	(Costs and benefits figures based on EPA's "preferred option" in the proposed rule) Costs: $384 – 489 million annually Benefits: $3.4 billion to 5.5 billion	Up to 14:1 (minimum of 7.6 :1)	
Final NAAQS for Sulfur Dioxide, Finalized June 3, 2010	Benefits: $13 to $33 billion annually once implemented[19] Cost in 2020 to fully implement the standard: $1.5 billion[20]		Once implemented , will annually avoid[21]: • 2,300 to 5,900 premature deaths • 54,000 asthma attacks

[16] U.S. EPA, Fact Sheet: The Cross-State Air Pollution Rule: Reducing the Interstate Transport of Fine Particulate Matter and Ozone *available at* http://www.epa.gov/airtransport/CSAPR/pdfs/CSAPRFactsheet.pdf.
[17] *Id.*
[18] *Id.*
[19] U.S. EPA Press Release: EPA Sets Stronger National Air Quality Standard for Sulfur Dioxide First new SO2 standard in 40 years will improve air quality for millions, *available at* http://yosemite.epa.gov/opa/admpress.nsf/0/F137260029B9B4F385257737004E521B.
[20] *Id.*
[21] *Id.*

Mr. WHITFIELD. Thank you.

Dr. Smith, you are recognized for 5 minutes.

STATEMENT OF ANNE E. SMITH

Ms. SMITH. Mr. Chairman and members of the subcommittee, thank you for your invitation to participate in this hearing. I am Anne Smith, an economist and senior vice president of NERA Economic Consulting. My testimony is my own and does not represent any position of my company or its clients.

If EPA and DOE are to be required to estimate employment impacts of energy-related regulations, it would be wise also to require that their estimates be made using analysis methods that are credible and suited to the scale of the regulation in question. For major energy-related regulations an analysis that accounts for secondary or ripple effects through the full economy is the only type that can be expected to provide a balanced understanding of overall economic impacts.

How has EPA been making its employment impacts estimates so far? In reviewing how EPA has been estimating employment impacts for its air regulations, I have identified several areas of concern, particularly with regard to its current practices. First, for air regulations released from 1997 through 2010, EPA rarely provided any employment impact estimates. In the few cases that it did, EPA used methods that ranged from a single sector or partial approach to a full economy general equilibrium approach. I found no apparent pattern to explain when the full economy approach was used or was not used, but the full economy approach is clearly within the EPA's toolkit.

In 2011, EPA started to routinely provide employment impact estimates for its new regulations. However, these more recent estimates are not credible. They are being calculated in an inappropriately simplistic manner that uses a cookie-cutter multiplier. EPA's formula cannot even be called an analysis. This is what EPA is doing: EPA takes its estimate of the cost of complying with the regulation, states it in millions of 1987 dollars, and then, to estimate the number of affected jobs, just multiplies that cost by a single constant factor. That factor happens to be 1.55.

So what does that mean? Well, you can do the math yourself. Because the multiplier is positive, this formula guarantees that EPA will estimate an increase in jobs for every one of its new regulations no matter what sectors or types of regulation the regulation may affect, no matter what years the regulation may take effect in. In fact, the higher the cost of the regulation, the greater will be the job increase EPA projects for it.

Furthermore, most of the regulations the EPA has applied this simplistic approach to are the very types of rules that are warranting a full economy approach. A full economy analysis is warranted for high-cost regulations that can affect prices of widely used commodities. Energy-related regulations over $1 billion would fall into this category. Also, the Utility MATS Rule, the Portland Cement MACT Rule, the Cross-State Air Pollution Rule, and the Industrial Boiler MACT Rule all fall into that category. Yet, all of those rules were instead run through EPA's simplistic job impacts multiplier, which predictably estimated that each one of them

would increase jobs and, at the most costly of them, the Utility MATS Rule, would increase jobs the most.

I have done my own full economy analysis of several of those recent rules. I used NERA's NewERA Model, which is a full economy general equilibrium model, but I assumed EPA's own estimates of those rules' compliance costs. I ran EPA's costs through a full economy analysis. And for each of those rules, the full economy analysis projected large negative employment impacts in direct contrast to the positive job increases EPA had reported.

For example, for the Utility MATS Rule, EPA had reported an increase in employment earnings equivalent to 8,000 jobs. But the full economy analysis of that rule projected a reduction equivalent to 70,000 jobs. Now, most of those negative employment impacts from the full economy analysis were in sectors that do not face any compliance obligations under the MATS rule, but they are sectors which purchase the regulated sector's higher-cost product, electricity in this case.

Partial analysis methods simply cannot identify these secondary or ripple effects. Simply put, because commodity price effects can cause a significant portion of a regulation's impacts, high-cost regulations should be analyzed with a full economy general equilibrium approach. This is not a tall order. The past shows EPA already has the tools and capabilities to do it. Thank you.

[The prepared statement of Ms. Smith follows:]

Prepared Statement of
Anne E. Smith, Ph.D.
at a Hearing on
A Discussion Draft Entitled the "Energy Consumers Relief Act of 2013"
by the
Subcommittee on Energy and Power
Energy and Commerce Committee
United States House of Representatives
Washington, DC

April 12, 2013

Mr. Chairman and Members of the Subcommittee:

Thank you for your invitation to participate in today's hearing. I am Anne E. Smith, a Senior Vice President of NERA Economic Consulting. I have performed work in the area of regulatory cost and economic impacts analysis over the past thirty years, including as an economist in the USEPA's Office of Policy, Planning, and Evaluation, as a consultant to the USEPA Air Office, and in many consulting engagements since then for government and private sector clients globally. I have also served as a member of several committees of the National Academy of Sciences focusing on risk-based decision making. I received my Ph.D. in economics from Stanford University, including a Ph.D. minor in the Engineering School's Engineering-Economic Systems Department. Over the years, I have employed a wide variety economic and cost optimization models to analyze costs and economic impacts of many U.S. energy and air policies, including fine particulate matter ($PM_{2.5}$), regional haze, ozone, mercury, and climate policies. I have also led project teams developing economic and cost models, including bottom-up system cost models, electric sector market models, full-economy energy-economic systems models, and computable general equilibrium models.

I thank you for the opportunity to share my perspective today on analysis of economic impacts of environmental regulations. My written and oral testimonies reflect my own opinions, and do not represent any position of my company, NERA Economic Consulting or of any of its clients.

Executive Summary

This hearing regards a discussion draft of a bill entitled the "Energy Consumers Relief Act of 2013." One of the requirements of this bill is that the EPA Administrator must submit a report to Congress containing estimates of the direct and indirect costs, energy price effects, and employment effects for any new energy-related rule out of EPA that is estimated to cost more than $1 billion. I recently conducted a review and evaluation of EPA's methods for estimating employment impacts in its Regulatory Impact Analyses (RIAs) for 57 separate air regulations released between 1997 and 2011. Some of my findings from that study are of relevance to this topic:

- Until 2011, EPA had an inconsistent record of providing employment impacts in its RIAs. The few RIAs that contained such estimates used a variety of methods (with no apparent pattern), that ranged from simple, single-sector models to full-economy general equilibrium estimates.
- EPA's RIAs for major air rules released since 2010 have more consistently provided employment impact estimates. However, these have been calculated using an inappropriately simplistic formula that is not

even on a par with the estimates that EPA was providing in its RIAs before 2005.

- The employment impact estimation formula that EPA has been employing since 2010 is guaranteed (by design) to estimate that each new regulation will result in an increase in jobs. This formula generates the illogical result that the higher the estimated direct cost of compliance, the greater will be EPA's projected job increase.
- Most of the regulations to which EPA has applied this inappropriate formula are the very types of rules that may have product price effects that can cause negative economic impacts, including employment impacts, to ripple through many other sectors of the economy. A full-economy analysis (such as EPA has used in the past) should have been employed instead.
- When the direct costs that EPA has estimated for several of its 2011 air regulations are reanalyzed using a full-economy model, negative impacts on worker earnings are consistently projected, rather than the positive job increases that have been reported in EPA's RIAs for those rules.

I further explain the above points in the remainder of this written statement. I attach a full copy of my report for the record, which contains more discussion and explanation of the issues than I cover in this statement.

Summary of Employment Impacts Methods in EPA RIAs from 1997 through 2011.

Under Executive Orders (EOs) of the President dating back to 1981, regulatory agencies have had to submit Regulatory Impact Analyses (RIAs) to the Office of Management and Budget for all their new regulations estimated to cost more than $100 million per year. Such RIAs must contain estimates of costs and benefits of the rule, but sometimes have also reported estimates of employment impacts.

EPA only intermittently provided quantitative estimates of employment impacts in its RIAs during the period 1997-2010, with such estimates being provided in only 23% (11 of 48) of the air RIAs in that period. There was no apparent pattern to explain which RIAs would have such estimates. There was no single method or approach employed either. Methods ranged from very simplistic partial analyses that addressed employment only in the specific industries being regulated, to full-economy methods that considered how price effects on products of the regulated sectors would ripple through the rest of the economy, as the purchasers of the regulated entities' goods or services face higher costs for some of their inputs.

A comprehensive full-economy approach was used in two RIAs that were released in 2005: for the Clean Air Visibility Rule (CAVR) and the Clean Air Interstate Rule (CAIR). Both of those rules affected energy-related sectors. By using a modeling method called "computable general equilibrium" (CGE), it was possible to assess how those regulations' effects on the price of energy (particularly of electricity) would impact other sectors that were not directly subject to any compliance requirements. This was an appropriate methodology to employ for those regulations. However, the review also

found that EPA has not consistently applied such full-economy analysis to several other major energy-related regulations where it would have been even more appropriate to do so.

Starting in 2011, employment impacts were more routinely provided in air RIAs. 78% (7 of 9) RIAs released in 2011 contained employment impact estimates. This sudden shift is probably a result of EO 13563 issued by President Barack Obama in January 2011. EO 13563, which provided supplemental information on the requirements of RIAs, was the first to specifically mention "job creation" as an effect of interest associated with the U.S. regulatory system.

Although EPA started to more routinely include estimates of employment impacts in air RIAs after issuance of EO 13563, EPA also started to use a highly simplistic job impact formula that is less credible or appropriate than even the partial analysis methods that were employed in RIAs during the period 1997-2004. The post-2010 set of employment impact estimates appears at first glance to be based on a quite sophisticated econometric method, but a closer inspection reveals that the estimates are derived using a simple multiplier. One cannot characterize the current formula favored by EPA as an economic methodology at all.

Description of Employment Impact Estimation Method Used by EPA Since 2010

The source for the jobs multiplier that EPA has been using in RIAs since 2010 is an econometric study reported in a 2002 paper by Morgenstern, Pizer and Shih, which I

will call "MPS."[1] The original study considers changes in the total payments to workers in four different industries: pulp and paper, plastics, petroleum, and steel. The analysis uses data from 1979-1981, 1985, 1988, and 1991. MPS splits the effect of regulation on industry labor demand into three elements and estimates them all econometrically. The elements are changes in payments to labor due to (i) change in the quantity of output demanded ("the demand effect"), (ii) change in the cost of inputs, holding output and technology fixed ("the cost effect"), and (iii) change in the mix of factors, such as shifting from a dirty to a clean fuel ("the factor-shift effect"). The MPS paper also provides an aggregate estimate of the combined effect of these three market/production phenomena. Net effects on labor spending were found to be positive in three sectors (plastics, petroleum, and steel) and negative in one (pulp and paper).

The entire theoretical formulation and associated econometric analysis in MPS is based on data on total payments to workers. No measure of actual "numbers of jobs" exists in the MPS paper. Once the econometric estimation of labor payments is completed, MPS assumes one "job" is implied by a change in spending on labor of $35,000 ($1987) to produce a summary result that allows labor spending across the four sectors to be compared to each other.[2] This summary result varies from -1.13 to 6.90

[1] RD Morgenstern, WA Pizer, JS Shih. 2002. "Jobs Versus the Environment: An Industry-Level Perspective." *Journal of Environmental Economics and Management*. 43(3): 412-436.

[2] This conversion in MPS from labor payments (the data analyzed) to "jobs" means that any estimates based on the MPS paper are actually "job-equivalents" (*i.e.*, the equivalent number of jobs that would exist if every person in the sector is paid the same average annual salary), and not numbers of actual employed individuals. The total number of employed individuals could decrease even as job-equivalents rises if the new types of labor required after the regulation is for more skilled, higher-paid types of employees.

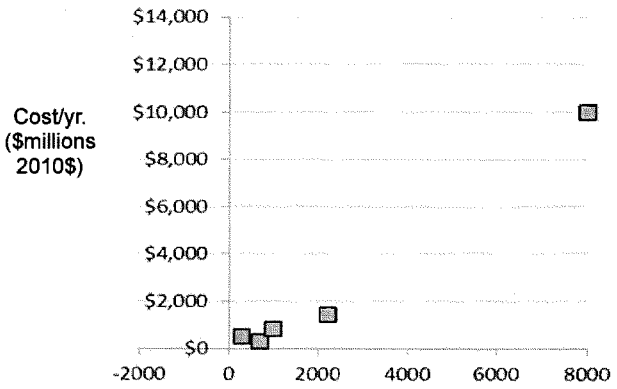
"jobs" per million (1987$) dollars of compliance spending across the four sectors.[3] MPS also calculates an "average" effect, by weighting the four sectors' impacts based on the amount each sector was spending on compliance in the sample period (1979-1991). The appropriateness of this single average estimate is questionable, but at best it is an average over the four sectors and not an economy-wide average. It is 1.55 "jobs" per million (1987$) dollars of compliance spending. It is not statistically significant, meaning that it cannot be said to be different from zero, or no net impact on aggregate labor payments across the four sectors.

It is this single estimate of 1.55 "jobs" per million (1987$) dollars of regulatory cost that EPA has now adopted as a simplistic *multiplier* to apply to the cost of new regulations that it is analyzing in its recent air RIAs. All that EPA does in each RIA is take its estimate of the direct cost of compliance to the regulated sector, restate that cost estimate in 1987$, and multiply it by 1.55. The result is then reported as the "job impact" of that regulation. The fallacy of this formula should be apparent to anyone. Since the multiplier is always +1.55, no matter what the cost, period of time, or industry subject to the regulation, EPA's simplistic method will always conclude that the new regulation will create jobs. Further, the more costly the regulation, the *greater* the job increase that it will project. This effect can be clearly seen in Figure 1 below, taken from my report. The figure graphs the estimated cost of each regulation for which EPA has produced an MPS-based job impact estimate on the vertical axis against the estimated number of jobs

[3] Morgenstern, Pizer and Shih (2002), Table III, p. 427.

created on the horizontal axis. The dots for each regulation fall on a line: the more costly the regulation, the more positive the estimated job impacts.[4]

Figure 1. Relationship between EPA's Estimates of a Rule's Compliance Costs and its Job Impacts for Air RIAs that Used MPS-Based Formula



The MPS paper's econometric methods are complex, but EPA's use of its summary result as a multiplier to project impacts of future new regulations is simplistic. It has no methodological merit even for use with relatively low-cost regulations that may have little indirect effect on the rest of the economy. The MPS-based multiplier is for changes in total labor payments, not numbers of employees, as EPA's RIA imply. It is an estimate of how total labor payments changed as a result of past environmental spending

[4] In fact, the slope of the line would be 1.55 per million dollars of regulatory cost, if costs were stated in 1987$. However, this graph states the cost estimates in 2010$).

not linked to any individual type of regulation. It is an aggregate of four specific sectors, none of which was electricity generation.

The Need for Full-Economy Impacts Estimates in Place of EPA's Method

Of even more concern, however, MPS was a *partial* employment impact study, meaning it only considered labor spending *by the sectors that absorbed the compliance spending directly.* The MPS study was not designed to address the question of the full-economy effects of regulations. When a regulation's cost may be passed through to the regulated sector's customers, regulatory impacts can ripple through the full economy. This is a significant concern for regulations that may raise the prices of commodities that are widely used throughout all sectors of the economy, such as electricity and fuels.

This is not an idle concern. In Figure 1, the data point in the far upper right corner (*i.e.,* with the highest cost and, according to EPA, the largest job-increasing effect) represents the electric generating unit Mercury and Air Toxics Standard (MATS) that was promulgated in December 2011. This rule directly affects the cost of generating electricity, and it is has the second highest cost of all the air regulations in the set of air RIAs reviewed.[5] The electricity sector was not among the sectors analyzed in the original MPS study. But more importantly, the MATS rule has all of the attributes that would indicate the appropriateness of a full-economy analysis. EPA estimates MATS to have a direct cost that will be 2.5 to 15 times higher than EPA's cost estimates for CAIR and CAVR, respectively, which were the two rules that EPA subjected to full-economy

[5] The highest cost estimate was for the 1997 $PM_{2.5}$ and Ozone NAAQS ruling – another regulation that affects energy sector costs, for which EPA also did not apply a full-economy impact analysis.

analysis in 2005. EPA continues to maintain the CGE model, EMPAX-CGE, that it used in its 2005 RIAs for CAIR and CAVR.[6] There is no good reason to have applied the MPS-based multiplier to MATS.

Other regulations to which EPA has applied the MPS formula include the Cross-State Air Pollution Rule (CSAPR), the Industrial, Commercial and Institutional Boilers NESHAP, the Portland Cement NSPS and NESHAP, and the Industrial Solid Waste Incineration Units NSPS. None of these are among the sectors that were analyzed in the MPS econometric study, either. Although not as costly as MATS, all of these rules were estimated by EPA to have annualized costs exceeding $250 million/year. Most of these rules could affect prices of a wide range of inputs to other sectors and to consumers. Again, these are conditions that would indicate need for a full-economy analysis approach. (They are also the conditions under which the MPS-based approach would be least appropriate.)

In my recent study, I developed full-economy estimates of the impacts of several of the regulations that were among the air RIAs reviewed: for the MATS rule, the Industrial, Commercial and Institutional Boilers NESHAP, CSAPR, and an illustrative analysis of a 65 ppb Ozone NAAQS.[7] These estimates were developed using a CGE model of the U.S. economy called N_{ew}ERA. Model runs were conducted using the same

[6] Indeed, EPA used EMPAX-CGE for its Second Prospective Analysis of the Benefits and Costs of the Clean Air Act from 1990-2020, released in March 2011.

[7] The costs for the illustrative 65 ppb Ozone NAAQS were based on the incremental cost of a 65 ppb standard relative to the 75 ppb standard that was selected in 2008, using the cost data in the 2008 RIA. It is illustrative because EPA did not actually select that standard in its 2008 rulemaking, and our analysis treats those incremental costs as occurring in the future, as might occur if 65 ppb is the standard selected as a result of the ozone NAAQS review that is expected to be finalized in 2014.

assumptions about direct costs that were provided in the RIAs. It should be noted that the CGE model is a full-employment model that does not estimate short-term, involuntary transitional unemployment. Instead, impacts to employment are captured in the form of changes in the average real wage rate, and in voluntary changes in labor supplied, given the scenario's wage rate (also known as labor force participation). The combined effect of the two is a change in total payments to labor. This change can be stated in "job-equivalents," which is simply the total labor earnings change divided by the average annual salary of one worker. Job-equivalent estimates indicate how many jobs would be eliminated *if all of the reduction in labor payments were imposed as a 100% loss of wage income for certain individuals*. The long-term reality is more likely to be a small change in income spread over a much larger number of individuals, and so a job-equivalent estimate should not be viewed as a projection of numbers of lay-offs or swelling of the unemployment rolls. It is, nevertheless, an indicator of the magnitude and direction of impact on worker incomes. (As I pointed out above, the MPS estimate also is a job-equivalent estimate, and not an estimate of changes in numbers of people holding jobs.)

Table 1 summarizes the results of these analyses. In brief, a full-economy analysis consistently finds net negative impacts on worker incomes for each regulation. A large portion of these negative impacts are projected to occur in sectors that bear no direct compliance cost or regulatory burden. For example, the commercial and services sectors account for the majority of the labor income reductions, even though these rules

impose little or no direct compliance obligation on them.[8] These labor effects result from the reduced productivity of the overall economy that comes from diverting economic resources towards compliance spending, which ultimately comes at the expense of financially-productive investments. It appears that regulations affecting the electric sector have a larger impact outside of the regulated sector than do non-energy regulations. This may be because of the more widespread impact of changes in prices of electricity than of other types of commodities. Further analysis is needed to check the latter hypothesis. However, the overall implications of these reanalyses is clear: a full-economy analysis is needed to properly understand the economic implications of regulations that have costs nearing or exceeding $1 billion per year.

Table 1. EPA's MPS-Based Job Estimates Compared to Those from a Full-Economy Analysis

Rule	Sectors Subject to Rule	Direct Costs of Rule (summarized in annualized form, stated in 2010$)	Estimated Change in Job-Equivalents	
			EPA (MPS-Based)	Full-Economy (CGE-Based)
MATS (*)	Electricity	$10.4 billion	+8,000 (-15,000 to 30,000)	-71,000
CSAPR	Electricity	$0.5 billion	+700 (-1,000 to 3,000)	-34,000
Industrial Boiler MACT	Most industry other than ELE	$2.4 billion	+2,200 (-4,100 to 8,500)	-28,000
Illustrative 65 ppb Ozone NAAQS (**)	All sectors + households	$26.5 billion	No estimate in EPA's 2008 RIA	-609,000

(*) MATS impact analysis was performed relative to baseline with CSAPR, as in RIA. The other three policies were analyzed relative to a baseline with CAIR, for comparability to EPA's RIAs for those 3 rules.
(**) Based on incremental cost of 65 ppb relative to 75 ppb as estimated in 2008 Ozone NAAQS RIA, with 65 ppb NAAQS assumed to be promulgated in 2014.

[8] See the addendum to the full report the I submit with this statement for more details of how the total reduction in job-equivalents is distributed among all the sectors of the economy.

Need for a Broader Understanding of Employment Impacts

The statement above has been focused on a few key issues about the technical issues with EPA's methods of making employment impacts estimates. I will close with two broader observations.

First, even using best practices for estimating impacts of an individual regulation, the current practice of estimating the impacts of regulations on a rule-by-rule basis is likely to lead to a misunderstanding of the degree to which regulations are affecting the overall productivity and growth potential of our economy. With each new regulation, the costs of all existing regulations are swept into the baseline, and thus are effectively treated as having no cost at all. Attention therefore should also be directed to the cumulative impacts of the entire suite of regulations that an economy is absorbing over time. Cumulative impact studies are occasionally performed, but perhaps not often enough, and not broadly enough.[9]

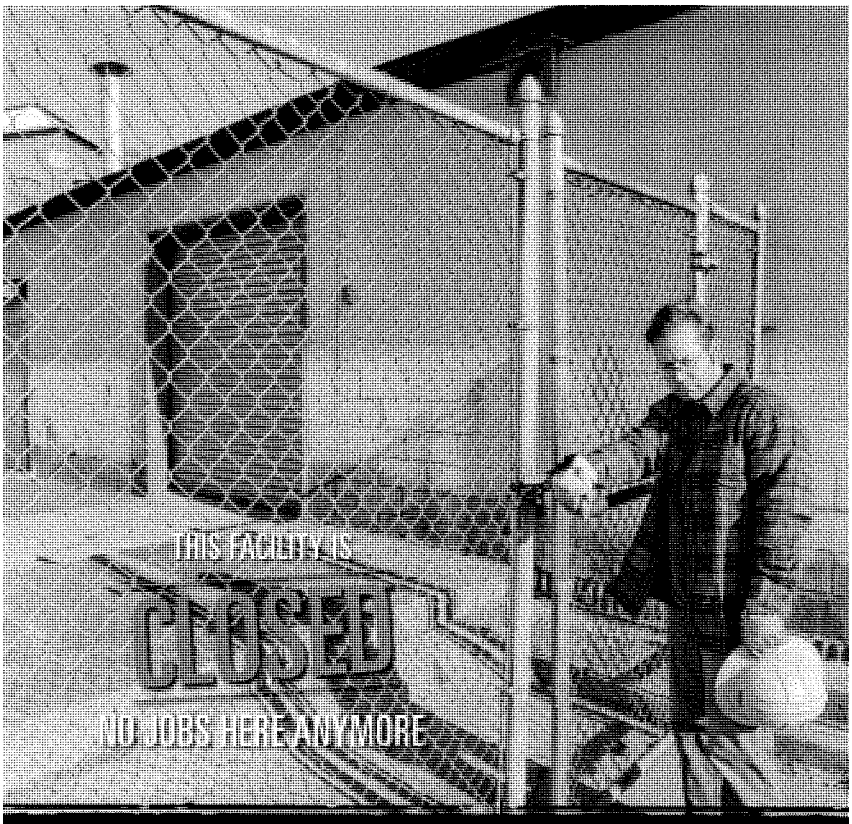
Second, it is important to recognize that "employment impact" is a much broader and more complex phenomenon than "numbers of jobs," or even of "job-equivalents." Even if an estimate is based on a full-economy analysis, policymakers and the public cannot be expected to gain much insight about a regulation's impacts on employment when they are provided only estimates of numbers of "jobs affected." This is a misleadingly simplistic metric that does not begin to reflect the true issues and concerns

[9] For example, EPA occasionally prepares a report on the total costs of the Clean Air Act (required under Section 812 of the Clean Air Act), but this does not include all environmental regulations, nor any of the many non-environmental regulations that impose costs on the productive sectors of our economy.

that regulations pose for employment opportunity. Some of the important concerns that simplistic "jobs" estimates fail to address include:

- Whether the impact is to reduce the wage rate that would otherwise be earned by workers, to change the number of hours of work per week, or literally to eliminate job openings.
- Whether the impact will come in the form of layoffs, or via reduced growth in new job positions.
- Whether new employment opportunities created by the regulation will call upon the same sets of skills and education as the employment opportunities ended by the regulation.
- Whether wage rates for lost hours of work are greater or less than wage rates for hours of work gained – in other words, whether lower paying jobs are replaced with higher paying jobs, or vice versa.
- In the case of an economy with current underemployment:
    - Whether the new employment opportunities match the skills and capabilities of those who are in need of work, or simply increase the demand for individuals with skills not greatly affected by the downturn.
    - Whether the change in employment opportunities is expected to occur during or after the anticipated end of the downturn.
- Whether the projected employment impacts would be of short duration (as in the case of transition to a new equilibrium) or permanent (as in the case of reduced productivity of the economy).

More work needs to be done to develop methods for estimating and characterizing the above additional aspects of employment impacts, while striving for more credible and appropriate methodologies to replace those that are currently most frequently used by EPA in its air RIAs.



IMPACTS OF REGULATIONS ON EMPLOYMENT

Examining EPA's Oft-Repeated Claims that Regulations Create Jobs

U.S. CHAMBER OF COMMERCE

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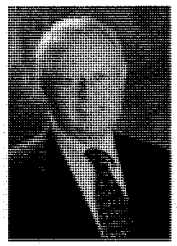
OVERVIEW

William L. Kovacs, Senior Vice President
Environment, Technology & Regulatory Affairs
U.S. Chamber of Commerce



Over the last four years, the U.S. Environmental Protection Agency (EPA) has often claimed that its new major, economically significant regulations create jobs. As industries have announced job layoffs due to the newly issued regulations and the claims that job creation continued, it became necessary to undertake a study to understand how EPA reached its conclusions as well as the soundness of its findings that its regulations create jobs. To better understand the employment impacts of environmental regulations, the Chamber in 2012 commissioned the economic research firm NERA to undertake a study to review and assess EPA's methods for estimating employment impacts related to air quality regulations.

The Impact of Regulations on Employment

The impact of regulations on jobs has been debated in Congress for more than 45 years. The earliest discussion of the impact of regulations on jobs is found during the congressional debate over the Air Quality Act of 1967. As part of the debate, Congress mandated a comprehensive study of the economic impacts of air quality standards on the nation's industries and communities. A decade later, Congress mandated that the EPA administrator study the potential dislocation of employees due to the implementation of environmental laws. This mandate was codified by Congress in Section 321(a) of the Clean Air Act, which requires EPA to conduct continuing evaluations of potential loss and shifts in employment that may result from the implementation and enforcement of the Clean Air Act. Unfortunately, EPA has ignored this congressional mandate, thus depriving Congress of a significant body of data that would shed light on the impact of regulations on jobs and employment.

In 2001, Justice Scalia, writing for a near unanimous U.S. Supreme Court in *Whitman v. American Trucking Associations*, clearly analyzed the regulations versus employment debate:

> [T]he economic cost of implementing a very stringent standard might produce health losses sufficient to offset the health gains achieved in cleaning the air – for example, by closing down whole industries and thereby impoverishing the workers and consumers dependent upon those industries. That is unquestionably true, and Congress was unquestionably aware of it. Thus, Congress had commissioned in the Air Quality Act of 1967 (1967 Act) 'a detailed estimate of the cost of carrying out the provisions of this Act; a comprehensive study of the economic impact of air quality standards on the Nation's industries, communities and other contributing sources of pollution.' Sec.2, 81 Stat. 505. The 1970 Congress, armed with the results of this study, see The Cost of Clean Air, S. Doc. No. 91 – 40 (1969) not only anticipated compliance costs could injure the public health, but provided for that precise exigency.[1]

[1] *Whitman v. American Trucking Associations,* 531 U.S. 457 (2001) at 466.

Subsequently, when EPA issued a large number of regulations in 2009, six U.S. senators wrote to EPA requesting the results of its Section 321(a) continuing evaluation of potential loss or shifts of employment that would result from those new regulations. On October 26, 2009, EPA responded to the six senators stating "EPA has not interpreted CAA Section 321 to require EPA to conduct employment investigations in taking regulatory actions."

Therefore, an inquiry that started 45 years ago when Congress sought to understand the employment effects of regulations is still unresolved. Congress has been left without the continuing evaluation of job loss and shifts in employment due to regulations. The study is intended to review and assess EPA's methods for evaluating employment impacts from new air quality regulations.

Summary Results of the Study

NERA found that EPA discussed the employment impacts of proposed air quality regulations in only 11 of the 48 rulemakings over the 1995 through 2010 period. After 2010 (since the issuance of Executive Order 13563), EPA discussed employment impacts in 7 of 9 rulemakings. NERA reviewed each regulatory impact analysis to determine the economic methodologies used and evaluated their adequacy.

The study reveals striking omissions and inconsistencies in EPA's analyses. While the study found that many recent EPA regulatory analyses claimed job-creating net benefits for new air quality rules, NERA found that the approach on which EPA based such optimistic forecasts was flawed in several ways:

- EPA's analyses use a jobs impact formula that relies on aggregated data from four individual industries that do not mirror the industries targeted by recent EPA rules and which was derived from 1980s data that are no longer relevant for assessing current impacts.
- The methods used by EPA considered only part of the potential overall employment impacts.
- EPA's partial analysis methods ignored the effects of regulatory compliance costs on prices.

NERA concluded that the correct approach for assessment of the overall economic and employment impacts of rules with large economy wide costs is to model the impact of regulation compliance cost through a whole-economy model. This approach takes into account the cascading effects of a regulatory change across interconnected industries and markets nationwide. NERA found that EPA possesses the capability to perform such whole-economy modeling and had actually done so in connection with two rulemakings in 2005. EPA's failure to use the more comprehensive economic analysis tool in its rulemakings partially accounts for the agency's consistently optimistic estimates of employment impacts in those rulemakings.

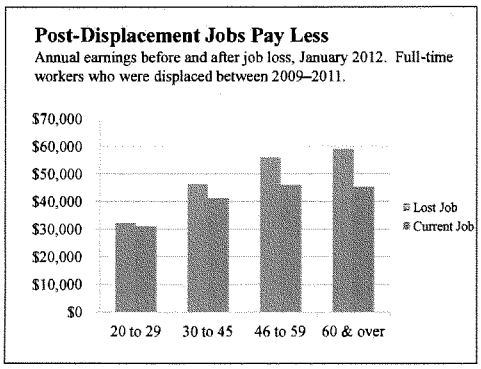
NERA applied the whole-economy approach to estimate the impact of EPA's 2011 Utility Mercury and Air Toxics Standard (MATS). EPA's partial-economy analysis showed that regulation would create 46,000 temporary construction jobs and 8,000 net new permanent jobs. By contrast, NERA's whole-economy analysis estimated that the MATS rule would have a negative impact on worker incomes equivalent to 180,000 to 215,000 lost jobs in 2015, and the negative worker income impacts would persist at the level of 50,000 to 85,000 such "job-equivalents" annually thereafter.

NERA also analyzed three other EPA rules using the whole-economy model and found similar results of adverse employment effects:

- EPA's Cross State Air Pollution rule would have an impact on worker incomes equivalent to the annual loss of 34,000 jobs from 2013 through 2037, compared with EPA's claim of 700 jobs per year gained.
- EPA's Industrial Boiler Maximum Achievable Technology (MACT) rule would have a negative impact on worker incomes equivalent to 28,000 jobs per year on average from 2013 through 2037, compared to EPA's claim of 2,200 per year gained.
- EPA's planned ozone National Ambient Air Quality Standard (NAAQS) would reduce worker incomes by the equivalent of 609,000 jobs annually on average from 2013 through 2037. EPA has not yet published an employment impact for the ozone NAAQS.

The details of NERA's analyses are contained in the report and appended case study summaries.

The Impacts of Regulations on Displaced Workers



Regulators typically assume that workers who are displaced from long-held jobs by regulations will find new work quickly. In reality, unemployment often has serious, continuing impacts on workers and their families. In addition to loss of income, many workers never return to full-time work, and those who do return to full-time work often earn less than previous wage levels long after reemployment. The Bureau of Labor Statistics' Displaced Worker Survey in January 2012 found that among the 6.1 million workers who lost long-tenured jobs between 2009 and 2011, 44% were still unemployed up to three years later. Of those who found full-time reemployment, 54% were earning less than their prior jobs had paid, and a full one-third were earning at least 20% less.

Conclusion

The past 40 years have seen significant declines in the copper mining, steel, textile, furniture, coal mining and forest products industries. While a variety of factors have played a role in the decline of these industries, a common thread running through all of them has been the role of regulatory mandates and costs. Even when regulations are not the primary cause of change, regulations imposed on an industry can provide the tipping point that leads to plant closures and adverse economic impacts that otherwise might have been avoided or cushioned over time. While EPA continues to issue regulations to protect the environment, it must also be forthcoming and provide Congress and the American people with methodologically complete estimates of the impact its regulations may have on jobs and communities.

Timeline of Air Regulatory Impact Analyses Found to Contain Employment Impact Estimates

Year of RIAs	EPA Rule
1997	Locomotive Emission Standards
	Ozone and $PM_{2.5}$ NAAQS
	Medical Waste Incinerators NSPS
	Highway Heavy-Duty Engines
	Pulp & Paper NESHAP
1998	NOx SIP Call & Section 126 Petitions
	Non-Road Diesel Engines
	New Fossil-Fuel-Fired Steam Generating Units
	National VOC Standards
1999	Phase 2 Nonroad Non-Handheld SI Engines
	Regional Haze Rule
	Gasoline Sulfur Control Requirements
	Section 126 Petition
2000	Phase 2 Nonroad Handheld SI Engines
	2004+ Model Year Highway Heavy-Duty Engines
	Stratospheric Ozone Reductions
	Heavy-Duty Engine & Fuel Control Requirement
2001	
2002	Nonroad & Recreational Spark-Ignition Engines
2003	PSD & NSR: Routine Maintenance and Repair
2004	**Auto. & Light-Duty Vehicle NESHAP**
	Industrial Boilers & Process Heaters NESHAP
	Stationary Reciprocating IC Engine NESHAP
	Plywood & Composite Wood Products NESHAP
	Nonroad Diesel Rule
2005	**Clean Air Interstate Rule**
	Clean Air Mercury Rule
	Clean Air Visibility Rule/BART Guidelines
2006	Sec 126 Petition NC; Revs to CAIR & Acid Rain Pgm
	Stationary Compression Ignition IC Engine NSPS
	$PM_{2.5}$ NAAQS
2007	Control of HAP from Mobile Sources
	Clean Air Fine Particle Implementation Rule
2008	Ozone NAAQS
	Petroleum Refineries NSPS
	Locomotive & Marine Diesel Engines < 30 L/cyl
	Lead NAAQS
	Nonroad Spark-Ignition Engines and Equipment
2009	Marine CI Engines Emissions Stds >30 L/cyl
	GHG Mandatory Reporting Rule
2010	Ozone NAAQS Reconsideration
	NO_2 NAAQS
	Existing Stationary Comp-Ignit. Engines NESHAP
	Title V Greenhouse Gas Tailoring Rule and GHG PSD
	Light-Duty Vehicle GHG & CAFE Standard
	SO_2 NAAQS
	Existing Stationary Spark-Ignit. Engines NESHAP
	Portland Cement NSPS & NESHAP
2011	Sewage Sludge Incineration NSPS
	Industrial Boiler NESHAP
	Industrial Solid Waste Incinerator NSPS
	Chlor Alkali Plant Hg Emissions NESHAP
	Cross-State Air Pollution Rule
	Oil & Gas Industry NSPS & NESHAP
	Heavy-Duty Vehicle GHG & CAFE Std
	Manganese Ferroalloys RTR
	Utility Mercury and Air Toxics Std

Employment Impact Provided Using Partial Analysis

Employment Impact Provided Using Computable General Equilibrium Analysis

If no green or orange, EPA did not provide an employment impact estimate

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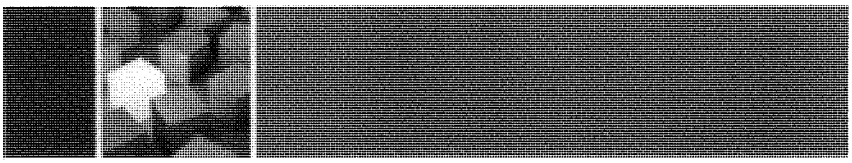
February 2013

Estimating Employment Impacts of Regulations: A Review of EPA's Methods for Its Air Rules



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EXECUTIVE SUMMARY

Although employment impacts *per se* are not viewed as either benefits or costs in standard benefit-cost analysis, they are a regulatory impact of substantial interest to policymakers and the public. Employment impacts are also conceptually complex and frequently discussed in oversimplified ways, leading to chronic misunderstanding. Often, analysts simply report an estimate of "jobs lost" or "jobs gained" with little or no explanation of what type of estimate has been performed, or of the limitations of that particular type of estimate. Frequently the reported estimate is based only on a "partial" analysis of the avenues by which employment may be affected. Partial estimates of a regulation's "job impacts" can be either positive or negative, depending on which aspects of the policy's impacts have been omitted from the analysis. Consumers of the policy analyses are left to sort out for themselves why opposing sides of the regulatory debate can come up with directionally inconsistent estimates.

Even if the estimate is based on a comprehensive analysis, policymakers and the public cannot be expected to gain much insight about a regulation's impacts on employment when they are provided only estimates of numbers of "jobs affected." This is a misleadingly simplistic metric that does not begin to reflect the true issues and concerns that regulations pose for employment opportunity. Some of the important concerns that simplistic "jobs affected" estimates fail to address are:

- Whether the impact is to reduce the wage rate that would otherwise be earned by workers, to change the number of hours of work per week, or literally to eliminate job openings.
- Whether the impact will come in the form of layoffs, or via reduced growth in new job positions.
- Whether new employment opportunities created by the regulation will call upon the same sets of skills and education as the employment opportunities ended by the regulation.
- Whether wage rates for lost hours of work are greater or less than wage rates for hours of work gained – in other words, whether lower paying jobs are replaced with higher paying jobs, or vice versa.
- In the case of an economy with current underemployment:
  - Whether the new employment opportunities match the skills and capabilities of those who are in need of work, or simply increase the demand for individuals with skills not greatly affected by the downturn.
  - Whether the change in employment opportunities is expected to occur during or after the anticipated end of the downturn.
- Whether the projected employment impacts would be of short duration (as in the case of transition to a new equilibrium) or permanent (as in the case of reduced productivity of the economy).

This paper reports on a study to review and evaluate the practices of one major U.S. regulatory agency in estimating the employment impacts of its regulations, and in communicating about those impacts to policymakers and the public. The methodologies found are evaluated in their own right, and also in the context of the full set of relevant concerns listed above, to identify areas for improvement. This review focuses on how the U.S. Environmental Protection Agency (EPA) has been estimating the employment impacts of its air regulations in the Regulatory Impact Analyses (RIAs) that EPA must provide to the Office of the President for all of its major regulations.

In this review, we consider the methods EPA has applied dating back to 1997, when the fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS) was first promulgated. RIAs extend farther back in time, but the first $PM_{2.5}$ NAAQS rule can be considered a turning point in the magnitude and scope of EPA air regulation. This natural breakpoint, and a desire to avoid reviewing practices that may be obsolete, led us to limit our review of air regulation RIAs to those dating 15 years back.

Our findings regarding EPA's employment impact estimation practices in that fifteen-year record of air RIAs are as follows:

- Until 2011, EPA only intermittently provided employment impact estimates in its RIAs. The shift coincides with an amendment to the Executive Order mandating RIAs that specifically mentions "job creation" as an important concern to address in RIAs. For the years prior to 2011, we could not discern why some RIAs provided employment impact estimates and others did not.
- With only two exceptions (in 2005), EPA's employment impacts estimates have been narrowly limited to job counts, and have been "partial" estimates, meaning none of them have addressed the impact of a regulation's costs on the rest of the economy beyond those sectors directly bearing the compliance costs and their suppliers.[1]
- Although some of the job estimates have shown net job losses, the majority of them have reported net gains. This is traceable to the partial nature of those estimates.
- In some cases, job impact estimates are provided separately for short-term jobs associated with the period in which compliance investments are being made, and longer-term job impacts after the construction demand spike of capital investments for compliance. In other cases, it is unclear exactly what types of job counts have been reported.
- Over the years there has been little attempt in the RIAs to explain or explore the broader set of issues that exist with regard to employment impacts. EPA did not elucidate these issues even in the two RIAs in 2005 that did provide a different type of labor impact estimate than job counts.

[1] The two exceptions were for the Clean Air Interstate Rule (CAIR) and for the Clean Air Visibility Rule and Best Available Retrofit Technology Guidelines (CAVR/BART). Both of these RIAs were released in 2005, and both used a method called Computable General Equilibrium (CGE) modeling, which addresses labor market impacts in the context of the full economy and full employment. CGE models do not directly measure employment impacts in the form of "job counts." More on this point is discussed below.

Below we discuss three overarching conclusions about EPA's employment impact estimation methods and areas for improvement in the future:

(i) EPA makes insufficient use of full-economy models.

(ii) EPA makes excessive and inappropriate use of a 2002 paper by Morgenstern, Pizer, and Shih as a basis for its most recent job impact estimates.

(iii) EPA needs explicit and sound method selection criteria that will be consistently applied in future RIAs.

Insufficient Use of Full-Economy Modeling. A comprehensive assessment of labor impacts across the entire economy requires a full-economy model. This class of model can address how compliance costs that are passed from the regulated businesses to their customers may affect downstream businesses. Economists consider computable general equilibrium (CGE) models as the most appropriate for this task.

EPA has several CGE models available for use in its RIAs, and has used them for two air rules that we reviewed. Those RIAs, both issued in 2005, were for the Clean Air Interstate Rule (CAIR), and for the Clean Air Visibility Rule and Best Available Retrofit Technology Guidelines (CAVR/BART). In both instances, EPA noted that the rule would have effects on energy prices that could impact energy-purchasing companies across the rest of the economy not directly facing compliance obligations under that rule. This is the type of situation in which use of a full-economy modeling approach is important. In both of those RIAs, the net effect of the regulations on labor was reported to be effectively nil.[2] These results stand in contrast to EPA's partial impact analyses in all of the other RIAs (which mostly project positive job impacts).

Despite the two examples of CGE modeling found in the RIA record, EPA has not been consistent in its decision on when it is appropriate to use CGE modeling. EPA appeared to choose the CGE approach for CAIR and CAVR/BART when it concluded that the regulations might have significant costs that could be passed through to other sectors of the economy. Yet, EPA used partial impact analyses for its analyses of two of the most costly air rules covered in this review: the 1997 $PM_{2.5}$ NAAQS rule and the 2011 Utility Mercury and Toxic Substances (MATS) rule. EPA chose not to use a CGE approach for the latter two rules even though it had estimated direct compliance costs for both that were about four times larger than EPA's estimated costs for CAIR or CAVR/BART. As a result of applying only partial analysis methods, EPA reported large positive job impacts for MATS and the 1997 $PM_{2.5}$ NAAQS – the two most expensive of all its air rules. There was no technical reason why EPA could not have performed a CGE-based analysis of its own for all of its large rules, as it had the tools available in-house to do so. In both cases, analyses by outside parties that considered the full-economy impacts of their cost increases found a net negative impact to labor in the U.S. as a whole (see Smith *et al.*, 1997, and Smith *et al.*, 2012). Section V of this report compares the CGE analysis of the MATS rule (Smith *et al.*, 2012) to EPA's partial analysis of MATS.

[2] EPA's CGE analysis results are not internally consistent, however, which raises questions about their quality. This issue is discussed further in the body of this paper.

Excessive Use of Morgenstern, Pizer and Shih (2002). A 2002 paper by Morgenstern, Pizer, and Shih (MPS) applies sophisticated econometric methods to develop an *ex post* empirical estimate of the labor spending impacts of early environmental regulations on four specific sectors of the economy (steel, pulp and paper, plastics, and petroleum). This econometric analysis of past regulations accounts for three different ways that a sector's total labor expenditures could have been affected by the costs of a regulation. MPS's results varied by sector, and the average net effect over all four sectors had a confidence interval spanning from negative to positive, although the central estimate that was slightly positive. MPS concluded that their analysis suggested that past regulations had not caused any significant change in total payments to workers in those affected industries.

Starting in 2010, EPA adopted the slightly positive but statistically-insignificant four-sector average estimate from MPS as a simple multiplier, which EPA then used to generate job impact estimates in its RIAs for a wide range of *different* types of sectors and regulations than those studied by MPS. This "MPS-based" multiplier method is not appropriate for all such applications, and EPA is aware of that. For example, in two of its RIAs released in 2011, EPA chose not to use the MPS-based approach on the sound grounds that the affected sectors were different from the four studied in MPS. However EPA has not been consistent in its decisions about when to apply the MPS-based approach, just as it has not been consistent in when it chooses to apply CGE. EPA has provided an MPS-based estimate of job impacts in several other RIAs in which the regulated sectors also were very different from the four MPS studied. Most salient of these is the RIA for the Utility MATS rule. As explained above, this rule was costly enough to warrant a full-economy analysis based on EPA's own criteria for employing its CGE models; instead EPA used the MPS-based approach for MATS, even though the utility sector affected by MATS is nothing like the four sectors that MPS studied. The result was that EPA reported that the Utility MATS rule would generate a small net job increase over the long-term. Section V demonstrates how a full-economy, CGE approach indicates a much different conclusion.

EPA's recent use of estimates in the MPS paper to extrapolate to sectors and rules far from its empirical base is clearly inappropriate. As a consequence, results for specific RIAs such as the Utility MATS rule are not credible. In any event, the MPS approach is a partial analysis and thus omits impacts that happen beyond the directly affected sector(s). By conducting major analyses that are inconsistent with sound methodology-selection criteria, EPA undercuts the confidence one can place in its RIAs.

A Constructive Path Forward. The path to greater credibility demands that the economics profession articulate explicit model-selection criteria, and that EPA adhere to those criteria. In our opinion, full-economy modeling using CGE methods is always the more credible choice. Discrepancies between full-economy modeling and a partial analysis may be relatively small when the regulation is relatively narrow in scope. However, CGE analyses should be required for any regulation that affects the costs of inputs to large parts of our economy, such as any regulation affecting energy supply. EPA has the relevant tools and know-how to accomplish this.

In addition, RIAs (and all other related regulatory impact analyses within or beyond the Agency) would benefit greatly from more thoughtful discussion of the many important attributes of employment impacts other than a simple "job count." When job counts are provided, an explanation of the range of types of impacts on labor that might be implicit in "a job" should be provided. Any employment impact estimate based on a partial analysis should be explicitly caveated that it counts only direct job gain or losses and that any offsetting effects in the rest of the economy are ignored.

This study's review was limited to EPA's employment impact estimation practices in its RIAs for air rules. To the extent that non-governmental groups have adopted the same methods as those in EPA's air RIAs, points made in this report also may be useful for interpreting those other studies and estimates. Assessments of other methods that were not covered in this study (because EPA has not used them) could be helpful additional research. An even higher priority for further research, however, would be to advance new methods for assessing the range of employment impact attributes listed at the outset of this Executive Summary. Without such research, policy discussions about employment impacts will continue to be anchored to misleading and misunderstood estimates of "job counts."

I. INTRODUCTION

Regulations force a change in the economy by requiring companies to change their practices to meet new guidelines or standards. In theory, a case exists for governments to regulate when there is a clear market failure. An example is when the unconstrained operation of private incentives in a free market leads to detrimental impacts on others that occur outside of market transactions. This phenomenon is called a "negative externality." Properly designed, regulation to address negative externalities or other market failures will balance the incremental costs to the regulated parties with the incremental benefits to individuals across society at large. Benefit-cost analysis (BCA) is the method developed by economists to help guide this balancing act. If this balancing act is accomplished successfully, the overall welfare of the society can be improved relative to the situation with no regulation on the externality.

Even the best designed regulations, however, can have an impact on employment. Although employment impacts *per se* are not viewed as either benefits or costs in standard BCA practice, they are a regulatory impact of substantial interest to policymakers and the public. This category of regulatory impact is also conceptually complex and frequently discussed in oversimplified ways leading to chronic misunderstanding. Often, analysts simply report an estimate of "jobs lost" or "jobs gained" with little or no explanation of what type of estimate has been performed, or of the limitations of that particular type of estimate.

This study was designed to provide a review of the practices of one major U.S. regulatory agency in estimating and communicating the employment impacts of its own regulations. The review focuses on how the U.S. Environmental Protection Agency (EPA) has been estimating the employment impacts of its air regulations. In particular, it seeks to determine whether EPA's assessments of employment impacts have been complete, and, if not, to identify what has been left out.

One of the main avenues where EPA has assessed the employment impacts of its regulations is in regulatory impact assessments (RIAs).[3] RIAs are intended to provide a structured assessment of the costs, benefits, and impacts of individual regulations. In this review, we consider methods EPA has applied in its air RIAs dating back to 1997, when the first $PM_{2.5}$ NAAQS rule was promulgated. RIAs extend back farther in time, but the first $PM_{2.5}$ standard can be considered a turning point in the magnitude and scope of EPA air regulation. This natural breakpoint, in addition to a desire to avoid excessive effort reviewing practices that may be obsolete, caused us to limit our review of air regulation RIAs to those dating 15 years back.

RIAs have evolved over the years; a review of their purpose and history informs their current role in the regulatory process. Federal regulatory agencies are required by Executive Order (EO)

[3] EPA is also required to consider employment effects as part of the original enabling legislation under the Clean Air Act, but has apparently not done so. 42 USC 85:III § 7621: "(a) **Continuous evaluation of potential loss or shifts of employment** - The Administrator shall conduct continuing evaluations of potential loss or shifts of employment which may result from the administration or enforcement of the provision of this chapter and applicable implementation plans, including where appropriate, investigating threatened plant closures or reductions in employment allegedly resulting from such administration or enforcement."

to submit RIAs for all "significant" regulations to the Office of Management and Budget.[4] (Independent agencies, such as the Securities and Exchange Commission or the Federal Trade Commission, are exempt from the requirement to produce RIAs.) The first formal requirement for RIAs dates back to 1981 when President Ronald Reagan issued EO 12291. EO 12291 required that each new major rule be demonstrated, in an RIA, to provide greater benefits than its costs.[5] Because employment impacts are not viewed as either benefits or costs in standard BCA, and given the original focus of the RIA requirement on BCA specifically, early RIAs did not always make an effort to address employment impacts. This situation largely continued to be the case when President Clinton replaced EO 12291 with EO 12866 in 1993.[6] In 2011, however, President Barack Obama issued EO 13563 to supplement EO 12866. EO 13563 states that "our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, *and job creation*."[7] It was only with this recent amendment that EPA started to *routinely* include estimates of employment impacts in its RIAs.[8]

Given this background information on RIAs, the rest of this paper undertakes a review and comments on how employment impacts have been estimated in EPA's air rule RIAs. Section II provides a brief discussion from an economics perspective of the key concerns and attributes of a comprehensive assessment of employment impacts, to establish some context for understanding the scope of EPA's actual practices. Section III describes a particular estimation method that EPA has been relying on since 2010, based on an empirical analysis by Morgenstern, Pizer, and

---

[4] As spelled out in EO 12866, "Significant regulatory action" means any regulatory action that is likely to result in a rule that may: (1) 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; (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive order."

[5] Section 2 of EO 12291 specifically required, inter alia, that "(b) Regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society; (c) Regulatory objectives shall be chosen to maximize the net benefits to society; (d) Among alternative approaches to any given regulatory objective, the alternative involving the least net cost to society shall be chosen." These are overtly the requirements of standard BCA-based decision making.

[6] However, EPA's *Statutory and Administrative Requirements for Economic Analysis of Regulations* do indicate an awareness that employment impacts were a relevant consideration in RIAs. EPA's document states: "The first set of impacts to be included in an assessment of a regulation are those specifically cited in EO 12866. Many of these impacts may be addressed in an economic analysis; however, the analyst may find it desirable to address some of these impacts separately, depending on the nature of the regulation under consideration. The impact analysis requirements mentioned in EO 12866 include the impact of the regulation on: the efficient functioning of the economy and private markets, including productivity, employment, and competitiveness; distribution of impacts and equity; and discrimination or bias."

[7] EO 13563, Section 1, emphasis added.

[8] It is important to note that, guidance on the merits and intention of the regulation notwithstanding, the ultimate RIA is at the discretion of the agency. The RIA is not subject to any formal public or peer review process other than review by OMB's Office of Information and Regulatory Affairs (OIRA).

Shih (2002). Section IV then summarizes the trends observed in EPA's methods for estimating employment impacts in air RIAs, and comments on them. Section V illustrates the insufficiency of EPA's "partial analysis" method with a specific example of a more comprehensive analysis for the Utility MATS rule. Section VI concludes with recommendations.

II. WHAT IS AN EMPLOYMENT IMPACT?

An employment impact is a difficult concept to characterize and measure. All relevant measures of economic impact are tied to either a consumer welfare measure or to a distributional impact. From a consumer welfare standpoint (which is the foundation of the benefit-cost paradigm), the most relevant measure for employment impacts is the change in income from employment, or the "payments to labor." This can take many different forms, however, including loss in average wage rates without any actual loss of jobs. However, much of the analysis of regulatory employment impacts emphasizes a different measure: a "number" of jobs lost or gained. Such a metric lacks a recognition that employment impacts emerge in many different forms, such as shifts between higher-paying and lower-paying jobs, between the mix of full-time and part-time jobs, and in the distribution of local employment and its implication for net national changes.

To assess employment impacts with accuracy, one might wish to build a model to account for every business and every market relationship in the economy; but the data necessary for such an undertaking makes it impractical. Instead, economists take two paths in economic impact modeling: a "top-down" approach and a "bottom-up" approach. A top-down approach approximates the relationships between all the activities in the economy, grouped as "sectors," and simulates what happens if something changes (*e.g.*, a new regulation). A bottom-up approach starts with a particular sector of the economy – the industry directly subject to a new regulation – and approximates the links between that sector and other sectors. The bottom-up approach usually ends up limited to a few closely-related sectors, due to the data complexity that it entails, and is thus often characterized as a "partial" market analysis.

There are drawbacks to either approach; their suitability depends on the specific regulation. In the case of a small sector that supplies to narrow niches of the rest of the economy, a partial bottom-up approach might be suitable. An approach that does not account for price-related impacts throughout the economy may be sufficient if those effects are so small as to be immaterial to the economy at large. In contrast, a new regulation affecting the production of electricity or other products consumed by most homes and businesses is more likely to require a model of the entire economy. This is a situation more suitable for a top-down approach.

A. Partial / Direct Approach

A partial approach accounts for only a portion of the economy: typically, the directly-regulated sector and the sectors that supply it. Partial approaches to employment impact estimation include narrow 'compliance cost' accountings, which measure the specific effects directed by the regulation (*e.g.*, the additional personnel to install and maintain required pollution control equipment). They also include input/output models, which assume historic patterns in quantities of inputs per unit of production to estimate labor-input changes expected if a new regulation will affect a sector's output levels. Both of the former methods preclude effects due to changes in prices of goods or services. At a higher level of sophistication within the partial analysis category is a partial equilibrium model. Such a model typically estimates how increased costs affect production processes and market shares, but still only includes a subset of the economy in the analysis.

Partial analysis methods conform readily with the simplest conceptualization of employment impacts, which is that associated with the *direct* impacts of a regulation. The direct impact of the regulation would be the lost productivity resulting from the costs absorbed by those companies or individuals directly subject to a regulation. These include new equipment purchases, more expensive inputs, as well as training, monitoring, and reporting.
However, impacts are not limited to directly affected entities, and a majority of overall economic impacts (including employment impacts) may derive from the *indirect* costs. For example, suppose that a new regulation requires all electricity to be generated with wind. The full impacts of such a regulation would extend beyond the directly affected companies (electricity generators) to include industries that sell products to the regulated industry. Some of the indirect impacts may be positive, as in the case of companies that provide supplies that are needed for compliance (*e.g.*, wind turbine manufacturers); other indirect impacts may be negative, as in the case of companies whose inputs can no longer be purchased (*e.g.*, steam turbine manufacturers, as well as coal or natural gas suppliers, in the example). Partial analyses often address these types of indirect effects too.

Partial analyses may appear to be complete if they report that they have considered both direct and indirect impacts such as those described above. However they still omit certain more indirect types of impacts that may be important in major regulations. For example, if the costs of compliance are passed through into a company's product prices (*e.g.*, an increase in the cost of electricity), the price-mediated impacts on labor income can become larger than the impacts to the more directly affected sectors. When the affected product is widely purchased by other entities throughout the economy (as in the case of most forms of energy), regulatory impacts can be spread across many other sectors of the economy. These *downstream* effects are not among the indirect effects that partial types of employment impact analyses capture. Indirect effects in partial analyses are usually limited to changes in demand *for inputs* for the directly regulated entities, and thus limited to impacts *upstream* of the regulated entities' supply chain.

More sophisticated economic analyses are needed to address *changes in prices* by the regulated entities, which affect the businesses downstream of the regulated entity. Thus, when downstream price-related effects are ignored, the analysis can be characterized as "partial," and it will not address all of the ways a regulation can affect employment opportunities throughout the economy.[9]

B. Full-Economy Approach

A CGE model simulates the full-economy implications of price effects of regulation simultaneously with indirect impacts from changes in input demands, essentially accounting for all the ways the affected sector's costs migrate throughout the rest of the economy. In contrast to partial analysis models, CGE models can produce estimates of macroeconomic impacts. This "top-down" type of approach is especially important to consider using in the case of high-cost regulations of sectors that produce broadly-consumed goods (e.g., energy).

[9] In a similar point, two seminal papers (Jorgenson and Goettle, 1993, and Hazilla and Kopp, 1990) have demonstrated that the overall economic costs from environmental regulation may be much larger (*e.g.*, up to 30% larger) than an accounting of their aggregate compliance costs. However, the focus in this discussion is on assessment of employment-related impacts speeifically, rather than overall welfare or GDP impacts.

Very briefly, a CGE model solves a series of equations of supply and demand for all the goods in the economy to establish market equilibrium. Changes in this equilibrium (for example, due to a policy change) are then used to estimate direct and indirect demand-related and price-related policy impacts. Appendix A provides a more detailed description of the key elements of a CGE approach, while the focus here will remain on how employment impacts are represented.

With respect to employment impacts, CGE models are typically "full employment" models, in which all inputs are fully used, including the labor supply available at the prevailing wage. The employment-relevant outputs of a CGE model are changes in real wages and in total willingness to work (labor supply) at those wages, not numbers of jobs.[10] A CGE model solves for labor supply changes in response to policy changes. For example, a hypothetical policy may impose pollution controls on power production. The costs of compliance with the policy can drive down the productivity of labor and with it the equilibrium real wage rate. That can result in less labor supplied, and thus less total worker income. Offsetting that effect, as power prices rise, firms may substitute into relatively less expensive inputs, which may lead to a rise in demand for labor, and offsetting real wage increases. Yet other effects will be set into motion within the model. The resulting net impacts of the policy will be a mix of shifts in labor among sectors, changes in total hours supplied, and in real wages earned per hour worked. These are the various forms of employment impacts produced by the typical CGE model. They account for impacts in all sectors of the economy, even those not directly linked to the regulated sector.

A full accounting of employment impacts also considers the hidden costs to the economy. While a dollar spent on regulation may spur some additional employment activity (*e.g.*, in the example, wind turbine manufacturers may hire additional staff to meet the surge in orders), more money is being absorbed to produce every unit of the same commodity (*i.e.*, electricity in this example). That leaves less money available to invest in equipment or workers that would generate more real output for the economy. The long-term effect of these hidden costs can be reduced economic growth, and reduced prospects for worker income levels on a widespread and permanent basis. Thus, accounting for the inter-related economic impacts of regulation is difficult. Some, but not all, CGE models are able to address such productivity impacts on economic growth.

In theory, an approach based upon CGE modeling captures all effects of the regulation on the economy (including employment). However, much depends on the exact parameterization of the model, and on the scenario assumptions underlying the analysis. It is time-consuming to construct a CGE model with detailed specifications, and it requires knowledge to understand impact channels and interpret the results. Sometimes, the scope of a regulation is small enough to reasonably employ a partial equilibrium approach instead. However, EPA employed a CGE

[10] Labor supply is represented by hours available to work, not persons available to work. Because a "job" is usually thought of as pertaining to a person, there is a natural disconnect between the CGE structure and the concept of "positions" to be filled by individuals. Thus, the closest CGE metrics to impacts on jobs are change in labor supply (%) and change in payments to workers ($). The latter is sometimes expressed, for context, as an equivalent number of jobs at the average wage ("job-equivalents"), by dividing it by the average annual worker pay. It is important to note, however, that the change in numbers of people employed may be unchanged, while all of the change may come from changes in the wage earned by workers, consistent with the concept of full-employment.

model on just two of the 18 occasions in which its air RIAs offered any employment impact estimates. As we will argue later in this paper, two was too few.

C. A Need for Broader Assessment of Employment Impacts

Policymakers and the public cannot be expected to gain much insight about a regulation's impacts on employment when they are provided only estimates of numbers of "jobs." Even if estimated in a comprehensive manner, this is a misleading metric that does not begin to reflect the true issues and concerns that regulations pose for employment opportunity. In fact (as discussed above), full-economy CGE models naturally produce a more textured representation of employment impacts than counts of job positions, but that also is less than is needed. Some of the important attributes of employment-relative impacts that simplistic "jobs" estimates fail to address include:

- Whether the impact is to reduce the wage rate that would otherwise be earned by workers, to change the number of hours of work per week, or literally to eliminate job openings.
- Whether the impact will come in the form of layoffs, or via reduced growth in new job positions.
- Whether any new employment opportunities created by the regulation will call upon the same sets of skills and education as the employment opportunities ended by the regulation.
- Whether wage rates for lost hours of work are greater or less than wage rates for hours of work gained – in other words, whether higher paying jobs are replaced with lower paying jobs or vice versa.
- In the case of an economy with current underemployment:
  - Whether the new employment opportunities match the skills and capabilities of those who are in need of work, or simply increase the demand for individuals with skills not greatly affected by the downturn.
  - Whether the change in employment opportunities is expected to occur during or after the anticipated end of the downturn.
- Whether the larger concern for employment impacts is tied to the transitional impacts of a regulation, which will be a one-time cost, or to reduced productivity of the economy, which will translate into less growth in worker income levels over the long term.

The difference between long-run and transitional employment impacts deserves special discussion. New regulatory requirements typically also have transitional employment impacts such as decreases in jobs of one form offset by increases in jobs of another form. The new jobs may require a different set of skills than the declining jobs, and they may be in different locations. These types of short-term changes may sum to a net zero job impact, yet still result in a short-term increase in unemployment (*e.g.*, individuals facing lay-offs may not be able to immediately reconfigure their skill sets and locations).

For the individual employees who are laid off as the result of new regulation, informational barriers may impede their ability to find one of the new job openings even if they are qualified; "matching" the available worker supply to the new worker demands may be slow. Thus, involuntary unemployment can be a real economic cost, as well as a drain on individual well-being (emotional as well as financial) during a transitional period.[10]

Transitional employment impacts are difficult to quantify and measure. Conceptually, transition costs are often treated as a distributional impact rather than a true economic impact of lasting duration. Yet, if these transition impacts occur during a period of macroeconomic decline (*e.g.*, currently), and if the jobs are substantially different in skills and locations from the types of jobs being lost, some of the displaced workers may find themselves placed in a position that they could only view as long-term unemployment. This suggests a real loss of economic productivity rather than just a distributional impact.

Estimating these transitional impacts requires different types of modeling approaches than are most commonly used in current regulatory policy impact analyses. For example, CGE models usually project only long-run conditions after return of the economy to equilibrium. Such models thus may not be able to estimate any aspect of transitional employment impacts, even while they are helpful for understanding the long-run impacts to the full economy. Thus, even comprehensive models may need to be supplemented with models that are suited to projecting short-run market outcomes, such as short-term econometric models used to analyze business-cycle effects.[11]

Thus, a thorough understanding of employment impacts will require use of multiple different types of models. Some of the dimensions of impact above are not even amenable to current modeling methods, and may merit empirical research. Ideally, in time multiple approaches will come to be used in combination, to assess the multiple dimensions of employment impacts. For any of this to be fruitful, however, policy makers also will need to develop a greater appreciation for the multiple relevant dimensions of employment impacts.

[10] Livermore *et al.*, 2012 also make this point.

[11] Additionally, it might be feasible to use bottom-up studies to estimate direct spending on labor in detail, then transfer those costs to a full-economy model as changes in labor productivity, energy cost per unit of output, or changes in capital or factor productivity. Sector-specific transitional labor costs may be possible estimated in this fashion.

III. THE MORGENSTERN, PIZER, AND SHIH PAPER

MPS refers to a paper that examines the relationship between past environmental regulations and past changes in employment in four specific U.S. sectors. It is described in some detail in this section because our review found that EPA has begun to rely on estimates from this paper for a majority of its recent air RIA employment impacts estimates. The contents of the MPS paper, and how EPA is using its results in its RIAs, therefore merit explanation before Section IV describes the results of our review of all of EPA's employment impact estimation methods.

A. What the MPS Paper Does

The MPS paper considers direct employment changes in four different industries: pulp and paper, plastics, petroleum, and steel.[12] The analysis covers the years 1979-1981, 1985, 1988, and 1991. MPS splits the effect of regulation on industry labor demand into three elements and estimates them all econometrically. The elements are changes in payments to labor due to (i) change in the quantity of output demanded ("the demand effect"), (ii) change in the cost of inputs, holding output and technology fixed ("the cost effect"), and (iii) change in the mix of factors, such as shifting from a dirty to a clean fuel ("the factor-shift effect"). Each of these effects is explained below.

(i) The demand effect. In economics, the "law of demand" holds that as a product costs more, people buy less of it. This explains why consumers go to the movies less as ticket prices go up, or make shorter phone calls if they are in a roaming area. This inverse relationship between price and quantity holds for almost all goods, and a summary of its steepness is the *elasticity of demand*. If compliance costs lead to reduced demand for a sector's products, then less will be produced, and so, *ceteris paribus*, there will be less demand for labor to help make those products. MPS uses historical data to estimate the demand elasticity for output for each of the four industries.[13] It estimates, consistent with theory, that the demand effect of compliance spending was negative in each sector studied.

(ii) The cost effect. The cost effect addresses the following question: if a company is to keep producing the same amount, with the same ratio of ingredients, but with additional spending per unit of output for compliance, how much labor spending will arise? As long as there are any labor costs associated with production, then this will be a positive effect, *ceteris paribus*. For example, if regulation is projected to cost an additional 2% to the industry, and labor accounts for 50% of the added costs, the industry will spend 1% more on its labor inputs as it complies, so the cost effect would be 1% of the industry labor force. Another way to consider the cost effect in terms of employment would be: how many people does a company have to hire to comply with the new regulation? MPS estimates, consistent with expectations, that this effect was positive in each of the four sectors studied.

[12] No theoretical justification for the selection of these industries is given (or for the absence of other industries): the authors classify them as 'heavily-polluting', but the choice seemingly is based upon the data that they had available.

[13] MPS define labor productivity as the log difference between annual input price and output price. They use productivity changes to map the industry-specific demand curves (and thus, to identify the demand elasticity).

(iii) The factor shift effect. The final effect estimated in MPS is the "factor-shift." Instead of holding the proportions of inputs per unit of production fixed, response to the regulatory requirement may also cause a shift in the input mix per unit of production. This could result in an decrease in labor demand, *ceteris paribus*, if the new, compliant production process is less labor-intensive than the pre-regulatory processes. For example, if new regulation prompted a company to replace a production worker with a new machine, this would be a 'factor shift.' The likely direction of the factor shift effect was not anticipated *a priori*. MPS estimates it was positive in three of the four sectors studied, and close to zero in the fourth. This essentially implies that regulatory compliance in those sectors was more labor-intensive than the original production processes themselves.

The MPS paper also provides an aggregate estimate of the combined effect of these three market/production phenomena. MPS estimates that in these four sectors, compliance with the regulations implemented in the 1980s did have an incremental negative effect on labor payments as product demand decreased, but this was largely offset by greater use of labor inputs for compliance. The positive labor-implication of spending on compliance appears to have been reinforced by those compliance-related activities being more labor-intensive than the sectors' original productive processes. Net effects on labor spending were found to be positive in three sectors (plastics, petroleum, and steel) and negative in one (pulp and paper).

It is important to point out that the entire theoretical formulation and associated econometric analysis in MPS is based on payments to labor reported by these sectors. No measure of "job counts" enters the analysis until all of the estimation has been completed. At that stage alone, MPS aggregates the annual expenditures, including depreciation for pollution-abatement capital, and divides them by the sample mean to construct industry-specific normalized costs. MPS assumes one "job" is implied by a change in labor spending of $35,000 ($1987). They thus normalize their results to allow comparison across industries by expressing results as changes in "jobs" per million dollars in environmental spending. The paper's econometric methods are complex and sophisticated, but this summary result (*i.e.*, change in jobs per $ million compliance spending) can be a misleading way of summarizing for those who have not read the details behind it.[14]

This summary result varies from -1.13 to 6.90 "jobs" per million dollars of compliance spending across the four sectors.[15] MPS also calculates an "average" effect, by weighting the four sectors' impacts based on the amount each sector was spending on compliance in the sample period (1979-1991). The appropriateness of this single average estimate is questionable, but at best it is an average over the four sectors and not an economy-wide average. It is 1.55 "jobs" per million dollars of compliance spending, and is not statistically significant. Even if the simplistic summaries have some use for purposes of discussion, it should be kept in mind that these are estimates of the net labor effects that occurred in the past, and only reveal that total spending on workers in those four sectors did not decline when those sectors spent their way to environmental compliance.

[14] This conversion in MPS from labor payments (the data analyzed) to "jobs" for a summary metric also means that any estimates based on that summary metric are actually "job-equivalents."

[15] Morgenstern, Pizer and Shih (2002), Table III, p. 427.

MPS does not present these findings as evidence that environmental regulations increase employment in the economy. If anything, MPS itself describes the estimated change in labor income as an "insignificant change."[16] This appears to refer to the weak statistical significance of many of the paper's estimates more than to the small quantitative magnitude of the average estimate net effect.

Possibly lost from view to the reader is that this econometrically-sophisticated method is nevertheless a partial-equilibrium analysis. The analysis considers only the net labor spending impacts in the directly regulated sectors. There is no consideration in MPS of indirect impacts to upstream industries (*e.g.*, coal mining supplying power plants that were forced to retire). There also is no consideration in MPS of downstream effects on businesses that must pay for higher costs of products from the regulated firms. It is a partial equilibrium analysis.

B. How EPA Uses the MPS Estimates in its RIAs

EPA's MPS-based approach to estimating job impacts in its RIAs is far from sophisticated. EPA does not use the statistical methods of MPS to re-estimate the likely impacts in each sector subject to a new regulation. Rather, EPA treats the average four-sector statistically-insignificant parameter reported in the MPS paper as a fixed multiplier, and uses it to extrapolate from the MPS analysis to new regulations in other sectors. In other words, EPA does no more than take an RIA's estimate of the compliance cost of that regulation, state that cost as millions of 1987 dollars, and multiply that number by 1.55. In this manner, all sectors and all regulations are being assumed to have the same overall employment response per dollar spent. Clearly, the result is always going to be a positive impact on jobs, no matter what the regulation's actual cost or modes by which those costs filter into the economy.

It merits repeating that EPA's multiplication represents an extrapolation of job impacts that occurred in regulations that were imposed 20 to 30 years ago. The extrapolation is across decades of economic and regulatory change, and into entirely different sectors. These labor impact estimates are also only reflective of partial, *direct sector-only* impacts, even if applied to only the four sectors that were originally studied

As complex as the MPS paper is itself, EPA's use of MPS to generate employment impact estimates in its RIAs for new regulations is not credible. EPA's approach sidesteps any consideration of actual effects of the regulation in question by borrowing a single parameter estimated in MPS and using it as one-size-fits-all assumption. Readers of EPA's RIAs should not infer that EPA's new MPS-based approach is a step forward in its employment impacts estimation methods just because it cites a sophisticated econometric analysis as the source of that assumption. EPA's MPS-based multiplier is not a credible analytical substitute even for a partial analysis of a new regulation affecting different sectors. It is no substitute at all for regulations warranting an economy-wide employment impacts modeling approach.

[16] Morgenstern, Pizer, and Shih (2002), p. 429.

IV. REVIEW OF EMPLOYMENT IMPACTS ESTIMATION METHODS IN EPA AIR RIAs

A. Summary of Findings

Like other federal agencies, EPA is required to produce RIAs of all of its major regulations. Over the past 15 years, EPA has used a variety of approaches to estimate employment impacts.[17] Of the 57 separate air rule RIAs that NERA reviewed (Figure 1), only about 23% of the pre-2011 RIAs (11 of 48) contained any discussion of employment impacts. In contrast, 78% of RIAs from the year 2011 (*i.e.*, after EO 13563 was issued) estimated employment impacts. EO 13563 clearly affected the willingness of EPA to prepare estimates of employment impacts in its RIAs. We have discerned no pattern to explain why some of the pre-2011 RIAs did include estimates of employment impacts, while most did not. Figure 2 (three pages hence) presents a timeline showing the years when certain RIAs did provide employment impact estimates, which reveals the apparent randomness of employment impact estimates prior to the surge in 2011.

Of the 18 RIAs with an employment impact estimate, all but two provided a simple "job count" rather than estimating the broad and varied ways that employment opportunities might be affected by a regulation. All but four suggested that the employment impact of regulation was either positive or negligible. We therefore explored whether certain methods of estimation led to positive or negative estimated job impacts.

Among the RIAs reviewed, two distinct alternatives emerge in how EPA estimates employment impacts (see Figure 3, four pages hence). One approach takes an economy-wide view of the impacts of regulation, and uses CGE models to estimate the direct, upstream demand-related, and downstream price-related effects of the policy on employment. The second category of approach encompasses a variety of partial analysis methods. As described in Section II, all of these different methods assess only direct effects of the regulation and (in some cases) the upstream impacts on jobs in sectors supplying the directly regulated businesses. As explained below and shown in Figure 4 (four pages hence), we found that EPA has favored partial approaches.

In our review of the RIAs, we found no formal description by EPA of criteria for deciding which type of approach it would use under different regulatory circumstances. The clear evidence that EPA has used several different types of models and analyses for seemingly similar situations suggests no formal criteria exist. Moreover, as we will discuss further below, while EPA has made *ad hoc* statements in some RIAs suggesting the appropriateness or inappropriateness of certain methods, EPA has failed to use the same reasoning when warranted in other RIAs.

[17] As part of Executive Order 12866, EPA is instructed to consider the impact of regulation on small businesses. Generally, EPA expresses the impact in terms of compliance costs borne by small businesses (as a fraction of the total burden), and also includes projected closures and operational changes. EPA uses employment in these analyses to gauge whether the entity is question is, in fact, a small business, and to inform the calculation of regulatory burden. This sometimes, but not always, includes an estimate of employment impact from the regulation. Thus, the discussion of direct compliance (within-industry) impacts also pertains generally to EPA's consideration of small business impacts.

Figure 1: EPA Regulatory Impact Assessments Reviewed for this Study

Year	Regulation	Job Estimate?
1997	Highway Heavy-Duty Engines and Diesel Engines	
	Medical Waste Incinerators NSPS and EG (HMIWI)	
	Locomotive Emission Standards	
	Ozone and $PM_{2.5}$ NAAQS	√
	Pulp & Paper NESHAP	√
1998	National VOC Standards for Architectural Coatings	√
	Non-Road Diesel Engines (Tier 2 and Tier 3)	
	NOx SIP Call & Section 126 Petitions	
	New Fossil-Fuel-Fired Steam Generating Units	
1999	Final Section 126 Petition Rule	√
	Gasoline Sulfur Control Requirements	
	Phase 2 Non-road Non-handheld Spark Ignition Engines	
	Regional Haze Rule	
2000	2004+ Model Year Highway Heavy-Duty Engines	
	Heavy-Duty Engine & Fuel Sulfur Control Requirement	
	Phase 2 Non-road Handheld Spark Ignition Engines	
	Protection of Stratospheric Ozone Reductions	
2002	Non-road & Recreational Spark-Ignition Engines	
2003	PSD & NSR: Routine Maintenance and Repair	
2004	Automobile & Light-Duty Vehicle NESHAP	√
	Industrial Boilers & Process Heaters NESHAP	√
	Non-Road Diesel Engines (Tier 4)	
	Plywood & Composite Wood Products NESHAP	√
	Stationary Reciprocating Internal Combustion Engine NESHAP	√
2005	Clean Air Interstate Rule	√
	Clean Air Mercury Rule	
	Clean Air Visibility Rule/BART Guidelines	√
2006	Inclusion of Delaware and New Jersey in CAIR	
	$PM_{2.5}$ NAAQS	
	Sec 126 NC; Revisions to CAIR & Acid Rain	
	Stationary Compression Ignition Internal Combustion Engine NSPS	
2007	Clean Air Fine Particle Implementation Rule	
	Control of HAP from mobile sources	

Year	Regulation	Job Estimate?
2008	Lead (Pb) NAAQS	
	Locomotives & Marine Diesel Engines <30 L per Cylinder	
	Non-road Spark-Ignition Engines & Equipment	
	Ozone NAAQS	
	Petroleum Refineries NSPS	
2009	GHG Mandatory Reporting Rule	
	New Marine Compression Engines >30 L per Cylinder	
2010	EPA/NHTSA Joint Light-Duty GHG & CAFES	
	Existing Stationary Compression Ignition Engines NESHAP	
	Greenhouse Gases PSD and Tailoring Rule	
	NO_2 NAAQS	
	Ozone Reconsideration NAAQS	
	Portland Cement NSPS & NESHAP Amendment	√
	Existing Stationary Spark Ignition Engines NESHAP	
	SO_2 NAAQS	
2011	Industrial Solid Waste Incineration Units NSPS	√
	GHG from Medium & Heavy-Duty Vehicles	√
	Cross State Air Pollution Rule (CSAPR)	√
	Industrial, Commercial, and Institutional Boilers NESHAP	√
	Manganese Ferroalloys RTR	√
	Chlor Alkali Plant Mercury Emissions NESHAP	
	Oil & Gas Industry NSPS & NESHAP Amendment	√
	Sewage Sludge Incineration NSPS	
	Utility MATS Rule	√

Figure 2: Timing of Air RIAs Found to Contain Employment Impact Estimates

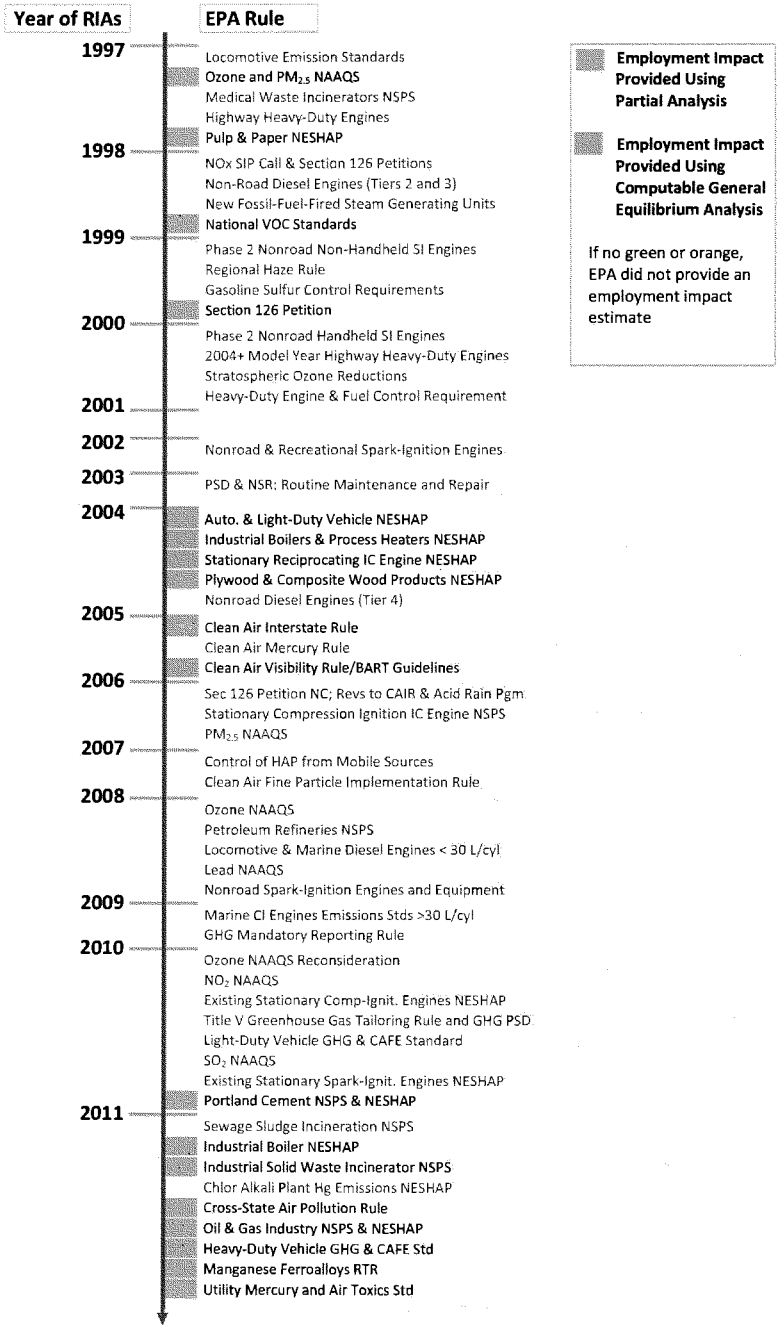


Figure 3: Employment Impact Estimation Methodologies Found in Air RIAs

Approach	Segment
CGE	Full Economy
Input/Output Table	Partial
Direct Compliance Costs	Partial
Partial Equilibrium	Partial
Morgenstern, Pizer, Shih (MPS) extrapolation	Partial

Figure 4: Summary of Employment Impact Estimates Found in Air RIAs

Year	Regulation	Approach**	RIA Estimate of Jobs Impacted	RIA Est. of Rule's Cost* (mil. 2010$)
1997	Ozone and PM2.5 NAAQS	**Partial**	6140	$13,855
1997	Pulp & Paper NESHAP	**I/O**	-4300 to -11200	$170
1998	National VOC st'ds for architectural coatings	**Partial**	-7 to -40	$29.6
1999	Final Section 126 Petition Rule	**Partial**	764	$1533
2004	Automobile & Light-Duty Vehicle NESHAP	**Partial**	-37	$176
2004	Industrial Boilers & Process Heaters NESHAP	**Partial**	(negligible)	$1,101
2004	Plywood & Composite Wood Products NESHAP	**Partial**	-225	$164
2004	Stationary Recip IC Engine NESHAP	**Partial**	(negligible)	$321
2005	Clean Air Interstate Rule	**CGE**	(+0.005% Δ)	$4,082
2005	Clean Air Visibility Rule/BART Guidelines	**CGE**	(+0.001% Δ)	$656
2010	Portland Cement NSPS & NESHAP Amendment	**MPS** **Direct**	+300 (-600 to 1,300) -1,500	$516
2011	Industrial Solid Waste Incineration Units NSPS	**MPS**	+700 (-1,400 to +2,800)	$285
2011	GHG from Medium & Heavy-Duty Vehicles	**MPS**	(negligible)	$8,177
2011	Cross State Air Pollution Rule (CSAPR)	**MPS** **Direct**	+1,000 (-1,000 to +3,000) +2,230	$833
2011	Ind., Comm. & Inst. Boilers NESHAP	**MPS**	+2,200 (-4,100 to +8,500)	$1,426
2011	Manganese Ferroalloys RTR	**Partial**	+4 FTE	$4
2011	Oil & Gas Industry NSPS & NESHAP Amendment	**Partial**	+101.6 FTE	$754
2011	2011 MATS Rule	**MPS** **Direct**	+8,000 (-15,000 to 30,000) +46,000	$9,994

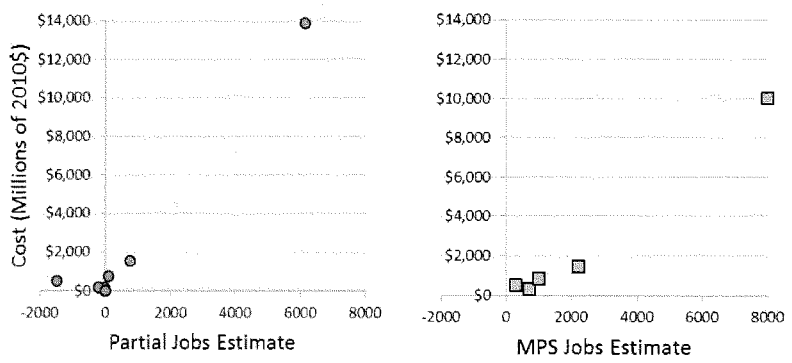
* If a range of economic costs is given, the midpoint is stated. **When RIAs make two types of estimates, both listed.

B. Graphical Analysis of EPA's Estimates

When one graphs the employment impact estimates in Figure 4, patterns begin to emerge. Figure 5 plots EPA's compliance cost estimate for each rule against its employment impact estimate. The right panel does this for the RIAs that used the MPS-based multiplier approach and the left panel does this for all other RIAs listed in Figure 4 as having used some other partial methodology. First, Figure 5 shows that most of the estimates are positive (*i.e.*, job gains are usually projected). Second, the amount of projected gain in jobs is correlated with the size of the cost of the rule. The similarity of the MPS-based relationship to that for the other partial approaches is unsurprising because it is just another partial approach, as Section III explained. However, the fact that *all* of the MPS-based estimates are positive is symptomatic of the more simplistic nature of the MPS-based multiplier approach compared to even many of EPA's other partial approach estimates.

Clearly, regulations cannot perpetually generate positive impacts on jobs in the economy, with ever greater job increases as the regulation becomes more costly. This illogical pattern in EPA's partial-analysis job impacts estimates reflects the clear limitations of using partial analyses. Partial analyses focus on select industries, usually those directly affected and/or those directly supplying them. This results in a greater chance of omitting some of the relevant detrimental impacts, particularly downstream. The MPS-based multiplier approach, however, *guarantees* a positive employment impact, because it simply multiplies a positive 1.55 jobs per million dollars (1987$) of compliance cost against the compliance cost estimate of the rule in question. Simply put, *if the MPS-based approach is applied, higher costs of compliance will always be projected to generate larger numbers of jobs.* This is, quite clearly, not credible.

Figure 5: Relationship between EPA's Estimates of a Rule's Compliance Costs and its Job Impacts
MPS-Based Estimates (right panel); All Other Partial-Analysis Estimates (left panel)



The high-cost "outlier" cases (with large costs and large positive job impacts) in each panel of Figure 5 deserve further mention. Those two cases turn out to be rules for which no partial analysis method should ever have been applied. The outlier on the left chart comes from the 1997 $PM_{2.5}$ and Ozone NAAQS RIA, while the outlier on the right chart comes from the 2011 Utility MATS rule RIA. Both rules had substantial impacts on the electricity sector, were very costly, and were expected to generate electricity price increases that would filter through the rest of the economy. These rules were prime candidates for application of full-economy modeling, and a partial approach guaranteed an understatement of any negative employment impacts by omitting consideration of the potentially widespread price-related effects on the economy that they would engender.

C. Evaluation of Estimation Practices in EPA's RIAs

1. Insufficient Use of CGE Modeling

As Section II explained, a comprehensive assessment of labor impacts across the entire economy requires a full-economy model. This class of model can address how compliance costs that are passed from the regulated businesses to their customers may affect downstream businesses. Economists consider CGE models as the most appropriate for this task.

As Figure 4 showed, EPA employed a CGE model in its air RIAs on two occasions: for the CAIR rule and the CAVR/BART rule, both in 2005. In those cases, EPA purportedly used the CGE approach due to the high estimated cost of those rules, and the potential for price pass through in a widely used commodity. Notably, however, those two rules had smaller estimated costs than either the 1997 $PM_{2.5}$ and ozone rule RIA, or the 2011 Utility MATS rule RIA (compare their costs in Figure 4), both of which EPA elected to analyze partially instead. Lack of access to a CGE model could not have been an excuse: at the time of the 1997 RIA EPA was actively using a CGE model in another major economic impact analysis.[18] Similarly, in 2011 it had – on the shelf – an enhanced and fully peer-reviewed version of the EMPAX-CGE model that it had used in the two 2005 RIAs.[19] Thus, EPA has been inconsistent in its decisions to use CGE modeling, and has not used CGE modeling to a sufficient degree.

In the two 2005 RIAs where a CGE approach was used, EPA did not make much effort to elucidate the meaning of the rather different labor impact measures that those analyses produced. CGE models assume the economy will always find its way to full-employment, thus, "job counts," if they could be predicted, would simply be equal to the number of people wanting a job. Instead, CGE models represent impacts on labor as changes in leisure and in wage rates (which combine to cause changes in household labor income). In both these RIAs, the net effect of the regulations on labor was reported to be a negligible change in employment. However, the RIAs provided no useful explanation to readers about what these results meant other than to suggest that they were too small to be a concern.

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[18] EPA was using a CGE model in its Section 812 *Retrospective Analysis of the Costs and Benefits of the Clean Air Act 1970-1990* (EPA, 1997) during the years the $PM_{2.5}$ and ozone RIAs were in process.

[19] See, for example, the EMPAX-CGE documentation (RTI International, 2008).

These two RIAs were also unforthcoming about inconsistencies in their CGE results, as well as an unusual finding reported in one. For example, in the analysis of CAIR, EPA used two models (IGEM and EMPAX) to project employment impacts from the rule. The IGEM model projected an increase in real wages and an increase in labor, while the EMPAX model projected a decrease in wages and a decrease in labor. The reasons for these conflicting results were not discussed and should have been to make the analysis useful to readers. Meanwhile, the EMPAX analysis for CAVR/BART projected a decrease in real wages, but an increase in labor. The latter effect is only expected to occur when a policy is so costly that the effect of the rule on income levels overwhelms the underlying preference to work fewer hours when wage rates are lower.[20] The RIA did not even mention that this was an unusual finding or attempt to explain it. This unusual finding deserved discussion in its own right, but the inconsistency between the apparent impacts of the CAVR/BART rule and the CAIR rule when using the same model also deserved discussion that was not provided.

Thus, even when EPA has used CGE models, it has reported without comment both contrary and counterintuitive results. The job impact sections have made little attempt to explain the meaning of the different types of job estimates, and merely reported the technical fact that those models' outputs reflect changes in hours of labor supplied. In addition, those RIAs did not report change in labor income, which would reflect the true net effect on workers, and is the most basic of a CGE model's outputs with respect to labor.

More important than those shortcomings in the two extant CGE-based RIAs, EPA has not been consistent in its decisions on when it should use CGE. As noted above, there were at least two other, larger rules that also should have been addressed using CGE, but were not. Section V demonstrates how directionally incorrect estimates can result from applying the MPS-based approach to a regulation that has significant costs and downstream price impacts.

2. Excessive Use of MPS-Based Approach

Recently, EPA has adopted an MPS-based approach, relying upon results in a paper by Morgenstern, Pizer, and Shih, (2002) that was described in Section III. The original paper finds a statistically insignificant estimate of 1.55 jobs created per $1 million ($1987) in expenditure on regulatory cost. EPA, for its new RIAs, treats this estimate of labor change per unit of cost as a simple multiplier. EPA multiplies this value against its estimates for cost of compliance with different environmental regulations, in a more recent time period, and in different sectors to project the job impacts in its new RIAs.

Section III explained the shortcomings of EPA's MPS-based approach. Despite these shortcomings, as Figure 4 shows, EPA has adopted MPS in nearly all of its RIAs since 2010. Interesting, however, is the case of the two 2011 RIAs in which EPA refrained from using the MPS approach (*i.e.*, for the Ferroalloys and the Oil and Gas NESHAPs). In the Ferroalloys RIA, EPA expressed concern that the industry was too different, and the affected sector too small, to

[20] This is called a backward-bending labor supply condition.

be comparable to the MPS analysis.[21] Similar concerns about MPS's transferability to the Oil and Gas industry were raised in the NESHAP RIA.[22] Yet among the RIAs that did use the MPS-based approach, just one (the industrial boiler MACT) directly affects the specific industries that MPS analyzed. It is not obvious that the other sectors (Portland Cement, Waste Incinerators, Heavy Duty Vehicles, and Utilities) are closer to those industries examined in MPS than the two that were excluded. By inconsistently applying MPS, EPA raises the question of *which* criteria it used to evaluate the suitability of the industry to MPS, and whether those criteria were uniformly followed, or appropriate.

We conclude that EPA's recent use of the MPS study to extrapolate to sectors and rules far from its base is inappropriate. Results for specific RIAs, such as the Utility MATS rule, are, as a consequence, not credible. In any event, the MPS approach is a partial analysis and thus omits impacts that happen beyond the directly affected sector(s). Section V provides a case study of the bias that EPA's MPS-based approach has created in its application to the Utility MATS rule. In that section the MPS-based estimates in the Utility MATS rule are contrasted to the estimates that emerge from a more appropriate CGE-based analysis of the same rule's costs. By conducting major analyses that are inconsistent with sound methodology-selection criteria, EPA undercuts the confidence one can place in any of its RIAs.

[21] "While the steel industry is one of the industries studied by Morgenstern *et al.*, and ferroalloys is an important input to steel production, the differences in the two industries are significant enough to lead to questions about how applicable are the parameters in Morgenstern *et al.* in this analysis." Ferroalloys RIA (EPA 2011b), p. 5-11.

[22] "Because of the likelihood of negative compliance costs for the proposed NSPS and the segments of the oil and natural gas industry affected by the proposals are not examined by Morgenstern *et al.*, we decided not to use the parameters estimated by Morgenstern *et al.* to estimate within-industry employment effects for the proposed oil and natural gas NESHAP amendments and NSPS." Oil and Gas NESHAP RIA (EPA 2011a), p. 7-28.

V. CASE STUDY: EMPLOYMENT IMPACTS OF THE 2011 UTILITY MATS RULE BASED ON A CGE ANALYSIS

Prior sections of this report have explained why a credible analysis of the economic (and employment) impacts of the Utility MATS rule requires a CGE approach. Restated briefly, it is that the rule is very costly (approximately $10 billion per year after annualization of capital costs), and it affects electricity generation, which is used by virtually all sectors and individuals of the U.S. economy. This creates the groundwork for impacts in many sectors other than the directly regulated electricity generation sector and its key suppliers. Its large requirement for upfront capital to construct lower-emitting generation technologies also indicates a significant potential for detrimental economic impacts from crowding out of capital. Despite this, EPA applied a simple extrapolation of partial impact estimates from the MPS study.

In 2012, NERA used its N_{ew}ERA CGE model of the U.S. to analyze the impacts of the Utility MATS rule on a full-economy basis. It projected large and negative employment impacts, in contrast to the rosy picture of net positive job impacts that EPA had reported. This section briefly summarizes the two sets of results. A more detailed description of the CGE analysis by NERA is available in a separate report (Smith *et al.*, 2012).

A. EPA's Approach

In the RIA for the Utility MATS rule, EPA uses a combination of two approaches to produce their employment impact estimate: a short-term, compliance-based method of employment impact based engineering cost estimates, and an approach based upon MPS. Admittedly, EPA introduces several caveats in the discussion of the scope of the analysis in the RIA. EPA states it did not estimate any of the following:

- *Changes resulting from labor needed to operate the needed pollution controls, increased demand for materials used in pollution control operation, shifts in demand for fuel in response to the rule, changes in employment resulting from additional coal retirements, and changes in other industries due to changes in the price of electricity and natural gas.*
- *Impacts on employment as a result of the increase in electricity and other energy prices in the economy.*
- *Other employment changes in industries that support and supply the pollution control industry.*
- *Employment impacts beyond the pollution control and regulated sectors.*
- *Impacts due to an increase labor productivity by improving health.*[23]

In other words, EPA acknowledges that its RIA estimates direct impacts from the regulation, and is a partial representation of the full economic impacts. Nevertheless, EPA adopts, without further question, the MPS jobs-per-dollar multiplier to generate a MATS-rule employment impact: a net of 8,000 new "jobs" over the long term. (EPA also used engineering cost estimates to estimate a short-term employment impact of 46,000 jobs during the implementation phase of the policy.) Such a partial approach, while failing to consider indirect impacts, also inadequately considers the direct impacts: labor is a scarce resource, and the supply of labor has

[23] Utility MATS RIA (EPA, 2011c), p. 6-11.

to be accounted for – employing 46,000 people, even for a short period, deprives other businesses that utilize the same labor pool, and raises their costs. This impacts the rest of the economy.

As explained in Section III, MPS provides an econometric, partial equilibrium approach based on the 20 to 30-years prior experience of four sectors in the economy. While more robust partial approaches may be suitable to apply to a small fragment of the economy, it is problematic to extrapolate the statistics from MPS to a larger part of the economy because the approach does not take into account interdependence between sectors, nor does it extend to ensure that all markets clear and budget constraint is satisfied for the economy. A more extensive discussion of the differences between general equilibrium models and MPS is included in Appendix A to this report.

B. A CGE-Based Estimate

In a separate analysis, NERA used N_{ew}ERA, a macroeconomic, economy-wide CGE model to estimate the economic impacts of the MATS rule.[24] NERA's approach included inter-industry links, production functions with substitutability among factors of inputs (*e.g.*, labor, capital, and energy), economy-wide supply and demand, and consumer choices on how much labor to supply. The N_{ew}ERA model also contains a detailed, bottom-up representation of all the generating units serving U.S. electricity load, in regional electricity markets. This model is ideally suited to assess the direct costs of air regulations affecting the utility sector and to simultaneously assess the general economic impacts to the U.S. economy when such regulatory costs may be absorbed by electricity generators.

NERA's analysis of the Utility MATS rule assessed the cost of complying with the MATS Rule relative to a Baseline with CAIR, and relative to a Baseline with Cross-State Air Pollution Rule (CSAPR). The inclusion of CSAPR had little effect on the results. NERA's analysis relied on the same compliance cost assumptions that EPA used in its RIA's cost analysis. Unsurprisingly, the NERA analysis derived very similar estimates of the direct costs of compliance. Figure 6 compares EPA's annualized compliance cost estimates (developed with the IPM model) to those estimated with the N_{ew}ERA model.

Because the N_{ew}ERA model is an integrated model of the entire economy, we are able to identify the economic impacts outside of the electric sector, which EPA did not. These macroeconomic impacts included declines in the rate of growth of the U.S. economy as measured by GDP and declines in consumption, or household disposable income. All of these impacts are inconsistent with EPA's statement, based on its partial analysis, that the Utility MATS rule would increase net jobs.

[24] The N_{ew}ERA model is an economy-wide economic model that includes a detailed representation of the electric sector. It has been designed to assess, on an integrated basis, system costs to the power sector to meet any specified policy scenario as well as the overall macroeconomic impacts of that policy scenario. For additional technical details on the N_{ew}ERA model see Appendix B of this report or http://www.nera.com/67_7607.htm.

Figure 6: Compliance Costs of EPA and NERA Approaches

Annualized and Present Value Incremental Compliance Costs (Billions of 2010$)				
	2015	2020	2030	PV(2014-2034)
EPA (IPM)	$9.7	$8.0	$7.7	$89.9
NERA (N_{ew}ERA)	$10.4	$10.8	$11.9	$94.8

Like other CGE models that EPA has used, N_{ew}ERA assumes full-employment and long-run equilibrium occurs immediately. It thus does not find any literal change in the ability of workers to be employed after a transition phase that attends all regulatory changes. Further, a CGE model finds impacts to workers in a more general manner than "job counts." It assesses changes in the real wages paid to workers per hour worked, and changes in hours of work that households are prepared to supply at those wages. This is also reported as a change in total labor income to households. These estimates are always *inclusive* of all the increases in labor demand from compliance spending. Although it is not possible to predict how much of the projected labor income reduction would come in the form of reduced hours per job, shifts in the mix of full-time vs. part-time jobs, or simply reduced average payments per hour worked, it is possible to describe the magnitude of the loss in worker income in terms of the number of "job-equivalents" that would produce that income loss.

The CGE-based analysis of the Utility MATS rule using N_{ew}ERA projected a net negative impact to labor income (*inclusive* of labor increases associated with installing retrofits and building new power plants). In 2015, the projected loss was equivalent *to* 180,000 jobs, compared to the CSAPR baseline. The reduction in 2015 labor income was projected to be equivalent in magnitude to 215,000 jobs if compared to a baseline with only CAIR in effect. While the largest labor income losses are in 2015, there are enduring labor income losses over time as the economy shrinks due to higher energy costs. The specific results are shown in Figure 7 (on the next page) and contrasted to those in EPA's RIA based on the MPS extrapolation.[25] This comparison reveals the significant biases that can come from using the simplistic MPS-based approach to assess significant and costly energy sector regulations.

The results in Figure 6 indicate that the fundamental source of the difference in these two estimates of the overall impact of the rule on the economy is *not* differences in the respective analysts' estimates of the cost of complying with the MATS rule. The fundamental cause of the difference is the fact that EPA only considers the impacts of the policy on the electric sector; they do not consider the broader economic effects of the rule on the full economy. In short, EPA adopted a partial approach, which underestimates the impact of the regulation in a high-cost rule such as utility MATS. By examining only directly affected sectors (electric utilities) and ignoring indirect impacts of the MATS rule (*e.g.*, rising electricity prices), EPA's analysis omits the majority of the economic impact of the rule – both in terms of employment impacts and in other broader measures of economic impact, such as household spending power and GDP.

[25] Although EPA's RIA describes its estimates as "jobs," that estimate also is in "job-equivalents." (See discussion in Section III for more details.)

Figure 7: Utility MATS Rule Labor Impact Estimates: Comparison of EPA's MPS-Based Analysis to a CGE-Based Analysis

Net Employment Change (Job-equivalents)				
EPA (using MPS-based multiplier)	**Annual**			
MATS (relative to CSAPR)	8,000 (95% CI: -15,000 to 30,000)			
NERA (N_{ew}ERA)	**2015**	**2018**	**2021**	**2024**
MATS (relative to CSAPR)	-180,000	5,000	-60,000	-50,000
MATS (relative to CAIR)	-215,000	-15,000	-75,000	-85,000

VI. CONCLUSIONS

In this review, we examined EPA air rule RIAs dating back to 1997 to document their employment impact methodologies. Our findings regarding EPA's general practices are as follows:

- Until 2011, EPA only intermittently provided employment impact estimates in its RIAs. The shift coincides with an amendment to the Executive Order that specifically mentions "job creation" as an important concern to address in RIAs. For the years prior to 2011, we could not discern why some RIAs provided employment impact estimates and others did not.
- With only two exceptions in 2005, EPA's employment impacts estimates have been narrowly limited to assessing "job counts,"[26] and have been "partial" estimates, meaning none of them have addressed the impact of a regulation's costs on the rest of the economy beyond those sectors directly bearing the compliance costs and their suppliers.
- Although some of the job estimates have shown net job losses, the majority of them have reported net gains. This is traceable to the partial nature of those estimates.
- In some cases, job impact estimates are provided separately for short-term jobs associated with the period in which compliance investments are being made, and longer-term job impacts after the construction demand spike of capital investments for compliance. In other cases, it is unclear exactly what types of job counts have been reported.
- Over the years there has been little attempt in the RIAs to explain or explore the broader set of issues that exist with regard to "employment impacts." EPA did not elucidate these issues even in the two RIAs in 2005 where it did report a different type of labor impact estimate than "job counts."

More broadly, we conclude that EPA has made insufficient and inconsistent use of full-economy models. We also conclude that EPA has made excessive use of a 2002 paper by Morgenstern, Pizer, and Shih as a basis for most of its post-2011 job estimates. The combined effect of these two problematic aspects of EPA's employment impacts estimation practice has resulted in biased estimates of impacts for one of the largest air rules in the record, the 2011 Utility MATS rule. EPA's inappropriate use of its partial MPS-based approach indicates positive job increase while a more appropriate full-economy analysis of the same compliance spending indicates negative overall impacts to worker income.

By conducting major analyses that are inconsistent with sound methodology-selection criteria, EPA undercuts the confidence one can place in any of its RIAs. The path to a more credible set of employment impact estimates will first require that the economics profession articulate clear model-selection criteria, and then that EPA adhere explicitly to those criteria. In our opinion,

[26] The exceptions were for the Clean Air Interstate Rule (CAIR) and for the Clean Air Visibility Rule and Best Available Retrofit Technology Guidelines (CAVR/BART). Both of these RIAs were released in 2005, and both used a method called Computable General Equilibrium (CGE) modeling, which addresses labor market impacts in the context of the full economy and full employment. CGE models do not directly measure employment impacts in the form of "jobs." More on this point is discussed below.

full-economy modeling using CGE methods is always the more credible choice. Discrepancies between full-economy modeling and a partial analysis may be relatively small when the regulation is relatively narrow in scope. However, CGE analyses should be required for any regulation that affects the costs of inputs to large parts of our economy, such as any regulation affecting energy supply. EPA has the relevant tools and know-how to accomplish this.

In addition, RIAs (and all other related regulatory impact analyses within or beyond the Agency) would benefit greatly from more thoughtful discussion of the many important attributes of employment impacts other than a simple "job count." When job counts are provided, an explanation of the range of types of impacts on labor that might be implicit in "a job" should be provided. Any partial analysis should be explicitly caveated that it counts only direct job gain or losses and that any offsetting effects in the rest of the economy are ignored.

This study's review was limited to EPA's employment impact estimation practices in its RIAs for air rules. To the extent that non-governmental groups have adopted the same methods as those in EPA's air RIAs, points made in this report also may be useful for interpreting those other studies and estimates. Assessments of other methods that were not covered in this study (because EPA has not used them) could be helpful additional research. An even higher priority for further research, however, would be to advance new methods for assessing the range of employment impact attributes listed in section II. Without such research, policy discussions about employment impacts will continue to be anchored to misleading and misunderstood estimates of "job counts."

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APPENDIX A – KEY CGE MODEL FEATURES COMPARED TO THE MPS APPROACH

A. General Approach

A Computable General Equilibrium (CGE) approach solves a system of equations and inequalities that represent all sectors in the economy simultaneously. The economic equilibrium conditions in the CGE framework include a profit condition that associates the output level with profit, a market clearance condition that associates market price with demand and supply dynamics, and an income balance that ensures all factor earnings, tax payments and transfers are fully exhausted by consumption and savings for future investment.

A CGE approach connects households and firms through goods and factor markets. Goods markets are interdependent as output of one sector can be consumed by another sector as an intermediate input. Conventional CGE modeling assumes full employment of resources (capital, labor, natural resources), and variations can be introduced to capture the frictions in the reality. Government can also be explicitly represented by its function to collect taxes, make public investment and redistribute the wealth.

Production functions in CGE are generally formulated at an aggregate level for computational tractability. Some observers critique CGE for its limitation in capturing the rigidity, frictions, and imperfections that can be fully accounted in a bottom-up model. A hybrid model can integrate a micro model of certain sectors of interest into CGE macro framework, adding a bottom-up representation to fill in the need for more concrete sector formulation, all done still satisfying market clearance and income balance conditions. NERA's N_{ew}ERA model uses such a construction (See Appendix B).

Environmental regulations impose on firms additional costs when diverting resources from production to environmental compliance. These resources include not only capital investment but also goods and services, and labor input. As a result, more inputs are required to produce the same amount of output, leading to higher prices for goods under regulation as well as goods consumed for compliance purposes. Conceptually embedded in the CGE framework, such a circular flow does not exist in partial types of analysis.

This has several implications for modeling the labor market. First, analogous to how reallocated capital investment for abatement technologies may deprive productive R&D, labor diverted to compliance activity could have otherwise been used in productive activities somewhere else. Thus, jobs 'created' as a result of environmental regulation in certain sectors destroy jobs in other sectors. Second, higher prices due to regulation increase the cost of living, and thus reduce real wage income. A net gain of jobs does not consider the price of higher cost of production caused by the regulation. Finally, lower factor productivity and reduction in investment in non-compliance production slows down economic growth, thus growth prospective of labor income. A short-term net gain may impact long-term growth.

B. Impact Mechanism

The econometric analysis in the MPS paper decomposes the impact of environmental regulation into cost effect, factor shift effect, and a demand effect. A CGE approach accounts for all these effects. Moreover, CGE considers what is lacking the MPS econometric analysis: interaction across sectors, a budget constraint for every period, and intertemporal optimization. Specifically:

a) **Interaction across sectors**: MPS estimates four sectors in isolation. Applying the same approach for each and every sector does not reflect the spillover effect along the interaction between markets; as a consequence, it does not guarantee all markets clear. For example, sectors compete for the same type of labor (*e.g.* construction) for regulation purposes. Labor supply may not be sufficiently elastic to meet the rising demand at a given wage rate. In contrast, CGE takes into account both demand and supply in the labor market and thus produces a consistent set of results in price, demand and supply. Finally, missing interactions in goods and services market and in capital market lead to inconsistent estimates that have indirect impact on labor demand.

b) **Budget constraint:** A dollar invested in environment production has an opportunity cost: foregone value in either non-compliance production or final consumption. This is missing from the MPS approach, as their scope is only a fragment of the economy. Applying their approach without considering the budget constraint facing the entire economy is not a valid assessment. An analogous fallacy would be to suppose that a nation can get rich by borrowing.

c) **Intertemporal optimization:** A CGE approach usually establishes a model horizon long enough to capture the intertemporal impact over several decades. The intertemporal optimization involves equating the marginal utility of consumption of every period. In the context of regulation, investment in compliance activity today translates to foregone consumption and foregone investment in the future, leading to a slower economic growth rate. This will in turn reduce labor income in the future.

C. Labor Market

CGE modeling assumes full employment and labor market equilibrium, and thus does not typically estimate transitional unemployment impacts. However, there are ways to incorporate frictions in the labor market. Cost of labor movement can be introduced to account for the costs incurred during the transfer from one location to another. It would also make sense for the case of structural changes where laborers equipped with sector-specific skills incur cost on training to fit for another type of work. Choice between labor and leisure is often added to represent a friction on the supply side. When regulation results in a lower real wage income, people have greater incentive to swap out of labor hours for leisure. CGE estimates are calculated against a counterfactual economic outcome that can never be observed. Such impacts may most appropriately reflect the long-term relationship between employment impacts and a regulation's effect on the overall economic performance of the economy. It is the only way to address the long-term impact on growth of diversion of capital investments from financially-productive investments to investments that generate non-financial benefits such as a cleaner environment.

APPENDIX B – ADDITIONAL DETAILS ON THE N_{EW}ERA MODEL

NERA developed the NewERA model to forecast the impact of policy, regulatory, and economic factors on the energy sectors and the economy. When evaluating policies that have significant impacts on the entire economy, one needs to use a model that captures the effects as they ripple through all sectors of the economy and the associated feedback effects. The NewERA model combines a macroeconomic model with all sectors of the economy (except for the electric sector) with a detailed electric sector model. This combination allows for a complete understanding of the economic impacts of different policies on all sectors of the economy.

The macroeconomic model incorporates all production sectors and final demand of the economy. Policy consequences are transmitted throughout the economy as sectors respond until the economy reaches equilibrium. The production and consumption functions employed in the model enable gradual substitution of inputs in response to relative price changes, thus avoiding all-or-nothing solutions.

The main benefit of the integrated framework is that the electric sector can be modeled in great detail yet through integration the model captures the interactions and feedbacks between all sectors of the economy. Electric technologies can be well represented according to engineering specifications. The integrated modeling approach also provides consistent price responses since all sectors of the economy are modeled. In addition, under this framework we are able to model electricity demand response.

There are great uncertainties about how the U.S. natural gas market will evolve, and the N_{ew}ERA model is designed explicitly to address the key factors affecting future natural gas supply and prices. One of the major uncertainties is the availability of shale gas in the United States. To account for this uncertainty and the subsequent effect it could have on the domestic and international markets, the NewERA model includes resource supply curves for U.S. natural gas that can be altered for sensitivity analysis. The model also accounts for foreign imports and U.S. exports of natural gas, by using a supply (demand) curve for U.S. imports (exports) that represents how the global LNG market price would react to changes in U.S. imports or exports.

The electric sector model is a detailed model of the electric and coal sectors. Each of the more than 17,000 electric generating units in the United States is represented in the model. The model minimizes costs while meeting all specified constraints, such as demand, peak demand, emissions limits and transmission limits. The model determines investments to undertake and unit dispatch. Because the NewERA model is an integrated model of the entire U.S. economy, electricity demand can respond to changes in prices and supplies. The steam coal sector is represented within the NewERA model by a series of coal supply curves and a coal transportation matrix. The NewERA model represents the domestic and international crude oil and refined petroleum markets.

NewERA model outputs include demand and supply of all goods and services, prices of all commodities, and terms of trade effects (including changes in imports and exports). The model outputs also include gross regional product, consumption, investment, disposable income, and changes in "job equivalents" based on labor wage income.

Impacts on workers are often considered an important output of policy evaluations. Impacts on workers are complicated to estimate and to explain because they can include several different impacts, including involuntary unemployment, reductions in wage rates for those who continue to work, and voluntary reductions in hours worked due to lower wage rates. No model addresses all of these potential impacts. The NewERA model is a long-run equilibrium model based upon full employment, and thus its results relate to the longer-term effects on labor income and voluntary reductions in hours worked rather than involuntary unemployment impacts. It addresses long-run employment impacts, all of which are based on estimates of changes in labor income, also called the "wage bill" or "payments to labor." Labor income impacts consist of two effects: (1) changes in real wage per hour worked; and (2) changes in labor market participation (hours worked) in response to changed real wage rates. The labor income change can also be expressed on a per-household basis, which represents one of the key components of disposal income per household. (The other key components of disposable income are returns on investments or "payments to capital," and income from ownership of natural resources). The labor income change can also be stated in terms of job-equivalents, by dividing the labor income change by the annual income from the average job. A loss of one job-equivalent does not necessarily mean one less employed person—it may be manifested as a combination of fewer people working and less income per person who is working. However, this measure allows us to express employment-related impacts in terms of an equivalent number of employees earning the average prevailing wage.

A. Overview

NERA's N_{ew}ERA modeling system is an integrated energy and economic model that includes a bottom-up representation of the electricity sector, including all of the unit-level details that are required to accurately evaluate changes in the electric sector. N_{ew}ERA integrates the electricity sector model with a macroeconomic model that includes all other sectors of the economy (except for the electricity sector) using a top-down representation. The model produces integrated forecasts for future years; the modeling for this study was for the period from 2013 to 2034 with modeling inputs and results for every third year in that period. The model produces a standard set of reports that includes the following information.

- *Unit-level investments in the electric sector* – retrofits in response to environmental policies, new builds (full range of new generation technologies represented), retirements based on economics.

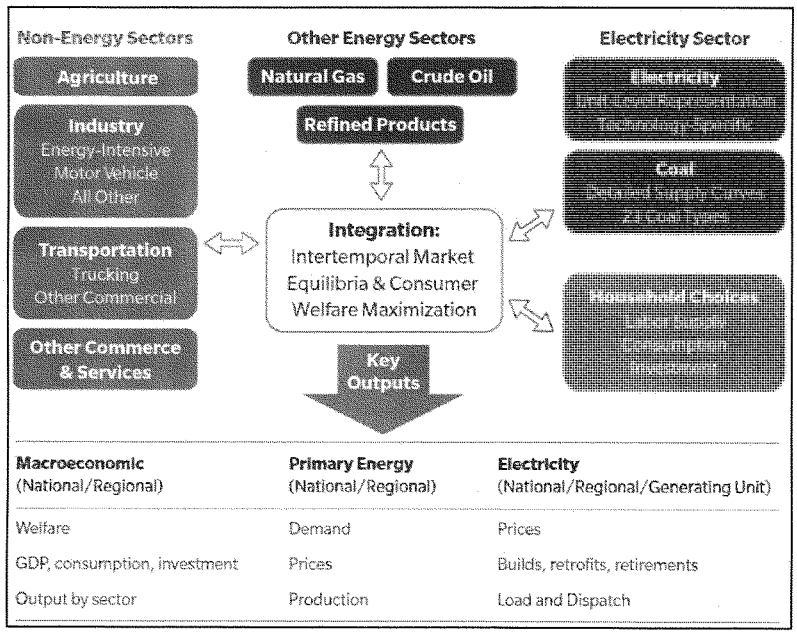
- *Prices* – wholesale electricity prices for each of 32 U.S. regions, capacity prices for each U.S. region, delivered electricity prices by sector for each of 11 macroeconomic regions in N_{ew}ERA, Henry Hub natural gas prices and delivered natural gas prices to the electric sector for each U.S. region, minemouth coal prices for 24 different types of coal, delivered coal prices by coal unit, refined oil product prices (gasoline and diesel fuel), renewable energy credit (REC) prices for each state/regional renewable portfolio standard (RPS), and emissions prices for all regional and national programs with tradable credits.

- *Macroeconomic results* – gross domestic product (and gross regional product for each macroeconomic region), welfare, changes in disposable income, and changes in labor income

and real wage rates (used to estimate labor market changes in terms of an equivalent number of jobs).

Figure B - 1 provides a simplified representation of the key elements of the N_{ew}ERA modeling system.

Figure B - 1: N_{ew}ERA Modeling System Representation



B. Electric Sector Model

The electric sector model that is part of the N_{ew}ERA modeling system is a bottom-up model of the electric and coal sectors. The model is fully dynamic and includes perfect foresight (under the assumption that future conditions are known). Thus, all decisions within the model are based on minimizing the present value of costs over the entire time horizon of the model while meeting all specified constraints, including demand, peak demand, emissions limits, transmission limits, RPS regulations, fuel availability and costs, and new build limits. The model set-up is intended to mimic (as much as is possible within a model) the approach that electric sector investors use to make decisions. In determining the least-cost method of satisfying all these constraints, the model endogenously decides:

- What investments to undertake (*e.g.*, addition of retrofits, build new capacity, repower unit, add fuel switching capacity, or retire units);
- How to operate each modeled unit (*e.g.*, when and how much to operate units, which fuels to burn) and what is the optimal generation mix; and
- How demand will respond. The model thus assesses the trade-offs between the amount of demand-side management (DSM) to undertake and the level of electricity usage.

Each unit in the model has certain actions that it can undertake. For example, all units can retire, and many can undergo retrofits. Any publicly-announced actions, such as planned retirements, planned retrofits (for existing units), or new units under construction can be specified. Coal units have more potential actions than other types of units. These include retrofits to reduce emissions of SO_2, NO_X, mercury, and CO_2. The costs, timing, and necessity of retrofits may be specified as scenario inputs or left for the model to endogenously select. Coal units can also switch the type of coal that they burn (with practical unit-specific limitations). Finally, coal units may retire if none of the above actions will allow them to remain profitable, after accounting for their revenues from generation and capacity services.

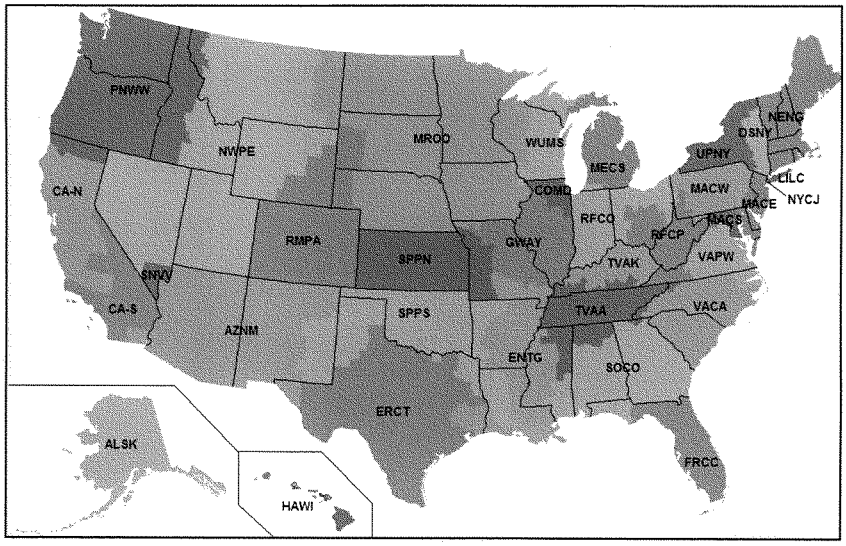
Most of the coal units' actions would be in response to environmental limits that can be added to the model. These include emission caps (for SO_2, NO_X, Hg, and CO_2) that can be applied at the national, regional, state or unit level. We can also specify allowance prices for emissions, emission rates (especially for toxics such as Hg) or heat rate levels that must be met.

Just as with investment decisions, the operation of each unit in a given year depends on the policies in place (*e.g.*, unit-level standards), electricity demand, and operating costs, especially energy prices. The model accounts for all these conditions in deciding when and how much to operate each unit. The model also considers system-wide operational issues such as environmental regulations, limits on the share of generation from intermittent resources, transmission limits, and operational reserve margin requirements in addition to annual reserve margin constraints.

To meet increasing electricity demand and reserve margin requirements over time, the electric sector must build new generating capacity. Future environmental regulations and forecasted energy prices influence which technologies to build and where. For example, if a national RPS policy is to take effect, some share of new generating capacity will need to come from renewable power. On the other hand, if there is a policy to address emissions, it might elicit a response to retrofit existing fossil-fired units with pollution control technology or enhance existing coal-fired units to burn different types of coals, biomass, or natural gas. Policies calling for improved heat rates may lead to capital expenditure spent on repowering existing units. All of these policies will also likely affect retirement decisions. The N_{ew}ERA electric sector model endogenously captures all of these different types of decisions.

The model contains 32 U.S. electricity regions (and six Canadian electricity regions). Figure B - 2 shows the U.S. electricity regions.

Figure B - 2: N_{ew}ERA Electric Sector Model – U.S. Regions



The electric sector model is fully flexible in the model horizon and the years for which it solves. When used in an integrated manner with the macroeconomic model, and to analyze long-term effects, the model is usually set up to solve out to twenty to thirty years in three-year time steps.

C. Macroeconomic Model

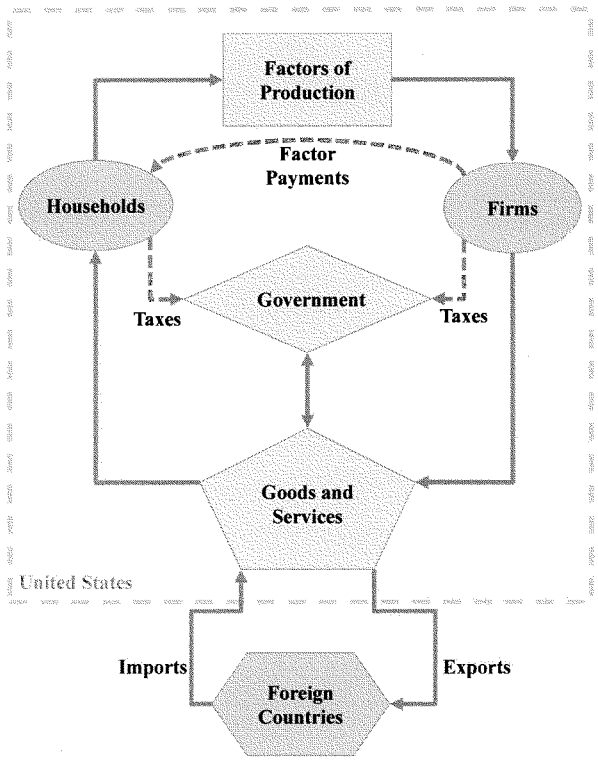
1. Overview

The N_{ew}ERA macroeconomic model is a forward-looking dynamic computable general equilibrium (CGE) model of the United States. The model simulates all economic interactions in the U.S. economy, including those among industry, households, and the government. Additional background information on CGE models can be found in Burfisher (2011).

The N_{ew}ERA CGE framework uses the standard theoretical macroeconomic structure to capture the flow of goods and factors of production within the economy. A simplified version of these interdependent macroeconomic flows is shown in Figure B - 3. The model implicitly assumes "general equilibrium," which implies that all sectors in the economy are in balance and all economic flows are endogenously accounted for within the model. In this model, households supply factors of production, including labor and capital, to firms. Firms provide households with payments for the factors of production in return. Firm output is produced from a combination of productive factors and intermediate inputs of goods and services supplied by

other firms. Individual firm final output can be consumed within the United States or exported. The model also accounts for imports into the United States. In addition to consuming goods and services, households can accumulate savings, which they provide to firms for investments in new capital. Government receives taxes from both households and firms, contributes to the production of goods and services, and also purchases goods and services. Although the model assumes equilibrium, a region in the model can run deficits or surpluses in current accounts and capital accounts. In aggregate, all markets clear, meaning that the sum of regional commodities and factors of production must equal their demands, and the income of each household must equal its factor endowments plus any net transfers received.

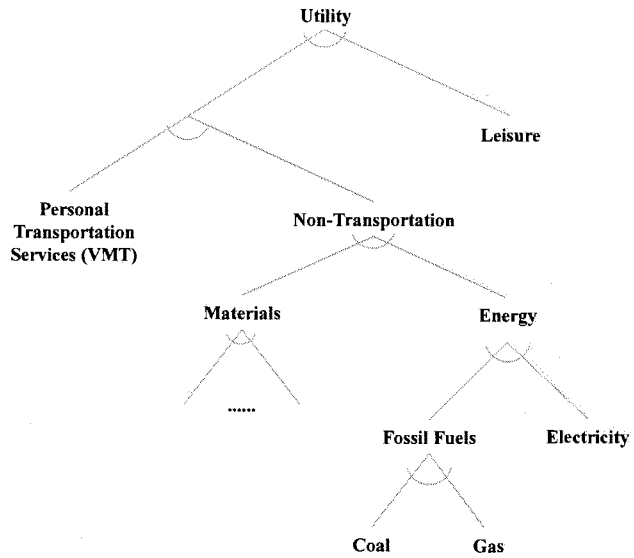
Figure B - 3: Interdependent Economic Flows in N_{ew}ERA's Macroeconomic Model



The model uses the standard CGE framework developed by Arrow and Debreu (1954). Behavior of households is represented by a nested Constant Elasticity of Substitution (CES) utility function. The model assumes that households seek to maximize their overall welfare, or utility, across time periods. Households have utility functions that reflect trade-offs between leisure

(which reduces the amount of time available for earning income) and an aggregate consumption of goods and services. Households maximize their utility over all time periods subject to an intertemporal budget constraint based on their income from supplying labor, capital, and natural resource to firms. In each time period, household income is used to consume goods and services or to fund investment. Within consumption, households substitute between energy (including electricity, coal, natural gas, and petroleum), personal transportation, and goods and services based on the relative price of these inputs. Figure B - 4 illustrates the utility function of the households.

Figure B - 4: Household Consumption Structure in N_{ew}ERA's Macroeconomic Model



On the production side, Figure B - 5 shows the production structure of the commercial transportation and the trucking sector. Production structure for the rest of the industries is shown in Figure B - 6. The model assumes all industries maximize profits subject to technological constraints. The inputs to production are energy (including the same four types noted above for household consumption), capital, and labor. Production also uses inputs from intermediate products provided by other firms. The N_{ew}ERA model allows producers to change the technology and the energy source they use to manufacture goods. If, for example, petroleum prices rise, an industry can shift to a cheaper energy source. It can also choose to use more capital or labor in place of petroleum, increasing energy efficiency and maximizing profits with respect to industry constraints.

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Figure B - 5: Commercial Transportation and Trucking Sector Production Structure in N_{ew}ERA's Macroeconomic Model

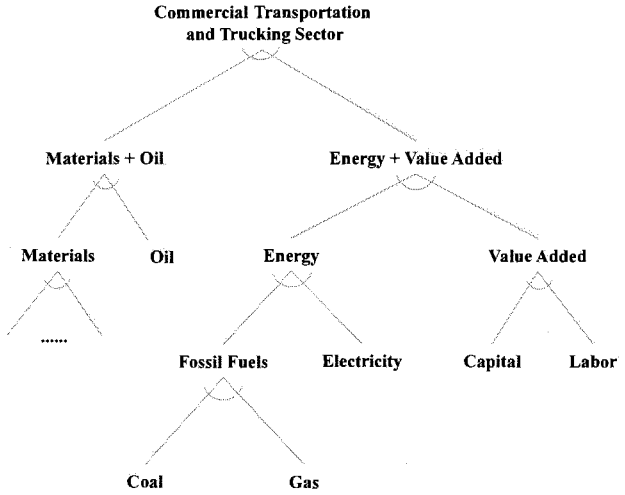
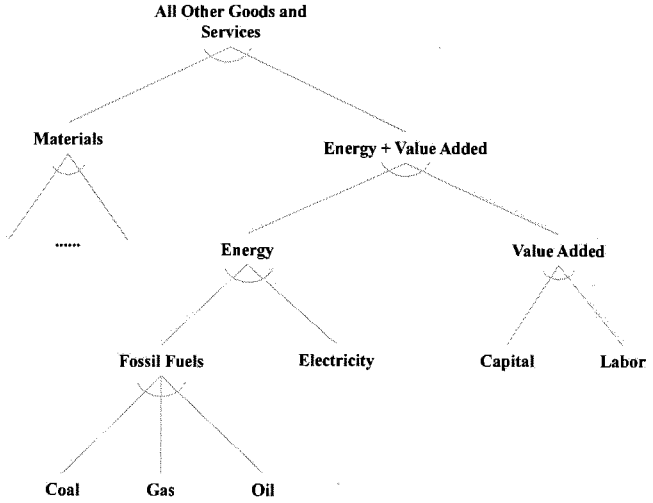


Figure B - 6: Production Structure for Other Sectors in N_{ew}ERA's Macroeconomic Model



All goods and services, except crude oil, are treated as Armington goods, which assume the domestic and foreign goods are differentiated and thus are imperfect substitutes (Armington 1969). The level of imports depends upon the elasticity of substitution between the imported and domestic goods. The Armington elasticity among imported goods is assumed to be twice as large as the elasticity between the domestic and imported goods, characterizing the greater substitutability among imported goods.

Business investment decisions are informed by future policies and outlook. The forward-looking characteristic of the model enables businesses and consumers to determine the optimal savings and investment levels while anticipating future policies with perfect foresight.

The benchmark year economic interactions are based on the IMPLAN 2008 database, which includes regional detail on economic interactions among 440 different economic sectors. The macroeconomic and energy forecasts that are used to project the benchmark year going forward are calibrated to EIA's Annual Energy Outlook (AEO) 2012.

2. Regional Aggregation

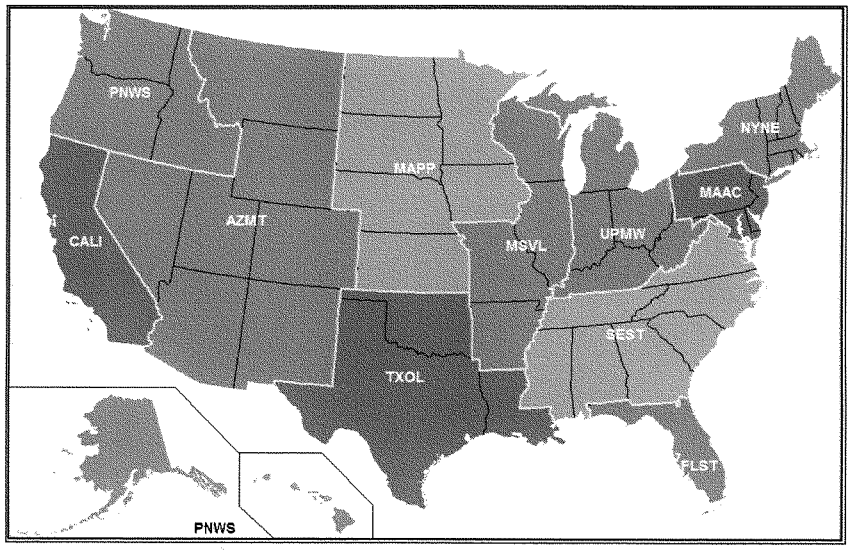
The N_{ew}ERA macroeconomic model includes 11 regions: NYNE (New York and New England), MAAC (Mid-Atlantic Coast), UPMW (Upper Midwest), SEST (Southeast), FLST (Florida), MSVL (Mississippi Valley), MAPP (Mid-America), TXOL (Texas, Oklahoma and Louisiana), AZMT (Arizona and Mountain states), CALI (California) and (PNWS) Pacific Northwest. The aggregate model regions are built up from economic data for the 50 U.S. states and the District of Columbia. The 11 standard N_{ew}ERA macroeconomic model regions and the states within each N_{ew}ERA region are shown in Figure B - 7.

3. Sectoral Aggregation

The N_{ew}ERA model includes a standard set of 12 economic sectors: five energy (coal, natural gas, crude oil, electricity, and refined petroleum products) and seven non-energy sectors (services, manufacturing, energy-intensive[27], agriculture, commercial transportation excluding trucking, trucking, and motor vehicles). These sectors are aggregated up from the 440 IMPLAN sectors. The model has the flexibility to represent sectors at different levels of aggregation, when warranted, to better meet the needs of specific analyses.

[27] The energy-intensive sector in the N_{ew}ERA modeling system includes pulp and paper, chemicals, glass, cement, primary metals, and aluminum.

Figure B - 7: N_{ew}ERA Macroeconomic Model Regions



4. Natural Gas and Oil Markets

There are great uncertainties about how the U.S. natural gas market will evolve, and the N_{ew}ERA modeling system is designed explicitly to address the key factors affecting future natural gas supply and prices. One of the major uncertainties is the availability of shale gas in the United States. To account for this uncertainty and the subsequent effect it could have on international markets, the N_{ew}ERA modeling system has the ability to represent supply curves for conventional natural gas and shale gas for each region of the model. By including each type of natural gas, it is possible to incorporate expert judgments and sensitivity analyses on a variety of uncertainties, such as the extent of shale gas reserves, the cost of shale gas production, and the impacts of environmental regulations.

The N_{ew}ERA model represents the domestic and international crude oil and refined petroleum markets. The international markets are represented by flat supply curves with exogenously specified prices. Because crude oil is treated as a homogeneous good, the international price for crude oil sets the U.S. price for crude oil.

Consumption of electricity as a transportation fuel could also affect the natural gas market. Along with alternative transportation fuels (including biofuels), the model also includes different vehicle choices that consumers can employ in response to changes in the fuel prices. The model includes different types of Electrified Vehicles (xEVs): Plug-in-Hybrid Electric Vehicles

(PHEVs) and Battery Electric Vehicles (BEVs). In addition, the model accounts for both passenger vehicles and trucks powered by CNG.

5. Macroeconomic Outputs

As with other CGE models, the N_{ew}ERA macroeconomic model outputs include demand and supply of all goods and services, prices of all commodities, and terms of trade effects (including changes in imports and exports). The model outputs also include gross regional product, consumption, investment, cost of living or burden on consumers, and changes in "job equivalents" based on changes in labor wage income. All model outputs are calculated by time, sector, and region.

Impacts on workers are often considered an important output of policy evaluations. Impacts on workers are complicated to estimate and to explain because they can include several different impacts, including involuntary unemployment, reductions in wage rates for those who continue to work, and voluntary reductions in hours worked due to lower wage rates. No model addresses all of these potential impacts. The N_{ew}ERA model is a long-run equilibrium model based upon full employment, and thus its results relate to the longer-term effects on labor income and voluntary reductions in hours worked rather than involuntary unemployment impacts. It addresses long-run employment impacts, all of which are based on estimates of changes in labor income, also called the "wage bill" or "payments to labor." Labor income impacts consist of two effects: (1) changes in real wage per hour worked; and (2) changes in labor market participation (hours worked) in response to changed real wage rates. The labor income change can also be expressed on a per-household basis, which represents one of the key components of disposal income per household. (The other key components of disposable income are returns on investments or "payments to capital," and income from ownership of natural resources). The labor income change can also be stated in terms of job-equivalents, by dividing the labor income change by the annual income from the average job. A loss of one job-equivalent does not necessarily mean one less employed person—it may be manifested as a combination of fewer people working and less income per person who is working. However, this measure allows us to express employment-related impacts in terms of an equivalent number of employees earning the average prevailing wage.

D. Integrated N_{ew}ERA Model

The N_{ew}ERA modeling framework fully integrates the macroeconomic model and the electric sector model so that the final solution is a consistent equilibrium for both models and thus for the entire U.S. economy.

To analyze any policy scenario, the system first solves for a consistent baseline solution; it then iterates between the two models to find the equilibrium solution for the scenario of interest. For the baseline, the electric sector model is solved first under initial economic assumptions and forecasts for electricity demand and energy prices. The equilibrium solution provides the baseline electricity prices, demand, and supply by region as well as the consumption of inputs—capital, labor, energy, and materials—by the electric sector. These solution values are passed to the macroeconomic model.

Using these outputs from the electric sector model, the macroeconomic model solves the baseline while constraining the electric sector to replicate the solution from the electric sector model and imposing the same energy price forecasts as those used to solve the electric sector baseline. In addition to the energy price forecasts, the macroeconomic model's non-electric energy sectors are calibrated to the desired exogenous forecast (*e.g.*, EIA's latest AEO forecast) for energy consumption, energy production, and macroeconomic growth. The macroeconomic model solves for equilibrium prices and quantities in all markets subject to meeting these exogenous forecasts.

After solving the baseline, the integrated N_{ew}ERA modeling system solves for the scenario. First the electric sector model reads in the scenario definition. The electric sector model then solves for the equilibrium level of electricity demand, electricity supply, and inputs used by the electric sector (*i.e.*, capital, labor, energy, emission permits). The electric sector model passes these equilibrium solution quantities to the macroeconomic model, which solves for the equilibrium prices and quantities in all markets. The macroeconomic model then passes to the electric sector model the following (solved for equilibrium prices):

- Electricity prices by region;
- Prices of non-coal fuels used by the electric sector (*e.g.*, natural gas, oil, and biofuels); and
- Prices of any permits that are tradable between the non-electric and electric sectors (*e.g.*, carbon permits under a nationwide greenhouse gas cap-and-trade program).

The electric sector model then solves for the new electric sector equilibrium, taking the prices from the macroeconomic model as exogenous inputs. The models iterate—prices being sent from the macroeconomic model to the electric sector model and quantities being sent from the electric sector model to the macroeconomic model—until the prices and quantities in the two models differ by less than a fraction of a percent.

This decomposition algorithm allows the N_{ew}ERA model to retain the information in the detailed electricity model, while at the same time accounting for interactions with the rest of the economy. The detailed information on the electricity sector enables the model to represent regulatory policies that are imposed on the electricity sector in terms of their impacts at a unit level.

E. References to the Appendix

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Arrow, K.J., and G. Debreu. 1954. "Existence of an Equilibrium for a Competitive Economy." *Econometrica* 22:265-290.

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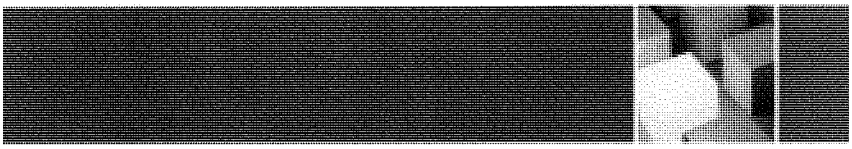

Employment Impacts of Three Air Rules Estimated Using a CGE Model

Addendum to *Estimating Employment Impacts of Regulations: A Review of EPA's Methods for Its Air Rules*

Prepared for U.S. Chamber of Commerce

Anne E. Smith, Ph.D., Senior Vice President
Will Gans, Ph.D., Consultant

February 2013

Purpose of this Addendum

NERA

- This report evaluating EPA's employment impact estimation practices found that EPA's current use of a cost-to-jobs multiplier based on a paper by Morgenstern, Pizer, Shih (MPS) has these flaws:
  - Is a partial analysis that fails to consider employment impacts to the full economy.
  - Always projects positive job impacts, no matter how costly the regulation.
- The report included a case study showing that a full-economy, CGE-based analysis of the Utility Mercury and Air Toxics Standard (MATS) finds negative impacts to worker income across the full economy, in contrast to EPA's MPS-based estimate of small positive worker income impacts.
  - The CGE analysis used engineering costs for MATS comparable to EPA's.
- Subsequently, the U.S. Chamber asked NERA to develop full-economy, CGE-based worker income estimates for several other recent air rules.
  - Again, use engineering cost estimates comparable to those in EPA's RIAs.
  - Determine whether the case study finding that MPS-based estimates are inconsistent with a full-economy view can be viewed as a general finding.

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Rules Analyzed in This Addendum

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- Cross-State Air Pollution Rule ("CSAPR") of 2011
  - Although CSAPR has been vacated, the RIA's MPS-based employment impact estimates can still be compared to those from a full-economy CGE analysis.
  - EPA used MPS multiplier to assess rule's employment impacts.
- Industrial Boiler MACT for Major and Area Sources ("Boiler Rule")
  - EPA used MPS multiplier to assess rule's employment impacts.
- A potential 65 ppb NAAQS for ozone
  - Use the EPA cost estimates for this potential NAAQS level from 2008 & 2010 RIAs, but assess those costs relative to the current 75 ppb NAAQS.
  - Prior RIAs did not include any employment impact estimates.
- All 3 combined -- to explore the cumulative nature of impact estimates

All of these analyses were conducted with CAIR (not CSAPR) in the baseline: is consistent with the RIAs from which the cost estimates are obtained, and enables the 3 set of results to be compared to each other.

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The CGE Model Used: N_{ew}ERA

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- Same model as used in the MATS case study in the report.
  - Detailed description of model is in Appendix B of the report.
- For the electric sector rules (e.g., MATS, CSAPR), we do not directly "input" the RIA's engineering costs to the CGE model.
  - Need to let N_{ew}ERA estimate compliance costs by year given technology and fuel choices that can achieve compliance.
  - By using same technology and similar fuel cost assumptions as in EPA RIA, N_{ew}ERA gets to a similar but not exact compliance cost in the electricity sector.
- Acronyms for N_{ew}ERA sectors used in this addendum:

ELE – Electricity
GAS – Natural gas extraction & transport
COL – Coal mining and transport
EIS – Energy-intensive manufacturing
M_V – Motor vehicle manufacturing
MAN – All other manufacturing
CRU – Crude oil extraction
OIL – Oil refining
SRV – Commercial & service sectors
AGR – Agriculture
TRK – Commercial trucking
TRN – All other commercial transportation

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Summary of These Additional Analyses: Full-Economy Impacts Are Consistently Negative, Contrary to MPS-Based Estimates

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Rule	Sectors Subject to Rule	Modeled Costs, Annualized (billions, 2010$)	Job-Eq. Impact Estimates: EPA (using MPS)	Job-Eq. Impact Estimates: N_{ER}-ERA (using CGE)
MATS (*)	Electricity	$10.4 (in 2012)	+8,000 (-15,000 to 30,000)	-71,000
CSAPR	Electricity	$0.5 (in 2013)	+700 (-1,000 to 3,000)	-34,000
Boiler MACT	Most industry other than ELE	$2.4	+2,200 (-4,100 to 8,500)	-28,000
65 ppb Ozone	All sectors + households	$28.5	Not estimated	-609,000
3 above combined	All sectors + households	3 above combined	Not estimated	-750,000

(*) Analysis reported in the report. (MATS impact analysis was performed relative to baseline with CSAPR. The 3 additional policies in this addendum were analyzed relative to a baseline with CAIR for comparability to EPA's RIAs for those 3 rules.)

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CSAPR – Overview

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- CSAPR requires 28 Eastern states to reduce SO_2 & NO_X emissions to help states achieve the NAAQS.
- Emission caps, starting in 2012; Phase 2 in 2014
  - We implemented the specific emissions caps, including limits on inter-state allowance trading as constraints in N_{ew}ERA's electric sector.
  - N_{ew}ERA optimizes the generators' choices to retrofit, retire, fuel-switch, buy allowances, &/or reduce generation in order to comply with the emissions caps.
    - Resulting electricity price changes are passed to other sectors and households.
    - Resulting up-front compliance investments increase labor and capital demand from the rest of the economy.

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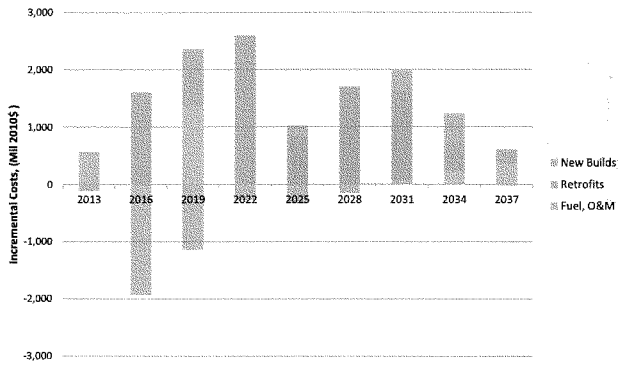
CSAPR – Annualized Electric Sector Costs Projected by N_{ew}ERA



Annualized Compliance Costs (Billions of 2010$)		
EPA	1.5 (2012)	0.8 (2014)
N_{ew}ERA	0.5 (2013)	0.1 (2016)

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CSAPR – Comparison of Labor Impacts

- EPA employment impact: jobs created by retrofits and ongoing compliance.
- NewERA: employment down because of additional electric sector costs passed to rest of economy.

(Job Equivalents)	EPA based on Morgenstern et al. (2002)	NewERA
Employment Estimate	**+700** (per year)*	**-34,300** (avg, 2013-2037)**

* Statistical estimate, C.I. of -1,000 to +3,000

** Estimate varies by year

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CSAPR – Labor Impacts by Year (as Change in Job-Equivalents of Total U.S. Labor Income)

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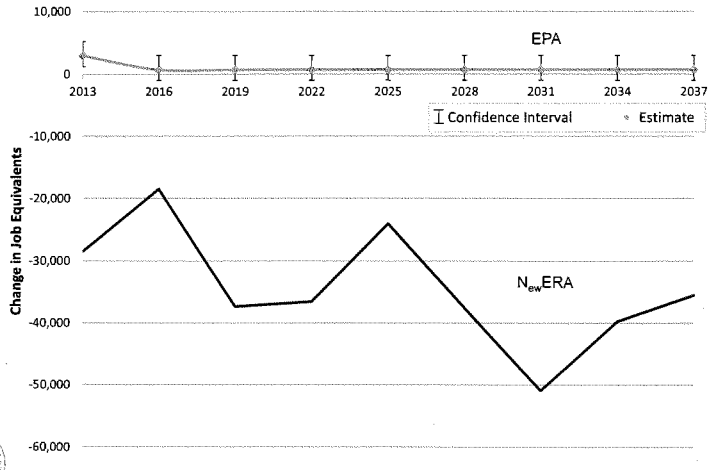

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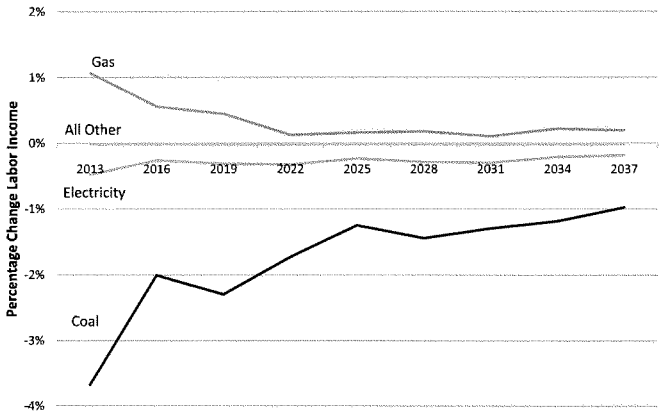
CSAPR – Labor Impacts by Sector (as Percentage Change Relative to Baseline)



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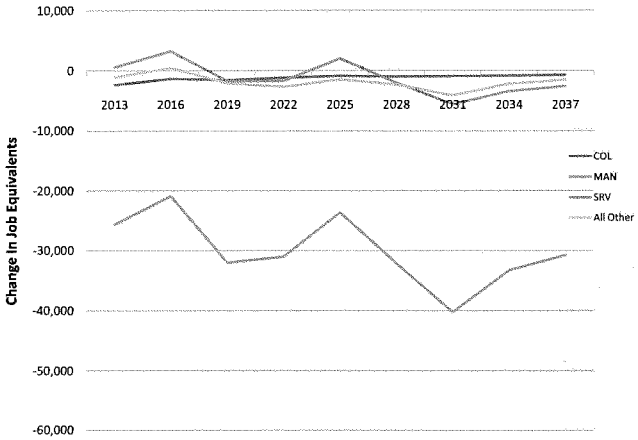
CSAPR – Labor Impacts by Sector (as Change in Job-Equivalents of Total Sectoral Labor Payments)



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Boiler Rule – Overview

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- Rule affects 14,000 "major" & 183,000 "area" boilers.
  - Major: (> 10 tpy emissions): Emissions Limits (PM, CO, HAP metals, SO_2, Hg) and annual maintenance checkups mandated.
  - Area: (< 10 tpy): energy assessment for area boilers (emissions limits only for coal units).
- Applies to most sectors other than electricity sector.
- EPA based its cost estimates on presumed control technologies by type of boiler.
- EPA's cost estimates are used as direct cost increases to N_{ew}ERA's non-electric sectors.
  - We estimated portion of EPA's total cost that is one-time capital expenditure and portion that is recurring and input each with different timing.
  - Allocated to each N_{ew}ERA sector based on mapping from EPA's costs by SIC codes.
  - New boiler costs allocated by same shares as or existing source costs.

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Boiler Rule – Cost Inputs Derived from Data in RIA

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Total Annualized Boiler Rule costs reported in RIA of $2.4 billion (2008$).

We need separate recurring and capital costs for the N_{ew}ERA model.

The disaggregation of the $2.4 billion costs was obtained from technical appendices supporting the RIA.

(million 2010$)	Recurring Costs	Capital Control Costs
Area Rule	$ 94	$ 1,411
Major Rule	$ 165	$5,216
Total Indust. Boiler	$ 259	$6,627

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Boiler Rule – Cost Inputs by Sector in N_{ew}ERA

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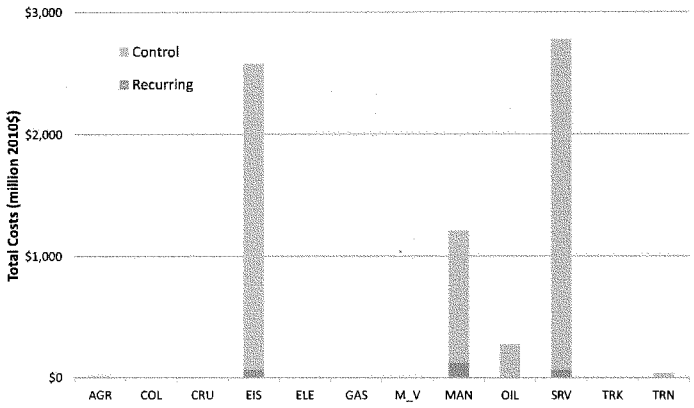

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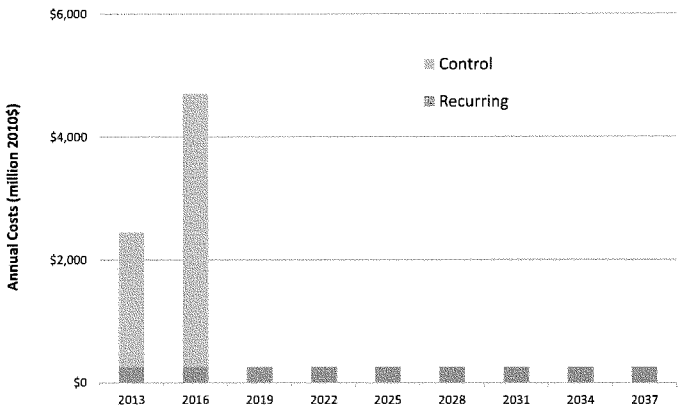
Boiler Rule – Cost Inputs by Year



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Boiler Rule – Comparison of Labor Impact Estimates

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(Job Equivalents)	EPA from RIA, based on Morgenstern et al. (2002)	N_{ew}ERA
Employment Estimate	**+2,200** (per year)*	**-27,585** (avg, 2013-2037)**

* Statistical estimate, C.I. of -1,000 to +3,000

** Estimate varies by year

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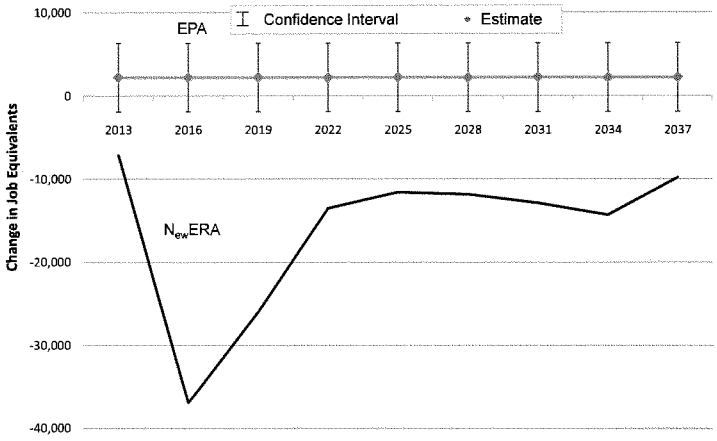
Boiler Rule – Labor Impacts by Year (as Change in Job-Equivalents of Total U.S. Labor Income)



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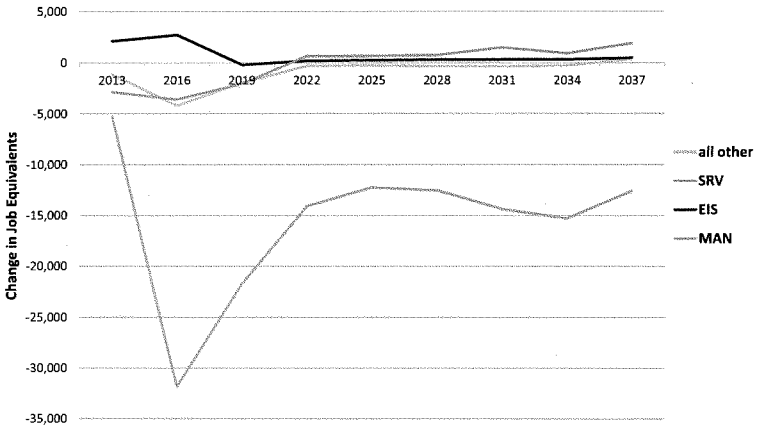
Boiler Rule – Labor Impacts by Sector (as Change in Job-Equivalents of Total Sectoral Labor Payments)

NERA
Economic Consulting



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Ozone Rule – Overview

NERA

- Current NAAQS of 75 ppb is under review by EPA and likely to be revised to a level between 50 ppb and 70 ppb.
- We analyzed one possible new NAAQS level: 65 ppb
  - Used cost estimates for 65 ppb from the 2008 ozone NAAQS RIA (and in the 2010 ozone reconsideration RIA).
  - Adjusted those cost estimates to assume starting from full attainment of the current 75 ppb standard.
- No employment impact estimates exist in the RIAs to compare our estimates to.
  - Next ozone NAAQS RIA is likely to contain employment impact estimates.

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Ozone Rule – Cost Assumptions

NERA

- RIA cost estimates for 65 ppb are mostly for unknown types of actions/investments:
  - "Known" controls: $4.5 billion/year, versus "unknown" controls: $39 billion/year (2006$).
  - We subtract RIA's cost of getting to 75 ppb from the above.
  - We allocate remainder of RIA's costs (converted to 2010$).
    - to N_{ew}ERA sectors (and households)
    - over time and to regions
- Sectoral allocation methods used:
  - For electric sector: Force in SCRs to all coal-fired units in 36 projected non-attainment states, if not already projected to have SCR by compliance date.
  - For rest of sectors and households:
    - "Known" control costs for non-EGU point sources allocated to N_{ew}ERA sectors based on their NAICS codes.
    - "Unknown" costs apportioned to sectors/households and to regions according to their projected NO_x emissions.

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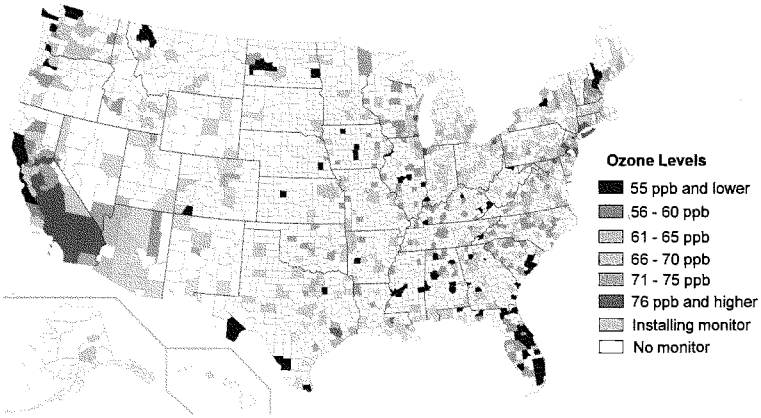
Ozone Rule – Location of Projected Nonattainment Areas

NERA



Based on EPA (2008)

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Ozone Rule – Allocation of Costs over Time

NERA

- In April 2012, EPA announced that areas would have between 3 and 20 years to come into attainment with the 2008 standards based on their current ozone levels. We assume same number of years until attainment time, clock starting in 2017 (consistent with a rulemaking in 2014).

Area Classification	Current Ozone Level	Attainment Time
Marginal	76-85 ppb	3 years
Moderate	86-99 ppb	6 years
Serious	100-112 ppb	9 years
Serious-15	113-118 ppb	15 years
Serious-17	119-174 ppb	17 years
Extreme	175 ppb and higher	20 years

- Each sector/region cost category is converted to a total present value, then 50% is assumed to be capital expenditure made in years from 2017 until region's compliance date. Other 50% is assumed to be recurring cost, which is applied on annual basis to all years from compliance year forward.

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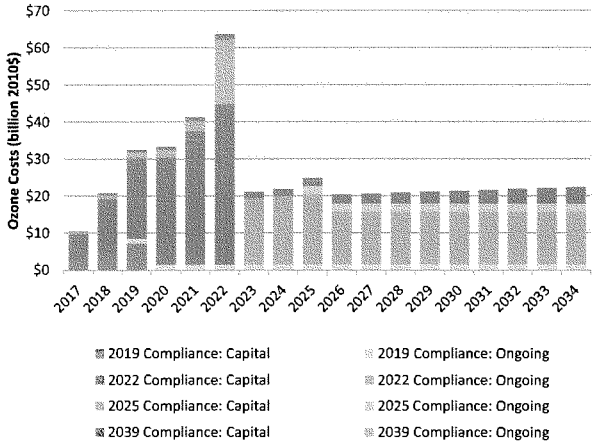
Ozone Rule – Compliance Cost Inputs by Year



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Ozone Rule – Labor Impact Estimates

NERA

(Job Equivalents)	EPA from RIA	NewERA Annual Average, 2013-2037
Employment Estimate	(no estimate)	**- 609,364**

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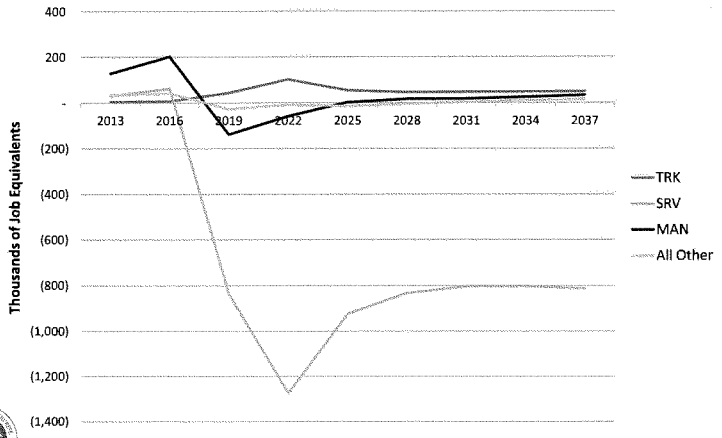
Ozone Rule – Labor Impacts by Sector (as Change in Job-Equivalents of Total Sectoral Labor Payments)

NERA



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Combination of Rules – Overview

NERA

- Combined CSAPR, Boiler, Ozone rules by inputting their individual costs in same manner, but all simultaneously.
- No significant overlap in rules was identified requiring adjustments to avoid double-counting.
  - CSAPR requires NO_x and SO_2 controls in ELE only, and our Ozone Rule's requirements for SCRs are automatically accounted for in the CSAPR compliance strategy that N_{ew}ERA estimates endogenously.
  - Ozone Rule requirements for non-electric sectors would affect only NO_x and VOC emissions, while Boiler Rule requirements affect only PM. These require different types of technologies, and so are additive not duplicative.
- Ozone is dominant impact, but all rules contribute to employment and other economic impacts.

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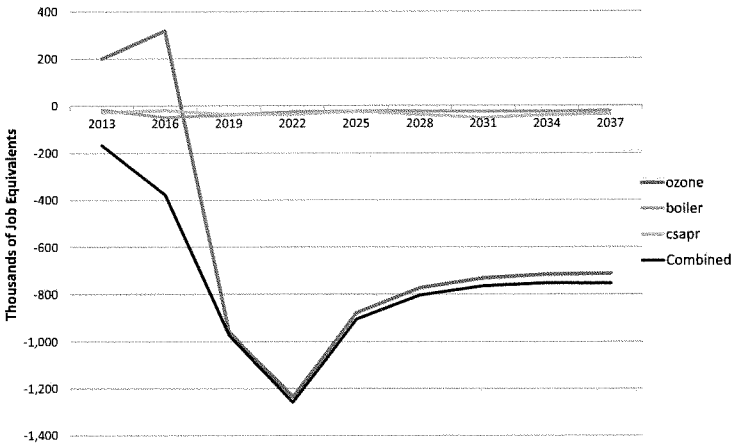
Combined Rule – Comparison to Labor Impacts of Individual Rules

NERA



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U.S. CHAMBER OF COMMERCE

Environment, Technology & Regulatory Affairs Division
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Mr. WHITFIELD. Thank you, Dr. Smith.

Mr. Segal, you are recognized for 5 minutes.

STATEMENT OF SCOTT H. SEGAL

Mr. SEGAL. Thank you, Mr. Chairman, members of the committee. Thanks for the opportunity to testify. My name is Scott Segal. I am a partner at the law firm of Bracewell & Giuliani and I also direct the Electric Reliability Coordinating Council, which includes some of America's top power producers that are working to ensure that consumers across the United States have access to reliable, affordable, and environmentally responsible power.

Look, EPA has a tough job of balancing America's desire for environmental protection with its demand for affordable and reliable power. The Agency has issued a number of environmental rules in the past 2 years, is working on others that, at times, seem inconsistent with this balance and more of these types of rules are imminent.

You have heard the names of all of these rules. We don't have time necessarily to get into every one of them. But Dr. Smith talked about the MATS Rule, also the State or overturned actually Cross-State Rule, the changes to ambient air quality standards, water rules, the status of coal ash, Regional Haze rules; the list goes on and on.

You know, if you do work for those that utilize coal, you almost get the impression that the Agency doesn't like coal. It is funny how that works since every rule I have named directly deals with coal. Worst yet than these rules, is the capacity of the Agency to engage in litigation with environmental organizations, settle that litigation prematurely on terms that are favorable to expansion of the Agency's power, and also the use of punitive enforcement strategies, and even direct opposition to the findings of state regulators who are themselves competent regulators who are in fact closer to the problems they seek to regulate.

Taken together, these power sector rules impact about 780,000 megawatts of gas, oil, and oil-fired generation. Through the year 2025, the most recent estimates show that 348 of the 1,300 coal-fired electric generator units are likely to close in 38 States, representing about 15 percent of the total coal fleet. The reasons for those closures, I think, are clear to all of us. The industry faces a combination of low natural gas prices and inflexible regulation.

Merely losing 56 gigs, a midrange scenario in line with what some industry has estimated but also with the FERC—the Federal Energy Regulatory Commission—itself estimated, just to give you a sense of perspective is the equivalent of wiping out all the power generation for the States of Florida and Mississippi. But coal still has an important role to play in America's energy future. As Tom Fanning at the Southern Company recently remarked, the U.S. still is the Saudi Arabia of coal with 28 percent of coal's reserves.

While the shale revolution is arguably the most transformative energy event in our time, recent reports have indicated that the most obvious projects were switching from coal to natural gas have already been undertaken. Many gas plants are running at or near capacity. They are running flat out, meaning that additional demand, assuming the economy ever recovers, additional demand

may have to once again be met by reliable coal production. But as these rules increase the regulatory costs, those are passed on directly to consumers in the form of higher prices. Relying on fewer instead of more options puts us in danger of paying more for electricity, which affects the economy as a whole.

You would think that the bill before you today is targeted only at the stock prices of energy companies, at least to hear some of its critics. That is not what triggers this analysis. It is the cost to consumers. And it should come as no surprise that higher electricity prices are destructive to our economy. Consider, residential consumers, small businesses, hospitals, schools, farms, industrial operations all depend on reliable and affordable electric power. Higher prices disproportionately impact vulnerable individuals, including the poor, the elderly, and those on fixed incomes. One-quarter of Americans report having problems paying for several basic necessities; 23 percent have difficulty in paying their utilities. That is who is damaged when we don't fully take into account the consumer impact of higher electricity prices.

By the way, we have heard discussions of higher gasoline prices and I would also point out that almost half of our refineries' operating costs, about 43 percent actually, is for energy and fewer refineries have the capacity to cogenerate appreciable amounts of electricity on their own, meaning higher electricity prices equals higher gasoline prices as well.

Our schools—99 percent of school superintendents found direct budget impacts as result of increased energy costs associated with maintaining the building spaces. Worse yet, there is no alternative for a school superintendent other than to fire teachers to pay for more expensive energy.

Healthcare—EPA's rules also adversely affect public health in three ways: by increasing the cost of medical care and treatment, by imposing real threats on human health by suppressing economic growth and the improved health that it brings, and by focusing on expensive rulemakings with little incremental benefit when those resources, if more sensibly deployed, could save many more lives.

The bottom line, today's legislation is an important first step in the direction of addressing consumer impact and prices. It is not a gutting of the Clean Air Act. The power remains with the Environmental Protection Agency, not the DOE. The DOE makes an analysis. It is up to the EPA to decide whether to take that analysis seriously and address those energy consumer price end points. If they do so, the rule may proceed. So the power remains with the EPA to take consumer prices seriously. They should do that, and they should adopt this legislation.

Thank you.

[The prepared statement of Mr. Segal follows:]

Statement of Scott H. Segal
Policy Resolution Group at Bracewell & Giuliani LLP
Director, Electric Reliability Coordinating Council

The "Energy Consumers Relief Act of 2013'
Hearing Before the Committee on Energy and Commerce
Subcommittee on Energy and Power
U.S. House of Representatives
April 12, 2013

Mr. Chairman and Members of the Subcommittee. Thank you for giving me the opportunity to testify before you today. My name is Scott Segal. I am testifying today as a Partner at Bracewell & Giuliani and the Director of the Electric Reliability Coordinating Council (ERCC). In both capacities, I have worked with some of America's top power producers to ensure that consumers across the United States have access to reliable, affordable, and environmentally responsible power.

I appreciate the opportunity to testify today about the impacts EPA regulations can have on energy consumers.

EPA Regulatory Challenges to the Power Sector

The U.S. Environmental Protection Agency (EPA) has the tough job of balancing America's desire for environmental protection with its demand for affordable and reliable power. EPA has issued a number of environmental rules in the past two years that seem inconsistent with this balance, and more are imminent. The power sector is under severe pressure from the myriad of rules and regulations coming from EPA. Because of the close proximity of their implementation and the potential devastating impact they will have, these EPA regulations deserve intensive and cumulative scrutiny. Included on the list, among others, are the:

- Finalized Mercury and Air Toxics Standards (MATS) Rule for new and existing sources;
- Finalized National Ambient Air Quality Standards (NAAQS) for Particulate Matter (PM);
- Proposed Section 316(b) rules regarding plant cooling water intake structures and effluent guidelines;

- Proposed New Source Performance Standards (NSPS) for Greenhouse Gas Emissions from new power plants;
- Pending New Source Performance Standards for Greenhouse Gas Emissions from existing power plants;
- Departure from accepted state implementation procedures, including the regional haze program, start-up/shutdown programs, and enforcement-related initiatives;
- Pending reconsideration to the National Ambient Air Quality Standards (NAAQS) for SO2, NO2, and Ozone; and
- Pending Coal Combustion Residuals or By-Products (CCRs) rules.

Taken together, these regulations will impact roughly 780,000 megawatts of gas, oil, and coal-fired generation, which is about 75 percent of the current available capacity in the U.S., and makes up nearly 70 percent of the U.S. total electricity generation. Currently, compliance with several of EPA's new rules would all be required within the same compliance period or shortly thereafter. These retrofits are so substantial that, in many cases, they will cost more to build than the cost of the original generating unit. This means that the generating units subject to these rules would either have to undertake the installation of extensive retrofits on a potentially unrealistic timeframe or else shutdown entirely.

Effect of Regulations on Energy Prices

Given the regulatory uncertainty related to future EPA regulations on a wide variety of energy sources—and not just coal—keeping all options on the table for energy generation, as the President has suggested multiple times, is essential to maintaining America's energy supply.

Last year, there were over 1,300 electric generating units powered by coal at some 589 power plants in the United States, with a total generating capacity of some 300,000 megawatts. Through the year 2025, the most recent estimates show that 348 of these units are likely to close in 38 states representing about 15 percent of the total coal fleet. The reasons for these closures should be obvious by now: the industry faces a combination of low natural gas prices and inflexible regulation. Coal represented about half of U.S. power generation in 2008, and is down to just under 40 percent last year.

As aging coal-fired power plants are forced to shut down due to EPA air pollution regulations and additional plants are temporarily idled to install mandated pollution controls, we need to ensure a reliable stream of electrical power is available to meet the nation's energy needs. As a result of the combination of EPA's regulations, the country could experience regional shortfalls of electricity, and the reliability of our electricity grid could in turn face risks. The loss of future coal-fired generation, investment in current coal-fired generation, and closures of existing coal-fired generation capacity that may result from the combination EPA regulatory actions risks a variety of reliability problems.

To place what's at stake in perspective, one report noted, a Federal Energy Regulatory Commission (FERC) staff analysis says, the EPA rules endanger "about 8% of all U.S. generating capacity. Merely losing 56 gigawatts—a midrange scenario in line with FERC and industry estimates—is the equivalent of wiping out all power generation for Florida and Mississippi. In practice, this will mean blackouts and rolling brownouts, as well as spiking rates for consumers."[1]

Coal still has an important role to play in the energy future of the United States and the world. As Tom Fanning, the chief executive officer of the Southern Company, observed, "The United States is the Saudi Arabia of coal. We control 28 percent of the world's coal reserves. . . . Put simply, an American future without coal is outright unsustainable."[2] This is for good reason: coal still has many natural advantages as a fuel source, such as ease of transportation, reliability as a baseload energy source, and less complicated infrastructure needs than its alternatives.

The most confounding market force for coal-powered generation may well be the sustained low cost of natural gas. While the shale revolution is arguably the most transformative energy event of our time, recent reports have indicated the most obvious projects for switching from coal to gas have already been undertaken. Many gas plants are running at near capacity, meaning that additional demand may have to once again be met by reliable coal generation. Further, the regulatory environment for hydraulic fracturing must remain reasonable; environmentalist

[1] Wall Street Journal, An EPA Moratorium, Aug. 29, 2011.
[2] Fanning, Tom. Policy Perspectives: American Energy Policy. May 2012. http://www.southerncompany.com/news/docs/5-17-12_TAF_AmericanEnergyPolicyPaper.pdf

opposition to both coal and gas production is simply irresponsible, particularly added to the opposition to transmission lines, nuclear, hydropower, and even some solar and wind projects.

Additionally, as NARUC Chair David Wright testified last year, coal-fired generation is an important aspect of "resource diversity," and EPA needs to "recognize the needs of States and regions to deploy a diverse portfolio of cost-effective supply-side and demand-side resources based on their own unique circumstances and characteristics." [3] I am is concerned that EPA rules establish a future for electricity generation that is narrowly prescribed to a small group of technologies, some of which do not even exist commercially at this time, and that EPA's plan for the future risks disruption in the reliable supply of electricity.

Removing coal from our country's energy mix raises additional concerns due to the volatility that exists in the other energy markets. Losing the option to generate power from coal, which has historically stable costs compared to oil and gas, is a risk we should not be willing to take. As Wright also testified:

> [T]he policies being pursued today actually make it harder for our States and regions to develop diverse resource portfolios by eliminating the use of coal, which will force us to overly rely on natural gas...but resource diversity is critically important in the electric sector...Yet no one can predict the future, especially when that future is reliant on a historically volatile commodity like natural gas. It is therefore important that we as a country maintain the ability to invest in a diverse portfolio of resources so that our ratepayers are protected against price increases that one particular fuel may experience.[4]

These costs will be passed onto consumers in the form of higher prices. As Tom Wolf from the Illinois Chamber of Commerce has testified, "Relying on fewer instead of more options puts us in danger of paying more for electricity, which affects the economy as a whole."[5]

EPA needs to carefully consider the consequences of polices that may not allow for a flexible and reliable supply of electricity, because the impacts of reliability problems can be devastating.

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[3] Wright, David. Testimony before the House Energy and Commerce Committee, The American Energy Initiative: A Focus on EPA's Greenhouse Gas Regulations. On behalf of National Association of Regulatory Utility Commissioners. June 19, 2012.
http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/Hearings/EP/20120619/HHRG-112-IF03-WState-WrightD-20120619.pdf

[4] *Id.*

[5] Wolf, Tom. Testimony before the House Science, Space, and Technology Committee, EPA's Impact on Jobs and Energy Affordability: Understanding the Real Costs and Benefits of Environmental Regulations. June 6, 2012.
http://science.house.gov/sites/republicans.science.house.gov/files/documents/hearings/HHRG-112-%20SY20-WState-TWolf-20120606.pdf

The downside impacts of reduced electric reliability are substantial and must be taken into account in any responsible analysis of the proposed rule. As ISO New England has stated:

> A reliable supply of electricity is a foundation of our prosperity and quality of life. Without it, our world literally grinds to a halt—businesses cannot plan and operate productively, hospitals and schools cannot provide their essential services, and residents cannot depend on the electricity they need simply to live their daily lives. Without reliable electricity, the financial and societal costs would be enormous.[6]

The Institute of Electrical and Electronics Engineers of the U.S. (IEE-USA) has further observed that even minor occurrences in the electric power grid can sometimes lead to catastrophic "cascading" blackouts, and that the loss of a single generator can result in an imbalance between load and generation. The resulting blackouts cause incalculable economic damage. For example, the direct costs to high-technology manufacturing in the San Francisco Bay Area alone during the California blackouts alone ran as high as one million dollars a minute due to lost production, and the relatively brief Northeast blackout of 2003 cost business about $13 billion in lost productivity.[7] These are costs that the our economy and communities cannot afford to bear, and EPA needs to carefully consider reliability concerns before moving forward with the proposed rule.

Increases in Electricity Costs Harm the Economy, Public Health, and the Environment

It should come as no surprise that higher electricity prices are destructive to our economy. Affordable, reliable energy is one of the main drivers of economic growth, and increasing the cost of energy and thereby forcing U.S. industries oversees is something we cannot risk as our country continues down the path of economic recovery.

- *Economically Disadvantages Communities*

Residential consumers – small businesses, hospitals, schools, farms, and industrial operations all depend on reliable and affordable electric power. Higher prices will disproportionately impact vulnerable individuals, including the poor, the elderly, and those on fixed incomes. Those who can least afford it will be the ones forced to give up the largest percentage of their monthly

[6] ISO New England. http://www.iso-ne.com/nwsiss/grid_mkts/elec_works/oview_brochure.pdf (Accessed April 10, 2012)
[7] McClure, G.F. Electric Power Transmission Reliability Not Keeping Pace with Conservation Efforts, Today's Engineer. Feb. 2005. http://www.todaysengineer.org/2005/Feb/reliability.asp

budgets. As the group Empower Consumers testified before this committee, "In a recent study on Public Opinion on Poverty, it was reported that one-quarter of Americans report having problems paying for several basic necessities. In this study, currently 23% have difficulty in paying their utilities—that is, one out of four Americans."[8] Further, African-American and Hispanic families will spend almost twice the amount of after-tax income on energy compared to the average and when viewed as a percentage of total household income.[9] Likewise, elderly households use less per capita on energy but still "spend a higher share of their income on energy-related expenditures."[10]

- *Gasoline Prices*

Working families are also burdened by high gasoline prices, which are themselves complicated by high electricity prices, in addition to the many regulations faced by refiners themselves. Almost half of a refinery's operating costs (43 percent) is for energy, and few refineries have the capacity to co-generate appreciable amounts of electricity on their own. Put another way, the U.S. Department of Energy recently calculated, some six kilowatt hours of energy is needed to refine each gallon of gasoline.[11]

Actual outages – even of limited duration – are particularly hard on refining. Based on experience during the California electricity crisis, it became clear that as the risk of outages proceeds, so too does the risk of even more prolonged gasoline shortages. The U.S. Energy Information Administration found that, "Returning to full production can take up to several days. Consequently, the period of reduced production will be longer than the period of the electrical outage."[12] EIA also noted that up to 27 percent of California refining capacity could be

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[8] Bassett, Darryl. Testimony before the House Energy and Commerce Committee, The American Clean Energy and Security Act of 2009. April 23, 2009. http://democrats.energycommerce.house.gov/sites/default/files/documents/Testimony-Bassett-FC-ACES-2009-4-23.pdf

[9] Reuters. New Study Confirms Rising Energy Costs Disproportionately Impacting Minority Households. Jul. 25, 2008, http://www.reuters.com/article/2008/07/25/idUS178012+25-Jul-2008+PRN20080725

[10] Mulvey, Janemarie. Impact of rising energy costs on older Americans, CRS Report for Congress No. RS22826, Mar. 4, 2008 at 3.

[11] How much electricity is used refine a gallon of Gasoline? Letter to Jacob Ward, Program Analyst/PMF Vehicle Technologies Program Office of Energy Efficiency and Renewable Energy U.S. Department of Energy. http://gatewayev.org/how-much-electricity-is-used-refine-a-gallon-of-gasoline

[12] US Department of Energy, Energy Information Administration, Electricity Shortage in California: Issues for Petroleum and Natural Gas Supply. June 12, 2001. http://www.eia.gov/forecasts/steo/special/pdf/california.pdf

"expected to be forced to shut down completely" even during rotating power shortages.[13] Given that the power sector rules can be expected to shorten electricity supply and increase electric rates, it is an absolute certainty that its current implementation schedule will increase the cost of delivering gasoline to already-strapped American consumers.

- *Schools*

Additionally, it is tempting to look at electricity costs as solely affecting large companies and ignore the potential impact to social service organizations like school and hospitals. Primary and secondary schools spend $12 billion a year on energy.[14] School buildings use an average of 10 kilowatt hours of electricity per square foot annually. With a typical school district paying $1.25/square foot annually for energy, a mid-size district with 800,000 square feet of space spends over $1 million dollars annually on energy.[15] The American Association of School administrators reported that 99 percent of school superintendents found direct budget impacts as a result of increased energy costs associated with transportation, heating and air conditioning. Worse yet, Superintendents have found that higher energy costs directly affect teaching positions and the ability of schools to take students off campus for events and competitions.[16]

- *Health Care*

EPA's rules are also likely to adversely affect public health in three ways: by increasing the cost of medical care and treatment; by imposing real threats on human health by suppressing economic growth and the improved health it brings; and by focusing on expensive rulemakings with little incremental benefits when those resources, if more sensibly deployed, could save many times more lives.

With respect to treatment costs, it is important to note that U.S. hospitals spend $8.5 billion annually on energy, often equaling between one and three percent of a hospital's operating

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[13] *Id.*

[14] Agron, J., 36th and 37th Annual Maintenance and Operation Cost Study. American School & University. April 2008. http://asumag.com/Maintenance/2008M&OCostStudy.pdf

[15] *Id.*

[16] UPI. Energy costs spurring school spending cuts. July 29, 2008. http://www.upi.com/Top_News/2008/07/29/Energy-costs-spurring-school-spending-cuts/UPI-96071217347633/.

budget.[17] Furthermore, EPA estimates, in the U.S., the health sector is the second most energy-intensive commercial sector resulting in more than $600 million per year in direct health costs and over $5 billion in indirect costs.[18] The average cost of power per square foot for hospitals is approximately $2.84.[19] Hospital administrators will have no choice but to pay attention to the cost of energy as surging energy costs will squeeze hospital budgets like never before. Without adequate power supply, built upon a foundation of stable and cost-effective coal-fired generation, the healthcare sector and the American public can expect rapidly increasing costs that consumers can ill-afford.

The economic impacts cited earlier will also directly impact public health. From a commercial perspective, higher electricity prices will be largely borne by companies in energy-intensive manufacturing, where higher prices will make it more difficult to expand operations and increase employment. These productive industries result in millions of direct and indirect jobs. Placing unnecessary economic constraints on the U.S. economy, in a time of recession, is unwise and detrimental to sound public health policy as, based on decades of research, continuously-employed individuals experienced, on average, an additional life expectancy of four to five years.[20] Comparably, the direct effect of reducing unemployment has been estimated to prevent up to 2,500 premature deaths a year.[21] In contrast, additional unemployment may significantly harm public health. A report to Congress' Joint Economic Committee by Dr. Harvey Brenner showed the impacts of unemployment on public health. Brenner found that a one percent increase in the unemployment rate was associated with a two percent increase in premature deaths.[22] In 2004, Brenner used his econometric models to estimate the public health results from

[17] U.S. Department of Energy. United States Department of Energy, Energy Information Administration (EIA), Commercial Buildings Energy Consumption Survey (CBECS): Consumption and Expenditures Tables. "Table C3A". 2006

[18] The World Health Organization. Healthy Hospitals, Healthy Planet, Healthy People: Addressing Climate Change in Healthcare Settings. Washington, DC, 2009.

[19] Northwest Energy Efficiency Alliance. Energy in Heathcare [Fact Sheet]. 2010.

[20] Morris JK, DG Cook, and AG Shaper. Loss of employment and mortality. BMJ;308:1135-9. 1994

[21] Dorling, D. Unemployment and health: Health benefits vary according to the method of reducing unemployment. BMJ, 338, b829. 2009

[22] Brenner, Harvey. United States. Cong. House. Joint Economic Committee, Estimating the Social Costs of National Economic Policy: Implications for Mental and Physical Health, and Criminal Aggression, 94th Cong., 2nd sess. H. Rept. 5th ed. Vol. 1., Washington, D.C. 1976

reducing coal-generated electricity. For example, with a substantial reduction in coal-fired power, Brenner found the result would be between 170,000 and 300,000 premature deaths.[23]

Placing EPA regulations in a broader public health perspective, it is clear that EPA regulations are not among the wisest of societal investments in addressing premature mortality. President Obama himself has recognized the need to keep cost-effectiveness in mind when he issued an Executive Order, mandating that EPA to protect public health and the environment "while promoting economic growth, innovation, competitiveness, and job creation."[24] Failure to allocate resources based on cost-effectiveness quite literally costs lives. Experts at the Harvard School for Public Health have estimated that expensive environmental rules save 100 times fewer lives than when the federal government redeployed those assets to address higher risks.[25] This tremendous differential in health impacts explains why EPA should not be so cavalier in its benefits analysis.

Finally, the healthy economy that reliable and affordable power makes possible is necessary to create the financial basis for future generations of clean technology. In this sense, the healthier societies are also those that sustain wealth. As one widely-read, recent report pointed out, "recessions serving as a rough time for green energy shouldn't surprise us: a poor economy is not a time during which technological advance tends to flourish. Firms are cutting costs, investors are pulling back, and consumers aren't spending. The money just isn't available for an expensive product to succeed."[26] If cutting GHG emissions is truly a priority for this administration, the first step needs to be focusing on economic recovery now to allow for investment in and development of new energy technologies in the future.

Taken together, the consequences of electricity price increases should lead us to thoroughly examine EPA regulations before cementing an energy policy that will be very costly in terms of both dollars and health.

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[23] *Id.*
[24] E.O. 13653, 76 Fed. Reg. 3821, published Jan. 21, 2011.
[25] Tengs, T.O., et al. Five Hundred Life-Saving Interventions and Their Cost Effectiveness, Risk Analysis 15, 3, 369-90. 1995
[26] Indiviglio, Daniel. It's Even Harder Being Green During a Recession, The Atlantic, Sept. 23, 2011.

EPA's Suspect Benefits Analysis

As required by two Executive Orders issued on the regulatory process, EPA has prepared cost-benefit analysis to support its regulations. Despite the obvious costs outlined above, EPA has still claimed its regulations are net beneficial to society. The reason EPA has drawn such conclusions is because time and again they inaccurately calculate the benefits of their rules.

Looking at the MATS rule in particular, the title of, and rhetoric surrounding, the rule leads the public to believe that the vast majority of benefits claimed by EPA to justify the rule must be the result of reductions in mercury emissions. But EPA's cost-benefit analysis tells a very different story. According to EPA, the benefits to society of the mercury-reduction requirements are in the range of $500,000 to a maximum of $6.2 million in benefits. In other words, in a rule that EPA admits will cost about $10 billion annually, the maximum benefit of reducing emissions of mercury—the emissions of which serve as the primary basis for the rule—is $6.2 million. According to EPA, the rule is justified based on cost-benefit analysis because it will provide benefits of up to $90 billion every year. Yet virtually all of the benefits come from reducing another pollutant known as fine particulate matter, or PM2.5, in areas of the country that already meet existing PM standards.

Regulation of particulate matter is primarily accomplished through National Ambient Air Quality Standards (NAAQS), which are required to be set at levels that provide adequate protection for the public health or welfare. Yet, in issuing the MATS rule, EPA claimed that tens of thousands of people living in areas of the country that already meet national standards are killed every year because of exposure to PM2.5. More than 90 percent of the benefits that EPA claims under MATS come from areas where PM2.5 concentrations are below 12 ug.

Regulating PM2.5 is much more flexible and cost-effective under the NAAQS program then the MATS rule, and while EPA is mandated to find the most cost-effective solution for each of its regulatory priorities, it certainly did not do so in this instance.

In addition to failing to demonstrate the least burdensome alternative, EPA inaccurately attributes to new rules benefits already claimed in favor of previous rules, effectively double counting the benefits of existing programs. EPA has already controlled emissions of PM2.5

through NAAQS and set a level of PM2.5 that it has found to be sufficient to public health and welfare with an adequate margin of safety. Areas of the country that have already attained this level of PM2.5 (i.e., that are in "attainment") are presumably therefore already safe from any health risks; other areas that have not yet reached this level (i.e. are in "non-attainment") are already required to implement market-wide reductions in PM2.5 to get into attainment.

In explaining how it developed the baseline for its benefits analysis, EPA's regulatory impact analysis states that "EPA did not consider actions states may take in the future to implement the existing ozone and PM2.5 NAAQS standards[.]" Of course, as it did for the MATS rule, EPA's proposed NAAQS for PM2.5 contained an estimated analysis of the benefits of PM2.5 reductions. By not including these benefits in the baseline of the MATS cost-benefit analysis, EPA is essentially claiming these same benefits a second time to justify another regulation. Put a different way, the only way EPA can possibly claim more benefits from reductions in PM2.5 is to go beyond the controls it has already put in place under the PM2.5 NAAQS. Doing so, however, is completely contrary to Congress' intent to regulate PM2.5 under a different section of the Clean Air Act and contrary to EPA's own claims that the PM2.5 NAAQS is sufficient to protect public health and welfare.

Susan Dudley, Director of the George Washington University Regulatory Studies Center, testified before the Senate that "In principle, a benefit-cost analysis should be 'complete.' It should include all the significant consequences of a policy decision: direct and indirect, intended and unintended, beneficial and harmful."[27] However, when EPA conducts cost-benefit analysis, it fails to meet this standard. When looking at benefits, EPA considers any good thing that could happen as a result of its rule, no matter how many degrees removed from the direct effects. In contrast, when looking at costs, EPA *only* considers direct compliance costs, but dismisses risks associated with electric reliability and energy prices, and how that affects poor and minority families or U.S. business competitiveness. In effect, EPA is inflating the benefits of its rules while ignoring the costs.

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[27] Dudley, Susan. Committee on Environment and Public Works Subcommittee on Clean Air and Nuclear Safety United States Senate April 17, 2012
http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=b269df79-8ef3-4897-8483-c5f33fb3ec62

So what can be done for our economy to meet its economic and social needs while also protecting the environment and appropriately addressing climate change risks? President Obama has stated that the "clean energy transformation of our economy" will necessitate "everything from wind, solar, and geothermal power to safe nuclear energy and cleaner coal." In order to keep coal in the picture, the following strategy makes sense:

First, focus on new coal technologies. The government and the environmental community should welcome the development of integrated gasification combined cycle technology projects incorporating beneficial uses for captured carbon.

Second, allow for efficiency improvements. Too often the EPA approach to enforcement with its inflexible concept of New Source Review has created a disincentive for the improvement of power plant efficiency that reduces the carbon footprint of each megawatt of electricity generated.

Third, and more to the point of this hearing, regulate in smarter ways. For large energy-related rules — those with greater than $1 billion in total economic impact — regulators should have to determine adverse economic effects, including energy endpoints such as electricity and motorfuel price impacts, and address them before the implementation of the rule. Regulators should engage in a robust interagency process that brings together the best and the brightest of public and private input based on quality data and realistic benefit and cost assumptions. Adoption of the Energy Consumers Relief Act is a step in the right direction.

I thank the committee for holding this hearing today and inviting me to testify. Ensuring the cost of EPA regulations on consumers is adequately accounted for is a very important issue. I am happy to answer any questions you may have.

Mr. WHITFIELD. Well, Mr. Segal, thank you. And thank all of you for your testimony.

At this time, we will open it up for questions and I recognize myself for 5 minutes of questions.

As I had indicated in my opening statement, the Society of Environmental Journalists recently issued a statement saying that EPA is one of the most closed, opaque agencies in the Federal Government. And I think all of us are very proud of the fact that the Clean Air Act has been unusually effective. EPA has done a good job of administering the Clean Air Act and America does not have to take a backseat to any country in the world in being focused on a clean environment. And we all could recite statistics that reflect the success of the Clean Air Act.

But I also think we have an obligation and responsibility when we have an economy that is having great difficulty of when we come out with new regulations that cost billions of dollars that we also explore fully the impact that it has on the consumers and on society in general. All of us have a responsibility and a concern about people who suffer breathing problems. And that is why I think we can be very proud of the fact that we have made great progress.

I know Dr. Burgess may talk about this a little later, but we are part of the Montr AE1eal Protocol because of the Clean Air Act. And because of the Montr AE1eal Protocol, Primatene Mist is not available over-the-counter anymore to people who have asthma. And as a result, their direct costs have increased dramatically because it is simply not available anymore.

And, Dr. Smith, I was really interested in your statement in which you said you did an analysis, and if I understood you, it appears that the more cost associated with an EPA regulation, according to their analysis, automatically there are going to be more jobs created. Is that what you said or——

Ms. SMITH. Yes, that is the formula EPA is applying right now.

Mr. WHITFIELD. And would you elaborate on that a little bit? I mean, that does not sound exactly correct but——

Ms. SMITH. Well, it is illogical and that is why I say this is not an appropriate method in the first place. It is based on some earlier studies that looked at spending on worker payments—payments to workers—in industries, in the '80s who were poor industries, who were reporting off of their environmental spending. And the finding was that there was not, across all four of those industries, a significant change in the amount of spending on workers. But that did not find increased jobs; it just found that there was a change in the spending on workers in those four sectors in the '80s.

Now, EPA is taking that summary statistic that says, well, the number was about zero—was about 1.55 on average—and just applying it to every new regulation that comes down the pike, regardless of its relationship to the original study, most of which have no relationship to the original study.

Mr. WHITFIELD. So any regulation that has additional cost, according to the EPA, will create jobs?

Ms. SMITH. As long as they continue with this method of doing their analysis which is, as I said, not really an analysis at all. It

is just a multiplication that is guaranteed to provide positive jobs through more cost.

Mr. WHITFIELD. Right.

Mr. Cicio, you had—just a minute here. Well, I am not going to ask you a question. I will just make one other comment.

I have been so upset about the stimulus money being directed to so many green energy projects and I can't help but I just want to share that right across the border from my home county in Kentucky in the State of Tennessee, 2 years ago a company called Hemlock Corporation announced that they were building a $1.2 billion plant that would employ 1,000 people and about 2,500 construction jobs to make polysilicon chips for the solar industry. In the State of Tennessee, there was a big press conference and everyone announced how this was the future for America, green energy, which we all support.

Unfortunately, in January of this year after constructing this plant for 2 years at a cost of $1.2 billion of which there was government money involved also, they announced that they were walking away from this plant. They had hired 300 employees to prepare it for opening, and the terminated all of those workers. They are shuttering the plant and that, in my view, along with Solyndra and others, is an indication of how we in the government tried to mandate what was going to happen and the marketplace was not ready for it.

So I see my time is expired, and Mr. Rush, I recognize you for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman. And Mr. Chairman, in due respect to the author of the bill, Mr. Cassidy of Louisiana, I must say that this bill defies common sense. Everybody in this room has probably, sometime during the course of their lives, written out pros and cons listing in order to make important decisions. This bill will require the federal decision matrix to consider just half of this list, a pro and con list when evaluating public health and environmental rules. The bill requires that the Department of Energy to analyze all of the potential negative effects of a proposed rule and determine whether the rule would have a significant adverse effect on the U.S. economy.

Now, Ms. Steinzor, under this bill would DOE weigh both sides? Will they weigh the pros and the cons of a proposed rule?

Ms. STEINZOR. Congressman, I think that they would focus primarily on the costs that are allegedly imposed by the regulation. And their analysis would come on top of an extensive analysis by EPA that is supervised by the Office of Information and Regulatory Affairs at the White House, that is redrafted, that is hundreds of pages long, scrutinized by economists. The Department of Energy already has an opportunity to comment on every rule that EPA prepares. And again, I would stress all of these rules are statutorily mandated. They don't come out of the right ear of the EPA administrator. They are all required by Congress.

Mr. RUSH. So this bill requires a skewed analysis that completely ignores the benefits of the EPA's public health rules?

Ms. STEINZOR. Yes.

Mr. RUSH. As a matter of fact, have you looked at the bill? Do you see the word benefit at all in the bill?

Ms. STEINZOR. I do not. And bills like this act as if rules were sweeping the money into the center of the room and setting it on fire. They absolutely ignore the benefits to patients like Dr. Rom's that he explained so well. The incredible economic costs, not just in medical expenses, but in days lost from work, staying home with a sick child, being unable to be productive is an enormous burden on society. And those are the benefits of trying to control pollution would be to avoid all of that harm.

Mr. RUSH. And matter of fact, the types of rules that this bill would target have tremendous benefits to public health, the environment, and often consumers. For example, EPA's greenhouse gas standards for vehicles are projected to save families more than $1.7 trillion in fuel costs and reduce America's dependence on oil by more than two million barrels per year beginning in 2025.

Ms. Steinzor, that is just one example. How do the benefits of some of the EPA's other recent rules compare to their cost?

Ms. STEINZOR. Well, as Congressman Waxman explained in his opening statement, the ratio between the cost and the benefits, the benefits exceed the cost by several orders of magnitude in almost all of these rules. That is what makes it so ironic. These rules are a great bargain for the American people and that is what makes it so ironic, that they have come under this attack. They have been years in the making. They were required initiated under the 1990 Clean Air Act amendments. We are now in 2013. These rules have been bounced around to court and back, to the Agency to the White House, to Congress, and finally, after all this time, they are beginning to get to the end the runway and be ready to take off and now we want further delay, further analysis, further number-crunching, further handwringing, and it is just not what you intended.

If Congress doesn't like these results, it should take up the Clean Air Act, but it doesn't want to do that because that would be very unpopular with the American people.

Mr. RUSH. Thank you, and I yield back, Mr. Chairman.

Mr. WHITFIELD. At this time I recognize the gentleman from Texas, Mr. Hall, for 5 minutes.

Mr. HALL. I thank you, Mr. Chairman. And I guess I would like to start by not just thanking you, but thanking the folks, as you have. And some of the proposals in the past 3 years such as the Coal Ash Rule and the Cross-State Air Pollution Rule have been very detrimental to energy companies and thrust and jobs and consumers back in my district in northeast Texas.

I certainly admire Scott Segal. I have known him and know the people he associates with, Searcy Bracewell, and paired now with the former mayor of New York. They do a good service for us and that is why I want to direct my question to you. I am very pro-fossil fuels, I am pro-energy, pro-any source that might keep us from having to rely on countries that we really couldn't rely on if circumstances changed just a little bit.

But I want to talk about the compliance time on this of the EPA—I am talking about anything bad I can think of about EPA because I think they are the worst enemy of any nation's opportunity to get ahead and provide the energy that we have and that we need. And we ought to be selling energy rather than buying energy.

So I guess what I would ask you is what your concern is about the compliance timelessness that I talked about for EPA's energy-related regulations that they are requiring to happen in just a few months, something that would have taken probably 4 or 5 years and reconsidering it and then coming back with something just as ridiculous. That took us to the courts, and the courts from this Texas operation have recognized they are wrong and the lack of science that the EPA relied upon.

And I thank Bill Cassidy for bringing this and I agree with every word he said as we opened up here. But what I am concerned about is what you think about the timelines and not providing enough time for you to delegate, plan, or implement these rules, and what effect is that going to have on electric reliability? Just in general if you could give that to us.

Mr. SEGAL. Mr. Hall, thanks for your kind words. I would say on the question of timelines, you would do well to be very concerned about it. I mentioned briefly in my remarks about this sue-and-settle phenomenon. And unfortunately, timelines are often not dictated or at least not honored from a statutory perspective but come to the floor for the EPA from settlements that they reach with environmental organizations where they don't let other members of the regulated community into those settlement discussions. And so what ends up happening is a very, very sort of backwards-oriented and unrealistic timeframe for implementation of the rules.

You know, we have heard a lot today about what a good bargain all these rules are. I am kind of amused to hear that they are both a great bargain for industry and at the same time industry is the opponent that keeps us from having more of it. You know, industry folks should come to these hearings more often. They would know about great investment opportunities in major EPA rulemakings.

The fact of the matter is, despite the obvious costs outlined with respect to these rules, EPA always claims its regulations are net beneficial to society. That is like it is not even worthy of discussion. In the case of the Mercury and Air Toxics Rule, for example, a rule that costs $10 billion, none of the benefits came from mercury. If there were truth in advertising on rules, EPA would constantly be in front of the Federal Trade Commission explaining why they call their rules what they call them and why they put in their analyses of benefits what they put in them.

More than 90 percent of the benefits of this rule are co-benefits that come from reducing particulate matter, which as we heard testimony, particulate matter is serious business. However, that 90 percent reduction comes from reducing particulate matter below the level that EPA has already said is highly protective of human health and the environment with a substantial margin of safety for susceptible subpopulations of the very sort of person that Dr. Rom was talking about.

EPA inaccurately attributes the benefits to current rules, like the Cross State Rule Mr. Hall was talking about, benefits that have been achieved by previous rules. It is like a poker game with one stack of chips and they keep moving the chips from rule to rule to rule claiming the same benefit. That is how Enron got into trouble. But the——

Mr. HALL. In closing, just I know you agree with me that this bill is going to provide transparency and protects the consumer and protects jobs, and I am very happy that we are looking at it today, and I thank you.

I yield back. Our time is up.

Mr. WHITFIELD. At this time I recognize the gentleman from California, Mr. McNerney, for 5 minutes.

Mr. MCNERNEY. Thank you, Mr. Chairman, and thank the witnesses for your thoughtful testimony this morning.

It continually amazes me that our friends on the other side of the aisle think of the EPA as the devil because before the EPA came along, we had the Love Canal, we had the Cuyahoga River catching on fire, and look, China doesn't have an EPA. Would you rather live in Beijing and breathe that air? And so I mean it produces a good service for country.

Now, it is important to have a balance, I understand that. But my concern with this bill is that it could indefinitely delay or block critical public health and environmental protections for analysis of questionable value, in my opinion, by the DOE.

Now, Mr. Williams, in your testimony this morning you said that the bill would inject transparency and scientific rigor back into the regulatory process, but I am skeptical of that claim. The bill requires the DOE to draft an inherently biased analysis that presents only the costs of the EPA rule—and that has already been brought out this morning—but does not address the benefits. The DOE is not really capable of that at this point. It would have to develop a new capability.

Ms. Steinzor, would you consider the analysis required by the bill to be transparent and rigorous?

Ms. STEINZOR. I would not, Congressman. I think the analysis required by the bill would have the economists staring into a crystal ball in an effort to run this string of regulatory impact out into—it is almost like a butterfly flaps its wings in Rio de Janeiro and there might be an effect in Tuscaloosa. That is what is wrong with Dr. Smith's very superficial criticisms of what goes on in EPA analyses. You can't predict job impacts to the nth degree, and that is what people are insisting that the Agency do. It already does extraordinarily rigorous analysis. There are a series of laws——

Mr. MCNERNEY. What exactly—so you are going to describe some of the analysis that is required by the EPA already?

Ms. STEINZOR. Yes, very extensive analysis of both costs and benefits. And those analyses, again I need to get a life very clearly, but I spend many, many hours reading hundreds of pages filled with formulas and we love the magical numbers. We think that they make these estimates precise and reliable, and in fact, the extensive analysis that is already done, for instance, on guesstimates. It is just one example. Dr. Rom mentioned hospitalization for asthma. You know, in one of the cost benefits of the Clean Air Act, the EPA awarded $330 for that event. And I am sure that Dr. Rom would laugh at the idea that his patients go to the hospital and get the kind of treatment he was describing for $330.

So all of these analysis understate the benefits, overstate the costs already. The Agency has spent close to 30 years trying to get

these rules out and the pending legislation would delay us another few decades which would be to the detriment of the public.

Mr. MCNERNEY. Thank you, thank you. Mr. Segal, do you believe that well-crafted regulations protecting air and water quality could result in innovation and job creation?

Mr. SEGAL. Yes, I do. I absolutely do. In fact, the bill does not—there is a rumor floating around here that the bill does not account for benefits. No, the bill focuses very narrowly on these energy endpoints, but the bill also talks about shifts in employment. That is what you, Congressman, are talking about, because when we have a regulation, we may well take the compliance cost money from that regulation, spend it, and then if I make a scrubber for example, or I innovate a scrubber, that will create jobs. But the question is, the money that I took and spent on the scrubber and on the innovation related to the scrubber, if it were deployed in more productive mechanisms, what would the job multiplier be in that instance? And also——

Mr. MCNERNEY. So by more productive you mean—you said it would be deployed in more productive measures.

Mr. SEGAL. Let me give you an example.

Mr. MCNERNEY. OK.

Mr. SEGAL. Let's say I run a power company, all right? I won't stretch credulity too much, but let's say I run a power company. If I don't spend the money on the scrubber, perhaps I can spend it on a way to improve the energy efficiency of my power plant, presumably if the EPA doesn't sue me under a new source review——

Mr. MCNERNEY. But it would have the same out—if you increase efficiency——

Mr. SEGAL. Yes, and that would not only reduce emissions, but it would reduce the cost of power, and then let's say my community, let's say, a community in northern California or something like that would receive lower cost of electricity, more small businesses, more energy-dependent businesses like florists and grocers and things like that could put on the extra job or two, that is real job creation and that is the multiplier effect of lower-cost electricity.

Mr. MCNERNEY. Well, I would like to continue the discussion but my time has run out, Mr. Chairman.

Mr. WHITFIELD. Yes, the gentleman's time has expired.

At this time I recognize the gentleman from Nebraska, Mr. Terry, for 5 minutes.

Mr. TERRY. Thank you, Mr. Chairman.

And this bill seemed rather simple and straightforward until the discussions occurred up here and I want to ask the author. Under current law right now, the EPA's only—the only thing they can do is look at the health benefits. That is the whole basis of it.

Mr. CASSIDY. Yes, that is current law.

Mr. TERRY. And are you striking that provision under this?

Mr. CASSIDY. No, I am not.

Mr. TERRY. I am noticing that language.

Mr. CASSIDY. No, I am not.

Mr. TERRY. So the benefits under health are already written in the law, and so what you are doing is saying that we need the

other side of the cost-benefit analysis in determining the cost. Is that right?

Mr. CASSIDY. A little transparency so that if someone loses their job because of the regulation, they actually understand what thought process went into it.

Mr. TERRY. Yes, so this is establishing a cost benefit. The benefits are already written in there or mandated that that be in there. And that has been part of our frustration here. And we mentioned the Mercury Rule. Their modeling showed tremendous benefit from reduction in mercury poisonings and injuries, but when you would subpoena medical records from a 60-mile radius around a coal-fired plant, you wouldn't find any mercury poisonings ever reported to the hospitals or physicians. Well, I won't say every—boy, University of Maryland, I am not too impressed right now.

But I want to go in and talk about that I think in a cost-benefit analysis, you actually have to discuss—and I want to talk to Mr. Cicio—because both Republicans and the Democrats are working on job creation and particularly in manufacturing. And we have what we are calling the Nation of Builders where we are bringing in manufacturers in all different industries—big, medium, and small, international, local—and it is interesting because all of them have said that energy prices are a key component. It is a major input cost, and right now in the United States, we have an advantage, particularly with natural gas, to being affordable and reliable. So in our manufacturing plan, that is going to be there.

The Democrats have what they call Make it in America, which part of their four-point plan is affordable electricity, affordable energy. And as I understand, an increase of 1 percent in electric costs to a manufacturer in total can be $9 billion out of the manufacturing. Could you comment? Is that accurate?

Mr. CICIO. Yes, Congressman. In fact, I can verify that 1 percent does equal a $9 billion cost on the manufacturing sector for our electricity.

Mr. TERRY. And then, define for us what that means to manufacturing.

Mr. CICIO. Manufacturing competes globally. As I said earlier my testimony, we are the only sector that competes globally. And we have tough competition, particularly with the kind of products that we produce. Almost all manufacturers around the world can meet high-quality standards, and so the only thing that differentiates us from our global competitors is cost. And so your point about today, at this very moment, we have lower natural gas prices that is giving us a relative competitive advantage.

But the other point associated with this bill is that policymakers and EPA need to be mindful and remember that all of the cost of regulations on all our producers of energy, whether it be electricity, natural gas, oil, what have you, all of those costs when you are regulating those industries get passed on to us either directly or indirectly. And this weighs on this ability to compete.

Mr. TERRY. Well, if we were successful in raising electric prices to the point where it is not economic to manufacture, will we be lowering the CO_2 emissions globally?

Mr. CICIO. No. No, of course not. It is the same way with other emissions as well. We simply shift the manufacturing facility off-

shore. Someone will produce that and it will be produced offshore emitting albeit greenhouse gases——

Mr. TERRY. Probably more.

Mr. CICIO [continuing]. Or any other emission offshore rather than here.

Mr. TERRY. So finding that line is important to actually reducing global emissions.

Mr. CICIO. Well, absolutely. And our point of why we are here today is we are not saying don't regulate; we are not saying we don't want clean air——

Mr. TERRY. I agree.

Mr. CICIO [continuing]. We are saying do it better, do it more cost effectively, and that is a win-win.

Mr. TERRY. I will interrupt just for my closing comment. And, you know, we have been accused on the side of the aisle of wanting to completely contaminate the entire universe when what we are arguing for was a difference between 3- to 5-year implementation to make it more palatable and use technologies that don't even exist today.

I yield back.

Mr. WHITFIELD. The gentleman's time has expired. At this time I recognize the gentleman from California, Mr. Waxman, for 5 minutes.

Mr. WAXMAN. Thank you, Mr. Chairman.

The proponents of this bill argue it will enhance transparency and provide rigorous analysis of EPA rules. But I don't look at it that way. Mandating a one-sided analysis that ignores all of the benefits of EPA's public health rules is not going to inform anyone. The real effect of this bill is to indefinitely delay and potentially block crucial public health rules.

Ms. Steinzor, this bill empowers the Department of Energy to effectively veto EPA rules, isn't that right?

Ms. STEINZOR. Yes, I agree with you.

Mr. WAXMAN. Does the Department of Energy have the expertise to make the economic determinations this bill would require it to make?

Ms. STEINZOR. The Department of Energy does not have that expertise and one of the——

Mr. WAXMAN. I agree with you.

Ms. STEINZOR. Yes.

Mr. WAXMAN. Now, under this bill, EPA cannot finalize a rule until the Department of Energy completes its analysis. Ms. Steinzor, does this bill establish a deadline for DOE to act?

Ms. STEINZOR. No, it does not.

Mr. WAXMAN. So are there reasons why DOE might not be able to complete its analysis in a timely way?

Ms. STEINZOR. Lack of staff and expertise.

Mr. WAXMAN. So important public health rules can be indefinitely delayed under this bill, isn't that right?

Ms. STEINZOR. Yes.

Mr. WAXMAN. Dr. Rom, what are the real world impacts of indefinitely delaying EPA air pollution rules?

Dr. ROM. More hospitalization——

Mr. WAXMAN. Put your mike on.

Dr. ROM. More hospitalizations, more emergency room visits, increased mortality, enhanced morbidity, and this is nationwide and it is over time, and it is actually not improving.

Mr. WAXMAN. Justice delayed is justice denied.

Dr. ROM. Yes.

Mr. WAXMAN. Regulations delayed could be help to people denied. Dr. Rom, you are a pulmonologist. Over your career, I assume you have seen thousands of patients and had to review potential treatment options for a variety of conditions. How do you present treatment options to a patient? Do you review the benefits of a treatment as well as the potential risks?

Dr. ROM. Yes. When we treat asthma, for example, the standard treatment is a bronchodilator. Over time, these bronchodilators have become more selective, fewer side effects. Now, we have inhalers that have particles instead of chlorofluorocarbons. We have highly selective inhalers so we don't have to use things like Primatene Mist from decades ago, and we present these options to the patients. We now have steroid inhalers——

Mr. WAXMAN. So you have a lot more advances that—members of this committee will remember a debate we had over Primatene Mist. And from what I was hearing, the profession didn't think Primatene Mist was the best device to use. In fact, there were some downsides to it.

Dr. ROM. Yes, there are now——

Mr. WAXMAN. I just want a yes or no on that——

Dr. ROM. Yes.

Mr. WAXMAN [continuing]. Because it's just a side issue. Would you say to a medical professional who only presented the downsides of a potential life-saving treatment is doing an ethical job? This is a risk that you would take if you get this treatment for your health.

Dr. ROM. Yes——

Mr. WAXMAN. This is the cost you may have to bear to get this treatment.

Dr. ROM. Yes, but we like to prevent asthma exacerbations by having patients not only take their treatments, but to have clean air.

Mr. WAXMAN. So it is not ethical for a doctor to make a healthcare decision with a patient using the lists of negatives without talking about the positives. Is that fair?

Dr. ROM. Yes.

Mr. WAXMAN. When we go to a doctor or consult with our accountant or call our realtor, we want to hear the full story. We want to know the pros and cons before we make important decisions.

This bill sets a different standard for critical public health and environmental standards to be determined under law by the Environmental Protection Agency. DOE could veto an EPA rule based on skewed analysis of those rules. That doesn't make sense from a public policy perspective, but it seems to me more likely when we mandate a skewed analysis of important EPA rules by requiring DOE to pretend that the rules provide absolutely no benefits, this bill really leads to indefinite delays or blocking of those rules based on an absurd analysis.

This is a bill that we shouldn't be spending our time talking about because it just doesn't make sense even though we are being told it is common sense. This is not the way I learned common sense and it is obviously geared to stopping important benefits from being provided to the American people.

I thank you all for being here. I think you have all wasted your time just as we did, but you have given us perspectives on it and I appreciate it.

Mr. WHITFIELD. At this time I recognize the gentleman from Ohio, Mr. Latta, for 5 minutes.

Mr. LATTA. Well, thank you very much, Mr. Chairman, and I want to thank the panel for being here. I really do think that the information we are getting here is very, very valuable for this committee and for this Congress.

In my district alone, I have about 60,000 manufacturing jobs. And I spend all of my time when I get home, on the road talking to those manufacturers. And when I am out there, the number one issue I hear from them always, the top issue, are regulations coming from Washington and how it is hindering their businesses. And these are the folks out there that are the job creators, the entrepreneurs that are out there making sure that their friends and neighbors have jobs that can put food on the table for those kids that they have and send them to school.

And when we are talking about the number one regulator out there that affects folks in my district, the one group I always hear from all the time is the number one agency, it is always the EPA. And there is not one group or business that I ever go out to see that would ever say that they are not for clean air and clean water.

And so we want to make sure that we have those jobs in the future because, again, with the 60,000 jobs that I have, the national manufacturers gave me a chart not too long ago that shows that we have about 1.66 million manufacturing jobs on this committee alone. And that is what grows this economy.

And I would like to ask Dr. Smith, I can start with you, and I know we have been having some of these questions going back and forth, but you testified that the effects of the EPA's major regulations can have regulatory impacts that ripple through the full economy. Can you elaborate on that?

Ms. SMITH. Yes. When a regulation is highly costly and the people in the sectors that have to comply with that regulation end up spending more money for the compliance, by and large the cost ends up either being passed through to their customers in higher prices of the products or there is international competitiveness effects where the affected sectors simply end up leaving the country and doing their production overseas.

Either way, it has built up trickle-down effects to the other sectors and the consumers in the economy. So prices rise, for instance, for oil products or for electricity in this economy, there will be effects downstream for the consumers of that electricity. And that is where you start to see these economic impacts from regulation spreading, inevitably spreading across into other sectors of the economy. And that is why the full economy analysis is appropriate in situations like this.

Mr. LATTA. Thank you. And again, looking at my district in Ohio, where we have so many manufacturers out there manufacturing jobs, we have got to move that product, either bring that product going out or we are going to have to have the material coming in. The National Association of Manufacturers estimates that the cost of just six EPA rules affecting the energy sector could exceed $100 billion annually and threaten more than two million jobs.

Mr. Williams, I have got to ask you. How are the refinery and petrochemical manufacturing sectors being impacted by those rules?

Mr. WILLIAMS. Sure. We are impacted a number of ways. Obviously, we are impacted in the cost of producing the petroleum products—gasoline jet fuel that runs this country but also as energy consumers. So obviously, as Mr. Segal earlier stated, when electricity—for a refinery, other than crude oil costs, the second-largest cost is usually utility bills. So when something impacts electricity, it impacts us as an energy consumer. And then it impacts us, obviously, in the cost of producing fuels for the general public, fuels and petrochemicals for the general public.

I had an example in my testimony of Tier 3 regulations. We reduced sulfur and gasoline 90 percent from 2004 to 2007, from 300 parts per million down to 30. Now EPA is looking to move from 30 down to 10. It is going to be a similar cost and a lot of the stated benefit is minimal and even questionable.

Mr. LATTA. If I could interrupt you, do you have any estimates of what that is going to cost the consumer out there with it going on from Tier 2 to Tier 3?

Mr. WILLIAMS. Well, if you just look at the production costs, an estimate we have is that it is a $10 billion upfront cost with about $2.4 billion annual operating cost. If you are going to break that down into cost in cents per gallon, it is somewhere in the .06 to .09 per gallon range.

Mr. LATTA. Because I have seen some estimates, I believe, from the EPA that they are saying it is much, much lower. So you dispute that number?

Mr. WILLIAMS. Yes. There are other studies out there that indicate they are around a penny a gallon. What those studies do is they actually look at the Nation as one big refinery and try and apply reductions to basically either the Nation as a whole or specific regions when that is not how our industry works. Every single refinery is different and complex. The numbers I stated were from a model that actually assesses every single individual refinery and assesses cost via that methodology, so——

Mr. LATTA. Thank you very much.

And Mr. Chairman, my time has expired and I yield back.

Mr. WHITFIELD. At this time I recognize the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair.

Dr. Rom, you make a compelling case that people should limit their exposure to particulate matter and to ozone. The legislation we are considering doesn't appear to repeal current standards, but it certainly prevents EPA from strengthening them. Are the current standards adequate, or can further benefits be achieved?

Dr. ROM. That is a very good question. The standards for ozone have been lowered by President Bush, Bush's EPA from 84 to 75. And we have recently looked at what would happen if we would net the 75 ppm standard. There would be about 2,000 deaths averted across the country, heavily in the eastern third of the country. We have also looked at the proposed 70 ppm ozone standard, and it would avert about 4,000 deaths if we lowered it to 70. So the standard now of 75 that we are not even meeting doesn't protect health. And going to the lower standard would give us a greater benefit.

For PM2.5, we are at 35 for a daily and we have been at a 15 microgram per meter cubed annual. That has recently been proposed to go down to 12.

If you look at the mortality from PM2.5, there are mortality and morbidity effects at this proposed standard, and some most studies are now showing even effects lower than the standard. Of concern is lung cancer. There has recently been a study of over 100,000 people who were never smokers looking at lung cancer. There are 1,000 lung cancers in this cohort and the lung cancer increase started at 8 and going up. And we are now just trying to reach a 12 microgram standard.

So to try to derive health benefits with these standards, we are discovering health defects at or even below these proposed standards. So if we are going to protect—and particularly susceptible populations—we need to get a protective factor in there.

Mr. TONKO. And my understanding is that these are pollutants, especially ozone and fine particulate matter, can travel significant distances from their sources. So is this a problem only for people who live in our urban cores or should there be a concern about suburban areas and rural areas that are impacted by the same pollutants?

Dr. ROM. Yes. There is a considerable transport of particles; however, there are what we would call hotspots. And what we have recently observed is that highways or where there is heavy traffic is a hotspot. So living near a road will increase your risk for developing asthma or having a mortality affect. And roads are across rural counties as well as urban counties. So air particulates have a large distance that they travel, particularly from coal-fired power plants so that to control these, such ideas and concepts as the Interstate Rule was promulgated. It is difficult to develop these rules because they are always challenged in court, but the eastern third of the country and particularly the coastal regions of California have both ozone and PM2.5 exposures that don't meet the standards, and it is a challenge to develop public health policies to meet the standards. We are getting there.

Mr. TONKO. Thank you. Thank you, Dr. Rom.

And Dr. Steinzor, you have a table in your testimony listing a number of EPA rules that apply to the energy sector. They all appear to be rules that would be issued under the Clean Air Act. As you point out in your testimony, energy touches many factors in our society. The oil and gas industry already has exemptions from a number of our environmental laws including the Safe Drinking Water Act, the Clean Water Act, the Clean Air Act for gas production with hydrofracking, for example. Are there rules issued under other statues that would also be subject to this law?

Ms. STEINZOR. Rules issued under the Safe Drinking Water Act, the Clean Water Act, yes.

Mr. TONKO. And other statutes, though, that would be affected by this law?

Ms. STEINZOR. Yes. Potentially because the legislation says any regulation that costs $1 billion, but it doesn't give it time period for that. So if a regulation cost $100 million a year, it would be subject—any regulation under any law that could remotely affect energy producers would be covered by this legislation even if the cost were substantially less than a billion because we continue to multiply into the future.

Mr. TONKO. Thank you. My time has expired. So with that, Mr. Chair, I will yield back.

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

At this time I recognize the gentleman from Louisiana, Mr. Cassidy, for 5 minutes.

Mr. CASSIDY. OK, thank you.

Dr. Rom, I am also a doctor, I am also an academic, and so I kind of know the field from which you come. Here is the National Academy of Sciences discussion of something that EPA put out. In roughly a 1,000 page draft reviewed by the present committee, little beyond a brief introductory chapter could be found on the methods for conduct the assessment. The draft was not prepared in a consistent fashion. It lacks clear links to an underlying conceptual framework, and it does not contain sufficient documentation on methods and criteria for identifying evidence. I could go on. Would that get published in a peer-reviewed journal for which you were the editor? Yes or no?

Dr. ROM. Probably not.

Mr. CASSIDY. Yes, probably not.

Dr. ROM. The National Academy of Sciences has looked at a number of——

Mr. CASSIDY. If I may, I have limited time. Probably not. And yet, this was a draft that was going to incredibly impact the economics of certain industries.

Next, you mentioned how there is an impact of PM2.5. By the way, this bill is not about that. It is about transparency so that there could be an economic effect. I think I know, although you are a pulmonologist and I am a gastroenterologist, so I go here a little bit a fearing. Don't we know that socioeconomic status actually affects the incidence of lung cancer as well?

Dr. ROM. Yes.

Mr. CASSIDY. So if we are able to say that there is this transparent process that there is going to be a cost of blue-collar jobs, folks are going to lose their jobs, their families will be less well-off, et cetera, wouldn't it be fair to say that that could potentially also have an impact upon the future prevalence of lung cancer among that population?

Dr. ROM. Well, the effects of tobacco and——

Mr. CASSIDY. Yes or no. I mean, just because we know that economics has an impact, and we know that people——

Dr. ROM. But much larger than SES or socioeconomic status.

Mr. CASSIDY. But it is still a factor. So when Mr. Waxman spoke about how we want to speak about not just the cost but also the

benefits, but if you are an oncologist, you not only want talk about the potential upside but also the potential downside. I can say that confidently. We all should do that ethically. So if we have a law which purports to give all this great health benefit but we don't go into the fact that it could cost a blue-collar worker her job, we are not really talking about the downside, are we?

Mr. Cicio, I am struck that in our current economic environment our major challenges creating jobs for blue-collar workers who have traditionally been employed in manufacturing, construction, and mining. You speak about energy-intensive enterprises moving back to the United States recreating blue-collar prosperity, which we seem to have almost ceded to other countries. Is it fair to say that when natural gas went to $13 per Mcf, there was a negative impact upon blue-collar prosperity?

Mr. CICIO. When prices of natural gas rose starting from about 2000 to 2008 to the point that you mentioned, in that time period, we lost about 5 million manufacturing jobs. We shut down almost 45,000 manufacturing facilities. So the impact of energy directly impacted and contributed to job losses.

Mr. CASSIDY. So the point of principle that this bill is about creating transparency for the economic effect of EPA regulations and not about doing away with their ability to promote health benefits, it is fair to say as a principle, if you increase the cost of energy, there is a direct economic affect upon blue-collar manufacturing jobs, which by the way we have also learned increases their prevalence of ill health. Fair statement?

Mr. CICIO. I would agree.

Mr. CASSIDY. Mr. Segal, do you agree with Dr. Smith? It seems almost fantastical to me that the more something costs the economy, the more jobs that are created, in which case we should just regulate ourselves to prosperity, right? Now, Mr. Waxman said there is no common sense there. I don't see the common sense in the greater the regulatory burden, the more prosperity we have. Heck, we should regulate our conversation right now. Throw away the First Amendment.

Mr. SEGAL. Well, I quite agree. It is kind of a through-the-looking-glass kind of world. The more expensive something is the cheaper it is for the economy.

Mr. CASSIDY. Now, you also make a point that there is—if you are creating jobs, oftentimes there is job shift. I think of the vulnerability of these blue-collar workers. You may be losing that blue-collar job while you are creating the job for an EPA bureaucrat. Is that a fair statement?

Mr. SEGAL. It may be an EPA bureaucrat or it may even be somebody in another country.

Mr. CASSIDY. Isn't that something? That somebody in another country, because as Mr. Cicio says, it is going to be manufactured someplace, the question is where. All we are about is letting that blue-collar worker who doesn't have a lobbyist, who doesn't have somebody up here with tassels on their shoes and to be able to understand the impact of rules and regulations upon them.

I yield back. Thank you.

Mr. WHITFIELD. The gentleman yields back.

At this time I recognize the gentleman from Texas, Mr. Green, for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman, and thank you for calling the hearing on the Energy Consumers Act of 2013. Many of the rules that this bill aims to stop are rules that directly affect both my constituents and companies that employ my constituents. They are rules that I, too, seriously have wondered how they got developed. I would love to support the bill that would require the Department of Energy to have an official consulting role similar to OMB on the drafting of EPA rules where appropriate.

For example, I was frustrated to hear that DOE's concerns about grid reliability were not heeded by the EPA or considered during the Utility MACT rulemaking. With that said, I am also shocked that this has set precedent that where one department has veto power over another department, particularly an appointee in an agency that is part of Cabinet.

I would like to ask some questions. And frankly, my colleague from Louisiana, we lost chemical jobs over the years simply because our price of natural gas went up to $12.50, $13 and North Sea gas is much cheaper. Thank goodness our economy has changed that so every plant in my district, I think, is expanding jobs because of our success, at least in Texas, of the low cost of natural gas.

But now to my questions. Do any of you know whether there is precedent for this type of policy where there is another agency actually gets to check their work or say yes or no? I want somebody telling us what it is going to cost and DOE is that agency. But I have never known where one agency could just say, no, you can't do this. Is there any precedent for that? Scott, or anyone else? I know we have dealt with these issues for a couple of decades.

Mr. SEGAL. Well, I will take a crack at it. I mean, the relationship—and I know, I think Professor Steinzor also has some stuff in her testimony on this—but the relationship between the Office of Information and Regulatory Affairs and OMB, as kind of a regulatory traffic cop, is a similar relationship.

Mr. GREEN. But even they only check what, for example, in this case EPA or some other agency does.

Mr. SEGAL. Right.

Mr. GREEN. You know, and theirs is fairly limited. I would be more interested in forcing agency cooperation, looking at the cost and the benefits, and have somebody check their work.

Mr. SEGAL. Let me say two things on that. The first is the DOE really doesn't veto the bill. I mean, Mr. Waxman is saying that DOE would sit around stroking its mustache and eliminating rules. That is not how this bill works in my understanding. The DOE performs an analysis. Now, the Agency—the EPA that is—could take that analysis and say, OK, we are going to address those energy endpoints. We are going to address those. But the power to address those remains with the EPA. I mean, the DOE just performs the analysis.

But I do get the point that you are making, and I guess I would say maybe there is—I have heard a couple of things in discussion back and forth today, which sounds like there could be areas of common ground on legislation like this if there were some alter-

ations made or some additional thinking put into it. So, I mean, what I am hearing is this is a significant issue; these energy endpoints are significant issues. The bill is a great step in the direction of addressing those issues. And so I hope you guys do something.

Ms. STEINZOR. The bill says notwithstanding any other provision of law, the administrator of EPA may not promulgate as final an energy-related rule that is estimated to cost more than 1 billion if the Secretary of Energy determines significant adverse effects to the economy. So that language says you may not put the rule out provided that the Department of Energy has told you not to. And I don't know of any precedent that puts one agency in this kind of charge.

Mr. GREEN. Yes, and Mr. Segal is right that we work a lot with OMB but they really don't do their own, and I would like to have somebody in the place of doing an economic analysis.

And frankly, the EPA, that is not their job. Our laws have said that EPA looks at the environmental impact and how they can—but I also want somebody to say, OK, let's see how we can afford it other than going to the courthouse where it ends up being very expensive for both the government and the litigants.

Dr. Smith, in your testimony you testified EPA should employ a cumulative impact study when preparing these rules. Do other agencies and departments utilize this type of study in their rulemaking? And if they do, how often does it compare to EPA?

Ms. SMITH. Well, there aren't too many other agencies that have done analyses that compared to EPA's. But EPA itself has done these kinds of comprehensive analyses. They have done them in the past. They have tools that are ready to go, and the only question is why they haven't been using them. My feeling is that because there is no requirement to consider the costs whatsoever under the Clean Air Act, that defies common sense, too, that we are imposing our entire Clean Air Act without any consideration of costs. And that has led to the kind of inappropriate, non-credible "economic estimates" that are coming out of the Agency at this time, when they fully well could do a full economy analysis of their own.

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

Mr. GREEN. Five minutes goes by so fast, Mr. Chairman.

Mr. WHITFIELD. At this time, I recognize the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman.

I have got a series of questions for several of you that, if I could, start with Ms. Steinzor. You open your remarks with some pretty scathing challenges against some of the oil producers, energy producers, by going over their profit margin, their profits that they make. I think you had talked about, according to your testimony, $119 billion in profits. Is that correct?

Ms. STEINZOR. Yes.

Mr. MCKINLEY. OK. What level would be appropriate?

Ms. STEINZOR. What level of profits?

Mr. MCKINLEY. Yes. If they are making around 15 percent profit, you are coming at this with a pretty strong view. Should they only be making 5 percent?

Ms. STEINZOR. Well, if I were in charge, they would be giving a much larger share of those profits to the same blue-collar workers that people have expressed so much concern about.

Mr. MCKINLEY. In other words, OK, so it has nothing to do with energy or for health. It is just that you say they shouldn't have this money. So am I correct?

Ms. STEINZOR. No. I——

Mr. MCKINLEY. I don't want to dwell on it a lot because I know that this money goes into pension funds and retirement accounts for people, so there is some value to having a corporation make some money. I am just curious why——

Ms. STEINZOR. And I am not saying corporations should not make money. I am saying that these are some of the most enriched companies in the country that are up here——

Mr. MCKINLEY. And ConocoPhillips is a—they make 15 percent profit. I don't know that that is exorbitant given such a diversity that they earn from chemical manufacturing to oil production and energy production. I am just curious. You seem to be willing to attack the profit margins of these companies and—OK, that is fine. I have run into people like you every once in a while.

But let's go to Dr. Rom. You know, you made a very poignant issue earlier when you talked about the individual that was standing there, next to a—for 5 minutes. Was he your patient or something like that?

Dr. ROM. I didn't see him in the emergency room but I saw him——

Mr. MCKINLEY. So he wasn't your patient?

Dr. ROM. Yes, for a period of time.

Mr. MCKINLEY. I don't want to make a big deal of it, but did you ever have any children that ever went outside without a coat on and they were sick? They got sick from being outside or—I am just curious. Did this person have a level of personal accountability? If he had a pulmonary problem and stood there in front of an exhaust pipe for 5 minutes that you referred to, didn't he have a—just to step back? Did you ever tell him that or did you say let's blame the government or let's blame that bus for running there?

Dr. ROM. Well, he was intubated at that point——

Mr. MCKINLEY. OK.

Dr. ROM [continuing]. So I couldn't ask him those types of questions.

Mr. MCKINLEY. I think it was a very——

Dr. ROM. But I think the rate of exposure is the important thing.

Mr. MCKINLEY. And I think it is important, and I am with you on that. I think you made a good point but I also think there is a question about—I want to go into more on what you were talking about——

Dr. ROM. I agree with you on personal responsibility. We give people medicine——

Mr. MCKINLEY. OK. You and others have testified time and time again here before us about asthma and other health-related issues, but can you help me, Doctor? How do you differentiate someone getting asthma or some kind of airborne disease from being outdoors from when they are indoors? If they spend 90 percent of the time indoors, why do we always keep attacking our outdoor air

quality when it only represents about 10 percent of the time of the air we are exposed to? Do you think we should be looking at indoor air quality?

Dr. ROM. Oh, absolutely.

Mr. MCKINLEY. OK, but that isn't where—the EPA doesn't have any authority to do that, and I am not sure that I want to get them in my house. When someone comes down with an asthma attack, can you differentiate, you can tell me, they get that because they were riding in their car outdoors or when they were inside their house on a couch that was giving off formaldehyde?

Dr. ROM. Those are very good points, Congressman. Indoor air pollution is a real problem. The WHO this week said there are 3.5 million deaths from indoor air pollution and 3.3 million from outdoor air pollution, so they are almost equal across the globe. In this country——

Mr. MCKINLEY. But the EPA says the indoor air quality might be as bad as 100 times worse in indoor, and on any given day, five times worse.

Dr. ROM. Indoors——

Mr. MCKINLEY. How do you differentiate it?

Dr. ROM. Yes. Indoors——

Mr. MCKINLEY. Why are you attacking one group and not the other?

Dr. ROM. Indoors with a room like this where we have central air conditioning, the ozone is virtually zero. So we tell our patients to stay indoors on bad ozone days. But the PM and the sulfur oxides and NOx get indoors as well as outdoors. So we have problems with the other pollutants.

Mr. MCKINLEY. OK. I think we have run out of time. If you could give me some other information about how you differentiate, it would be very helpful. Thank you.

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

At this time I recognize the gentleman from Kansas, Mr. Pompeo, for 5 minutes.

Mr. POMPEO. Thank you, Mr. Chairman. You know, I am puzzled how this discussion evolves. We have a piece of legislation here proposed by Dr. Cassidy that is about information, it is about disclosure, it is about policymakers having knowledge about what a particular federal action, whether that be a statute in this case, regulatory—what costs it would impose. And I want to go down the entire panel, and this is just a simple yes-or-no question in the fine tradition of Mr. Dingell. Yes or no, do you think federal policymakers, regulators ought to know and communicate—to your constituents, Mr. Cisco; your patients, Mr. Rom—the cost of a regulation?

Mr. CICIO. Yes.

Mr. WILLIAMS. Yes.

Dr. ROM. Yes.

Ms. STEINZOR. Yes.

Ms. SMITH. Yes.

Mr. SEGAL. Yes.

Mr. POMPEO. Great, we have consensus. Mark the time. That is what this legislation is about. This is about identifying costs. I assume everyone would also think that on the benefits of a regulation

as well. Everyone is nodding their head so we have consensus there as well. I mean, we start here and we have a member talking about climate change and the fact that last year's temperatures are proof of climate change. I made that is just—you can't let these facts go—I mean these intensely unscientific statements go unchallenged.

Mr. Segal, we end up talking about this health benefits. You had mentioned this and if you could just give me 30 more seconds, blackouts, brownouts, electric reliability risk, and its relation to the thoracic health of Dr. Rom's patients.

Mr. SEGAL. Well, sure. There are several different ways in which it is related. But directly the cost of electricity is a major cost factor for hospitals. So if you increase electricity cost, you increase the cost of providing medical care at the hospital. And, in fact, what we call electronic medicine these days is heavily dependent on affordable and reliable power. But then, in an indirect sense, I think we have all established, or at least many of us have agreed, on the notion that high electricity prices make industry less competitive, make gasoline more expensive, and as a result, have a negative impact on employment.

And employment is—great research done by Dr. Harvey Brenner at Johns Hopkins estimates the amount of a percentage increase in unemployment of the amount of actual increase in mortality and morbidity. And that is not taking into account, frankly, in EPA's benefits analysis. See, that is an indirect cost so they don't take that into account. So they will cook the books in the other direction but they won't take into account these macroeconomic impacts on health.

Mr. POMPEO. Yes. I am certainly worried about cooked books. I am even more worried that there is no analysis——

Mr. SEGAL. Yes.

Mr. POMPEO [continuing]. Being done. They are simply not even opening the books or attempting to prepare the books or even considering cost.

One last point of cleanup. Dr. Rom, you made a statement about ozone—that 75 parts per million, you said it saved certain lives if we want to 70, is that right? Do I have that right?

Dr. ROM. That 75, it is between 1,500 and 2,000 lives that you will save if you are meeting that standard. We are currently above the standard.

Mr. POMPEO. Got it. More lives if we want to 70?

Dr. ROM. Four thousand at 70. And that was——

Mr. POMPEO. How about at 60? More lives at 60?

Dr. ROM. Double.

Mr. POMPEO. Awesome. How about zero? More lives still?

Dr. ROM. Background is probably in the 30 to 40 range——

Mr. POMPEO. There we go. We get perfection. Background 35. More lives still saved if we get from enforcing 75 to 70 and then we ultimately get to 35, more lives saved, I assume?

Dr. ROM. When you are at background, you are at background, so I can't really say——

Mr. POMPEO. But it is better than 70. You would rather be a background than at 70?

Dr. ROM. Yes.

Mr. POMPEO. Yes. When I hear folks say—sometimes folks who think this kind of legislation makes sense exaggerate to—I think it is silly to make statements about perfection and background. I think they are not even worth talking about. I mean, it is silly. So I think we all have an obligation to be straightforward about what is possible and the real cost associated with those things without saying hey, we are going to kill people if we don't go do this. I think it is disingenuous. I think it doesn't serve the public interest very well and I just hope we will all refrain from that. I yield back.

Mr. WHITFIELD. The gentleman yields back. At this time I recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman. And I am going to be quick because I know the bells have rung and there are probably a couple of more members that want to also ask questions. I do appreciate the panel.

Listen, we are legislators. The way a bill becomes a law is there is an idea—Mr. Cassidy has one—and we debate it, we move it, and it becomes law. And it changes the dynamics that will help both sides and the disparaged colleagues who are bringing legislation in good faith is just unfortunate because it just frustrates me that we don't have to stoop to that.

And Dr. Rom, I applaud the profession. I love people in the healthcare sector. They are servants. They do great work. But I also am concerned about a mayor who can try to ban the Big Gulp doesn't have clean air emission buses like natural gas or biodiesel transport systems that would help alleviate some of that issue. That would not be an issue if it was a natural gas bus. So I am sure there are some there but—I would just add on this, this is the question. New source review is a public policy by this country that says that if we are going to retrofit manufacturing facilities or power plants with new generators more efficient, maybe it doubles the efficiency, then the power plant has to go through a whole new permitting aspect on their environmental regs.

So I just ask this question. If we know that these generators can double the efficiency and the power plant is meeting current air standards—and so you are going to get more electricity output almost lowering the price in half—does it make sense—if it is meeting the current environmental standards, does it make sense to force the industry to reapply for all the air permits? And we will just go left to right and then I will be done and then we can move time to——

Mr. CICIO. No, it doesn't and that is why this legislation is needed to identify what the costs are so that if the costs are high, then hopefully, it will give the EPA an option to go back and look at alternative, less costly options.

And along with this question you asked I would like to address Congressman Green's point. If there isn't a precedence, there needs to be a precedence because the EPA is not an agency with expertise in the energy area. The rules that the EPA is dealing with are so energy-intensive-related that they need help from the Department of Energy to make sure that they get it right.

Mr. WILLIAMS. I would agree with Mr. Cicio and your statement and it really points to the fact that, oftentimes, EPA in particular looks at these things in silos and gets to some of the regulatory

complex I talked about in my written testimony, an example, I mentioned Tier 3 earlier. We have a regulation that requires us to take more sulfur out of gasoline even though we reduced it 90 percent. That is going to increase GHG emissions 1 to 2 percent. And then we also have EPA's GHG regulations under the PSD provisions and facing NSPS GHG relations. At sometime in the future EPA has announced that. So it highlights your point exactly.

Dr. ROM. Yes. I would point out that for transparency EPA generally is willing to listen to a power plant company or manager to discuss multi-pollutant controls in NSR——

Mr. SHIMKUS. And not to cut you off, this is current rules and current laws that we apply by now that they are not. Obviously, they force people then, to go through the old permitting process if they are going to bring a new generator online. It is just the current law and it is crazy. It makes no sense. But that is current. Ma'am, no comment?

Ms. STEINZOR. I think it makes perfect sense.

Mr. SHIMKUS. OK, that is fine. Dr. Smith?

Ms. SMITH. It serves as a hindrance towards efficiency improvements.

Mr. SEGAL. For once, my law degree maybe trumps an M.D. This is a legal program and it gets the incentives exactly backwards, Mr. Shimkus. It prevents efficiency improvements and even prevents pollution prevention, even though that is supposed to be an explicit exception.

Mr. SHIMKUS. Exactly, thank you. I yield back.

Mr. WHITFIELD. At this time I recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman.

The time is limited so I will have to be brief. I agree. The whole idea of this bill is so that the EPA can take a look at it and say, OK, maybe we need to find a less costly way of doing this if it is a good thing to do. But more importantly, I think we ought to be looking at those estimates, knowing that the EPA can consistently—in just the short time that I have been here the last 2¼ years, I haven't seen a thing yet, I think, the EPA has gotten the numbers right on. We may disagree on policy but I at least would like to have the numbers be close to reality. They are not there, which is why I think it is part of the reason that we have this bill, have somebody besides the EPA taking a look at these issues. I for one believe that that responsibility rests here in Congress.

When it comes to the arguments and people say there is no precedence for this or there is no precedence for the Act under which we are talking. There was no precedence for the Clean Air Act in the first place. So under that argument, we should never have had this bill in the first place. And I would have to direct that to my friend, the law professor because, as you know, this country is about starting things and doing things a different way than the rest of the world. Otherwise, we wouldn't have a democratic republic form of government because we were the first ones in the world to have that with the nature—recognizing the city state of Athens and some other minor experiments in that.

But from a nation of this size, we were the first to have a democratic republican form of government. I think it is a great way to

go and I think we should go there. But I will tell you one of the problems that I see from this testimony today and from the questions that I hear is that we actually had a member here say today something about this would hinder everyday decisions. A billion dollars in Washington is considered an everyday decision. Well, before I was here, I came from the Virginia legislature and the last year I was in the Virginia legislature, our entire budget was less than $40 billion. To me, a billion-dollar decision is not an everyday decision and that is the reason we need this bill.

I don't understand these folks who don't want to have Congress getting more information and have us taking more responsibility. You know, the people elected us to be responsible for these things. And coming up with a new bill, a new idea to put checks and balances into the system, not to say we don't do something that is good, but to put checks and balances there at that billion-dollar level. When that is unreasonable, it is clear we have a problem in Washington and I think this bill will help fix that.

Mr. WHITFIELD. The gentleman yields back.

At this time I recognize Mr. Olson for 5 minutes. We have 6 minutes left on the floor for a vote.

Mr. OLSON. I thank the chair and welcome to the witnesses. I know we are running short on time but Texans can always find time to brag about the Lone Star State. So I would like to remind my colleagues that my State was the fastest-growing State in the union the last 10 years. People from all over the country were flocking to Texas for four reasons: our income tax, zero; commonsense regulations; right-to-work state; and cheap, reliable energy.

One of the biggest challenges my State faces in the future is reliable energy. ERCOT, who controls power generation for about 90 percent of my State, has said we need five more power plants, large ones, coming online by 2014 or we risk having another power crisis. If we have a summer heat wave like in August of 2011, we will have rolling brownouts and blackouts again.

EPA's war on coal has stopped two new power plants from being built: Las Brisas and White Stallion along the Gulf Coast there by Corpus Christi and Bay City.

My question is for you, Mr. Segal. Can you talk about the reliability issues you see coming? Are my home State's challenges the exception or the rule?

Mr. SEGAL. No, sir. They are not the exception, although Texas faces a particularly onerous situation, particularly with the amount of manufacturing assets we have in refining and in chemicals, et cetera, that the entire rest of the country relies upon for their manufacturing. Look, prior to those rules being laid down by the EPA, our friends over on the Senate side spent 7 months trying to figure out if EPA had even talked to FERC about the electric reliability impact. I would like to read their conclusion. "Instead of taking the questions and concerns seriously, the EPA largely ignored requests for the Agency to work closely with FERC and reliability experts to identify potential reliability risks and then amend the rules to lessen those risks," very similar to what your bill would do.

Indeed, in recently released internal emails, FERC employees expressed frustration with trying to work with EPA noting, "I don't think there is any value in continuing to engage EPA on these

issues." They had no interest in trying to adjust reliability on a priori basis.

Mr. OLSON. And that makes my State's crisis acute.

Mr. Williams, Mr. Cicio, would you like to add anything to Mr. Segal's comments?

Mr. CICIO. I am glad you brought this up. I have worked in the manufacturing sector for 42 years, my entire life, and I can confidently say that there is greater concern about electric reliability by manufacturers than ever before, and it is because of the EPA rules on the power sector. And it is a prime example of the EPA not having the expertise to deal with the entire direct and indirect implications of their actions.

Mr. WILLIAMS. I would agree with Mr. Cicio and note that, as I mentioned earlier, refiners other than crude oil costs, electricity is their second-largest cost. The same applies for petrochemical manufacturers. And if there are reliability issues, they are going to significantly impact our sector and our ability to make the products and make this country run.

Mr. OLSON. One question, Mr. Williams. How would this bill have helped if it had been law when EPA got in and destroyed our flexible permitting system? Remember they came in, rolled in, 17 years of precedence over on the Clinton Administration, the Bush Administration, the first years of the Obama Administration, threw it out and the court, the 5th Circuit finally had to overrule them. But how would this bill have helped that situation, and what is the damage that has been done? Have we recovered yet?

Mr. WILLIAMS. Well, the flex permit issue is a great issue because EPA officials had told people in our industry, yes, it worked you just didn't do it the way we wanted you to do it, which required folks to go back to the drawing board and de-flex a lot of their facilities.

And it goes back to the point I made about how this bill would help. This bill actually, as many members have highlighted today, add more transparency to the process. It would allow the Department of Energy to take an energy impact economy-wide look at how all these different regulations fit together and how the benefits and the costs are assessed, and in some cases, how the costs aren't assessed.

I mentioned the conflicting regulations with Tier 3 and greenhouse gas. As before, there has been a lot of talk about PM. The Tier 3 rule also talks about addressing PM. EPA, as was earlier mentioned, just finalized a PM standard that they say was protective of the public health and environment. The PM analysis and Tier 3 did not look at that. It looks at in silos. So how do we know where the PM benefit is actually coming from?

So these are just examples of oftentimes the fact that these regulations happen in a silo and there are implications that aren't considered when EPA is going through their analysis. This bill would help because the Department of Energy would certainly prevent against the fox-guarding-the-hen-house scenario for lack of a better analysis.

Mr. OLSON. My time is going up instead of going down so I yield back.

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

Mr. RUSH. Mr. Chairman?

Mr. WHITFIELD. Yes?

Mr. RUSH. Mr. Chairman, I ask for unanimous consent to submit the letter for the record from the Natural Resource Defense Council addressing this concern with getting the Consumers Relief Act.

Mr. WHITFIELD. Without objection, so ordered.

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

Mr. WHITFIELD. I would also like to enter into the record this press release from the Society of Environmental Journalists.

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

Mr. WHITFIELD. Also, I made a statement that the U.S. was the number one oil producer in the world. Actually, we are the number one natural gas producer in the world. We are third in oil and they anticipate we may be number one in 2018. So I want to correct that.

Also, I just want to clear up briefly, as result of our last hearing, Mr. Rush, it was your understanding that I had agreed to a hearing on climate change, which if I led you to believe that I think I was mistaken. However, having said that, I personally have talked to our staff. While we have different priorities, many on your side view climate change as the most important issue. We believe jobs, the economy, and some other things are more important. But our staffs will be working together to try to develop a format to move forward to address some of your concerns on this issue.

Mr. RUSH. Thank you, Mr. Chairman. I guess I kind of don't know where we are at because I was assured—I thought that we had a hearing scheduled, a definite hearing scheduled. But as long as we are proceeding in that direction, I guess we have to go along with it.

But Mr. Chairman, I don't think that we have to decide between climate change and jobs. I think that is not the issue here. The issue is whether or not we are going to have scientists and climatologists before this committee to offer expert opinion. Thank you.

Mr. WHITFIELD. Thank you. The record will remain open for 10 days, and I want to thank you for your time. We appreciate your testimony and expertise. And with that, this hearing is adjourned.

Mr. RUSH. Thank you, Mr. Chairman.

Mr. WHITFIELD. Thank you.

[Whereupon, at 11:52 a.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

NATURAL RESOURCES DEFENSE COUNCIL

April 11, 2013

Honorable Ed Whitfield, Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
2368 Rayburn House Office Building
Washington, DC 20515

Honorable Bobby Rush, Ranking Member
Subcommittee on Energy and Power
Committee on Energy and Commerce
2268 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Whitfield and Ranking Member Rush:

On behalf of the Natural Resources Defense Council, I am writing to provide information that I hope will inform the Energy & Power Subcommittee's hearing on the discussion draft of the "Energy Consumers Relief Act of 2013."

This extraordinary and unprecedented bill would, in one fell swoop, effectively rewrite fundamental environmental statutes, grant the Department of Energy sweeping new powers, and eliminate federal responsibility to consider the public's health and safety. The one thing that would provide "relief" for the public would be for the Subcommittee to bury this bill quickly and permanently. In its first seven lines alone, the draft bill reverses virtually every presumption and practice of environmental law – law that for more than four decades has proven to improve health and safety while allowing for economic growth. The law transfers authority for environmental decision-making from environmental experts at the Environmental Protection Agency (EPA) to an agency with an entirely different mission, the Department of Energy (DOE); removes discretionary authority from both agencies; and overrides the law's focus on health and environment by allowing only estimates of costs to be taken into account when determining whether a safeguard should be promulgated. It is altogether fitting that the first substantive phrase of this bill is "Notwithstanding any other provision of law" because the bill runs roughshod over countless statutes and the people they were enacted to protect.

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And the bill would apply to a far wider swath of EPA activities than may at first be apparent. Under the bill, for the Secretary of Energy to have veto power over an EPA standard, the standard must 1) "cost more than $1 billion" and 2) be "energy-related."

First, as to the cost requirement, the $1 billion trigger described in section 2 of the bill is calculated by counting "direct" and "indirect" costs for the duration of the standard. Section 4(1) defines "'direct costs' and 'indirect costs' as having the meanings given such terms in chapter 8 of the Environmental Protection Agency's 'Guidelines for Preparing Economic Analyses' dated December 17, 2010." That document defines "direct costs" and "indirect costs" as follows:

> Direct costs are those costs that fall directly on regulated entities as the result of the imposition of a regulation. These entities may include firms, households, and government agencies. Indirect costs are the costs incurred in related markets or experienced by consumers or government agencies not under the direct scope of the regulation. These indirect costs are usually transmitted through changes in the prices of the goods or services produced in the regulated sector. Changes in these prices then ripple through the rest of the economy, causing prices in other sectors to rise or fall and ultimately affecting the incomes of consumers. Government entities can also incur indirect costs. For example, if the tax base changes due to the exit of firms from an industry, revenues from taxes or fees may decline. In some cases, the indirect costs of a regulation may be considerably greater than the direct costs.[1]

It is not hard to tally up a $1 billion cost using that definition, especially when costs are calculated over many years.

The bill's use of the term "energy-related" is at least as expansive. The term is defined in Section 4 (2)(a) in a way that would cover almost all standards issued by EPA's Office of Air and Radiation because virtually any fuel combustion activity "uses" or "produces" energy, and virtually all fuel combustion produces air pollution. Many clean water regulations relating to the power sector would also come under the bill.

The appendix accompanying the majority's background memorandum[2] seeks to minimize the bill's reach by focusing on what in common parlance are thought of as energy industries, but the bill actually would apply to any part of the economy that combusts fuel and produces pollution.

But this bill would be pernicious even with a narrower scope. Congress has repeatedly vested EPA with authority over pollution for good reason, and it has garnered public support. EPA has the expertise, experience and focus to deal with pollution, health and the environment. It is hard to think of any other example of Congress taking the

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1 U.S. EPA, *Guidelines for Preparing Economic Analyses,* Dec. 2010, §8.2.1.2 *available at* http://yosemite.epa.gov/ee/epa/eerm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf (last visited April 11, 2013).

2 See http://docs.house.gov/meetings/IF/IF03/20130412/100633/HHRG-113-IF03-20130412-SD003.pdf.

approach of this bill – giving an agency a veto over another agency's most basic duties. This is simply subterfuge – a way to repeal key aspects of environmental law and to dismantle EPA – while appearing to merely be extending authority to another agency.

It should be noted, though, that in one sense the bill removes discretionary authority from EPA without vesting any in DOE. Under the bill, the Secretary of Energy has no authority to thoughtfully consider environmental protection. Rather the bill mandates that proposed safeguards be discarded – no matter what – if they would have an impact on energy or the economy.

This is the most shocking and radical aspect of the bill. The bill would simply do away entirely with any and all health and other considerations. Costs would be all that mattered, no matter what the benefits. It would be hard to imagine a step more counter to the public interest, not to mention actual experience.

Studies have shown repeatedly that Clean Air Act standards have health and economic benefits that far outweigh their costs.[3] The Clean Air Act has brought tremendous benefits to both the health of our citizens and to the economy. A recent report estimates that in 2020 alone, the Clean Air Act will prevent over 230,000 early deaths.[4] The same report found that the benefits of the Act exceed the costs by a ratio of on average thirty to one, with a high-end estimate of benefits exceeding costs by a factor of ninety to one.[5] The draft bill entirely ignores the overwhelming benefit to cost ratio of almost all Clean Air Act standards, evaluating costs in a vacuum blind to the benefits these standards have brought to our economy.

Yet this draft bill would eliminate all decisional criteria *other than costs* as the determinative factor in whether environmental statutes administered by EPA are allowed to be enforced. This would effectively repeal the 40-year-old Clean Air Act requirement to base national air quality standards on what is "requisite to protect the public health" "with an adequate margin of safety." Clean Air Act § 109(b)(1).

It is ironic that the sponsors' latest gambit to eviscerate the Clean Air Act uses DOE as a stalking horse. For decades, Republicans from Ronald Reagan to Newt Gingrich to candidates in the most recent presidential elections have called for the

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3 *See, e.g.,* EPA's recently finalized National Ambient Air Quality Standards (NAAQS) for fine particle pollution. EPA estimates that these standards would provide the American public with up to $171 dollars in public health benefits for every $1 spent on pollution controls. U.S. EPA, Fact Sheet: Overview of EPA's Revisions to the Air Quality Standards for Particle Pollution (Particulate Matter), *available at* http://www.epa.gov/pm/2012/decfsoverview.pdf; Similarly, EPA's Final Toxic Air Pollution Standards for Industrial Boilers have a benefit to cost ratio of at least 29 to 1. U.S. EPA, Fact Sheet: Final Adjustments to the Air Toxics Standards for Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Source Facilities, *available at* http://www.epa.gov/airquality/combustion/docs/20121221_boiler_major_recon_fs.pdf.

4 U.S. EPA, Second Prospective Study, 1990-2020, *available at* http://www.epa.gov/cleanairactbenefits/prospective2.html (last visited April 11, 2013).

5 *Id.* (The report estimated benefits of $2 trillion, with costs over the same period of only $65 billion)

outright *elimination* of DOE. But apparently the department has value as a cover for rewriting environmental laws.

If the sponsors were actually interested in merely ensuring DOE review of EPA rulemakings no legislative action would be needed. There already is an extensive interagency review process that EPA undertakes, soliciting comments from fellow agencies, including DOE, about standards EPA is developing. This review process is consultative and collaborative, but does not task DOE with the authority to usurp health protections entrusted by Congress and prior presidents to environmental laws enforced by EPA. The Regulatory Impact Analyses accompanying EPA standards consider impacts on the industrial sector at issue, job losses, increases in energy prices and other factors, consistent with executive orders dating to the Reagan administration. One of many examples of this collaboration is the recently finalized toxic air pollution standards for industrial boilers. When finalizing these standards, EPA in its technical fact sheet noted that DOE was, among other things, collaborating with EPA to "provide site-specific technical and cost information" to regulated entities subject to the standards.[6]

In sum, this draft bill is simply the latest – and perhaps the most far-reaching – effort by this Subcommittee to tear down the system of environmental protection that has cleaned our air, and saved lives and money for decades. The novelty of this latest approach should not be allowed to mask the destructive impact the bill would have.

Sincerely,

John Walke
Clean Air Director
Natural Resources Defense Council

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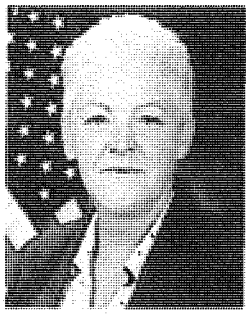
6 U.S. EPA, Factsheet: EPA's Air Toxics Standards Major and Area Source Boilers and Certain Incinerators Technical Overview Adjustments from March 2011 Final Standards *available at* http://www.epa.gov/airquality/combustion/docs/20121221_tech_overview_boiler_ciswi_fs.pdf (last visited April 11, 2013).

Hearing Thursday: Will New EPA Head Open Agency to News Media?



April 10, 2013: In recent years the Obama administration has taken secrecy to a new level by failing to respond to even many routine inquiries by the news media about what this important agency is doing in regard to human health and protecting the environment. With Gina McCarthy's nomination to head the EPA facing confirmation, it's time for the Senate to ask some hard questions.

Below is an SEJ statement on the need for greater EPA openness with the media. A shortened version of this statement was sent to members of the Senate Environment and Public Works Committee.

President Obama has an opportunity to fix badly broken media policies that keep Americans in the dark about their environment. Gina McCarthy's nomination as the new head of the U.S. Environmental Protection Agency affords him an opportunity to live up to his promise to create an "unprecedented level of openness in government."

The Obama administration has been anything but transparent in its dealings with reporters seeking information, interviews and clarification on a host of environmental, health and public lands issues. The EPA is one of the most closed, opaque agencies to the press. Members of the Society of Environmental Journalists – a group of 1,350 journalists who specialize in environmental coverage – face substantial hurdles getting their questions answered about air pollution, water quality, oil and gas operations and other issues.

But the problem is pervasive. SEJ members report similar obstacles obtaining public information from the Interior, Energy and Agriculture departments, the Food and Drug Administration, the Centers for Disease Control and other federal agencies.

Reporters who have covered the EPA for several decades say the agency was far more media-friendly and open prior to 2000. But media policies were substantially eroded during the administration of George W. Bush, and they've only gotten worse under President Obama.

Today, the Senate holds its hearing to consider McCarthy's nomination. A new EPA administrator is a chance for a fresh start, but we are troubled by her past statements defending the agency's tight grip on communications between journalists and agency scientists and policymakers. "It is the job of the agency to make sure that personalities don't get in the way of really discussing the science in a way that maintains the agency's credibility," she said at a Union of Concerned Scientists symposium last year. "The balance that we try to bring ... is to just make sure we are really providing factual information, not a layer of assessment that is based on someone's personal interest or advocacy."

But the balance is badly out of whack. The policies she endorsed bottleneck the free flow of information to the public. Information and interview requests are routed to the agency's Washington headquarters, where they often languish and die.

Reporters are regularly required to submit written questions, even on the simplest daily stories. Interview requests are rarely granted. Delays are routine. Replies, when they do come, are from press officers, not scientists or policymakers. Answers to requests made under the Freedom of Information Act also are routinely delayed.

The policy is counterproductive to accurate reporting and inimical to the American public's right to know about important health and environmental issues.

SEJ calls on the administration to streamline the handling of information and interview requests, and to allow more open and direct access to administrators, policymakers and the scientists whose research guides government decisions. We also urge EPA, Interior and Energy department administrators to hold regular news conferences, both in person and via conference call, to answer reporters' questions on all topics.

As journalists, we are working on behalf of our readers, viewers and listeners to produce timely, accurate and complete reporting on important environmental and health issues. The administration works for them, too. Shouldn't it have the same goals?

It's a question that the Senate, in its hearing today, should ask the EPA nominee.

— *Beth A. Parke*, Executive Director, Society of Environmental Journalists (www.sej.org); contact bparke at sej.org.

— *Joseph A. Davis*, Director, SEJ Freedom of Information WatchDog Program; contact jdavis at sej.org.

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EPA:

Agency comes under fire for 'closed, opaque' press policy

Emily Yehle, E&E reporter

Published: Thursday, April 11, 2013

This story was updated Monday, April 15, at 10:56 a.m.

Decades ago, when Bill Ruckelshaus returned for his second stint as U.S. EPA administrator, employees wheeled a giant cardboard box into his office. Inside: Hugh Kaufman, an employee known for his tendency to disparage the agency's decisions in the press.

"He popped out of the box as the going-away gift for the administrator, and it was a big laugh because he was well-known by all of us as sometimes giving us a hot foot," remembered Chuck Elkins, a former EPA senior official.

He recalled the episode as an example of how EPA handled the press in the 1980s and early '90s. Managers may not have liked what their employees told reporters, but it was allowed -- and sometimes joked about.

Elkins, now retired, emphasized that he was unaware of the current situation. But the Society of Environmental Journalists made its opinion clear in a statement today: EPA, it declared, is "one of the most closed, opaque agencies to the press."

"Reporters are regularly required to submit written questions, even on the simplest daily stories," the group wrote. "Interview requests are rarely granted. Delays are routine. Replies, when they do come, are from press officers, not scientists or policymakers. Answers to requests made under the Freedom of Information Act also are routinely delayed."

In an interview today, Joseph Davis, director of the SEJ Freedom of Information WatchDog Program, hypothesized that the problem stems from a shift of priorities in the press office.

Press secretaries at EPA tend to have gotten their experience from the campaign trail, he said. While 20 years ago the agency used the press to talk to the public about environmental issues that affected them, today it mainly tries to avoid political controversy.

"The tactics are different now, and they say as little as possible," he said. "The main job of the press office -- as the press office seems to see it -- is to protect the White House from political attacks ... rather than inform the press and public."

Indeed, EPA has found itself at the center of political attacks in recent years. Republicans, many of whom accuse the agency of overreach, pounce not only on what an administrator says, but also on comments from employees.

Former Region 6 Administrator Al Armendariz faced criticism after a video surfaced of him comparing his enforcement strategy to that of the ancient Romans who used crucifixions to frighten their enemies. Most recently, Sen. David Vitter (R-La.) criticized Armendariz for an email that referred to "Gina's new air rules" -- referring to EPA air chief Gina McCarthy, now nominated as EPA administrator -- as "icing on the cake" in the agency's work to limit pollution from oil and gas drilling.

Vitter, the top Republican on the Environment and Public Works Committee, characterized Armendariz's words as indicative of an agency that seeks to "punish energy producers" (*E&ENews PM*, March 12). Vitter has kept up that line of attack and, perhaps ironically, criticized EPA today for its lack of transparency in responding to his requests for information on the agency's internal communication (*see related story*).

McCarthy appeared to address such bad press at a symposium that the Union of Concerned Scientists held in September on public access to government scientific information. At that event, McCarthy said EPA is operating in a political environment in which the agency's "credibility as a scientific entity was being questioned."

She seemed to indicate that message control was preferable to the criticism that comes from employees freely speaking their opinions to reporters (*Greenwire*, Sept. 26, 2012).

"It is the job of the agency to make sure that personalities don't get in the way of really discussing the science in a way that maintains the agency's credibility," McCarthy said at the time. "And that's the balance that we try to bring to it, is to just make sure we are really providing factual information, not a layer of assessment that is based on someone's personal interest or advocacy."

But back when Elkins worked at the agency, employees sometimes complained to reporters about any agency decisions they didn't like. Managers were held to a different standard, according to Elkins; they were expected to speak for the agency, and thus had to be somewhat careful.

Elkins held various positions during his 25 years at the agency, including acting assistant administrator of Air and Radiation. The rule of thumb he followed was to "write things and speak as if you're going to be on the front page of *The Washington Post*." He also quickly figured out that reporters who popped into his office could read backward.

Of course, that was long ago, under a different political atmosphere, when EPA was not disparaged as it is today. Bill Ruckelshaus, who was the agency's founding administrator, also began his second term at the agency -- in 1983 -- with the "fishbowl memo," directing employees to be as open as possible with the public.

In contrast, former EPA Administrator Lisa Jackson took over an agency that has generally shielded employees from speaking with the press. Jackson also rarely spoke to reporters beyond prepared statements and speeches.

SEJ's Davis expressed hope that McCarthy, known for her outspokenness, would reverse that course.

But until then, an EPA spokeswoman declined to return a request for comment.

An earlier version of this story did not include the name of the employee in the cardboard box or the EPA administrator at the time.