

**HEARING ON THE NOMINATIONS OF JANET G.
McCABE TO BE ASSISTANT ADMINISTRATOR
FOR AIR AND RADIATION OF THE U.S. ENVI-
RONMENTAL PROTECTION AGENCY (EPA), ANN
E. DUNKIN TO BE ASSISTANT ADMINISTRATOR
FOR ENVIRONMENTAL INFORMATION OF THE
EPA, AND MANUEL H. EHRLICH, JR., TO BE
A MEMBER OF THE CHEMICAL SAFETY AND
HAZARD INVESTIGATION BOARD**

HEARING
BEFORE THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED THIRTEENTH CONGRESS
SECOND SESSION

APRIL 8, 2014

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ONE HUNDRED THIRTEENTH CONGRESS
SECOND SESSION

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TIGATION BOARD**

TUESDAY, APRIL 8, 2014

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

The committee met, pursuant to notice, at 10:03 a.m. in room 406, Dirksen Senate Building, Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Carper, Whitehouse, Markey, Vitter, Inhofe, Barrasso, Sessions, Crapo, and Fischer.

**OPENING STATEMENT OF HON. BARBARA BOXER,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. The committee will come to order.

Today, we will consider three nominations. It is critical that we move forward with these nominations so that our Federal agencies can fulfill their mission to serve the American people, protect their health and safety. That is the role of this committee.

The first nominee we will hear from today is Janet McCabe, who is being considered for Assistant Administrator for the Office for Air and Radiation at EPA. Currently, she is Acting Assistant Administrator and she previously served as that office's Principal Deputy to the Assistant Administrator.

Prior to joining EPA, Ms. McCabe was Executive Director of Improving Kids Environment, Inc., a children's environmental health advocacy organization based in Indianapolis, Indiana. She was an Adjunct Faculty member at Indiana University's School of Medicines, Department of Public Health.

Ms. McCabe has a wealth of public service experience aimed at protecting air quality and the environment. Ms. McCabe's extensive experience will serve her well and build on the important work

EPA has done to protect public health by keeping our Nation's air clean.

In 2010 alone, the clean air standards and programs under the Clean Air Act prevented 13 million lost work days, prevented more than 160,000 deaths from pollution, and prevented 1.7 million asthma attacks.

Like her predecessors at EPA, Ms. McCabe will rely on science and peer reviewed studies to determine how best to protect America's families under our landmark laws.

The next nominee we will hear from is Ann E. Dunkin, who hails from my home State, California. She has been nominated to be Assistant Administrator for the Environmental Information Office at EPA. She brings over two decades of technology management experience in both the private and public sectors, including 20 years at Hewlett Packard.

She is currently the Chief Tech Officer for Palo Alto Unified School District, Palo Alto, California, where she is responsible for managing all aspects of the district's technology strategy infrastructure and operations. Her experience spans across disciplines of manufacturing, engineering, software quality, research and development and operations and information.

If confirmed, she will be responsible for managing EPA's information and technology investments and provide tech services in OEI, which collects, manages, provides and safeguards environmental information.

The committee is also considering the nomination of Manuel Ehrlich to be a member of the Chemical Safety Board. Mr. Ehrlich has over 50 years of chemical industry safety and emergency response experience, including establishing a training team to assist in the management of emergency response incidents.

As a member of the CSB, Mr. Ehrlich will be charged with investigating industrial chemical accidents, to protect workers, to protect the public and the environment. Mr. Ehrlich is very well qualified for this position because he has handled more than 7,000 chemical safety and emergency responses during his long career.

The CSB plays a critical role in protecting our communities from chemical hazards and is part of a working group that President Obama established after the deadly chemical disaster in West, Texas. I know Mr. Ehrlich's broad experience in the public and private sectors will be useful as the CSB and other working groups conduct a comprehensive review of Federal chemical safety and security programs and develop recommendations for improving these programs.

This hearing is a very important step in forwarding to the Senate these three very, very qualified nominees whom I strongly support. I look forward to this hearing today.

With that, I turn to Senator Vitter, my ranking member.

**OPENING STATEMENT OF HON. DAVID VITTER,
U.S. SENATOR FROM THE STATE OF LOUISIANA**

Senator VITTER. Thank you, Chairman Boxer, for convening today's hearing, and welcome to our three nominees.

While I appreciate everyone taking the time to join us today, I would like to focus on Ms. McCabe and her Air Office for the next few minutes.

As you know, for some time we have been engaged in a sustained effort to bring greater transparency to EPA's activities. Sometimes we have been successful but generally speaking, getting clear, understandable answers and data from the agency remains a challenge.

Ms. McCabe has been at the EPA for a number of years, first as the now Administrator McCarthy's second in command and currently as the Acting Assistant Administrator of the Air Office. She has enjoyed a front row seat during our prolonged efforts with EPA and should be well aware of the expectations of the role into which she is stepping, including about transparency.

EPA says it is one of the most transparent administrations in history, so I think it is time to stop just talking about that and shed some much greater light on agency processes.

There are many issues I could discuss today but I want to focus on three for the time being. First is electricity reliability. While we are dependent on a diverse generation portfolio including coal, natural gas and nuclear, EPA's regulatory onslaught makes the future far less certain in terms of that broad base of support.

American Electric Power's CEO stated, "89 percent of our coal capacity slated for retirement in mid-2015" was providing the power necessary to meet current demand. EIA projects additional coal power plant retirement in addition to those already scheduled for 2016. While existing EPA regulations contribute to these closures, the pending actions under the President's Climate Action Plan dramatically increase those consequences, including negative consequences to reliability and affordability.

The most damaging rules, greenhouse gas performance standards for power plants, 316(b) and pending revision to the ozone standard remain to be finished and imposed on the American consumer.

The second topic I want to visit is the greenhouse gas emission performance standards for power plants. The rule for existing sources is going to affect over 1,500 fossil fuel plants in the U.S., including nearly 560 coal-fired power plants. The President set a deadline of June 1 that the agency appears on track to meet, yet none of us in this room know the exact contents of the proposal except perhaps the nominee.

The rule for new sources had to be repurposed after receiving over 2 million comments. Clearly something was serious wrong. I cannot say that the new version is a rousing success either. Any contemplation of building new coal-fired plants will require the use of technologies that are not adequately demonstrated at a commercial scale and are based on three incomplete, inoperable projects funded by the government. In other words, EPA seems to be mandating a regulation based on fiction.

Increased regulation by EPA through these performance standards has the potential of resulting in job loss across the country, serious electricity reliability issues and certainly increased electric bills.

The third issue I want to touch on is the social cost of carbon. We have been over this a number of times, and it continues to con-

cern me that direct answers to the simplest questions and requests on this remain unfilled. Why did EPA ignore OMB guidance and not run the social cost of carbon estimate at a 7 percent discount rate? Why did EPA not do an assessment of the social cost of carbon with respect to the U.S.? To date, the social cost of carbon is used in 28 EPA rules. It is a significant estimate that needs to be fully understood before being allowed to be used in such a dominant and perhaps haphazard manner.

These are only a few of the issues I have with the EPA and how it runs things now. In each instance, the agency seems to be prepared to select the most difficult, most painful, least understandable and least transparent path. I certainly hope Ms. McCabe will work with us to change that positively.

Thank you, Madam Chairman.

Senator BOXER. Thanks.

Senator Carper.

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

Senator CARPER. Thank you all for being here. Thank you all for your willingness to serve in these roles.

My colleagues have heard me say more than a few times that practicing executive branch government by Swiss cheese; there are way too many vacancies in the executive branch of our Government across departments. It is wasteful and inefficient. It is foolish.

I don't care whether the President is George Herbert Walker Bush or Bill Clinton or George W. Bush or Barack Obama, this is not a smart way to go.

Madam Chairwoman, I applaud you for bringing these names forward and for having this hearing today. I think we have some pretty good nominees. I look forward to talking with you and hearing from you and trying to move your nominations forward.

Thank you.

Senator BOXER. Thank you, Senator, for your support.

Senator Barrasso.

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

Senator BARRASSO. Thank you very much, Madam Chairman.

I want to than the nominees and congratulate them on their nominations.

As stated before, I am from what I consider the most beautiful State in the country. Folks in my State believe we can balance our energy needs with our environmental needs. We are wonderful environmental stewards of the land. People in my State watch the EPA and watch what the EPA is doing.

Yesterday Senator Enzi and I had a telephone town hall meeting, and call after call was about the EPA and Government regulations. People in Wyoming think this agency is behaving in an extreme fashion. Many of the policies coming out of the EPA's Air and Radiation Office are the cause of the beliefs I am hearing from the people around the State of Wyoming.

We have a nominee before us today, Janet McCabe, who has been nominated to head this very important office and is currently

servicing as the office's acting head. Any nominee tasked with heading up this office should be discussing what the best ways are to provide clean air while not harming the economy and economic growth.

The only way to do this is to have a nominee who will work with us to chart a bipartisan path, consensus, sound science, transparency and accountability. The Air and Radiation Office at the EPA has presided over regulations and proposed rules on greenhouse gases, coal ash, ozone, mercury emissions and industrial boilers.

Regulations and proposed rules have led to the closing of dozens of power plants in the United States and are costing our country thousands of jobs. Folks in those communities where those plants shut down are now without money, without jobs, without prospects for jobs and are at risk for serious health problems as a result of chronic long term unemployment.

Studies show that children of unemployed parents will suffer significant negative health effects. The National Center for Health Statistics states that children in poor families are four times as likely to be in fair or poor health as children in families who are not poor. There are serious health risks and these go unnoticed by the Air and Radiation Office at EPA as they churn out more job crushing regulations with little environmental benefits.

Any nominee to hold this position must pledge to look at these important health impacts. To date, the nominee has not taken this action in her current role as acting head of this office. To make matters worse, we find that some of these rules were developed by an EPA employee with no environmental experience who masqueraded as a CIA agent. No attempts have been made by the Air and Radiation Office, of which I am aware, to review and rescind the work of this great imposter. Any nominee to fill this position must pledge to do so.

In addition, the Air and Radiation Office has not recognized the importance of addressing the issue of energy poverty. Coal is a domestic abundant fuel source. It burns 24 hours a day, 7 days a week. Coal is lifting millions out of poverty in Asia and the developing world.

At the same time, this Air and Radiation Office is quarter-backing the war on coal, establishing a carbon capture and sequestration requirement for future coal-fired power plants that may never be achievable. Carbon capture and sequestration is a technology that is not currently and may never be commercially and economically viable.

Regulations that do not allow coal to continue as part of America's energy mix will only lead to one thing, poverty for low income families who spend a greater share of their income on energy. Any nominee to head the Air and Radiation Office of EPA must stop denying the technological limitations of CCS and the importance of reducing energy poverty in America. In her current role, this nominee has not done so.

Again, I thank you, Madam Chairman, and look forward to the testimony.

Senator BOXER. Thank you.

I ask unanimous consent to place in the record the American Lung Association Clean Air Survey completed in 2012.

[The referenced information was not received at time of print.]

Senator BOXER. Seventy-three percent of voters say we don't have to choose between air quality and a strong economy; 66 percent of voters favor EPA updating air pollution standards by setting stricter standards; and 72 percent of voters support new standards for carbon pollution from power plants. This was across the whole country.

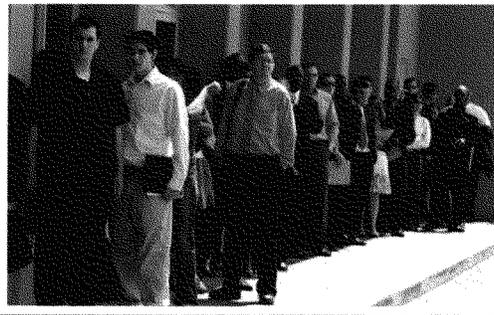
I will try to get your State separated out but it is very clear that there wasn't any State that didn't agree with these findings.

Senator BARRASSO. Madam Chair, I also ask then to be put into the record my report on studies showing that EPA's rules cost Americans their jobs and their health.

Senator BOXER. Of course we will be happy to do that.

[The referenced information follows:]

Red Tape Making Americans Sick
*A New Report on the Health Impacts of High
Unemployment*



*Studies Show EPA Rules Cost Americans Their Jobs and Their
Health*

Minority Subcommittee Staff Report
Subcommittee on Clean Air and Nuclear Safety
Senator John Barrasso, M.D.
Ranking Member
March 2012

EPA Red Tape Increases Unemployment While Worsening Public Health

Key Findings and Recommendations:

- Congressional testimony and scientific research reveals that unemployment from Environmental Protection Agency (EPA) regulations:
 - ✓ Increases the likelihood of hospital visits, illnesses, and premature deaths in communities due to joblessness.
 - ✓ Raises healthcare costs, raising questions about the claimed health savings of EPA's regulations.
 - ✓ Hurts children's health and family well-being.
- EPA claims of health benefits from current and future Clean Air Act regulations are misleading and incomplete. The agency must adequately examine the negative health implications of unemployment into their cost-benefit analysis before making health benefit claims to the public and Congress.
- The Full Senate Environment and Public Works Committee and the Subcommittee on Clean Air and Nuclear Safety should conduct additional hearings to responsibly investigate the health implications of higher unemployment as a result of federal regulations.

Executive Summary:

President Obama's Administration continues to claim that new EPA Clean Air Act regulations for ozone, greenhouse gases, electric utilities, domestic oil and gas producers, and manufacturers deliver significant economic benefits. Specifically, the agency says that these regulations will yield billions of dollars in benefits for the U.S. economy in the form of fewer premature deaths, sick days, hospital visits, cases of bronchitis, and heart attacks.

According to the EPA:

"The benefits of avoiding early death, preventing heart attacks and asthma attacks, and reducing the number of sick days for employees far exceed costs of implementing clean air protections. These benefits lead to a more productive workforce, and enable consumers and businesses to spend less on health care – all of which help strengthen the economy."

However, the Administration's predictions do not take into account how regulations will increase unemployment and therefore negatively impact public health. A broad range of experts over

decades of research say that unemployment will hurt public health. A study published in 1985 in the *American Journal of Public Health* by Margaret W. Linn, PHD, Richard Sandifer, BS, and Shaya Stein, PHD, entitled "Effects of unemployment on mental and physical health", concluded:

"After unemployment, symptoms of somatization, depression, and anxiety were significantly greater in the unemployed than employed."



"[U]nemployed men made significantly more visits to their physicians, took more medications, and spent more days in bed sick than did employed individuals ... unemployment had an adverse impact on psychological function, with the unemployed becoming more anxious, depressed, and concerned with bodily symptoms than those who continued to work."

Over the last few decades other studies have been conducted to investigate the detrimental effects of high unemployment rates:

- "The Effects of Unemployment on Mortality following Workplace Downsizing and Workplace Closure: A Register-based Follow-up Study of Finnish Men and Women during Economic Boom and Recession" - *American Journal of Epidemiology*, 2006

"Unemployment is strongly associated with mortality on the individual level."

- "Effects of Unemployment on Health in a Community Survey: Main, Modifying, and Mediating Effects" - *Journal of Social Issues*, 1988

"Results from a community survey in a sample of high-unemployment census tracts ... showed significant elevations of depression, anxiety, somatization [a chronic condition in which persons experience physical symptoms, but no physical symptoms can be found], and self-reported physical illness among the currently unemployed."

"Unemployment had health-damaging effects...severe enough to be considered clinically significant."

EPA has faced charges that their wide ranging estimates of public health benefits from their regulations show uncertainty and that the regulations actually cost jobs. EPA has not adequately responded to these charges. Recent research and testimony in Congress continues to bolster the argument that unemployment leads to poor public health and both Democrats and Republicans agree some jobs will be lost because of EPA's regulations. No matter what the predictions are for jobs losses from these regulations, those who lose their jobs will suffer negative health effects. Those effects must be counted in any benefit-cost analysis by EPA.

Unemployment from EPA Regulations:

Whether Americans believe a net increase or decrease in jobs will occur because of EPA's regulations, the fact is that all sides agree that some jobs will be lost.

In 2010, then Senator Blanche Lincoln wrote a column in the *National Journal* entitled "**Regulating Small Businesses Out of Business.**" In it, she states:



"The significant increase in regulations being handed down by Washington is having real consequences. A recently released Gallup poll found that compliance with government regulations is now the single biggest problem facing small business owners. The same report indicated that about one in three small companies is concerned about going out of business in 2012. Similarly, earlier this year the rate of new startup businesses reached a 25 year low largely due to the uncertainty created by the government's regulatory agenda."

President Obama has stated since his original campaign that jobs would be lost in the coal industry if he were elected because of his support for cap and trade policies to address greenhouse gases. According to then Presidential Candidate Barack Obama in a [2008 interview](#) he stated regarding the U.S. coal industry that –

"So if somebody wants to build a coal-powered plant, they can; it's just that it will bankrupt them because they're going to be charged a huge sum for all that greenhouse gas that's being emitted."

The actual number of Americans who will lose their jobs as a result of EPA's rules varies. According to the Senate Republican Policy Committee in 2011, **an estimated 11.5 million Americans are projected to lose their jobs as a direct result of several proposed EPA rules:**

Obama Policy	Potential Jobs Lost
New Ozone Standards	7,300,000
EPA Greenhouse Gas Regulations	1,400,000
New Utility Regulations	1,400,000
New Coal Ash Regulations	316,000
Offshore Drilling "Permitorium"	187,000
Onshore Oil and Gas Lease Delays	69,000
New Boiler Regulations	60,000
Alaska Drilling Delays	54,700
New Cement Kiln Regulations	15,000

EPA Administrator Lisa Jackson and others strongly dispute these figures and her agency has stated that their regulations create jobs in the long run -- these are the so called "green jobs" that would result as businesses are created to manufacture and install new green technologies.

For example, in March of 2011 the EPA released a presentation on their proposed Mercury Air Toxics Rule that said:

"This rule will provide employment for thousands, by supporting 31,000 short-term construction jobs and 9,000 long-term utility jobs."

Director of the George Washington University Regulatory Studies Center Susan Dudley refutes this claim in a December 20, 2011, column in The Hill:

"Also disingenuous is the EPA's claim that the 'rule will provide employment for thousands, by supporting 31,000 short-term construction jobs and 9,000 long-term utility jobs.' First, this estimate quantifies only the jobs necessary to comply with the new rules, and ignores jobs lost, despite its recognition that 'the industries that use electricity will face higher electricity prices as the result of the toxics rule, reduce output, and demand less labor.'"

It is true that some jobs will be created by EPA's slew of regulations to make and install new required pollution control equipment for coal fired power plants, industrial boilers and cement plants.



But as Dudley points out, the Administration ignores the thousands of jobs that will be eliminated at the plants and factories that shut down due to higher energy and construction costs of installing that equipment. The end result is thousands of jobs being crushed to create a few green jobs, which leads to higher unemployment.

An article in the liberal magazine *Think Progress* entitled "EPA Regulations Will Create New Jobs, Says American Electric Power CEO: 'No Question About That'" even stated on November 14, 2011 that there will be some job losses in the energy industry as a result of EPA's rules regardless of what jobs will be created by them:

"Net job creation is a bit harder to gauge, as there will be jobs lost in some areas of the (energy) industry in a shift away from coal to natural gas and renewables."

Unemployment's Impact on Public Health:

In 2011, several respected health experts and scientists testified before the Senate Environment and Public Works Committee about the impact of unemployment on a person's health.

On June 15, 2011, Dr. Harvey Brenner of Johns Hopkins University testified before the Senate Environment and Public Works Committee:

"The unemployment rate is well established as a risk factor for elevated illness and mortality rates in epidemiological studies performed since the early 1980s. In addition to influences on mental disorder, suicide and alcohol abuse and alcoholism, unemployment is also an important risk factor in cardiovascular disease and overall decreases in life expectancy."

On June 8, 2011, Margaret Thorning, Chief Economist with the American Council for Capital Formation, testified before the joint subcommittees on Clean Air and Children's Health. While discussing the negative relationship between job insecurity and worker health, she referenced an article in *Social Science and Medicine* magazine by professors from the University of Michigan and the University of California, Los Angeles. The scholarly article, "Perceived job insecurity and worker health in the United States," presents findings consistent with prior studies, demonstrating a correlation between persistent insecurity of employment and poor health:

"Even after adjusting for sociodemographic and job characteristics, health prior to baseline, neuroticism, hypertension and smoking status, and objective employment insecurity...perceived job insecurity remains a significant predictor of subsequent health."

Adult workers are not the only ones affected by unemployment and widespread job loss. The National Center for Health Statistics described how poverty affects children's health:

"Children in poor families were four times as likely to be in fair or poor health as children in families that were not poor."

As Americans continue to deal with the impact of high unemployment, such studies have been in the forefront of the news since the recession began:

The Washington Post on July 8, 2011 in an article entitled "The long term impact of unemployment" referenced a June 23, 2006 report by Yale researcher Dr. William T. Gallo entitled "The Impact of Late-career Job Loss on Myocardial Infarction and Stroke: A 10-year Follow-up Using the Health and Retirement Survey". The report stated –



"Results suggest that the true costs of late career unemployment exceed financial deprivation, and include substantial health consequences. Physicians who treat individuals who lose jobs as they near retirement should consider the loss of employment a potential risk factor for adverse vascular health changes."

The Washington Post went on to say –

"Being laid off has serious long-term health effects. [P]eople who are laid off near retirement are twice as likely to have a stroke or heart attack...[Unemployment] increases one's likelihood of depression."

"...Persistent high unemployment, like the kind we're experiencing, does not just hurt people in the here and now. It hurts people decades in the future, even if the economy has recovered by then."

A March 2010 *Atlantic Monthly* story entitled "[How a New Jobless Era Will Transform America](#)" referenced a report entitled "[Job Displacement and Mortality: An Analysis using Administrative Data](#)" by researchers Daniel Sullivan of the Federal Reserve Bank of Chicago and Till von Wachter of Columbia University. The report states –

"We use administrative data on the quarterly employment and earnings of Pennsylvanian workers in the 1970s and 1980s matched to Social Security Administration death records covering 1980-2006 to estimate the effects of job displacement on mortality. We find that for high-seniority male workers, mortality rates in the year after displacement are 50-100% higher than would otherwise have been expected. The effect on mortality hazards declines sharply over time, but even 20 years after displacement, we estimate a 10-15% increase in annual death hazards."

Atlantic Monthly went on to say –

"A large and long-standing body of research shows that physical health tends to deteriorate during unemployment, most likely through a combination of fewer financial resources and a higher stress level. The most-recent research suggests that poor health is prevalent among the young, and endures for a lifetime. Till Von Wachter, an economist at Columbia University, and Daniel Sullivan, of the Federal Reserve Bank of Chicago, recently looked at the mortality rates of men who had lost their jobs in Pennsylvania in the 1970s and '80s. They found that particularly among men in their 40s or 50s, mortality rates rose markedly soon after a layoff. But regardless of age, all men were left with an elevated risk of dying in each year following their episode of unemployment, for the rest of their lives."

The Huffington Post in a November 5, 2010 article entitled "[Study: Longterm Unemployment Has Disastrous Effects On Health And Longevity](#)" quoted Dr. Elise Gould, director of health policy research at the Economic Policy Institute who stated –

"After wage losses, the most direct impact of unemployment is loss of health insurance coverage for those who had it in the first place," she said. "But this is only tip of the iceberg when we think about people's health. It's clear that many Americans are still hurting and will be hurting for a very long time."

The Huffington Post went on to say –

"[R]esearch shows that losing one's job can have a 'powerful and negative impact' on the health of the jobless, leading to feelings of failure, depression, anxiety, notably

increasing the risks of strokes, heart attacks and catastrophic illnesses, and potentially leading to premature mortality.

"...[E]ven the risk or fear of losing one's job was just as strong a predictor as the actual job loss on an older person's overall health because of internal psychological issues."

On May 8th, 2009, the *New York Times* in an article entitled "**Unemployment May Be Hazardous to Your Health**" referenced a study entitled "**Job Loss and Health in the U.S. Labor Market**" by Kate Strully with the University of Albany. The study states –

"Losing a job because of an establishment closure increased the odds of fair or poor health by 54%, and among respondents with no preexisting health conditions, it increased the odds of a new likely health condition by 83%. This suggests that there are true health costs to job loss, beyond sicker people being more likely to lose their jobs."

The *New York Times* went on to say –

"Workers who lost a job through no fault of their own... were twice as likely to report developing a new ailment like high blood pressure, diabetes or heart disease over the next year and a half, compared to people who were continuously employed."

Uncertainty and Omissions in EPA Public Health Analyses:

EPA's March 2011 report, "**The Benefits and Costs of the Clean Air Act from 1990 to 2020**", claims billions of dollars in benefits due to Clean Air Act regulations. This report has been cited at hearings in the full Senate Environment and Public Works Committee as well as the House Energy and Commerce Committee by **EPA Administrator Lisa Jackson** and **EPA's Assistant Administrator of the Office of Air and Radiation, Gina McCarthy**. Administration officials regularly tout this report as proof that increased EPA regulations would be a boon for public health and the economy.

According to outside experts at National Economic Research Associates (NERA), this EPA report is flawed, misleading and contains major uncertainties. NERA's report entitled "**Assessment of the Obama Administration's Cost-Benefit Analysis of Clean Air Act Regulations**," outlines the specific problems with EPA's analysis:

"The methodology behind these numbers is suspect, and the magnitude is greatly exaggerated."

"Existing regulations are unquestionably slowing economic growth today. Whether the environmental benefits of those regulations might be worth the cost is a policy question, but there is no denying that the cost takes the form of lower production of goods and services that go into consumption and investment."

Diane Katz of the Heritage Foundation raises serious concerns about the uncertainty behind EPA's numbers. According to her March 3, 2011 report entitled "Coming Clean on Regulatory Costs and Benefits," she states:

"Predicting the future effects of regulation can be exceedingly complex given the array of confounding factors at play and thus the multitude of assumptions that must be employed. The benefit estimates in the report range from \$250 million to \$5.7 trillion - a vast difference that indicates vast uncertainty about the EPA's claims."

"The research design is only one of myriad flaws underlying the EPA's claims. In fact, 14 elements of the study that bear directly on the valuation of regulatory benefits are unreliable and constitute 'major uncertainties'—i.e., differences in benefit estimates of \$100 billion or more, according to the authors of the report."

"The three most 'significant' of the major uncertainties relate directly to the calculation of lives saved by regulation, which accounts for the largest proportion of economic benefit and thus the basis of the agency's contention that regulatory benefits dwarf costs. Simply put, the EPA's claim that the CAA Amendments of 1990 will save 230,000 lives and generate \$2 trillion in economic benefits in 2020 is rife with 'significant' and 'major uncertainties,' according to the authors of the report."

As demonstrated earlier in this report, studies show that unemployment leads to serious health effects for individuals. Both NERA and Katz question the accuracy of the number of lives saved in the March report. NERA also specifically questions the claim that increasing regulations have a positive economic outcome for businesses and the economy. If in fact these regulations are having a negative effect on the economy, then there will be subsequent negative health effects for the public that must be taken into account by EPA.

The March 2011 report is not the only instance where EPA has been criticized for not accurately representing the benefits versus costs to public health from their regulations. A September 22, 2011, letter signed by seven members of Congress, who are also doctors, made this key point in a letter to EPA Administrator Lisa Jackson about the EPA's Utility MACT rule:

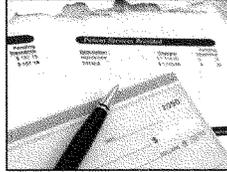
"EPA, as a federal agency, is required to perform a regulatory impact assessment with cost-benefit findings of any proposed major regulatory action. With respect to the Utility MACT rule, EPA claims that, 'significant annual health benefits will far outweigh any costs associated with implementation.' Unfortunately, EPA's benefits appear to be based on limited quantitative and qualitative analysis."

The letter goes on to say:

"Contrary to its purpose, the proposed Utility MACT rule may actually present profound challenges to public health."

The letter points out that the EPA failed to consider the impact on healthcare affordability as a result of increased electricity costs on hospitals.

"Hospital administrators have no choice but to pay attention to the cost of energy. U.S. healthcare facilities consume four percent of the total energy consumed in the U.S. spending, on average, \$8.5 billion annually on energy, often equaling between one and three percent of a hospital's operating budget. Additionally, EPA estimates, in the U.S., the health sector is the most energy-intensive commercial sector resulting in more than \$600 million per year in direct health costs and over \$5 billion in indirect costs. Under EPA's proposed rules, electricity costs in some regions may increase over 20 percent as soon as 2016. The surging cost of energy will squeeze tight hospital budgets making access to affordable healthcare all the more difficult." - September 22, 2011 letter to EPA Administrator Lisa Jackson from Rep. Michael Burgess, Rep. Phil Gingrey, Rep. Bill Cassidy, Rep. John Fleming, Rep. Paul Broun, Rep. Paul Gosar, and Rep. Larry Bueshon.



The Minority notes that the EPA's report and subsequent claims of health benefits of their rules all fail to adequately calculate the negative health impacts of their regulations. The EPA has not adequately responded to the concerns raised about the uncertainty in their numbers. The EPA also refuses to acknowledge in their analyses and reports the inevitable increase in healthcare costs due to unemployment -- billions of dollars in time and resources. This raises questions about the true environmental health benefits that are the supposed goal of new costly EPA Clean Air Act regulations.

Experts agree that understanding the impact that job loss and income has on health is vital to understanding the true representation of what a regulation's affect on public health will be. According to a 1999 report in the publication *Risk: Health, Safety & Environment* entitled **"Health Transfers: An Application of Health-Health Analysis to Assess Food Safety Regulations"** by Fred Kuchler, Jacqueline L. Teague, Richard A. Williams & Don W. Anderson, job loss and income are key factors in understanding health impacts:

"Economists take for granted that income influences individual risk choices and thereby influences health. In tallying regulatory costs and benefits, analysts usually know who will bear the costs, and analysts can estimate the cost bearers' income. However, to estimate the number of fatalities a proposed regulation might induce, analysts need to know how income loss is likely to affect the health of those who will bear regulatory costs."

The Minority agrees with this assessment. Any detailed cost-benefit analysis conducted by the EPA should incorporate the latest and best scientific analysis to understand and quantify the negative health effects of unemployment and lost income. It should also factor in the high energy costs for healthcare providers that result from costly regulations.

Conclusion:

It is undeniable that there is a negative relationship between unemployment and health status.

Today, many Americans continue to lose their jobs or live in constant fear of becoming unemployed. Losing a good paying job is devastating for families across the country who are struggling to get by.

It is fiscally and socially irresponsible for the Obama Administration to ignore how their regulations impact public health by driving up unemployment. Out of work Americans are increasingly likely to suffer: heart attack and stroke, while other effects can include increased mortality, alcoholism, cardiovascular disease, or mental ill-health: anxiety, depression, and somatization. Secondary effects extend to family members, including children, who are directly and indirectly impacted by job loss. Higher unemployment may result in poorer health across the country, leading to a higher mortality rate and an increase in hospital and emergency department visits.

According to New York Times reporter John Broder in a November 17th, 2011, article entitled "Policy and Politics Collide as Obama Enters Campaign Mode" a meeting occurred between the American Lung Association and then White House Chief of Staff William Daley over the EPA's proposed ozone regulations.

In that meeting, Daley asked a simple question when confronted with the argument that additional Clean Air Act regulations would improve public health. Daley asked, "What are the health impacts of unemployment?"

The Minority agrees with former White House Chief of Staff Daley that the EPA must consider and address this question as it pushes new regulations. The Full Senate Environment and Public Works Committee and the Subcommittee on Clean Air and Nuclear Safety should also conduct additional hearings on these issues to responsibly investigate the health implications of high unemployment.

The Minority recommends that all health impacts be considered equally and transparently.

Senator BOXER. In addition to that, we will also show what the EPA has done since the Clean Air standard just in 1 year alone in preventing 160,000 deaths from air pollution.

[The referenced information was not received at time of print.]

Senator BOXER. We really have a different way of seeing the world but you can make up your opinions but you cannot make up the facts. That is the truth.

Yes.

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

Senator WHITEHOUSE. Thank you, Madam Chair, for holding this hearing.

Welcome to all of the nominees.

As the opening comments show, you have considerable diversity of views on this panel. I perhaps represent a State that is the opposite of Wyoming. Wyoming gets from coal, as I understand, about \$1 billion a year in State revenue, so it is a very important economic driver in that State.

Rhode Island gets asthma, we get ozone, we get days where the morning radio says that infants, elderly and people with breathing difficulties need to stay indoors. They become captive. We get 10 inches of sea level rise that has been measured since the 1930s, which is a very big deal because when you are the Ocean State and you get hit with big storms like the famous hurricane of 1938 when there is 10 more inches of ocean to throw against the shores, there is considerably more devastation.

It is only reasonable to anticipate that a storm that has actually occurred can be repeated. We need to be sensitive to that. Our bay is 3 to 4 degrees warmer in the winter, so fisheries like the winter flounder that were huge cash crops for our fisherman have virtually disappeared. There has been a better than 90 percent crash in the winter flounder population.

It is really important when we look at this issue that we not look at a one-sided ledger. Senator Barrasso has his side of the ledger, and it is a real side of the ledger. I don't dispute that there are significant benefits to Wyoming from continuing to mine and burn and sell coal. Those have to be addressed at any fair resolution.

We simply cannot ignore the other side of the ledger. You cannot have one-sided accounting. If this were accounting, accountants would go to jail for only looking at one side of the ledger. On our side of the ledger, I have a State that is really very much at risk. We need the EPA to be defending us against the coal plants that are downwind that have dodged regulation for years that are pumping through 500,000 foot tall stacks so that it doesn't hit their immediate area but comes down on us.

We cannot regulate that through our State Department of Environmental Management. They don't have the jurisdiction that far. We need the EPA. It is the only place we can go when we have kids in the emergency room with that thing on their finger measuring their blood oxygen levels and the mom who thought she was going to have a day at work stuck there with them while they try to get their oxygen levels under control and back to breathing right again.

That is nothing I am ever going to walk away from. I appreciate EPA's support. Good luck navigating the differences between the two sides of the ledger on coal.

I would ask unanimous consent that the remainder of my remarks be admitted.

Senator BOXER. Without objection.

[The referenced statement was not received at time of print.]

Senator BOXER. Now that you have seen the unity of this committee on issues of the environment, welcome.

We are going to start with Ms. McCabe. We are going to ask you to stay to 5 minutes, please. After that, I will cut you off because I am sure we will have questions.

Please proceed.

STATEMENT OF JANET G. McCABE, NOMINATED TO BE ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION, U.S. ENVIRONMENTAL PROTECTION AGENCY

Ms. MCCABE. Thank you, Chairman Boxer.

Chairman Boxer, Ranking Member Vitter and members of the committee, thank you for holding this hearing. I am honored to appear before you and grateful for the time that you and our staff have spent with me prior to today.

I would also like to thank the members of my family who are here with me today behind me, my husband, Jon Laramore and my children, Peter, Alice and Dan. I think of them every day and I am so grateful for their support.

It is a great honor and very humbling that President Obama has nominated me to serve as Assistant Administrator for the Office of Air and Radiation. For the past four and a half years, I have had the privilege of working in that office to help fulfill EPA's mission, to protect human health and the environment.

After a career of almost 30 years working at the State level to improve air quality and to protect the health of American families and communities, this opportunity is an incredible honor and responsibility and one that I take very seriously.

In the decades since the Clean Air Act was enacted, our air is cleaner and safer and our economy has grown and prospered. If confirmed, I will consider it my responsibility to work with all parties to continue that progress so that both the environment and the economy can provide for current and future generations.

The Office of Air and Radiation has an important role over the coming years to continue to protect Americans from air pollution, especially the most vulnerable among us, including our children and our seniors. We also must take thoughtful and reasonable steps to address the threat of climate change.

Responding to climate change is an urgent, public health, safety, national security, economic and environmental imperative that presents great challenges and great opportunities.

As a Hoosier, I know this very well. Indiana has been and continues to be a strong manufacturing State. A reliable and affordable energy supply is vitally important to its economy and coal is a big part of that. In my 12 years at the Indiana Department of Environmental Management, I worked with industries across the State, as well as public health and environmental groups to imple-

ment clean air laws in a common sense way that made progress in improving air quality and supported jobs and businesses.

When I worked for Improving Kids Environment, a children's health non-profit in Indianapolis, the significance of addressing air pollution and climate change for future generations hit home even harder as I worked one on one with families across Indiana wanting a healthy start and a healthy future for their kids.

I would like to mention three things about how I will carry out my responsibilities if confirmed. First, working for State agencies in two States has taught me that government, at whatever level, works best when all perspectives are at the table, when there is openness to good ideas wherever they come from.

I am proud that people from my home State from across the political spectrum were able to say when I was nominated that I was willing to listen. I am already applying this approach while serving as Acting Assistant Administrator and I will continue to do so if confirmed.

Second, we must base our decisions on sound science, a transparent record and the law. I am proud of the strong scientific and technical expertise in the Office of Air and Radiation and throughout EPA and proud of the agency's work with the scientific community to make sure that our decisions are appropriately grounded in science. If confirmed, I will make sure that we continue to do our work that way.

Third, I will continue to bring to may my job my understanding of the State perspective. Implementing the Clean Air Act is a partnership—EPA and State, local and tribal governments and EPA must be mindful of those perspectives as it develops national rules and programs so that they will be able to be implemented and effective.

I know from the conversations we have already had that the members of this committee and the other nominees beside me share a passion for public service. I look forward, if confirmed, to working closely with you the faithfully execute the Clean Air Act. We all want to serve the American people by providing a safe and healthy environment and the opportunity to enjoy it in a strong and growing economy.

I am grateful for you considering my nomination. Thank you very much and I look forward to your questions.

[The prepared statement of Ms. McCabe follows:]

STATEMENT OF JANET MCCABE

NOMINEE FOR ASSISTANT ADMINISTRATOR FOR THE OFFICE OF AIR AND
RADIATION, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BEFORE THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Thank you, Chairman Boxer.

Chairman Boxer, Ranking Member Vitter, and other Members of the Committee: Thank you for holding this hearing. I am honored to appear before you and grateful for the time you and your staff have spent with me prior to today.

I would also like to thank the members of my family who are here with me today: my husband Jon Laramore and my children Peter, Alice, and Dan. I think of them every day and am so grateful for their support.

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In the decades since the Clean Air Act was enacted, our air is cleaner and safer and our economy has grown and prospered. If confirmed, I will consider it my responsibility to work with all parties to continue that progress, so that both the environment and the economy can provide for current and future generations.

The Office of Air and Radiation has an important role over the coming years to continue to protect Americans from air pollution, especially the most vulnerable among us, including our children and seniors. We also must take thoughtful and reasonable steps to address the threat of climate change. Responding to climate change is an urgent public health, safety, national security, economic, and environmental imperative that presents great challenges – and great opportunities.

As a Hoosier, I know this very well. Indiana has been, and continues to be, a strong manufacturing state. A reliable and affordable energy supply is vitally important to its economy. And coal is a big part of that. In my 12 years at the Indiana Department of Environmental Management, I worked with industries across the state, as well as public health and environmental groups, to implement clean air laws in a common sense way that made progress in improving air quality and supported jobs and businesses. When I worked for Improving Kids' Environment, a children's health non-profit in Indianapolis, the significance of addressing air pollution and climate change for future generations hit home even harder, as I worked one on one with families across Indiana wanting a healthy start and a healthy future for their kids.

I'd like to mention three things about how I will carry out my responsibilities, if confirmed. First, working for state agencies in two states has taught me that government—at whatever level—works best when all perspectives are at the table, when there is openness to good ideas,

wherever they come from. I'm proud that people from my home state, from across the political spectrum, were able to say when I was nominated that I was willing to listen. I am already applying this approach while serving as Acting Assistant Administrator and will continue to do so if confirmed.

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Thank you very much and I look forward to your questions.

**Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission**

Questions for McCabe

Questions from:

Senator Boxer:

1. The Office of Air & Radiation will devote significant resources to implement the President's Climate Action Plan which calls for using the Clean Air Act to set limits on carbon pollution from cars, trucks, and power plants. Over the Clean Air Act's forty-plus year history can you describe the benefits that the Act has provided to the nation's health and economy and how the EPA's carbon pollution standards will provide similar benefits?

The Clean Air Act has a proven record of progress dating back to 1970. According to a 1997 EPA Report to Congress, the first 20 years of Clean Air Act programs, from 1970 - 1990, led to the prevention in the year 1990 of:

- 205,000 premature deaths
- 672,000 cases of chronic bronchitis
- 21,000 cases of heart disease
- 843,000 asthma attacks
- 189,000 cardiovascular hospitalizations
- 10.4 million lost I.Q. points in children - from lead reductions
- 18 million child respiratory illnesses

In 1990, the Act was revised with overwhelming bipartisan support and signed into law by President Bush. A peer-reviewed, follow-up study to the 1997 EPA Report to Congress that covers the 1990 to 2020 period was published in 2011. The 2011 study includes a set of central estimates indicating that for the year 2010, the 1990 amendments and associated clean air programs prevented:

- 160,000 premature deaths
- 54,000 cases of chronic bronchitis
- 130,000 cases of heart disease – acute myocardial infarction
- 1,700,000 cases of asthma exacerbation
- 86,000 emergency room visits
- 3,200,000 lost school days
- 13,000,000 lost work days

Furthermore, a recent EPA air quality trends report and associated data indicate that from 1970 thru 2012, emissions of six common pollutants fell by 72%, while gross domestic product grew 219%, vehicle miles traveled has increased by 165%, and population grew by 53%. These findings clearly demonstrate that economic growth and environmental protection can go hand in hand.

Other particularly noteworthy benefits of the Clean Air Act's 40 year history include significant reductions in the number of people living in areas designated nonattainment for health-based air quality standards; dramatic reductions in ambient levels of lead (Pb) that have improved the neurological health of our children; significant reductions in acid deposition resulting in improvements in the health of lakes, streams, forests, and

ecosystems; substantial reductions in emissions and exposures to a wide range of hazardous air pollutants; and phase-out of the most harmful ozone-depleting chemicals resulting in reductions in skin cancer and cataracts.

2. Prior to the EPA proposing any new national ambient air quality standard the Agency goes through a thorough and exhaustive process to ensure the peer-reviewed science, opinions of all stakeholders, and the views of the general public are heard and considered. Could you please describe the process and numerous steps the Agency takes during the setting of these air pollution standards that ensures any interested party has full opportunity to submit opinions and substantive information to the agency before any decision-making is completed? Will you ensure this rigorous process is followed in future rulemakings?

The Clean Air Act directs EPA to set National Ambient Air Quality Standards (NAAQS) at a level requisite to protect public health with an adequate margin of safety and the public welfare from any known or anticipated adverse effects of air pollutants. These standards are required by statute to be based on consideration of the most up-to-date scientific evidence and technical information, and advice from CASAC, a scientific peer-review advisory panel. EPA provides opportunities for public comment at every stage of the process. EPA begins the review process by issuing a public call for new scientific information. EPA posts and solicits comment on each iterative draft of all the critical scientific documents (the Integrated Science Assessment, Risk and Exposure Assessments, and Policy Assessment) which underlie a decision whether or not to revise a NAAQS. Commenters are encouraged by EPA to submit these comments not only to the agency but to CASAC as well. Thus, EPA provides multiple opportunities for public comment even before it publishes a proposed regulatory action. In addition, with every NAAQS, as with all major air rules at EPA, EPA includes in the docket all information on which the proposed rule is based, and the public has the chance to comment on that information and on the proposed rule at a public hearing and through a written public comment period. EPA responds to all comments before issuing a final rule.

EPA is committed to reviewing the NAAQS in a transparent process, based on the best available science and consistent with the requirements of the Clean Air Act. I will ensure EPA follows this process for all NAAQS rulemakings that take place while I serve as Assistant Administrator.

Senator David Vitter

1. Would you agree that efficiency improvements could be a cost-effective way to lower CO₂ emissions from existing power plants? What is EPA doing to remove barriers to efficiency improvements caused by your New Source Review program?

EPA agrees that efficiency improvements can be a cost-effective way to reduce CO₂ emissions. The Clean Power Plan identifies efficiency improvements at fossil-fuel fired units as one of the building blocks of the best system of emission reduction for existing power plants. Under the proposed Clean Power Plan, states and units can work together to decide what kind of efficiency upgrades and emission changes might occur at a particular source. As a result of such flexibility and anticipated state involvement, EPA expects that a limited number of affected sources would trigger NSR when states implement their plans. EPA is requesting comment on whether, with adequate analysis and support, the state plan could include a provision that sources would not trigger NSR when complying with the standards of performance included in the state's Clean Power Plan.

2. Under President Obama's direction, your office is working to release new greenhouse gas regulations on existing power plants by June 1st. This has never been done before, and the rules have the potential to be among the most complex and costly in EPA history. While I am obviously concerned about the economic impacts of these rules, I am equally concerned about what appears to be a rushed rulemaking timeline that doesn't allow for those impacts to be fully considered. Take small business for example. The Regulatory Flexibility Act requires EPA to evaluate how its rules could impact small businesses.
 - a. Would EPA agree that the existing source proposal has the potential to impact small businesses?
 - b. Does EPA plan to convene a small business advisory panel under the Regulatory Flexibility Act to evaluate how the rule could impact small businesses and consider less burdensome alternatives?

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

The EPA is aware that there is substantial interest in the proposed rule among small entities, including municipal and rural electric cooperatives. As detailed in Section III.A of the preamble for the proposed Clean Power Plan, the EPA has conducted an unprecedented amount of stakeholder outreach on setting emission guidelines for existing EGUs, including numerous meetings with municipal and rural electric cooperatives. While formulating the provisions of the proposed rule, the EPA considered the input provided over the course of the stakeholder outreach. Section III.B of the preamble of the proposed Clean Power Plan describes the key messages from stakeholders. In addition, as described in the RFA section of the preamble to the proposed standards of performance for GHG emissions from new

EGUs (79 FR 1499–1500, January 8, 2014), the EPA conducted outreach to representatives of small entities while formulating the provisions of the proposed standards. Although only new EGUs would be affected by those proposed standards, the outreach regarded planned actions for new and existing sources. We invite comments on all aspects of the Clean Power Plan proposal and its impacts, including potential impacts on small entities.

The proposed Clean Power Plan does not impose any direct obligation on specific plants. States will design and implement plans to meet their CO₂ reduction targets and will be able to tailor those plans to address their particular needs, such as those of small businesses. However, as noted above, EPA has conducted an unprecedented amount of stakeholder outreach and will continue to gather input from a range of interested parties, including small entities and municipal and rural electric cooperatives.

Because the proposed rule does not impose any specific requirements on any specific sources, including small entities, it will not have a significant economic impact upon a substantial number of small entities. After emission guidelines are promulgated, states establish standards on existing sources, and it is those state requirements that could potentially impact small entities.

3. In the proposed standards for new power plants, EPA claims that the use of CCS “components” at *non-power plant industrial facilities* proves that full-scale integrated CCS systems are adequately demonstrated. However, in 2010, EPA co-drafted a report concluding that, “the integration of CO₂ capture, transportation, and permanent sequestration at commercial-scale, coal-fired power generating facilities *has not yet been demonstrated.*”
 - a. How can EPA say that the integration of CCS components has been adequately demonstrated when the research it cites says the opposite?
 - b. Has EPA ever before proposed a standard which no single unit within the regulated category has previously met?
 - c. Does EPA, in your view, have the authority to set standards without actual operating data? Can the agency set speculative standards?

The EPA has proposed to determine that CCS is technically feasible for new coal-fired power plants, because all of the major components of CCS – the capture, the transport, and the injection and storage – have been demonstrated and are currently in use at commercial scale. For example there are several industrial projects in the U.S. that are currently capturing the CO₂ for use in enhanced oil recovery (EOR) or other applications. There have been numerous smaller-scale projects that have demonstrated the technology, and there are several full-scale projects – both in the U.S. and internationally – that are under construction today. Thus, the EPA has proposed to determine that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants.

In previous NSPS regulations, EPA has set limits based on analysis of technologies, their capability, and whether they could be transferred between similar processes. In those cases, operating units in the Clean Air Act category were not necessarily meeting the limits we proposed, but similar units in the United States or abroad were. In the 1990’s, EPA

determined that Selective Catalytic Reduction (SCR) was the Best System of Emissions Reduction for industrial boilers and utility boilers. At that time, SCR had been used on some boilers in the United States and internationally. In the United States, SCR had been used on a small number of utility boilers but not on industrial boilers. Some of the regulated entities argued that SCR was not adequately demonstrated for industrial boilers, and therefore could not be the best system. The same parties also claimed SCR would be too expensive, even though the unit and technology configuration was practically identical between the two types of boilers. That is similar to what we are doing in the Carbon Pollution Standards, with an important difference. In our current rule, CCS has been, or is in the process of being used, on utility units at or beyond the level we have proposed.

4. In many instances the Clean Air Act (CAA) establishes cooperative federalism between States and EPA. This concept is included in Section 111 of the CAA:
 - a. Is it your understanding that, for existing power plants, EPA would issue a “guideline” but States have the lead in setting case-by-case emission standards?
 - b. How much compliance time is EPA planning on allowing the states?
 - c. A number of stakeholders have made clear that while EPA issues a “guideline,” the Clean Air Act authorizes States to make case-by-case determinations as to NSPS limits for existing plants. And that, if certain appropriate criteria are met, an individual plant might be assigned a longer compliance period or less stringent standard. Going forward, is EPA committed to honoring this cooperative federalism structure?
 - d. Will EPA adopt a program that will force new retirements of coal units, especially those that have invested in installing new pollution controls to comply with previous EPA rules?

Section 111(d) is a state-based program for existing sources. The EPA establishes guidelines. The states then design programs that fit in those guidelines and get the needed reductions. We issued the proposed Clean Power Plan on June 2, 2014, and it was published in the Federal Register on June 18, 2014. The Clean Power Plan has two main parts: state-specific goals to lower carbon pollution from power plants and guidelines to help the states develop their plans for meeting the goals. The goal is a target states have to meet by 2030, while starting to make meaningful progress toward reductions by 2020. States develop plans to meet their goals, but EPA is not prescribing a specific set of measures for states to put in their plans. This gives states flexibility. States will choose what measures, actions, and requirements to include in their plans, and demonstrate how these will result in the needed reductions.

The Clean Power Plan will put in place a consistent national framework that builds on work states are already doing to reduce carbon pollution – especially through programs that encourage renewable energy or energy efficiency. It will reduce carbon pollution from existing power plants while ensuring a reliable and affordable supply of power.

States will have fifteen years from when the rule is final until compliance with the final target, time in which to plan for and achieve reductions in carbon pollution.

5. In 2010, EPA proposed ozone National Ambient Air Quality Standards (NAAQS) which could have tripled the number of counties that would become non-attainment for ground level ozone. In fact, many of America's most pristine national parks would have failed those standards:
 - a. Has EPA given serious thought to the potential impacts of a new, lower standard on rural areas in the intermountain west? How would these sparsely populated areas be able to comply with lowered standards?
 - b. How is EPA planning on addressing the unique regional meteorology of varied parts of the country with a national standard? The topography and meteorology in the intermountain west is much different from the I-95 corridor – how can one national standard thoroughly address these differences?

EPA has not yet reached a final decision about what revisions to the ozone standards are appropriate in light of the current scientific evidence. EPA intends to issue a proposed decision addressing the question of whether it is appropriate to revise the current primary and secondary ozone NAAQS by December 1, 2014 (as required by court order), and the public will have a chance to review and comment on the proposal before EPA issues a final rule.

6. What are EPA's intentions with respect to a new transport pollution rule?
 - a. Will EPA ensure that states and utilities are given adequate time to comply with the rule?

Following the Supreme Court's decision to uphold the agency's approach in the Cross-State Air Pollution Rule (CSAPR) to improving air quality in downwind states, the case was remanded back to the D.C. Circuit for remaining litigation. The EPA asked the D.C. Circuit to lift the stay of the rule that was issued in December 2011 and to adjust the deadlines in the rule so that CSAPR phase 1 would begin on January 1, 2015. Lifting the stay now and implementing CSAPR at the beginning of next year would ensure that the important public health benefits for 240 million Americans are not further delayed. On October 23, 2014, the court granted EPA's motion to lift the stay. EPA is currently reviewing the court's order to determine whether any further guidance or administrative action is necessary to begin implementation of CSAPR. EPA will await resolution of the remaining litigation in the D.C. Circuit before resolving questions related to how regulated entities may demonstrate compliance with multiple requirements simultaneously.

7. EPA had determined that electric generating units in the East that were subject to the Clean Air Interstate Rule (CAIR) program did not have to comply with regional haze best available retrofit technology (BART) requirements because CAIR would reduce emissions more than BART. When EPA replaced CAIR with the Cross-State Air Pollution Rule (CSAPR), it revoked the determination that compliance with CAIR constituted compliance with BART, and instead determined that compliance with CSAPR constituted compliance with BART. Since CSAPR was overturned by the D.C. Circuit in 2012:
 - a. Does EPA plan to return to its determination that compliance with CAIR constitutes compliance with BART?

- b. If not, does EPA intend to subject electric generating stations in the East to regional haze BART requirements on a source by source basis?
- c. When does EPA expect to decide?

Following the Supreme Court's decision to uphold the agency's approach in the Cross-State Air Pollution Rule (CSAPR) to improving air quality in downwind states, the case was remanded back to the D.C. Circuit for remaining litigation. The EPA asked the D.C. Circuit to lift the stay of the rule that was issued in December 2011 and to adjust the deadlines in the rule so that CSAPR phase I would begin on January 1, 2015. Lifting the stay now and implementing CSAPR at the beginning of next year would ensure that the important public health benefits for 240 million Americans are not further delayed. On October 23, 2014, the court granted EPA's motion to lift the stay. EPA is currently reviewing the court's order to determine whether any further guidance or administrative action is necessary to begin implementation of CSAPR. EPA will await resolution of the remaining litigation in the D.C. Circuit before resolving questions related to how regulated entities may demonstrate compliance with multiple requirements simultaneously.

- 8. EPA has been collecting Renewable Fuel Standard (RFS) Renewable Identification Number (RIN) price information on every trade in the last three years. In fact, they can only be traded on EPA's electronic exchange. Has EPA released RFS RIN price information to the public in any form?

The EPA tracks the tens of thousands of RIN transactions (generation, buy/sell, and retirement) that occur each day using the EPA Moderated Transaction System (EMTS). It is important to note that EMTS is not a trading platform but strictly a RIN tracking tool designed to facilitate reporting under the Renewable Fuel Standard program. The transactional information reported to EMTS by RIN generators, RIN buyers and sellers, and obligated parties is typically claimed as confidential business information (CBI). Material claimed as CBI may not be made available to the public until a final confidentiality determination has been made pursuant to the EPA's CBI regulations under 40 CFR Part 2, Subpart B, and after that, only if a determination is made that the material is not entitled to be claimed as CBI. In the absence of a final determination, the EPA treats the information as confidential unless otherwise permitted by the EPA's CBI regulations. There is a considerable amount of aggregated, publicly available information related to renewable fuel RIN data on the EPA website at <http://www.epa.gov/otaq/fuels/rfsdata/index.htm>. We are exploring ways to increase the amount of data related to RINs, including price, that we publish on our website.

- 9. EPA is required by the Energy Independence and Security Act of 2007 to promulgate annual Renewable Fuel Standard (RFS) volumes by November 30 of the previous year. For the 2013 volumes, you were nine months late, but those standards were retroactive to the beginning of 2013. You also missed this deadline for 2014 and have not yet promulgated volumes for 2014. What steps have you taken to get back on the statutory schedule for the annual rulemaking on RFS volumes?

The annual RFS rulemaking process and schedule have proven to be challenging. The RFS touches a range of complex environmental, energy, and agricultural issues, and the need for interagency review and public comment adds to the timelines for issuing annual standards. The EPA is currently considering how to improve our internal regulatory review processes

in order to meet established deadlines. The EPA will be engaging our interagency partners, including OMB, during the course of this process to identify any areas that could be streamlined in the interagency review process for a more efficient and timely review in the future.

10. What are some of the key assumptions underlying your 2014 proposed RVO? What was the basis of those assumptions?

Our 2014 RFS proposal contains an in-depth analysis of the factors that impact the market's ability to achieve the volumes Congress established in the 2007 Energy Independence and Security Act (EISA). The proposal intends to address two important constraints: limitations on the volume of ethanol that can be consumed in gasoline given practical constraints on the supply of higher ethanol blend to the vehicles that can use them and other limits on ethanol blend levels in gasoline; and limitations in the ability of the industry to produce sufficient volumes of qualifying renewable fuel. More details on our analysis can be found in the rulemaking docket at EPA-HQ-OAR-2013-0479.

11. What is the timeframe for finalizing the RIN quality assurance program rule? Are you aware of any other ongoing investigations into RIN fraud?

On July 2, 2014, the EPA issued a final rule establishing a voluntary quality assurance program for verifying the validity of RINs under the RFS program, after considering extensive public comments and conducting further outreach to industry stakeholders. The Agency does not comment or provide information on potential ongoing investigations.

12. According to the regulatory impact analysis of your recent Tier 3 sulfur rule, the regulation will require refineries to install equipment that would increase energy consumption and thus increase greenhouse gas emissions from refineries. EPA has also indicated it will pursue a refining GHG NSPS next year and plans to continue using its Title V permitting authority to reduce GHGs. How will EPA take into account its own regulation that increase GHGs when placing new burdens on the companies that make gasoline and diesel?

The EPA is not currently developing national standards to specifically regulate greenhouse gas (GHG) emissions from petroleum refineries. Were the EPA to propose a New Source Performance Standard that would limit GHG emissions from refineries, the proposal would reflect the best available science and data, including information about all applicable regulations, to determine what standard represents the Best System of Emissions Reduction as defined by the Clean Air Act. With respect to refineries, the EPA is continuing to study the issue and, to the extent it moves forward with developing such rules, the EPA would reach out to and engage all interested stakeholders.

13. According to your regulatory impact analysis of the RFS, the law will increase ozone levels in many counties- including those that are already out of attainment. Will your forthcoming standards take into account other federal policies that are forcing increases in ozone levels?

The EPA sets the National Ambient Air Quality Standards at a level that is requisite to protect the public health and welfare, based on the best available science. The U.S. Supreme Court ruled in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards as provided in section 109(b) of the Clean Air Act. However, when implementing the standard, the

Clean Air Act gives state and local officials in nonattainment areas the ability to consider several factors, including other policies already in place, employment impacts, and costs of controls, when designing their state implementation plans.

14. Did EPA estimate how many parts per billion of ozone will be reduced by the Tier 3 mobile source rule?

We conducted a thorough and state-of-the-science photochemical air quality analysis of the impact of the Tier 3 mobile source rule on emissions and air quality, relative to a baseline scenario without the rule in place. We estimate that Tier 3 will reduce ozone concentrations on average by 0.49 ppb in 2018 and 0.98 ppb in 2030 on a population-weighted basis. We expect that in both 2018 and 2030, the majority of counties will experience decreases in ozone concentrations of between 0.5 and 1 ppb due to the Tier 3 standards, with over 265 counties having projected decreases of over 1.0 ppb in 2030. More information on the air quality improvements expected from the Tier 3 rule can be found on pages 23446 and 23447 of the Tier 3 preamble (79 FR 23414, April 28, 2014) and pages 7-75 through 7-132 of the Regulatory Impact Analysis.

15. Has EPA estimated how much lower the global level of carbon dioxide will be if the proposed NSPS 111(b) new source and 111(d) existing source rules are finalized? If not, why not?

The EPA estimated that the proposed Clean Power Plan will result in CO₂ emission reductions of 371-383 million metric tons in 2020 and 545-555 million metric tons in 2030. These emission reductions will contribute toward reductions in global atmospheric concentrations of CO₂.

16. Will EPA include and consider an assessment of the financial stability of the companies it relies upon when setting cellulosic production mandates?

The statute requires that the EPA project cellulosic biofuel production on an annual basis, and if that projected level is lower than the applicable volume set forth in the statute, the EPA is to reduce the applicable cellulosic biofuel volume used to the annual cellulosic biofuel standard to that lower projected level. In establishing our projection of cellulosic biofuel that will be produced, we take current and expected state of funding for each production source into account. A detailed explanation of this process is included in the 2014 proposed rulemaking.

17. Recent press reports cite that the cost to refiners for RIN credits to comply with the RFS in 2013 exceeded \$1.35 billion dollars. Will EPA keep the 2014 ethanol mandate below 9.7% to avoid these significant, artificial costs to the economy and the public?

Since the 2014 RFS volume proposal was released, we have met with multiple stakeholders to listen to their input on the proposed rule and to solicit any new and relevant data that should be factored into setting the volume standards for 2014. These stakeholders include representatives from the biofuel sector, the agricultural sector, petroleum refiners, environmental groups, and various other organizations and sectors. The EPA also received over 300,000 comments on the 2014 RFS proposal, and a number of these comments raise issues related to RIN prices and the potential costs of the program. The EPA evaluated all

comments on the proposal from the various stakeholders and has considered them in preparing the draft final rule currently under interagency review.

18. EPA is now on its second attempt proposing GHG NSPS— the Agency withdrew the first version over concerns it could not sustain legal challenges. Yet, EPA re-proposed the GHG NSPS ignorant that its reasoning violated the Energy Policy Act of 2005’s express prohibition against considering federally subsidized clean coal projects as adequately demonstrated technology. Nearly 5 months after signing the new proposal, the Agency released an after-the-fact, attempt at explaining this violation of congressional intent. Is it prudent for the Agency to finalize the proposal that violates or appears to violate congressional intent? How does the provide certainty to those the Agency seeks to regulate?

Any final rule the EPA issues based on this proposal will be based on sound science and will comply with all applicable laws and regulations. The EPA does not believe that the Energy Policy Act of 2005 provisions precludes consideration of the projects EPA has evaluated. The EPA has issued a Notice of Data Availability (NODA) that notes the availability of a Technical Support Document (TSD) in the rulemaking docket that details its proposed position on this issue. It explains, “EPA interprets these provisions to preclude EPA from relying solely on the experience of facilities that received EPAAct05 assistance, but not to preclude EPA from relying on the experience of such facilities in conjunction with other information.” EPA based its proposed determination on a number of projects and other information including projects that did not receive any assistance under EPAAct05. In addition, the agency extended the public comment period for January 2014 proposal by 60 days to allow adequate time for the public to review and comment on the contents of the NODA and TSD.

19. EPA has recently issued new more stringent NAAQS without at the same time providing States and business critical implementation and permitting information. Will you commit to EPA issuing updated implementation tools and policies at the time a new NAAQS is issued, so that businesses have a reasonable opportunity to secure the permits needed to build or expand facilities?

The national ambient air quality standard is a health-based standard which the Clean Air Act directs EPA to set at a level requisite to protect public health and public welfare. That said, it is important that States, regulated parties, and the general public have the information they need to achieve and maintain these health-based standards. EPA has worked and will continue to work to provide the best tools and information feasible in as timely a way as possible.

20. EPA estimates that the 2010 ozone NAAQS reconsideration would have cost American manufacturing, agriculture and other sectors over \$90 billion per year. In analyzing these regulations, does EPA consider the economic and environmental effects of driving manufacturing offshore to countries with little or no environmental controls?

EPA is prohibited by law from considering costs of implementation in setting the NAAQS. The U.S. Supreme Court reiterated in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards that are requisite to protect public health and welfare, as provided in section

109(b) of the Clean Air Act. However, the Clean Air Act gives state and local officials in nonattainment areas the ability to consider several factors, including employment impacts and costs of controls, when designing their state implementation plans to implement the NAAQS.

EPA does provide estimates of costs and benefits in a separate docket. For the 2010 ozone NAAQS reconsideration, EPA provided cost estimates for each alternative standard considered. These benefit and cost estimates are illustrative values, because states will develop their own plans to meet the NAAQS.

21. In 2010, EPA co-drafted a report concluding that “until [CCS] systems are constructed and successfully demonstrated at full scale, uncertainty over the technology’s performance and cost yield a substantial risk premium for early projects.” How can EPA now say that technology with a “substantial risk premium” is adequately demonstrated?

The EPA has proposed to determine that CCS is technically feasible for new coal-fired power plants, because all of the major components of CCS – the capture, the transport, and the injection and storage – have been demonstrated and are currently in use at commercial scale. For example there are several industrial projects in the U.S. that are currently capturing the CO₂ for use in enhanced oil recovery (EOR) or other applications. There have been numerous smaller-scale projects that have demonstrated the technology, and there are several full-scale projects – both in the U.S. and internationally – that are under construction today. Thus, the EPA has proposed to determine that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants.

22. EPA cites three studies in the “literature” section of the GHG NSPS’s “technical feasibility” discussion of CCS. Yet, EPA leaves out that one of those studies concludes that “there is truth to the often heard assertion that CCS has never been demonstrated at the scale of a large commercial power plant,” another assumes carbon capture is “unproven technology” and the other – which EPA co-drafted – says that carbon capture has “not been demonstrated at a scale necessary to establish confidence for power plant application.” Does EPA accurately portray the science on CCS when it selectively characterizes studies in this manner?

EPA’s proposed standards rely on a wide range of data, information and experience well beyond that generated by particular projects or studies. The EPA has proposed to determine that CCS is technically feasible for new coal-fired power plants because all of the major components of CCS – the capture, the transport, and the injection and storage – have been demonstrated and are currently in use at commercial scale. For example there are several industrial projects in the U.S. that are currently capturing the CO₂ for use in enhanced oil recovery (EOR) or other applications. There have been numerous smaller-scale projects that have demonstrated the technology, and there are several full-scale projects – both in the U.S. and internationally – that are under construction today. Thus, the EPA has proposed to determine that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants.

23. The Clean Air Act says EPA is supposed to set new source performance standards by looking at technology actually in use and determining what technology has been “adequately demonstrated” taking into account cost. But in the GHG NSPS, EPA conducts this analysis by looking at DOE

modeling. Does it make sense that EPA analyzed the current state of CCS technology through hypothetical modeling results?

In addition to information from the Department of Energy, the EPA based its proposal that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants on actual projects and the state of the technology as noted above.

24. It is our understanding that there are 78 sole source aquifers in the United States, some of which are located under major cities, such as Baton Rouge, LA, San Antonio, TX, Austin, TX, Miami, FL, and Sante Fe, NM, among others. Under the Safe Drinking Water Act, EPA is authorized to address possible contamination of sole source aquifers from the disposal of storm water or waste water treatment facilities. Has the Office of Air and Radiation sought an opinion from the Office of Water about the long-term sequestration of CO₂ in proximity to a sole source aquifer since pipelines would have to either pass through or underneath such an aquifer? If it has failed to do so, please explain.
- a. Isn't this issue relevant to EPA's determination that CCS is the best system of emissions reduction adequately demonstrated to reduce CO₂ emissions from fossil fuel-fired power plants?

EPA's Office of Air and Radiation and Office of Water have worked closely for a number of years to develop a regulatory framework that ensures long-term safe geologic sequestration. EPA's Underground Injection Control (UIC) Program, established under the Safe Drinking Water Act, sets requirements to ensure that geologic sequestration is conducted in a way that that geologic sequestration wells are appropriately sited, constructed, tested, monitored, and closed in a manner that safeguards protection of underground sources of drinking water. The location of a sole source aquifer would be a potential consideration for UIC permitting. The proposal does not change any of the requirements to obtain or comply with a UIC permit for facilities that are subject to EPA's UIC program under the Safe Drinking Water Act.

25. The technical support documents and other materials accompanying the proposed NSPS for new fossil fuel-fired power plants do not show any research on cross-media issues by EPA's Office of Water or Office of Solid Waste that address the injection and long-term sequestration of CO₂ underground. Nor do they show any research on potential contaminants that might travel with the CO₂ separated from power plants. The technical support documents and other materials do point to the Class VI and Class II programs for oil and gas injection wells. Please explain how either of these programs could apply to new coal fired power plants sequestering CO₂ that would be built outside of states with oil and gas recovery areas?
- a. Is EPA presuming that all CO₂ emissions would be sent via pipeline to oil and gas recovery areas? Has the agency conducted an analysis that the oil and gas industry could use all of this CO₂? Has the agency conducted an analysis of the amount of specialty pipelines that would need to be constructed to move all the CO₂ from non-oil and gas recovery areas to oil and gas recovery areas?

The Safe Drinking Water Act requires EPA to develop minimum federal requirements for UIC programs and other safeguards to protect public health by preventing injection wells

from contaminating underground sources of drinking water (USDWs). States implement UIC programs that have been delegated to the states; otherwise, the requirements are implemented by the EPA. Carbon dioxide has been transported via pipelines in the United States for nearly 40 years. The transportation component of CCS is well-established as technically feasible. Approximately 50 million metric tons of CO₂ are transported each year through 3,600 miles of pipelines, and several hundred miles of dedicated CO₂ pipeline is under construction, planned, or proposed. The proposal does not change any of the requirements to obtain or comply with a UIC permit or for pipeline safety under the relevant statutes and regulations, including Department of Transportation pipeline safety regulations.

26. Please explain how EPA asserts that both the separation and sequestration of CO₂ processes are commercially demonstrated based on the four projects the proposed NSPS cites when none of those plants are operational? In fact, isn't it the case that three of the four projects have not even been constructed yet and the fourth project at the Kemper Plant in Mississippi has not injected any CO₂ into the ground?

The EPA has proposed to determine that CCS is technically feasible for new coal-fired power plants, because all of the major components of CCS – the capture, the transport, and the injection and storage – have been demonstrated and are currently in use at commercial scale. As identified in the Notice of Data Availability, the EPA looked at all available science and data, including numerous projects. For example there are several industrial projects in the U.S. that are currently capturing the CO₂ for use in enhanced oil recovery (EOR) or other applications. There have been numerous smaller-scale projects that have demonstrated the technology, and there are several full-scale projects – both in the U.S. and internationally – that are under construction today. Thus, the EPA has proposed to determine that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants.

27. The proposed NSPS for new fossil fuel-fired power plants asserts there will be a negligible increase in the cost for electricity as a result of the proposal because: (1) most new power plants that will be constructed will be fueled by natural gas due to low gas prices and (2) CCS costs will fall over time as the technology becomes more widely used. However, in the time since the proposed rule was published in the Federal Register, natural gas prices have gone from \$4.00 mcf to \$6 mcf. In the PJM RTO market, gas prices increased to \$40, which resulted in wholesale electricity prices of \$761 per MWh. MISO experienced increases as well that translated to wholesale prices of \$219 per MWh. Please explain how EPA concludes that the levelized costs of electricity will be marginally affected by the proposed NSPS given the volatility of natural gas price historically and the widely expected increase in use of natural gas for electricity generation?

The proposed carbon pollution standards for new power plants reflect an ongoing trend in the power sector—a shift toward cleaner power plants that take advantage of modern technologies that will become the next generation of power plants. These standards are in line with current industry investment patterns. Expected and anticipated economic conditions will lead electricity generators to choose fuels and technologies that are designed to meet the proposed standard without the need for additional capture or control, even in the absence of the rule. As a result, this rule is expected to have no, or negligible, impact on levelized costs.

EPA's levelized costs are annual projected costs, not short-term spot prices. The high prices experienced in PJM last winter were the result of very short-term scarcity from anomalous weather events, and are not expected to have longer-term impacts on annual average natural gas prices that are the basis for EPA's levelized costs. Moreover, there is an active spot market in natural gas that permits buyers to hedge against fluctuating prices. Short-term price volatility in natural gas is entirely consistent with EPA's analysis.

28. During the January 21, 2014, EPA Science Advisory Board conference call, several representatives from electric utilities spoke about how CCS would not be feasible in their states for a variety of reasons. A speaker from a NY utility discussed how while there was sufficient local cap rock to hold CO₂ underground, New York state law precludes the injection of CO₂ into the ground because such gas would stretch beyond the subsurface owned by the utility. Any leakage of the gas into the subsurface of another property owner would constitute a legal trespass. Thus, the utility would be precluded from using CCS technology at coal-fired power plant.
- a. Has EPA considered how state laws might preclude the use of CCS technology? Can you provide the committee of an example of where EPA has mandated the use of a technology that would be barred by state law?

In the proposed carbon pollution standards for new power plants, the EPA has not mandated the use of CCS. Rather, the Agency has proposed emission standards that must be met by new electric generating units. If state law prohibits the use of CCS, then a new NGCC plant can be built to serve the electricity demand that the coal-fired plant would otherwise serve. Thus, the proposed rule would not prevent basic electricity demand from being met.

A new source developer would also have the option of transporting the captured CO₂, via pipeline, to an area that is suitable for long term storage. Carbon dioxide has been transported via pipelines in the U.S. for nearly 40 years. Approximately 50 million metric tons of CO₂ are transported each year through 3,600 miles of pipelines. Moreover, a review of the 500 largest CO₂ point sources in the U.S. shows that 95 percent are within 50 miles of a possible geologic sequestration site.

29. During the January 21, 2014, EPA Science Advisory Board conference call, a representative of a Michigan utility discussed how the utility wanted to build a new coal-fired power plant using CCS technology. No vendors would provide the utility with a price warranty or guarantees on performance of the CO₂ injection because of the novelty of the technology. As a result, the utility decided to instead build a new natural gas-fired power plant that would meet both the 2012 and 2014 proposed New Source Performance Standard for natural gas combined cycle (NGCC) plants. The state of Michigan then asked the utility to provide an explanation why the new NGCC plant would not use CCS.
- a. While the proposed NSPS asks for comments on natural gas plants and CCS, it does state that EPA does not have enough information to make a decision about requiring CCS technology on NGCC plants. Can you please explain to the committee why the state of Michigan would require a utility to conduct a CCS feasibility study on a proposed NGCC plant that would

emit 970 lb CO₂/MWh? Is the EPA region 5 Office telling state air regulators to require permittees to conduct such studies on all fossil fuel fired power plants? Does EPA find it troubling that no vendors will provide guarantees of performance on CCS technology?

I cannot speak on behalf of the State of Michigan or to the specifics of the permitting process in this case. However, the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act (CAA) require that a new major source of air pollution, such as a fossil fuel fired power plant, must obtain a permit before it can begin construction. The PSD program requires such a facility to install “best available control technology” or BACT for all pollutants emitted above a threshold level. The BACT requirement, must be based on “the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted for or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant” according to the CAA [42 U.S.C. § 7479 (3)]. The CAA goes on to specify that BACT may not be less stringent than an applicable New Source Performance Standard (NSPS).

Michigan has a State Implementation Plan (SIP) that includes an approved Prevention of Significant Deterioration (PSD) permitting program, which means the State of Michigan evaluates BACT and issues PSD permits for sources in Michigan. The EPA has recommended a process for making a BACT determination based on a case-by-case assessment of each facility. This process, known as “top-down” BACT, is not required of states, but Michigan uses it, based on the guidance they provide on their website (<http://www.deq.state.mi.us/aps/downloads/permits/PSD%20Workbook.pdf>). A top-down BACT analysis requires that all available control technologies are assessed in the first steps, but some control options may then be excluded at later steps, based on technical feasibility, cost or other factors. The first BACT step, a consideration of available technologies, is meant to be broad and considers all technologies that are potentially applicable to the type of source under evaluation – including those technologies that have only been demonstrated on other types of sources. However, later steps require an evaluation of the technical feasibility of control technology at the specific source in question, which includes site-specific considerations. The technically feasible technologies are then ranked by effectiveness, and ultimately BACT is selected based on a consideration of many factors. This evaluation process ensures that each BACT analysis results in the most environmentally-protective, economically feasible, state-of-the-art technology for each new large emissions source, as we believe the CAA requires. While EPA is not the PSD permitting authority for sources in Michigan, EPA may submit comments on the Michigan’s draft permits to ensure that the BACT decisions are supported by the record.

CCS was operated on an NGCC facility now owned by NextEra Energy, Inc. in Bellingham, MA for many years and it has been operated at other combustion sources. Therefore, any BACT analysis for an NGCC facility would include CCS in at least the first step of a top-down BACT analysis. However, we note that, as of yet, no permitting authority, including the EPA, has determined CCS as BACT for an NGCC facility. The reasons for rejecting

CCS in these cases have been generally based on technical or economic concerns of the technology for the source in question.

As for the availability of vendor guarantees for CCS, we note that vendors are currently working closely with developers of CCS projects. While EPA does not have details of the actual contracts, there are four separate vendors supporting the Boundary Dam, Kemper, TCEP and HECA projects who have committed to building power plants that are designed to meet rates below the proposed standard.

30. The In Salah CO₂ sequestration project in Algeria was stopped in November 2012 when BP discovered that the CO₂ moved within the rock formation several years after injection began. The In Salah project raises questions about the adequacy of the seal of caprock. While no CO₂ was released into the atmosphere and no one was harmed by the cracking of the rock, the project demonstrates that sequestration is still extremely experimental, even after seven years of operation. There are a host of unanswered questions related to the long-term sequestration of CO₂, including subsurface water contamination, migration of CO₂ underground, potential Superfund liability, the impact of sequestration on navigable waters, and impact of sequestration on endangered species.
- a. Can you please provide the committee with a detailed explanation of the peer review science examining these issues?

Industry, researchers, government agencies, and other stakeholders have been evaluating geologic sequestration for a number of years. The Intergovernmental Panel on Climate Change Special Report on CCS concluded that with appropriate site selection, a monitoring program, a regulatory system, and the appropriate use of remediation methods, the local health, safety and environmental risks of geologic sequestration would be comparable to risks of current activities. As part of that report and in the years that followed, peer reviewed literature on geologic sequestration has continued to grow. The EPA has and will continue to monitor and review this literature.

31. In moving to dismiss the State of Nebraska challenge to EPA's violation of the Energy Policy Act of 2005, EPA represented to the District Court on March 18, 2014 that the publication of the NSPS proposal has no legal consequences and determines no rights or obligations. Are agencies conducting PSD and NSR permitting under no obligation to consider findings in NSPS proposals?

EPA addressed this issue in the preamble to the proposed new source standard. As stated there, the only legally binding requirement is found in section 169 (3) of the Act (definition of Best Available Control Technology) which indicates that "[i]n no event shall application of [best available control technology] result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 111 or 112 of the Act." This requirement only comes into effect "upon completion of an NSPS"; thus, "[i]t is important to note that a proposed NSPS does not establish the BACT floor for affected facilities seeking a PSD permit." 79 FR at 1489 (Jan. 8, 2014).

EPA explained further that "[i]n cases where a NSPS is proposed, the NSPS will not be controlling for BACT purposes since it is not a final action and the proposed standard may

change”. *Id.* The agency added that “the record of the proposed standard (including any significant public comments on EPA’s evaluation) should be weighed when considering available control strategies and achievable emission levels for BACT determinations made that are completed before a final standard is set by EPA.” *Id.* This type of consideration does not alter permit writers’ existing obligations. Permit writers are required by statute to consider all of the statutory factors, including “methods, systems, and techniques... for control of each ... pollutant” in making case-by-case, individualized determinations of what constitutes best available control technology. Thus, at present, permit writers have to address the potential application of carbon capture and sequestration when making best available control technology for carbon pollution and would necessarily do so whether or not EPA had issued its proposed NSPS.

32. On November 12, 2013, the SAB Work Group recommended that SAB provide EPA advice and comments on the scientific and technical basis for long term carbon storage. EPA pressured SAB not to do so, and in response on January 29, 2014 SAB decided not to provide advice and comments in deference to “EPA’s legal view, communicated to the SAB from EPA’s Office of Air and Radiation, that the portion of the rulemaking addressing coal-fired power plants focuses on carbon capture and that the regulatory mechanisms for addressing potential risks associated with carbon sequestration are not within the scope of the Clean Air Act.” Provide documentation of all EPA contact with SAB and all documents discussing the recommendation to SAB from November 12 to January 29. When did EPA formulate this view? Provide any documents that show EPA formulated and held this view prior to the Work Group sending EPA questions on September 6, 2013.

While the EPA has confidence that geologic sequestration is technically feasible and available, we recognize the need to continue to advance the understanding of various aspects of the technology. We have engaged with the SAB on key issues relating to sequestration and look forward to continuing to collaborate with the SAB on this important topic to ensure that our work is based upon the best available science.

The proposed Carbon Pollution Standards rely on the existing EPA requirements that are already in place for monitoring and permitting CO₂ injection and geologic sequestration. Under the proposed Carbon Pollution Standards, if a new power plant decides to use CCS to comply with the standard, captured CO₂ must be sent to a facility that meets the existing regulatory requirements for monitoring and reporting geologic sequestration. The EPA has an existing permitting framework in place under the Safe Drinking Water Act governing these kinds of projects and has been working closely with states and some facilities in the permitting process. Pilot projects have been permitted under the existing regulatory framework, providing valuable experience and technical information to the EPA and states.

To be recognized as conducting geologic sequestration under the existing requirements (Subpart RR of the Greenhouse Gas Reporting Program), all facilities, including EOR, must conduct monitoring and reporting to show that the CO₂ remains underground. For CO₂ that is not recognized as being sequestered, EOR facilities can continue to report under the requirements for CO₂ injection (Subpart UU of the Greenhouse Gas Reporting Program). The EPA believes that it is appropriate to rely on these same, existing requirements for the proposed new source rule, and will closely evaluate comments that we receive on this issue.

After consideration of the clarifying information and thorough discussion about the issues during several meetings of the SAB that were open to the public, the workgroup recommended to the full SAB that additional review of the science of sequestration was not necessary in the proposed Carbon Pollution Standard. The full SAB agreed with the workgroup's assessment that the EPA did not propose to set any new requirements for sequestration in the Carbon Pollution Standards and that peer review of the DOE cost studies was sufficient. In a memo dated January 29, 2014, the SAB informed the EPA that it will not undertake further review of the science supporting this action.

33. The SAB Work Group found the NSPS proposal is based on two studies by the Department of Energy National Energy Technology Laboratory that were not subject to adequate peer review. EPA had wrongly claimed to SAB that all NETL studies cited in the proposal were peer reviewed. What, if any, studies cited in the NSPS proposal did EPA determine meet EPA's standards for peer review prior to posting the proposal online? Provide all documentation that supported any such determinations.

The SAB's transparent, deliberative process provided an opportunity for us to provide some additional information on the basis of the DOE NETL cost studies that the EPA used in developing the proposed rule and the peer review process followed by DOE NETL for that study. The DOE's robust process included outside input from knowledgeable stakeholders including industry, academia and government experts in the design of the study and a peer review of the final report by a wide range of similar experts. While the EPA did not conduct additional peer review of these studies, the different levels of multi-stakeholder technical input and final review meet the requirements to support the analyses as defined by the EPA Peer Review Handbook.

34. Comments on the draft of the proposed NSPS submitted to OMB noted that the draft did not discuss the feasibility of long term CO₂ storage. In response, EPA "added additional language to the preamble regarding sequestration of CO₂." Exactly what language did EPA add in response to these comments? When did EPA draft this language? What personnel were involved? What research supporting the language was conducted?

EPA staff across a number of offices developed the preamble language for the proposal. The additional text was added during the EO 12866 review process and changes are noted in the docket to the proposal.

35. The NSPS proposal discusses a study that models geologic sequestration published in the American Journal of Science. EPA states that the study "estimated that about 93 million metric tons of CO₂ were injected and about 38 million metric tons were produced from 1972 to 2005" at the SACROC Unit in western Texas "resulting in a geologic CO₂ accumulation of 55 million metric tons of CO₂." The use of this statistic and the unusual way the study is cited in the NSPS proposal suggest that those responsible for this discussion did not obtain or read the study and instead reviewed only the online abstract. The abstract included the statistic merely as a back of the envelope estimate of total CO₂ injected. Provide evidence that the EPA personnel responsible for this language obtained and reviewed the study, not just the online abstract.

EPA staff reviewed the relevant literature on geologic sequestration, including the article cited in the preamble.

36. The Clean Air Act relates the effective date of national new source emission standards back to the date of proposal in the Federal Register. The Clean Air Act also requires such standards be finalized in one year in order to prevent abuse of the relation back to the date of proposal. Provide all documents discussing the relation back of the effective date for national new source standards in relation to greenhouse gases. Provide all documents discussing the immediate effects of proposing national new source standards on construction of new sources.

The publically available rulemaking docket for the proposed New Source Performance Standards can be found by searching for Docket ID: EPA-HQ-OAR-2013-0495 at the www.regulations.gov website.

The docket includes a Technical Support Document entitled "Fossil Fuel-fired Boiler and IGCC EGU Projects Under Development: Status and Approach," which has a docket ID of EPA-HQ-OAR-2013-0495-0024.

37. How do you plan to adhere to the objectivity requirements of the Data Quality Act in the face of increasing politicization of the climate change scientific debate?

I recognize that EPA has obligations under the Data Quality Act (DQA). For air rules, including those that have climate impacts, I will ensure the agency complies with the DQA's requirements.

38. Are you concerned about the disproportionate impact that new EPA electric utility standards will have upon the U.S. coal industry and its workers?

EPA is concerned about persistent challenges in U.S. job markets, and we evaluate potential employment effects of our proposed programs, including quantitative employment change estimates where we have scientifically valid data and modeling tools. Americans and American industry have shown throughout the history of our environmental programs that we can work together and innovate to reduce pollution, create jobs and achieve economic growth at the same time. EPA remains committed to working with our partners and stakeholders to find pragmatic approaches that achieve our health and environmental protection goals while reducing cost and maintaining a strong and thriving economy.

39. If employment evaluations reveal that EPA's new electric utility standards are likely to result in major job losses in the U.S. coal industry, how should that be taken into account by EPA in the administration and enforcement of the Clean Air Act?

EPA remains committed to working with our partners and stakeholders to find pragmatic approaches that achieve our health and environmental protection goals while reducing cost and maintaining a strong and thriving economy.

40. In March 2012, the U.S. Environmental Protection Agency (EPA) announced that they would formally revise the rule establishing criteria and procedures for use in determining if air quality monitoring data has been influenced by exceptional events. EPA indicated the intent to notice a proposed exceptional events rule in late 2013 or early 2014, which would then be followed by a formal public comment period. A final rule was expected to be published by late 2014 or early 2015.

- a. Can you please provide an accurate and up-to-date timetable for the exceptional events rulemaking including when the agency anticipates noticing the proposed rule?

The EPA currently plans to propose rule revisions in mid-2015 and finalize these rule revisions in mid-2016. We want to take enough time both to consider seriously rule changes suggested by states and other stakeholders to help streamline the exceptional events demonstration process, and also to work with air agencies and other stakeholders on tools that air agencies can use to support these demonstrations. This revised schedule will get a rule in place prior to state implementation activities associated with potential future NAAQS revisions.

41. The prospect of a forthcoming rulemaking on exceptional events is encouraging. While EPA has issued a series of guidance documents aimed at offering clarity to the exceptional events process, the process by which states submit "exceptional event demonstrations" for review by EPA remains complicated, unpredictable, long, and expensive. The exceptional events rule ought to produce a consistent, commonsense, cost-effective, and timely process through which states are afforded an opportunity to exempt air quality standard exceedances caused by naturally occurring events outside of their control.
- a. Will the forthcoming exceptional events proposed rule streamline the process and reduce the regulatory burden on air quality planners at the state level?
- b. Will the proposed rule provide much needed consistency and predictability to a process that has been notorious for the lack of both?
- c. Does EPA require new legislative authority to provide air quality planners at the state level with a set of clear timelines associated with their exceptional events demonstration and a mechanism to appeal EPA's decisions with respect to them?

While it is still too early to say with certainty what will be in the proposal we plan to issue in mid-2015, it is our intent to use our existing authority to propose a rule that would streamline the current exceptional events process, thereby reducing the burden on state environmental agencies. Such a rule would also clarify what EPA needs from states in evaluating exceptional event requests, thereby bringing more consistency and predictability to the process.

42. On February 7, 2014, EPA's Office of Atmospheric Programs, on behalf of the United States Global Change Research Program (USGCRP), published a federal register notice requesting public engagement in the Interagency Special Report on the Impacts of Climate Change on Human Health in the United States. This report, part of the President's Climate Action Plan, and initiated by the Interagency Crosscutting Group on Climate Change and Human Health (ICCHG), is to be "an evidence-based, quantitative assessment of observed and projected climate change impacts on human health in the United States." It is our understanding that EPA will provide staff support, including where appropriate contractor support, coordinating functions, and regular updates. Further, EPA is drafting two chapters in the report on heat-related deaths and impacts from air pollution that is aggravated by climate change.
- a. Please describe in detail the staff support, including contractor support, to be provided or being provided to the development and drafting of this report. Please provide the names and titles of all individuals in OAR responsible for or contributing to EPA's role in the report.

- b. Please detail the procedure by which the meetings of the group will be memorialized. Will there be formal transcription and meeting minutes made available to the public?
- c. Please describe in detail the “air quality” review being performed by EPA for use in the report. Will this review include ozone and particulate matter and if so would these be qualitative and quantitative assessments for both? Please provide an explanation of the models being used as part of this review.
- d. Please describe in detail the use of the study in new air quality standards, including those for GHGS, ozone and particulate matter.
- e. Please describe in detail the definition and universe of “extreme temperature events” being catalogued and reviewed as part of the study.
- f. Please describe in detail how uncertainty, including in climate impacts will be accounted for in the Chapters being developed by the Agency.
- g. Please describe in detail how potential health benefits associated with potential increased temperatures will be examined. Please describe in detail how the potential health effects of reduced economic growth or employment as a result of prevention and mitigation strategies will be examined.
- h. Please describe in detail the schedule for the development, including public comment, peer review, and issuance of final documents, of the report.

Staff members from across EPA routinely participate in interagency groups assessing the science of climate change and contribute to reports that characterize and communicate the impacts of climate change on the public health and welfare of current and future generations in the United States. The specific report you mention, the Interagency Special Report on the Impacts of Climate Change on Human Health in the United States, is being developed under the auspices of the US Global Change Research Program (USGCRP), specifically the Interagency Crosscutting Group on Climate Change and Human Health (CCHHG). CCHHG membership includes approximately 13 agencies and is co-chaired by the Centers for Disease Control and Prevention (CDC), National Institute of Health (NIH), and National Oceanic and Atmospheric Administration (NOAA). EPA is helping coordinate the Special Report, as developing this report will leverage multiple activities of scientists across the federal government. EPA scientists from throughout the Agency are participating—including from the Office of Air and Radiation, the Office of Research and Development, and the Office of Water—with most chapters having contributing authors from several agencies.

The goal of the Special Report, outlined and shared with the public for input in the Federal Register notice referred to above, is to assess the state of the science regarding observed and projected health-related climate change impacts and associated changes in risk. In areas where quantitative analyses are available to evaluate potential changes in future health-related climate impacts and risks, the report will characterize uncertainty using qualitative confidence levels and, where possible, quantitative probabilistic likelihoods of specific impacts across a range of scenarios and possible outcomes. Projected health impacts, including for those attributable to air quality changes, will use well-established and scientifically peer-reviewed methods and models. The Special Report will follow USGCRP

guidelines for transparent reporting of likelihood, confidence, and uncertainty of the findings. The Special Report is focused on the impacts of climate change, and will not analyze or synthesize the impacts of mitigation or adaptation policies, nor will it include policy recommendations. The report will not make policy recommendations regarding changes in air quality standards. The information presented in the report will contribute to building the integrated knowledge base needed to understand, predict, and respond to health-relevant climate change impacts, and may help inform adaptation decisions and other public health strategies, including in the air quality arena.

A draft of the Special Report will undergo a technical peer review by the National Research Council of the National Academies. The draft Report will be made available for public comment in late spring of 2015 with final publication expected in late 2015. We expect the draft and final versions of this report, as is the case with most EPA or USGCRP reports of this nature, will list names of EPA and non-EPA individual authors, contributors, and reviewers.

43. The Natural Resources Defense Council (NRDC) issued a suggested framework for the EPA's upcoming 111(d) greenhouse gas proposal. NERA economic consulting performed an analysis of the NRDC proposal that projects annual compliance costs of \$13-\$17 billion per year and total consumer costs of \$116 billion to \$151 billion over the period 2018-2033. Please compare and contrast any similarities and differences between the NRDC proposal and the proposal sent to OMB for review.

The features of the proposed Clean Power Plan are explained in detail in the preamble to the proposed rule and other materials that the EPA has provided on its website. Notably, the proposed Clean Power Plan has public health and climate benefits worth an estimated \$55 billion to \$93 billion per year in 2030, with estimated costs of \$7.3 billion to \$8.8 billion. The benefits include avoiding 2,700 to 6,600 premature deaths and 140,000 to 150,000 asthma attacks in children. EPA remains committed to working with our partners and stakeholders to find pragmatic approaches that achieve our health and environmental protection goals while reducing cost and maintaining an affordable, reliable energy system and a strong and thriving economy.

44. Please explain in detail EPA's timetable for the "mid-term review" of its Phase II Light Duty Greenhouse Gas rules? Will this review include a sensitivity analysis examining a consumer's ability to afford ever-increasing fuel efficiency mandates and higher interest rates in the future? What agencies are or will be involved in the review? Please explain the Agency's plans for timely involvement of stakeholders during this process.

In the final rulemaking for the joint National Program for model year (MY) 2017-2025 light-duty greenhouse gas and fuel economy standards, the EPA and the National Highway Traffic Safety Administration (NHTSA) committed to a comprehensive midterm evaluation and agency decision making process for MY 2022-2025 standards, to be conducted in close coordination with the California Air Resources Board (CARB). The EPA's regulations (40 CFR 86.1818.12(h)) state that no later than November 15, 2017, the Administrator shall issue a draft Technical Assessment Report addressing issues relevant to the MY 2022-2025 standards. The Technical Assessment Report will be issued jointly with NHTSA and CARB, and will be available for public comment. The regulations also state that no later than April 1, 2018, the Administrator shall determine whether the standards for MY 2022-2025 are

appropriate under section 202(a) of the Clean Air Act, in light of the record then before the Administrator, and that EPA will provide an opportunity for public comment prior to making this determination.

The regulations list a number of factors that the EPA must consider in making this determination including: the costs on the producers or purchasers of new vehicles, the availability and effectiveness of technology, lead time for introducing new technologies, the feasibility and practicability of the standards, impacts on emissions, oil conservations, fuel savings by consumers, and automobile safety, and other factors.

The EPA already is engaged in stakeholder involvement, for example, with automakers, automotive suppliers, non-governmental organizations (NGOs), consumer organizations, researchers, and others, to receive input on issues relevant to the midterm evaluation, and will continue extensive stakeholder dialogue throughout the process.

45. Concern surrounds the upcoming Heavy Duty Truck Phase II Fuel Economy proposal and whether it will be engine-focused or whole truck-focused. Will the proposed standard involve both engine and whole truck mandates?

The EPA and NHTSA are jointly developing the proposal for the second round of heavy-duty GHG and fuel efficiency standards ("Phase 2"). In the first round, finalized in 2011 ("Phase 1"), the agencies established both engine and vehicle standards for certain vehicle categories. For Phase 2 the agencies are considering the Phase 1 approach of both engine and vehicle standards as well as other approaches, but no decisions have yet been made.

46. It appears that zero emission vehicle (ZEV) sales are not going to meet California's 2025 goal of 15.4% of total sales. Sales in the Eastern U.S. appear to be even lower. Is there any discussion between EPA and the California Air Resources Board (CARB) to lower the ZEV standards to reflect actual demand?

The ZEV program includes a number of flexibilities designed to give manufacturers greater freedom in meeting the program goals while providing a diverse range of products to serve consumer needs. The EPA believes that is far too early to reach any conclusions regarding goals more than 10 years in the future.

47. EPA stated that the Interagency Working Group (IWG) on the Social Cost of Carbon (SCC) was convened by the Council on Economic Advisors and the Council on Environmental Quality. To your knowledge, were minutes of these meetings kept?

The Interagency Working Group on the Social Cost of Carbon was convened by the Council of Economic Advisors and the Office of Management and Budget. Given that I did not attend any of these meetings, I am unaware as to whether anyone kept meeting minutes. I do not recall ever receiving written transcripts or other documents that detail the meeting minutes.

GAO recently completed a review of the process used to develop the U.S. Government SCC estimates. It concluded that the working group (1) used consensus-based decision-making, (2) relied on existing academic literature and modeling, and (3) took steps to disclose limitations and incorporate new information by considering public comments and revising the estimates as updated research became available. The report made no recommendations.

GAO concluded that the level of documentation for this interagency exercise was equivalent to those from other comparable interagency exercises.

48. While EPA previously stated that non-governmental groups did not participate in IWG meetings, were these groups ever consulted? Was information provided to them for comment prior to the convening of IWG meetings?

Many agencies participated in the IWG and I am unaware as to whether and to what extent they consulted non-governmental groups outside of the IWG meetings. One of the three models used to develop the SCC estimates in 2009-2010 was run through a contract managed by EPA. The contractor did not participate in any of the IWG meetings but rather received instructions for how to conduct the model runs (e.g., specification of the three input assumptions as determined by the IWG). Also, while it is not unusual for EPA professional staff to consult external scientists and economists with technical questions in the course of their research and analysis, I cannot confirm whether any of their technical dialogues included explicit discussions about the IWG meetings.

In the GAO report mentioned above, GAO also highlighted the various opportunities for public input on SCC in general and the interagency estimates, beginning with public comments received prior to the 2008 court decision and those received in response to the numerous rulemakings that used a set of interim SCC estimates based on published literature.

49. Please explain in detail how the decision was made that the IWG would not develop its own models or data for the 2010 SCC estimates or the 2013 updates?

The 2010 TSD for the USG SCC estimates provides documentation of the interagency decisions and the 2013 TSD documents the technical update. The TSDs clearly demonstrate the interagency group's commitment to rely on models and data from the peer-reviewed literature, as well as the value the interagency group placed on the variation in the approaches embedded in each of the three models. Of note, the 2010 TSD explains that DICE, FUND, and PAGE are by far the most widely used and widely cited models in the economic literature that can link physical impacts to economic damages for the purposes of estimating the SCC. The 2010 TSD also reported on the interagency group's review of relevant assessments, such as the National Academies of Science (NAS) 2010 report, which identified the three models as "the most widely used impact assessment models". Furthermore, the 2010 and 2013 TSDs for the USG SCC estimates provide exhaustive documentation of how the USG's review identified, evaluated, and adopted the data, assumptions, and analytical framework used to develop the SCC estimates.

50. Please explain in detail how many EPA rulemakings since 2009 have not included the 7% discount rate as required by OMB Circular A-4. Please provide an updated list of EPA rulemakings that have included, utilized, or cited the 2010 SCC estimates or the 2013 updates.

All rulemaking actions that estimate economic impacts present estimates at 3 and 7 percent; those that include monetized CO₂ impacts discount those impacts at 2.5, 3, and 5 percent.

Table 1 lists the EPA regulatory actions that have used the USG SCC estimates.

Table 1. EPA Regulatory Actions Using USG SCC Estimates

Federal Register	Rule Name	Action
Interim USG SCC Estimates: 2009-2010 EPA Rulemakings		
9/28/2009	EPA/DOT Light Duty Vehicle GHG and CAFE Standards (2012-2016)	Proposal
4/26/2010	EPA Renewable Fuel Standard Program (RFS2)	Final
6/21/2010 ¹	EPA Disposal of Coal Combustion Residuals From Electric Utilities	Proposal
USG SCC Estimates based on 2010 TSD: 2010-2013 EPA Rulemakings		
5/7/2010	EPA/DOT Light Duty Vehicle GHG and CAFE Standards (2012-2016)	Final
8/2/2010	EPA Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone	Proposal
9/9/2010	EPA Cement NESHAP/NSPS (CO2 disbenefits) (under reconsideration)	Final
10/14/2010	EPA Sewage Sludge Incinerators NSPS/Emissions Guidelines (CO2 disbenefits)	Proposal
3/14/2011	EPA (supp) NESHAP: Mercury Cell Chlor-Alkali Plants - Amendments	Proposal
3/21/2011	EPA Sewage Sludge Incinerators NSPS/Emissions Guidelines (CO2 disbenefits)	Final
3/21/2011, Reconsid: 1/31/13	EPA NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (CO2 disbenefits)	Final
8/8/2011	EPA Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals (vacated by courts, in review)	Final
9/15/2011	EPA/DOT Medium-Heavy Duty Vehicles GHG and CAFE Standards	Final
12/1/2011	EPA/DOT Light Duty Vehicle GHG and CAFE Standards (2017-2025)	Proposal
12/23/2011	EPA Commercial and Industrial Solid Waste Incineration Units: Reconsideration and Proposed Amendments; Non-Hazardous Secondary Materials That Are Solid Waste (CO2 disbenefits)	Proposal
2/16/2012	EPA MATS Rule	Final
4/13/2012	EPA GHG Standards for New Stationary Source EGUs	Proposal
10/15/2012	EPA/DOT Light Duty Vehicle GHG and CAFE Standards (2017-2025)	Final
6/7/2013	EPA Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category	Proposal
Updated USG SCC Estimates based on 2013 TSD: 2014 EPA Rulemakings		

¹ The final USG SCC estimates were not published in time for EPA to redo their analysis for the Coal ash proposed rule. Included in the proposed rulemaking is an acknowledgement of the USG values and the Agency intent to use them in the Final rule. See p. 29, <http://www.gpo.gov/fdsys/pkg/FR-2010-06-21/pdf/2010-12286.pdf>.

1/8/14	EPA GHG Standards for New Stationary Source EGUs (sensitivity analysis only)	Proposal
6/18/14	EPA: Emission Guidelines for GHG Emissions from Existing Stationary Sources (Electricity Generating Units)	Proposal

51. Please explain in detail your involvement in the IWG, including whether you signed off on or gave verbal approval for any contributions made by your office, including the technical assistance and modeling provided by OAP.

I do not recall any personal involvement with the Interagency Working Group.

52. Congress created the Clean Science Advisory Committee (CASAC) under the Clean Air Act giving it certain responsibilities. Specifically, there are five items listed in Section 109 that CASAC is required to do every 5 years as part of the process for reviewing the National Ambient Air Quality Standards (NAAQS). One instructs CASAC to advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of the NAAQS. Please explain in detail the number of times CASAC has advised the Administrator of the adverse economic and energy effects that may result from the responses necessary to meet the NAAQS.

CAA section 109 (d)(2)(C)(iv) states that one of the committee's duties is to "advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of [NAAQS]." The provision does not require that CASAC provide this advice as part of the five year review cycle. Moreover, when the Supreme Court in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), held that EPA could not consider implementation and other costs in setting the NAAQS, the Court further held that any CASAC advice related to costs of implementation under 109 (d)(2)(C)(iv) would not be relevant to EPA's review of the NAAQS. We are currently not aware of a particular instance in which CASAC has advised the Administrator of the adverse economic and energy effects that may result from the responses necessary to meet the NAAQS.

53. It is my understanding that CASAC reviews documents prepared by EPA staff and responds to charge questions that also are presented by the Agency. Please explain in detail those studies and charge questions provided to CASAC by EPA, including during the current Ozone NAAQS review, that examine the adverse social, economic, or energy effects which may result from various strategies for attainment and maintenance of the NAAQS.

EPA is prohibited by law from considering costs of implementation in setting the NAAQS. The U.S. Supreme Court ruled in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards that are requisite to protect public health and welfare, as provided in section 109(b) of the Clean Air Act. Therefore, as part of the current ozone review we have not provided CASAC with studies or charge questions that examine the adverse social, economic, or energy effects that may result from various strategies for attainment of the NAAQS. The Clean Air Act does provide state and local officials in nonattainment areas the ability to consider several factors, including social, economic, and energy impacts, when designing their state implementation plans to implement the NAAQS.

54. Please explain how as Assistant Administrator for the Office of Air and Radiation you will make publicly available the transcript, minutes, and webcast of CASAC meetings, including the CASAC Ozone Review Panel Meeting held March 25-27, 2014.

The EPA's Science Advisory Board Staff Office, which is responsible for supporting the Clean Air Scientific Advisory Committee, makes publicly available information about its meetings and advice as required by the Clean Air Act and the Federal Advisory Committee Act, and implementing regulations. This information can be found at <http://www.epa.gov/casac/>.

Senator James Inhofe

1. EPA responsibility?

- a. Ms. McCabe, if we find ourselves in a scenario where there are electricity blackouts during hot summer months around the country because of the EPA's policies, will you and the EPA take responsibility?

For more than 40 years, the Clean Air Act has fostered steady progress in reducing air pollution, allowing Americans to breathe easier and live healthier – all while the economy has more than tripled and an affordable, reliable energy system has continued to operate. We remain committed to maintaining all of those outcomes.

2. Electricity Reliability

This brings me to another question about the broader impacts EPA's regulations have on the economy and on electricity generation.

As we discussed in my office, 75% of our electricity comes straight from fossil fuels. About a third of that is from coal.

EPA's greenhouse gas NSPS rules for new and existing generators make it impossible for us to have a diverse fuel supply going forward. With natural gas prices so low, natural gas has a difficult time competing, and your rules make it impossible to build a new coal fired power plant.

You mentioned in our meeting that the rules are designed to give flexibility to states to implement the rules. But it seems that the only flexibility you're interested in is from renewables.

- a. Don't you think we're playing a dangerous game here with rate payers by relying so much on renewable fuels to hit the goals you're mandating in your rules?
- b. Just yesterday Administrator McCarthy said that "nothing we do can threaten [grid] reliability." With all of the looming plant closures and the many more that will come as a result of the greenhouse gas regulations, what have you done to ensure this is true?
- c. Are you willing to revisit and modify the Utility MACT rule and vitiate the 316(b) rule and your GHG regs so that the electricity grid's reliability isn't threatened and price shocks and black outs don't become the new reality?

EPA's Clean Air Act power plant rules provide flexibility to regulated entities to help ensure a path forward for generating units of all types. EPA analyses conducted in support of its power plant rules project that fuel diversity will be maintained in the future, with coal and natural gas projected to be the two largest sources of electricity generation in 2030. EPA analysis has shown that even areas experiencing coal retirements will also retain significant coal capacity and an adequate mix of diverse generating resources. EPA works closely with DOE, FERC, grid planning authorities, and other entities with expertise related to electric reliability to help ensure that the agency's rules are implemented in a manner consistent with maintaining electric reliability.

3. Section 321(a)

Ms. McCabe, in our meeting last week, I asked you why the analysis required under Section 321(a) of the Clean Air Act isn't being abided by. This is the part that requires the EPA to measure the number of jobs being lost across the whole economy because of the Clean Air Act rules. You said that EPA did not have the same interpretation of the law.

Behind me, I have Section 321(a) on a chart, and it says, "The Administrator shall conduct continuing evaluations of potential loss or shifts of employment which may result from the administration or enforcement of the provisions of this Act and applicable implementation plans..."

- a. Do you find anything vague about the plain language of this law that would enable the EPA to not keep track of the continuing impacts of the rules promulgated under the Clean Air Act?

CAA section 321 authorizes the Administrator to investigate, report and make recommendations regarding employer or employee concerns that requirements under the Clean Air Act will adversely affect employment. In keeping with congressional intent, EPA has not interpreted this provision to require EPA to conduct employment investigations in taking regulatory actions. Section 321 consistently has been interpreted by EPA to provide a mechanism for investigating specific allegations by particular employers or employees that specific requirements applied to individual companies would result in layoffs. EPA has found no records indicating that any Administration since 1977 has interpreted section 321 to require job impacts analysis for rulemaking actions. Nevertheless, since 2009 EPA has focused increased attention on consideration and (where data and methods permit) assessment of potential employment effects as part of the routine regulatory impact analyses (RIAs) conducted for each major rule.

- b. This seems very straight forward. Would you support legislation that requires EPA to look at the whole economy and not just the regulated entities like you do now?

The Administration has not taken a position on legislation proposing such a requirement.

4. Ozone NAAQS:

- a. Ms. McCabe, when do you plan to propose your next round of Ozone NAAQS?
- b. Do you think it's wise that the statute does not allow EPA to consider the costs when updating NAAQS?
- c. Would you support legislation that requires EPA to consider the economic impact of lowering a NAAQS?
- d. What steps are you taking to ensure CASAC considers the environmental and social impacts of a lower Ozone standard as required under the Clean Air Act?
- e. Will you agree to take comments on retaining the current standard for ozone if you propose a change in the ozone standard?

EPA has not yet reached a decision about what revisions to the ozone standards may be appropriate in light of the current scientific evidence. EPA intends to issue a proposed decision addressing the question of whether it is appropriate to revise the current primary

and secondary ozone NAAQS by December 1, 2014 (as required by court order), and the public will have a chance to review and comment on the proposal before EPA issues a final rule.

The Clean Air Act directs EPA to set NAAQS at a level requisite to protect public health with an adequate margin of safety and to protect the public welfare from any known or anticipated adverse effects of air pollutants. These standards are based on consideration of the most up-to-date scientific evidence and technical information, advice from CASAC, and public comments. As part of the ongoing review of the ozone NAAQS, EPA will evaluate the extent to which it is appropriate to revise these standards in order to protect against adverse public health and welfare effects.

EPA is prohibited by law from considering costs of implementation in setting NAAQS. The U.S. Supreme Court ruled in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards that are requisite to protect public health and welfare, as provided in section 109(b) of the Clean Air Act. However, the Clean Air Act gives state and local officials in nonattainment areas the ability to consider several factors, including employment impacts and costs of controls, when designing their state implementation plans to implement the NAAQS.

5. Methane Strategy

Ms. McCabe, just two weeks ago the President released his comprehensive methane strategy. We spoke about this when you came into the office. It seems to me that the Agency is rushing to a decision to regulate the oil and gas industry's methane emissions, even though that might not be necessary.

I'm concerned you aren't relying on good data when it comes to the oil and gas emissions estimates. I believe you rely too much on computer models and aerial measurements and not enough on surface level measurements. EPA recently made major reductions in the amount of methane emissions that are estimated to come from fracking, for instance, which I applaud.

Right now there are a number of studies being done that will conduct these surface level methane emission measurements that will be reliable, accurate, and scalable across the entire country. It will provide much better oil and gas data than what you have now.

a. Will you wait to make a decision to regulate until you have this new data at your disposal?

As outlined in the Strategy to Reduce Methane Emissions, the EPA intends to build on the success of our voluntary programs in reducing methane emissions from the oil and gas sector. We agree on the need for good information. That is why, on April 15, 2014, the EPA released for external peer review five technical white papers on potentially significant sources of emissions in the oil and gas sector. The white papers focus on technical issues covering emissions and mitigation techniques that target methane and volatile organic compounds (VOCs). The EPA will use the papers, along with the input we receive from the peer reviewers and the public as well as additional information that comes from studies that are currently underway or that maybe conducted in the future, to determine how to best pursue additional reductions from these sources. The public comment period closed on June 16, 2014, and EPA is in the process of evaluating the information and comments received.

6. NAAQS in General

EPA has recently issued new NAAQS without, at the same time, giving States and businesses implementation and permitting information. State Implementation Plans can take years to develop, but new NAAQS standards are effective immediately.

- a. Will you commit to EPA issuing updated implementation tools and policies at the same time a new NAAQS is issued, so that businesses can secure the permits they need?

The Clean Air Act directs EPA to set national ambient air quality standards at a level requisite to protect public health and public welfare. That said, it is important that States, regulated parties, and the general public have the information they need to achieve and maintain these health-based standards. EPA has worked and will continue to work to provide the best tools and information feasible on timeframes that meet the states' needs as much as possible.

7. Sue and Settle

EPA often settles lawsuits and agrees to do things by a certain deadline.

- a. Will you commit to allowing industry to participate in these settlement discussions that will impact them? Specifically with NY methane suit - will you allow oil and gas industry to be at the table?

A decision about who can participate in settlement discussions would be a litigation decision, and litigation decisions in the representation of the United States are led by the Department of Justice. Where EPA is the client agency, the EPA lead for these decisions is the Office of General Counsel. Regardless of who participates in the initial settlement discussions, when EPA has been sued under the Clean Air Act, EPA solicits public comment on any proposed settlement before agreeing to a final settlement.

Senator Jeff Sessions

1. Prior to joining EPA, did you file any written comments with EPA in relation to any environmental regulatory or policy matter, whether on your own behalf or on behalf of any agencies or organizations? If so, please provide my office with copies of any such written comments.

During my career, while working as the Executive Director of Improving Kids' Environment, Inc., and in various capacities in the Indiana Department of Environmental Management and working for the Commonwealth of Massachusetts, I have worked on comments that were filed with the EPA on regulatory and policy matters. These comments are part of the public record and are available in the docket accompanying the individual EPA actions.

2. Using data from the U.S. Energy Information Administration, it is known that, from 2005 to 2011, total CO₂ emissions from the consumption of energy decreased in the United States by approximately 8.5% and decreased in the European Union by approximately 10%, while CO₂ emissions increased globally by 15%, led by an increase in China of 60% and an increase in India of 46%. While the U.S. and E.U. reduced their total CO₂ emissions from energy consumption by 955 million metric tons from 2005 to 2011, China and India increased their emissions by a combined 3,796 million metric tons. In other words, for every one ton of CO₂ reduced in the U.S. or E.U., China and India increased their emissions by four tons. In light of these figures, do you believe that reductions in U.S. CO₂ emissions, alone, will have any meaningful impact on global temperatures and climate change? If so, please describe the measurable impact on global temperatures and climate change that would be achieved through reductions in U.S. emissions, and the data that supports your view in this regard.

Climate change is a global problem that will require a global solution. All nations that are significant emitters of greenhouse gases will need to take the steps necessary to reduce their emissions in the near and long term. The United States, as the second largest emitter of greenhouse gases after China, must show leadership among the developed nations by taking steps necessary to reduce our emissions, while at the same time encouraging and facilitating the reduction of emissions from other countries. US emission reductions achieved since 2005, and the reductions expected by 2020, when combined with efforts in the EU, China, India and other major emitting countries, will help to keep us on track for a significant reduction in global greenhouse gas emissions needed by 2050, and reduce the impacts on global temperatures and climate change.

3. Do you believe that CCS systems have been "adequately demonstrated" as a technology for reducing CO₂ emissions from fossil fuel-fired power plants? Are there any fully operational coal-fired power plants in the United States, or the world, currently using CCS technology?

The EPA has proposed to determine that CCS is technically feasible for new coal-fired power plants, because all of the major components of CCS – the capture, the transport, and the injection and storage – have been demonstrated and are currently in use at commercial scale. For example there are several industrial projects in the United States that are currently capturing the CO₂ for use in enhanced oil recovery (EOR) or other applications. There have been numerous smaller-scale projects that have demonstrated the technology, and there are several full-scale projects – both in the U.S. and internationally – that are

under construction today. Thus, the EPA has proposed to determine that partial CCS is the Best System of Emission Reduction (BSER) for new coal-fired power plants.

4. Please provide any other instances where, pursuant to authority under CAA Section 111, EPA has mandated technologies not yet used on a commercial basis.

In previous NSPS regulations, EPA has set limits based on analysis of technologies, their capability, and whether they could be transferred between similar processes. In those cases, operating units in the Clean Air Act category were not necessarily meeting the limits we proposed, but similar units in the United States or abroad were. In the 1990's, EPA determined that Selective Catalytic Reduction (SCR) was the Best System of Emissions Reduction for industrial boilers and utility boilers. At that time, SCR had been used on some boilers in the United States and internationally. In the United States, SCR had been used on a small number of utility boilers but not on industrial boilers. Some of the regulated entities argued that SCR was not adequately demonstrated for industrial boilers, and therefore could not be the best system. The same parties also claimed SCR would be too expensive, even though the unit and technology configuration was practically identical between the two types of boilers. That is similar to the approach we have taken in the proposed Carbon Pollution Standards, with an important difference. In our current rule, CCS has been, or is in the process of being, used on utility units at or beyond the level we have proposed.

5. Seventeen State Attorneys General recently released a white paper explaining that under the Clean Air Act, the States, and not EPA, determine what constitutes "adequately demonstrated" technology for the purposes of setting performance standards for existing power plants. Do you agree with this legal analysis by these State Attorneys General?

Under EPA's long-standing regulations implementing Section 111(d) of the Clean Air Act, it is the responsibility of the Administrator to determine the Best System of Emissions Reduction that has been adequately demonstrated.

6. Will EPA continue to follow existing statutes and regulations and allow States to set less stringent GHG standards for existing power plants in light of "other factors" such as unreasonable costs or a power plant's remaining useful life?

The Clean Power Plan proposal provides states with the flexibility to determine how to achieve the reductions in the state goals and to adjust the timing in which reductions are achieved, in order to address key issues such as cost to consumers, electricity system reliability and the remaining useful life of existing generation assets.

7. An academic article entitled, "Information Manipulation and Climate Agreements," which was published in February 2014 in the *American Journal of Agricultural Economics*, states: "Linking climate change to extreme weather may be a powerful way to motivate people... The IPCC has tended to over-generalize its research results and accentuate the negative side of climate change... Taken together, considerable evidence suggests that international mainstream media and pro-environmental organizations have the tendency to accentuate or even exaggerate the damage caused by climate change... In this article, we suggest that information manipulation, which is generally overlooked in the literature, can be a novel and helpful mechanism for resolving the climate problem." Some news outlets picked up on this scientific report. In response, the researchers clarified that "we never advocate for lying on climate change," although they conceded in a posting on-line: "Our 'rationale' is essentially an explanation on why the

media has incentives to accentuate or even exaggerate climate damage." Similarly, in a *New York Times* op-ed ("Global Warming Scare Tactics") from April 8, 2014, Ted Nordhaus and Michael Shellenberger outline the effect that climate change alarmism has on public opinion. When scientists and public officials repeatedly exaggerate the link between anthropogenic climate change tied to carbon dioxide and increasing likelihood, severity, and frequency of natural disasters, the writers note that "more than a decade's worth of research suggests that fear-based appeals about climate change inspire denial, fatalism and polarization." This is borne out in the increase since 2006 in the percent of Americans who believe the media are exaggerating global warming claims, as noted in the op-ed.

- a. Do you believe that exaggerating, manipulating data, or lying to promote the Administration's proposed actions on climate change is not acceptable?
- b. Do you agree that, as a high government official, you must always speak truthfully about the scientific data and not exaggerate or manipulate data to promote a political, environmental, or other agenda?
- c. Was the President correct when he asserted on November 14, 2012, that "the temperature around the globe is increasing faster than was predicted even 10 years ago"?
- d. Was the President correct when he asserted on May 29, 2013, that "the climate is warming faster than anybody anticipated five or 10 years ago"?
- e. Please provide a chart showing both the level of warming predicted ten years ago and the actual global temperature changes over the last ten years.
- f. During the February 15th broadcast of *Morning Edition*, National Public Radio (NPR) reported on the President's trip to California and explained: "[Dr.] Holdren also says a key part of the President's message will be that global warming is making droughts more frequent and severe." In your view, are droughts becoming more frequent and severe? If yes, please provide the data you would rely upon to support that assertion.
- g. Dr. Roger Pielke testified in our committee last year: "It is misleading, and just plain incorrect, to claim that disasters associated with hurricanes, tornadoes, floods, or droughts have increased on climate timescales either in the United States or globally." Have you reviewed the scientific reports prepared by Dr. Pielke? If not, will you review them and state if you agree or disagree with this statement?

EPA's actions are and must be based on sound science, a transparent record, and the best available information, and I am committed to ensuring that this is the case for the actions within my responsibility.

It is important to distinguish among different kinds of extreme weather events, between regional versus national trends, and among trends in frequency, intensity, duration, or other variables. For example, there are regional differences in drought trends. This means that even in a year when the national measure of drought does not show a significant increase from the average, some parts of the U.S. may be experiencing extreme drought and other parts may be experiencing wetter conditions.

The USGCRP National Climate Assessment (NCA), released on May 6, 2014, found that, "Certain types of extreme weather events with links to climate change have become more

frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts.” According to the NCA, heavy downpours in the Northeast, Midwest, and upper Great Plains have increased by more than 30% above the 1901-1960 average. While much of the country experienced the highest number of short-duration heat waves in the 1930s, the recent multi-month extreme heat in the United States has been unprecedented since records started in 1895, with recent heat waves in Texas and the Midwest setting records for highest monthly average temperatures. Drought in the West has also been exceptional in comparison to the historical record. While, nationally, there have been no trends in flooding, the regional picture is different, with flooding increasing in the North and East and decreasing in the Southwest. The intensity, frequency, and duration of North Atlantic hurricanes has also increased since the early 1980s, when satellite data became available, though the relative contribution of human and natural causes to these changes is still uncertain, as are trends before the satellite era. Intensity and rainfall rates of hurricanes are projected to continue increasing. Higher sea levels will also lead to increased damages from hurricane storm surges.

The NCA also found that, “Tree ring data suggests that the drought over the last decade in the western U.S. represents the driest conditions in 800 years” and that, “In the Southwest, drought has been widespread since 2000; the average value of the PDSI during the 2000s indicated the most severe average drought conditions of any decade.”

8. In a March 12, 2014 hearing before the House Science Committee, you were asked to explain “some of the costs associated with the lack of action to address climate change and increasing emissions.” You responded: “There are costs to our economy and to society from the impacts of climate change that is already happening. In 2013, there were seven extreme weather events. Which I think is a nice way of saying great, big, huge horrible storms that cost the economy over a billion dollars each. This is a real economic impact on our communities, our families across the country... The scientific community has identified a number of impacts of climate change. Among those are increased frequency and intensity of extreme weather events.”
 - a. Please describe with specificity the statistical evidence supporting your view that we are experiencing “increased frequency and intensity of extreme weather events.”
 - b. Please list the seven extreme weather events in 2013 that you were referring to in your House testimony.
 - c. Does the statement quoted in subparagraph (a) reflect your current views?

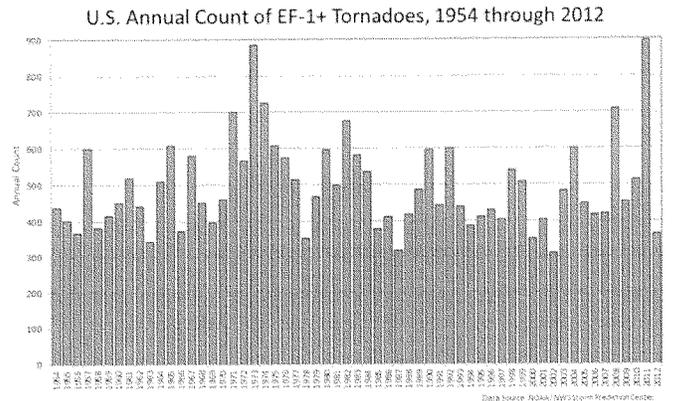
The USGCRP National Climate Assessment (NCA), released on May 6, 2014, found that, “Certain types of extreme weather events with links to climate change have become more frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts.” According to the NCA, heavy downpours in the Northeast, Midwest, and upper Great Plains have increased by more than 30% above the 1901-1960 average. While much of the country experienced the highest number of short-duration heat waves in the 1930s, the recent multi-month extreme heat in the United States has been unprecedented since records started in 1895, with recent heat waves in Texas and the Midwest setting records for highest monthly average temperatures. Drought in the West has also been exceptional in comparison to the historical record. While, nationally, there have been no trends in flooding, the regional picture is different, with flooding increasing in the North and East and decreasing in the Southwest. The intensity, frequency, and duration of North Atlantic hurricanes has also increased since the early 1980s, when satellite data

became available, though the relative contribution of human and natural causes to these changes is still uncertain, as are trends before the satellite era. Intensity and rainfall rates of hurricanes are projected to continue increasing. Higher sea levels will also lead to increased damages from hurricane storm surges.

The NCA is clear and transparent regarding the evidence that it considered in making its assessment, and provides the appropriate context, limitations, and level of uncertainty for their findings. For example, the NCA clearly describes when an impact is relevant to regional versus national scales, or when an extreme weather phenomenon has been observed or is projected to increase in intensity, frequency, duration, timing, or some combination of these measures.

The seven “billion dollar extreme weather/climate events” that occurred in 2013 are listed by NOAA’s National Climatic Data Center at <https://www.ncdc.noaa.gov/billions/events>. These events include the western drought/heat wave from spring to fall, the Colorado flooding in September, and severe weather in the southeast in March.

9. According to data from the National Severe Storms Laboratory, from May 2012 to April 2013, the U.S. experienced a record low number of tornadoes (EF-1 or stronger) for a 12-month period. While the National Weather Service records for 2013 tornadoes are not yet complete, the total number of tornadoes (EF-1 or greater) in 2012 was far below the total number from 50 years ago (1962). In fact, the U.S. had more tornadoes in 45 out of the last 50 years than we had in 2012.
 - a. Are you familiar with the chart below?



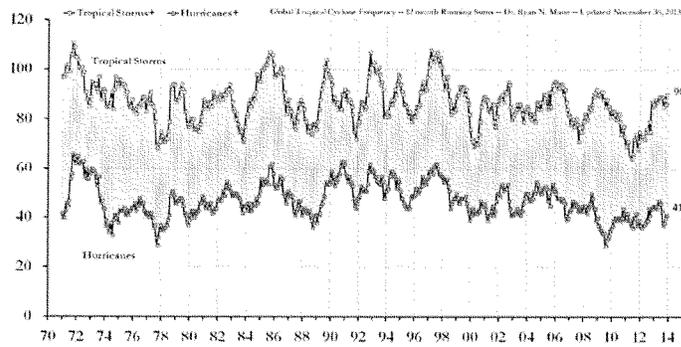
- b. In your view, is the United States experiencing more frequent tornadoes now than in the past 50 or 100 years? Please provide data that would support your view.

The USGCRP National Climate Assessment (NCA), released on May 6, 2014, found that, “winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward over the United States. Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are

uncertain and are being studied intensively.” According to the NCA, the data on severe thunderstorm phenomena (including tornadoes) are not of sufficient quality to determine long-term trends. In addition, these phenomena occur on scales smaller than the resolution of climate models, which makes it challenging to project future changes. However, while the relationships between tornadoes and climate change are still being explored, the NCA does cite a recent study that suggests a projected increase in the frequency of conditions favorable for severe thunderstorms (which are often associated with tornadoes).

10. It has been eight years since the last major hurricane struck the United States—a lull that experts call an “extended and intense hurricane drought.” Even the IPCC’s **Fifth Assessment Report**, which was just released, acknowledges: “Current data sets indicate no significant observed trends in global tropical cyclone frequency over the past century.”

a. Are you familiar with the charts below?



Updated version of chart referenced in Written Testimony of Dr. Roger Pielke, Jr. (7/18/2013), attributed to Ryan Maue.

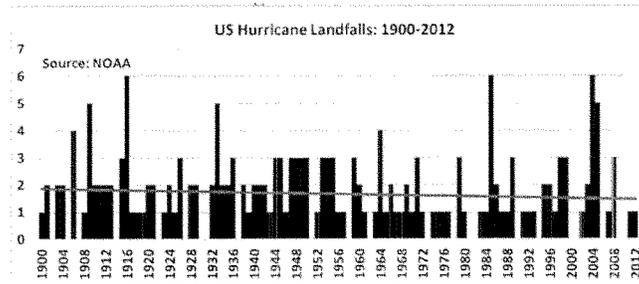


Figure 3a. Number of landfalling US hurricanes from 1900-2012. The red line shows the linear trend, exhibiting a decrease from about 2 to 1.5 landfalls per year since 1900. Source: NOAA.³²

- b. In your view, is the United States experiencing more frequent hurricanes over the last 50 or 100 years? Please provide data that would support your view.
- c. Dr. Roger Pielke of the University of Colorado in Boulder testified in our committee last year: "Hurricanes have not increased in the US in frequency, intensity or normalized damage since at least 1900." Do you agree with this statement?

The USGCRP National Climate Assessment (NCA), released on May 6, 2014, found that the "intensity, frequency, and duration of North Atlantic hurricanes, as well as the frequency of the strongest (Category 4 and 5) hurricanes, have all increased since the early 1980s. The relative contributions of human and natural causes to these increases are still uncertain. Hurricane-associated storm intensity and rainfall rates are projected to increase as the climate continues to warm." Though the NCA found an increase in the intensity, frequency, and duration of North Atlantic hurricanes, they note that there has been no trend in the frequency of global tropical cyclones or hurricanes making landfall in the U.S. Note, however, that it is important to distinguish frequency from other measures of hurricanes, including intensity, rainfall, size, duration, or resulting storm surges. All of these measures of hurricanes can affect the resulting damage incurred. For example, a large storm that does not make direct landfall could still cause damaging storm surge, particularly in areas that have experienced sea level rise. Additionally, the numbers of landfalling hurricanes are small compared to the total number of hurricanes that form in an ocean basin, which means there is not enough historical data to make conclusions about long-term trends in landfalling hurricanes. The NCA does note that, historically, fewer storms have hit land in warm years despite there being more overall storms that formed in those years, but does not draw conclusions about future trends in landfalling storms.

11. During the February 15th broadcast of Morning Edition, National Public Radio (NPR) reported: "[Dr. John] Holdren also says a key part of the President's message will be that global warming is making droughts more frequent and severe." Dr. Holdren is the President's top science advisor. Yet Dr. Pielke and other experts in our committee have shown, with actual data, that claims that we are experiencing more frequent droughts are "misleading, and just plain incorrect."
 - a. Do you believe that the United States is experiencing more frequent or severe droughts than in the past 50 or 100 years?

- b. American Enterprise Institute (AEI) has evaluated the official drought data and found: “The Palmer Drought Severity Index shows no trend over the record period beginning in 1895 in terms of drought; more areas in the United States have experienced an increase in soil moisture than a decline.” Do you recognize the Palmer Drought Severity Index as providing the best available data on present and historic drought severity?
- c. The IPCC’s Fifth Assessment Report found: “In summary, the current assessment concludes that there is not enough evidence at present to suggest more than low confidence in a global-scale observed trend in drought or dryness (lack of rainfall) since the middle of the 20th century due to lack of direct observations, geographical inconsistencies in the trends, and dependencies of inferred trends on the index choice. Based on updated studies, [IPCC 4th Assessment] conclusions regarding global increasing trends in drought since the 1970s were probably overstated...” Do you believe there is enough evidence to assert with confidence that the United States, or the world, has been experiencing more frequent and severe droughts as a result of climate change and increases in CO₂ levels in the atmosphere?
- d. Despite the clear weight of the scientific evidence, Dr. Holdren responded to my questioning at our committee hearing in February by diminishing the value of the research and views of respected scientists, including Dr. Roger Pielke and Dr. Roy Spencer. In fact, after I read from the testimony of Dr. Pielke and Dr. Spencer about droughts—the same testimony referenced above ... Dr. Holdren responded: “The first few people you quoted are not representative of the mainstream scientific opinion on this point.” Do you believe that Dr. Pielke’s view [i.e., that “It is misleading, and just plain incorrect, to claim that disasters associated with hurricanes, tornadoes, floods, or droughts have increased on climate timescales either in the United States or globally.”] is in the mainstream of scientific opinion on this point? If it is not, please cite the “mainstream” authorities that support a different conclusion than his.

It is important to distinguish among different kinds of extreme weather events, between regional versus national trends, and among trends in frequency, intensity, duration, or other variables. For example, there are regional differences in drought trends. This means that even in a year when the national measure of drought does not show a significant increase from the average, some parts of the U.S. may be experiencing extreme drought and other parts may be experiencing wetter conditions. The NCA also found that, “Tree ring data suggests that the drought over the last decade in the western U.S. represents the driest conditions in 800 years” and that, “In the Southwest, drought has been widespread since 2000; the average value of the PDSI during the 2000s indicated the most severe average drought conditions of any decade.”

Similarly, there are regional differences in flood and precipitation trends, but the data are clear that heavy downpours have increased in many areas of the country. While the data regarding tornadoes are not of sufficient quality to determine long-term trends, the intensity, frequency, and duration of North Atlantic hurricanes have increased since the early 1980s.

Dr. Holdren also expanded on his testimony by providing the following document, to which I would refer you:

http://www.whitehouse.gov/sites/default/files/microsites/ostp/critique_of_pielke_jr_statements_on_drought.pdf. Dr. Holdren discusses a number of aspects of observed and projected drought trends, being careful to distinguish regional trends from global trends. In addition, he discusses both the value and limitations of the Palmer Drought Severity Index, which is

one of the most widely used indices of drought, and discusses the most recent literature on the subject of detecting drought trends.

12. On December 17, 2013, all of my EPW Republican colleagues joined my letter to Administrator McCarthy asking for an accounting of the tax dollars that were wasted on the ozone reconsideration process that was never completed. This was a request I have been making for two years. In January, you wrote me a letter refusing to answer my question, stating: "it is difficult for [EPA] to estimate, with any meaningful precision, [those] expenses..." Please answer the following related questions in the affirmative or negative:
- a. Was EPA mandated by law to reconsider the 2008 ozone standard in 2010-2011?
 - b. Did activist environmental groups urge EPA to reconsider the 2008 ozone standard?
 - c. Did EPA spend taxpayer funds to reconsider the 2008 ozone standard?
 - d. Is EPA capable of stating how much it spent in total on that process? Could EPA provide an estimate?
 - e. Can EPA tell us how many employee-hours were spent on the ozone reconsideration?
 - f. Did John Beale provide assistance, input or any other work on the ozone reconsideration process?
 - g. Did EPA hold public meetings in Virginia, Texas, and California about the ozone reconsideration? Can EPA tell us how much it spent holding those meetings?
 - h. Did EPA employees and officials incur travel costs from 2009-2011 as part of the ozone reconsideration process? Can EPA say how much?
 - i. Did EPA use any outside contractors and/or university/college researchers to assist with any aspects of the ozone reconsideration? Can you say how much was spent on such persons?
 - j. Did EPA receive thousands of public comments in response to the proposal?
 - k. Did EPA spend time and money to study and evaluate those comments? How much?
 - l. Does EPA track how much it spends on any regulation or rulemaking process?
 - m. Did you agree with the President's decision in 2011 to not move forward with the reconsideration of the ozone standard?

The health effects associated with ozone exposure include respiratory health problems ranging from decreased lung function and aggravated asthma to increased emergency department visits, hospital admissions and premature death. To protect against these effects, the Clean Air Act requires EPA to review the NAAQS and their scientific basis at least every five years to determine whether revisions are appropriate.

EPA received input from a variety of stakeholders, both encouraging and discouraging us from reconsidering the standards. Then-EPA Administrator Lisa Jackson chose to reconsider the 2008 standards to ensure the nation's air quality standards were clearly

grounded in science, protected public health with an adequate margin of safety, and were sufficient to protect the environment.

The EPA staff members who worked on the reconsideration of the 2008 standards are dedicated to understanding the science of public health problems from air pollution and advising the Administrator on how to set the standards. At any given time, the EPA staff may be working on some aspect of one or more of the NAAQS standards. The staff continually review health and environmental impacts of the pollutants identified in the Clean Air Act as NAAQS pollutants. During reconsideration of the 2008 standards, the EPA also held public hearings with a wide variety of stakeholders.

The EPA is always learning more about how to set air pollution standards. The Agency is using and will use some of the work from the reconsideration of the 2008 standards to help inform NAAQS decisions moving forward. The Agency is under a court-imposed deadline to determine what, if any, revision to the ozone standards may be appropriate in light of the current scientific evidence. For these reasons, it is difficult to estimate the expenses and full-time equivalent employees exclusively attributable to the reconsideration of the 2008 standards.

13. In 2011, when President Obama directed EPA to abandon its reconsideration of the ozone standard, he cited the importance of reducing burdens “particularly as our economy continues to recover.” As EPA again reviews the Ozone NAAQS, how will EPA go about its work in a way that ensures that a new standard does not overburden a weakly recovering economy? As part of the upcoming ozone review, will EPA give serious consideration to keeping the existing standard in place? Is EPA concerned that it could set air standards so strict that manufacturing is driven off-shore to countries with few environmental laws?

EPA is prohibited by law from considering costs of implementation in setting NAAQS. The U.S. Supreme Court ruled in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards that are requisite to protect public health and welfare, as provided in section 109(b) of the Clean Air Act. However, the Clean Air Act gives state and local officials in nonattainment areas the ability to consider several factors, including employment impacts and costs of controls, when designing their state implementation plans to implement the NAAQS.

14. In November, I wrote EPA with concerns about the Brick MACT issue. My letter was joined by 17 other Senators, and we sent the letter in coordination with a bipartisan group comprised of 53 House members including Rep. Terri Sewell of Alabama. In my office, I talked with you about the status of EPA’s Brick MACT proposal. You acknowledged the legitimate concerns of the brick manufacturers and said you are “looking closely” at this issue and that you “understand that many impacted are small businesses or family businesses.” And you said EPA is “looking for every flexibility” and has provided “extra time” to make sure the right decisions are being made. I greatly appreciate your willingness to look closely at this issue. Please answer the following questions:

- a. As part of the Brick MACT process, is EPA evaluating all possible options for reducing the total, overall regulatory burden on brick makers?

Yes, EPA is evaluating all possible options for reducing the regulatory burden on brick manufacturers.

- b. What options does EPA have to ensure that the final rules are fair and cost-effective, and don't adversely impact jobs at family-owned brick plants?

EPA is considering a range of options to minimize the burden on small businesses.

- c. I am told that a health-based Brick MACT rule, combined with a work practice rule for smaller emission sources, would enable EPA to set a clean and safe environmental standard, while also ensuring that the brick sector can follow the rules in a cost-effective manner. Do you agree, and do you believe EPA can come to a reasonable solution for this industry?

EPA is considering health-based standards and other regulatory flexibilities for proposed requirements to address the HAP emitted by the brick industry in a reasonable way.

- d. What steps has EPA taken, since receiving our November letter, to address our concerns as EPA works towards its August 2014 deadline?

We completed the small business advocacy review (SBAR) panel process. Nearly 20 representatives of the brick industry participated in the SBAR process. We have taken into consideration their input and suggestions.

- e. Are you and EPA staff engaged with the Brick Industry Association and other industry stakeholders regarding the development of the Brick MACT proposal? Please describe efforts taken by EPA to engage the brick industry stakeholders, both small and large businesses, to ensure you have the best information possible to develop your rule.

EPA has had numerous meetings and discussions with brick manufacturers and representatives of the Brick Industry Association. In addition to meetings with small businesses, we have also had separate meetings with the Brick Industry Association to exchange data and ensure that we have all of the information available.

- f. Please describe the kinds of HAP emissions associated with the brick sector that EPA is seeking to control with new standards in the Brick MACT, along with the approximate percentage of total emissions comprised by each kind of emission.

Data provided to EPA by the Brick Industry indicates that HAP emissions from brick manufacturing are generally comprised of acid gases and hazardous metals. Acid gases represent the overwhelming majority of HAP emissions. HAP metals represent a smaller fraction of the total emissions but these metals are among the most toxic air pollutants covered by the Clean Air Act.

- g. With respect to any particular HAP emission that comprises less than 5% of the overall total emissions from a brick plant, will EPA consider work practices as a viable means of MACT regulation? How does EPA intend to address these smaller emissions? Would it be appropriate for EPA, in an effort to control small levels of emissions for particular pollutants that comprise less than 5%, or even less than 1%, of overall emissions, to impose expensive new requirements that could ultimately render brick plants in the United States uneconomical?

EPA is considering all options that are legally permissible under the Clean Air Act. That said, we are required by the CAA to address emissions of all HAP emitted by the

industry. We will provide as much flexibility as possible as we develop proposal requirements for the brick industry to address their HAP emissions in a way that minimizes economic burden. This proposal will be published and made available for public comment, so that we can continue to receive input on it.

15. In our meeting, we talked at length about EPA's plans to regulate biogenic emissions. We talked about forest management in Alabama and around the country, and the pragmatic concerns that need to be given full consideration as EPA considers actions in this regard. However one feels about climate change, it is abundantly clear that forests are an asset, not a liability, when it comes to carbon dioxide. And I believe that our government policies should seek to encourage the use of wood, not discourage it with heavy-handed bureaucracy and regulations. You have agreed to work with me and other Senators on this issue. I look forward to that. If invited, would you be willing to meet with me, other Senators, and stakeholders to discuss EPA's plans for regulating biogenic emissions and related issues?

Yes.

16. We recently issued an EPW Minority Report on "Cooperative Federalism,"² which outlines many of the concerns raised by the States about EPA's recent actions. The report contains several interesting findings.
- a. The report found: "Since 2009, a majority of States have expressed concerns on a variety of fronts about EPA's failure to adhere to the [Clean Air Act's] cooperative federalism design." Were you aware that most states had raised these concerns?
 - i. The report found: "Evidence suggests that EPA entered more 'sue and settle' agreements during this Administration's first term than all three previous presidential terms combined." Were you aware of that?
 - ii. The report found: "The current Administration is rejecting an unprecedented number of State [Clean Air Act] Implementation Plan provisions..." Do you agree?
 - b. The report also provides several recommendations for improving relations with the States on EPA Air issues. Will you review the report and consider ways to improve the cooperative relationship between EPA and the States?
 - c. Recent EPA rulemakings have short-circuited the traditional role that the States play in the Clean Air Act cooperative federalism design. Is EPA committed to the primary role that the Clean Air Act guarantees States in setting performance standards for existing sources like power plants?

The Clean Air Act sets up a system of cooperative federalism where the EPA and the states work together to ensure that all Americans have safe, healthy air. We work closely with our State partners on a daily basis to implement the Clean Air Act's requirements, basing all of our decisions on sound science and the law. At times, that requires that we respond to pending litigation or help the States improve on their work so that it satisfies the Act's

² The full report, "Neglecting a Cornerstone Principle of the Clean Air Act: President Obama's EPA Leaves States Behind," is available at http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=6ceef5b2-07ef-4f68-8938-d947f409019d

requirements. We're always looking for ways to improve the way in which we and our State partners work to implement the Act, and appreciate the suggestions in your report. Our proposed guidelines for existing power plants, published on June 18, lay out our views on the role of States under Section 111(d) of the Clean Air Act in detail.

Senator John Boozman

1. Do you support allowing the public to participate in the nomination process for Science Advisory Board Members and to provide public comments?

The EPA's Science Advisory Board Staff Office is responsible for supporting three independent congressionally mandated Federal Advisory Committees that provide scientific and technical advice to the EPA Administrator, including the SAB. It is my understanding that the SAB Staff Office solicits nominations of experts for the SAB and other committees. For example, the SAB Staff Office published a Federal Register notice on April 18, 2014 requesting public nominations for the SAB and the Clean Air Scientific Advisory Committee (CASAC). The SAB Staff Office also provided the public an opportunity to comment on the nominations. More information can be found at <http://www.epa.gov/sabstaff>.

2. At times, SAB members have been involved both directly and indirectly in reviewing their own work. This violates principles outlined in the EPA's Peer Review Handbook. Do you agree that Board members should not participate in advisory activities that directly or indirectly involve review and evaluation of their own work?

The EPA's Science Advisory Board Staff Office is responsible for supporting three independent congressionally mandated Federal Advisory Committees that provide scientific and technical advice to the EPA Administrator, including the SAB. The SAB maintains a central repository of information describing its processes, ethics, and other requirements for nominees and advisory committee members on its website. More information can be found at <http://www.epa.gov/sabstaff>.

3. Do you believe that Science Advisory Board members with dissenting views should be empowered to make those views known to the public and to the EPA Administrator?

The EPA's Science Advisory Board Staff Office is responsible for supporting three independent congressionally mandated Federal Advisory Committees that provide scientific and technical advice to the EPA Administrator, including the SAB. The SAB maintains a central repository of information describing its processes, including procedures for committee members to express dissenting views and have those views considered in the development of the final report to the Administrator. More information can be found at <http://www.epa.gov/sabstaff>.

4. Risk or hazard assessments include many of the most significant and consequential scientific undertakings at the EPA. Do you believe that EPA's Science Advisory Boards should review each of these assessments and provide advice and comment?

Decisions about any review of a risk or hazard assessment are made in accordance with EPA's Peer Review Policy and Peer Review Handbook, as well as the Office of Management and Budget Final Information Quality Bulletin for Peer Review (PRB) posted at the same website. These documents are available at <http://www.epa.gov/peerreview>. The Office of Air and Radiation nominates assessments for SAB review based on the criteria identified in these documents.

5. Do you believe that Science Advisory Boards should be limited from providing non-scientific policy advice?

The EPA's Science Advisory Board Staff Office is responsible for supporting three independent congressionally mandated Federal Advisory Committees that provide scientific and technical advice to the EPA Administrator, including the SAB. The Environmental Research, Development and Demonstration Authorization Act authorizes the SAB to provide scientific advice. More information can be found at <http://www.epa.gov/sabstaff>.

I also want to ask a few questions about the EPA's manipulative and dishonest Social Cost of Carbon (SCC) ESTIMATES. EPA is using a phony number to justify over two dozen rules. This phony number inflates the benefits of EPA rules, and the agency has not responded to oversight inquiries by members of this Committee.

6. Why did the Interagency Working Group (IWG) decide against including a 7 percent discount rate valuation, as required by the Office of Management and Budget (under Circular A-4)? Did EPA, as a participant in the IWG, agree with the decision to ignore OMB guidance and not include a 7 percent discount rate valuation? Please explain in detail.
7. Why did the Interagency Working Group (IWG) decide against including a domestic analysis of the SCC, thereby again ignoring OMB guidance requiring a distinction between the domestic costs/benefits and the global costs/benefits?
8. Did EPA, as a participant in the IWG, agree with the decision to ignore OMB guidance and not include a domestic analysis of the SCC?
9. Please explain in detail why an analysis of domestic compliance with EPA regulations which impacts all Americans was not necessary.

Response to Questions 6 – 9: EPA works with OMB to ensure that EPA is following guidance in assessing the costs and benefits of their agency actions. As explained below, both the use of a global value and the range of discount rates used for the SCC estimates are consistent with OMB guidance.

The OMB discount rates are designed for costs and benefits that occur in the near to medium term. Different considerations affect discount rates for impacts in the distant future. The 2010 TSD provides extensive discussion of the intergenerational discounting literature and why the three discount rates were chosen. The discount rate decisions are consistent with OMB guidance. Specifically, regarding intergenerational discounting, Circular A-4 says:

“...it would still be correct to discount future costs and consumption benefits generally (perhaps at a lower rate than for intra-generational analysis) ... Estimates of the appropriate discount rate appropriate in this case, from the 1990s, ranged from 1 to 3 percent per annum.”

According to Circular A-4, the “7 percent rate is an estimate of the average before-tax rate of return to private capital in the U.S. economy,” while 3 percent is “the rate at which society discounts future consumption flows to their present value.” Both are designed for costs and benefits that occur in the near to medium term. The use of the 3% discount rate is also consistent with OMB guidance, because the IAMs used to generate the USG SCC estimates are designed to estimate change in future consumption equivalent flows, not

capital (or capital equivalent) costs. However, the interagency working group noted in the 2010 TSD that there is the possibility that “climate damages are positively correlated with market returns,” which would tend to increase the certainty equivalent (consumption) discount rate, and the estimates therefore include an upper value of 5%.

Since the release of the February 2010 estimates, the federal government has continued to examine ways to discount impacts in the distant future and has supported research in this field. Notably, a recent paper in *Science* authored by thirteen prominent economists concludes that a declining discount rate would be appropriate to analyze impacts that occur far into the future.³

The interagency workgroup determined that a global measure of SCC is appropriate in this context because emissions of greenhouse gases contribute to damages around the world and the world’s economies are now highly interconnected. To reflect the global nature of the problem, the USG SCC estimates incorporate the full damages caused by carbon dioxide emissions and we expect other governments to consider the global consequences of their greenhouse gas emissions when setting their own domestic policies. See 2010 TSD for more discussion.

On August 25, GAO released its review report of the process used to develop the U.S. Government Social Cost of Carbon. After interviews with scientists and officials who participated in the development of the SCC, including EPA staff, along with reviews of relevant technical documents, the GAO concluded that the working group (1) used consensus-based decision-making, (2) relied on existing academic literature and modeling, and (3) took steps to disclose limitations and incorporate new information by considering public comments and revising the estimates as updated research became available. The report made no recommendations.

10. Will agencies be instructed to estimate the harm to the U.S. economy as manufacturing shifts overseas, to countries that emit far more atmospheric pollution and carbon than our industries do?

In all of our significant rulemakings, the EPA uses the best peer-reviewed science and the best available information to estimate benefits and costs, including both quantifiable and unquantifiable benefits and costs. For those benefits and costs that the EPA is not able to quantify, the Regulatory Impact Analysis includes a robust qualitative discussion of the potential impacts of the regulation.

³ Arrow, K., M. Cropper, C. Gollier, B. Groom, G. Heal, R. Newell, W. Nordhaus, R. Pindyck, W. Pizer, P. Portney, T. Sterner, R.S.J. Tol, and M. Weitzman. 2013. Determining Benefits and Costs for Future Generations. *Science* 341(6144): 349–350.

Senator Deb Fischer

1. EPA will soon be announcing new proposed regulations regarding greenhouse gas emissions from existing power plants. Do commercially available technologies currently exist to capture and store carbon emissions at power plants?
 - a. If yes, where? At what cost? Will vendors be able to deal with the demand created by the regulations?

In the Clean Power Plan, EPA did not propose that retrofit carbon capture and storage is the “best system of emission reduction... adequately demonstrated” for reducing CO2 at existing power plants.

2. In the proposed rule for new power plants, EPA makes its “adequately demonstrated” determination predominantly based on carbon capture and sequestration (CCS) demonstration projects that have received federal assistance under the Energy Policy Act of 2005 (EPA05). Notably, three of the four commercial scale CCS demonstration relied on by EPA have all been allocated an investment tax credit that was established for “clean coal facilities” under section 1307 of EPA05. However, Congress has placed specific limitations on EPA’s authority to set section 111 standards based on demonstration projects that receive federal assistance under these EPA05 programs. Specifically, these statutory limitations expressly bar EPA from considering the three commercial-scale CCS demonstration projects in making a determination under section 111 that CCS is adequately demonstrated. Please explain why the agency is ignoring this statutory limitation in the pending New Source Performance Standard rulemaking.

EPA does not believe that these provisions preclude its determination. EPA has issued a Notice of Data Availability (NODA) that notes the availability of a Technical Support Document (TSD), in the rulemaking docket that details its position on this issue. It explains, “EPA interprets these provisions to preclude EPA from relying solely on the experience of facilities that received EPA05 assistance, but not to preclude EPA from relying on the experience of such facilities in conjunction with other information.” Moreover, EPA based its determination on a number of projects and other information including projects that did not receive any assistance under the EPA05. In addition, the agency extended the public comment period for January 2014 proposal by 60 days to allow adequate time for the public to review and comment on the contents of the NODA and TSD.

3. The power sector has announced the retirement of over 60 gigawatts of coal fired generation. This amounts to about 20 percent of the existing coal-fired generating capacity in the United States. These retirements will generally occur before 2020, with a great majority of the retirements occurring by the 2016 Mercury and Air Toxics Standards (“MATS”) deadline. This loss of coal-fired capacity is likely to continue due to new EPA rules, including the new CO2 regulations for existing power plants, regulation of coal ash, and regional and local control measures required to attain the more stringent ozone and fine particulate matter standards. Furthermore, electric reliability problems posed by the continued loss of coal-fired capacity could be exacerbated by the retirement of baseload nuclear generation. The power sector faces major challenges as to how it will replace a large amount of coal and nuclear baseload capacity. Please explain how the agency intends to address this issue with regards to the upcoming section 111(d) rule, including the steps it plans to take to ensure the reliability of the grid.

- a. When calculating future benefits of EPA's greenhouse gas rules for new and existing power plants, will your analysis take into account the future greenhouse gas reductions that may result from other EPA rules such as MATS or National Ambient Air Quality Standards?
- b. Is there a risk that predicted emissions reductions could be double counted?

With an all-of-the-above approach, the Clean Power Plan encourages the growing shift toward a more sustainable system that recognizes the importance of reducing carbon pollution while maintaining reliability and a vibrant economy. Based on our analysis, we expect that coal, oil and natural gas will have an important role in a diverse U.S. energy mix for years to come. EPA projects that coal will have a 31% share of generation and natural gas will have a 32% share of generation in 2030. EPA's analysis shows that the proposed Clean Power Plan is unlikely to have any significant effect on electricity reliability. If a local reliability concern arises, EPA is confident that it can be managed with existing tools and processes – especially taking into consideration the timing and compliance flexibilities in the guidelines.

EPA estimates that the combined public health and climate benefits from the Clean Power Plan will be worth an estimated \$55 billion to \$93 billion in 2030. The public health and climate benefits are associated with emissions reductions achieved by the proposed rule alone. When EPA estimates the benefits for rules, we include other rules that place emissions limitations on sources, such as MATS, CAIR and various State programs, in the "baseline". This confirms that we have not double-counted any of the emissions, benefits or costs that should be attributed to another rule.

4. Are you concerned that utilities may be spending so much time and resources on keeping their existing coal units in compliance that they are not spending enough time and resources on new energy sources that will eventually lessen the dependence on coal?

With an all-of-the-above approach, the Clean Power Plan encourages the growing shift toward a more sustainable system that recognizes the importance of reducing carbon pollution while maintaining reliability and a vibrant economy. Based on our analysis, we expect that coal, oil and natural gas will have an important role in a diverse U.S. energy mix for years to come. EPA projects that coal will have a 31% share of generation and natural gas will have a 32% share of generation in 2030.

States will have fifteen years from when the rule is final until compliance with the final target, time in which to plan for and achieve reductions in carbon pollution and avoid stranded assets.

5. What are your views on retrofitting plants?

In the Clean Power Plan, EPA did not propose that retrofit carbon capture and storage is the "best system ... adequately demonstrated" for reducing CO2 at existing power plants.

6. Are you concerned about the amount of money being spent on retrofitting plants?

In the Clean Power Plan, EPA did not propose that retrofit carbon capture and storage is the "best system of emission reduction... adequately demonstrated" for reducing CO2 at existing power plants.

7. The EPA has issued a number of new regulations regarding emissions from electric generating units. What is the EPA's ultimate goal? Is the EPA trying to force utilities to take coal-fired power plants out of operation?

EPA's mission is to protect human health and the environment. The proposed limits on carbon pollution from new and existing power plants are intended to implement the provisions of the Clean Air Act in a way that takes into account costs as appropriate, and the EPA expects that they will result in a continued diverse fuel mix.

8. Is it fair to say that EPA would like to see the United States lessen its dependence on coal for electricity production?

EPA is implementing the provisions of the Clean Air Act to reduce harmful air pollution from electricity production, while still maintaining a diverse energy supply that includes an important role for coal and natural gas.

9. One significant concern in the electric utility industry is regulatory certainty, but we consistently see rules overturned in the courts or delayed numerous times during the rulemaking process, ultimately dragging the process out for years in some instances. With the host of rules being promulgated and expected in the near future, what are you doing to stop this cycle and at the same time ensure legally defensible, cost-effective rules that successfully protect human health and the environment?

Any rule the EPA promulgates must be based on sound science and be legally sound, including complying with all applicable laws and regulations. If confirmed, I will continue this commitment as the foundation of any rules developed by the Office of Air and Radiation.

10. You have consistently said you believe nuclear power is an important part of the nation's climate solution. With the announced closure of a number of nuclear reactors in the last year or so, what is EPA doing to ensure the reliability of the grid?

EPA's Clean Air Act power plant rules provide flexibility to regulated entities to help ensure a path forward for generating units of all types. EPA works closely with DOE, FERC, grid planning authorities and other entities with expertise related to electric reliability to help ensure that the agency's rules are implemented in a manner consistent with maintaining electric reliability.

11. It is my understanding EPA takes into consideration the costs and benefits of much of its rulemaking activities, but uses Energy Information Administration data that may not capture a complete picture of the future energy landscape. With the long list of pending EPA regulatory actions, does your rulemaking process take into consideration costs and benefits beyond the EIA baseline? That is to say does EPA consider for example the greenhouse gas effects when finalizing the 316(b) cooling water intake structures regulation?

For each of EPA's major rulemakings, we include a regulatory impact analysis – both at the proposed rule stage, and at the final rule stage – in which we describe in detail how a particular rulemaking takes into account costs and benefits.

12. Funding for mitigation activities related to ozone is currently tied to "non-attainment" status. Therefore, communities such as the Omaha metro area that are currently in "attainment," but are trying to be pro-active and address ozone-forming emissions prior to violating air quality standards have little financial assistance available. This places communities in the unenviable situation of having to violate air standards in order to become eligible for additional funding. EPA recently developed the Ozone Advance program to attempt to provide funds for metro areas, such as the Omaha region. Would you take proactive measures, such as participation in Ozone Advance, into consideration when designating whether a region will be deemed "non-attainment"? And would you champion opportunities to provide funding for communities that are in attainment?

Participation in Ozone Advance can help areas maintain air quality that meets the health standards. EPA is currently providing technical assistance to participants in the Advance Program but has not offered direct funding to participants. However, I have been and will continue to be a strong advocate for providing support at the community level, including EPA assistance and funding, to the extent possible given budget constraints. EPA can consider participation in such programs in discretionary decisions whether to redesignate areas, but must make mandatory initial designations based on existing air quality.

13. High ozone formation frequently occurs as a result of natural processes (heat, lack of wind, etc.) that are beyond human control. Emissions traveling from other metro areas can also have an impact. For instance, in the Omaha metro area, one can track a direct correlation between the number of high ozone days and extreme high temperature days, whereas mild summers usually result in few, if any, high ozone days. We also have annual burns that occur in the Flint Hills in Kansas that appear to contribute air quality problems. It is unfair to punish communities for factors that are beyond their control. How would EPA take into account factors that are beyond a region's control when designating attainment and non-attainment areas?

In most places in the United States, ozone produced from anthropogenic emission sources within the United States is the primary cause of elevated ozone levels. Local and regional controls are the most effective means to reduce ozone levels for these types of sources. However, the Clean Air Act provides three mechanisms which the EPA and air agencies may be able to use during the NAAQS implementation process to prevent unintended regulatory outcomes or reduce the regulatory burden arising from qualifying events or situations that cause elevated ozone concentrations but are beyond human control: (1) the Exceptional Events Rule; (2) section 179B attainment demonstration approvals; and (3) rural transport area ozone classifications all have potential application in ensuring ozone from natural sources is appropriately handled in implementation of the NAAQS. EPA will use each of these approaches as appropriate to ensure that ineffective local controls are not required in areas overwhelmingly influenced by ozone created from sources beyond their control.

The Exceptional Events Rule establishes criteria by which air quality data affected by uncontrollable events (such as stratospheric ozone intrusions or wildfires, whether originating in the United States or internationally) can be excluded from regulatory actions, including initial area designations. Routine weather conditions (i.e., high temperatures and stagnant conditions during the ozone season) would generally not be considered exceptional. The EPA is currently developing Exceptional Event Rule revisions, which we anticipate proposing in mid-2015 and promulgating in mid-2016. This revised schedule will get a rule in place prior to state implementation activities associated with potential future NAAQS revisions.

Section 179B in the Clean Air Act addresses international transport issues and provides some relief from state planning and control requirements for qualifying nonattainment areas whose projected air quality or air quality on the attainment deadline date would meet the NAAQS “but for” emissions from another country. In these areas, EPA can approve a state’s attainment plan and avoid the consequences of a finding of failure to attain. For ozone, a state could avoid reclassification and section 185 fee programs.

A rural transport area (RTA) classification allows nonattainment areas to apply marginal area requirements if the area is not part of a metropolitan area and can show that emissions from within the area do not make a significant contribution to ozone levels within the area or in another downwind area.

14. The EPA Clean Air Scientific Advisory Committee (CASAC) last recommended the ozone standard be set at a range between 60 and 70 parts per billion (ppb). If the standard were set at 60 parts per billion, the vast majority of the United States—including the Nebraska Panhandle (due to emissions from the Denver metro area), one of the most sparsely populated regions of the United States—would be in violation of the standard. Many metro areas who struggled for years to attain the standard set in 1997 now feel as though the standard will be set at an unrealistic level that will only result in perpetual non-attainment status. How would you apply common sense and reasonableness in setting air quality standards? Do you think that there are diminishing returns of further reducing air quality standards past a certain point?

The Clean Air Act directs EPA to set national ambient air quality standards at a level requisite to protect public health and public welfare. These standards are based on consideration of the most up-to-date scientific evidence and technical information, advice from CASAC, and public comments. As part of the ongoing review of the ozone NAAQS, EPA will evaluate the extent to which it is appropriate to revise these standards in order to protect against adverse public health and welfare effects.

The EPA is prohibited by law from considering costs of implementation in setting NAAQS. The U.S. Supreme Court ruled in Whitman v. American Trucking Associations, 531 U.S. 457 (2001), that the EPA may not consider the costs of implementation in setting standards that are requisite to protect public health and welfare, as provided in section 109(b) of the Clean Air Act. However, the Clean Air Act gives state and local officials in nonattainment areas the ability to consider several factors, including employment impacts and costs of controls, when designing their state implementation plans to implement the NAAQS.

If the EPA establishes a revised ozone NAAQS, the EPA would explore common sense implementation approaches to maximize flexibilities and minimize burdens for states, while providing the health and environmental protections required under the CAA.

15. Last November, the EPA proposed Renewable Fuel Standard targets for 2014 that would blend less fuel than we blended last year, impacting the economy in Nebraska. It does so using an approach that I find to be inconsistent with the law and previous regulations by inserting considerations about fuel delivery infrastructure into the annual target setting process. What steps is EPA taking to fix this proposed rule and respond to the hundreds of thousands of comments submitted for your consideration? When do you expect the final rule to be released?

The EPA has evaluated and considered the over 300,000 comments we received on the 2014 RFS proposal in developing the draft final rule currently under interagency review. Since

the proposal was released, we have also met with multiple stakeholders to listen to their input on the proposed rule and to solicit any new and relevant data that should be factored into setting the volume standards for 2014. These stakeholders include representatives from the biofuel sector, the agricultural sector, petroleum refiners, environmental groups, and other organizations and sectors. We anticipate issuing a final rule as soon as possible.

16. Do you believe the RFS allows for a waiver of biofuel volumes based on retail refueling infrastructure?

Section 211(o)(7) of the Clean Air Act contains two waiver authorities of relevance for the 2014 RFS rulemaking. First, Section 211(o)(7)(D)(i) provides that the EPA must project cellulosic biofuel production on an annual basis, and if that projected level is lower than the applicable volume set forth in the statute, the EPA is to reduce the applicable cellulosic biofuel volume to that lower projected level. When the EPA does so, the EPA may also reduce the applicable volume of renewable fuel and advanced biofuel by the same or a lesser volume. This authority was recently discussed in Monroe v. EPA, 750 F.3d 909 (DC Cir., May 6, 2014), where the Court noted that the statute does not specify factors for the EPA to consider in exercising this authority and, therefore, that the EPA “enjoys broad discretion regarding whether and in what circumstances to reduce the advanced biofuel and total renewable fuel volumes” under this provision.

In the proposed rule for the 2014 RFS volumes, the EPA proposed to reduce the statutory applicable volumes of advanced biofuel and renewable fuel by using a combination of these two authorities. The EPA explained in the proposed rule that both authorities may be used to address limitations in production or importation of the necessary renewable fuel volumes, and factors that limit supplying those volumes to the vehicles that can consume them.

17. Do you think it is the right policy to move the RFS blending targets backward?

EPA is committed to implementing the RFS in a way that encourages increasing volumes of biofuels. The increased use of biofuels is playing an important part in helping to move the country towards greater energy independence and security, while at the same time helping to reduce greenhouse gas emissions. The proposed 2014 volumes were based on an estimate of all ethanol that could be reasonably be expected to be consumed in 2014, including considerable growth in the assumed consumption of E85 in FFVs compared to 2013. As a result, the proposed volumes are beyond the estimated E10 blendwall. The proposed 2014 volumes also included all cellulosic biofuel and all non-ethanol advanced biofuel projected to be reasonably available in 2014. As the use of renewable fuels continues to rise, the infrastructure necessary to support them will continue to expand as well. The EPA has evaluated and considered all comments it received on the proposed rule in preparing the draft final rule establishing the 2014 RFS standards. The draft final rule is currently under interagency review.

18. Do you believe that the EPA can perform any regulatory actions to make it easier for fueling stations to offer E15?

The EPA has taken a series of regulatory steps to enable E15 to be sold in the U.S. In 2010 and 2011, the EPA issued partial waivers to enable use of E15 in model year 2001 and newer passenger vehicles, and in June 2011, the EPA finalized regulations to prevent misfueling of vehicles, engines and equipment not covered by the partial waiver decisions.

In the proposed rule for the 2014 RFS volumes, we noted that there remain a number of obstacles to increased E15 consumption, and we requested comment on what actions, on the part of government as well as industry and other stakeholders, could be taken to overcome these obstacles and to enable E15 consumption to increase. The EPA is reviewing these comments and may take action in the future based on feedback received from stakeholders.

Senator BOXER. Thank you, Ms. McCabe.
Ms. Dunkin.

STATEMENT OF ANN E. DUNKIN, NOMINATED TO BE ASSISTANT ADMINISTRATOR FOR ENVIRONMENTAL INFORMATION, U.S. ENVIRONMENTAL PROTECTION AGENCY

Ms. DUNKIN. Good morning, Chairman Boxer, Ranking Member Vitter and other members of the committee.

It is my honor to appear before you as President Obama's nominee to be Assistant Administrator for Environmental Information for the EPA.

Before I begin, I want to thank my partner, Kathleen, for her support today and throughout this process. I also want to thank my nephew, Dylan, whom I had the honor to raise, for taking time away from his first professional job to be here with us today.

While they are no longer with us, I want to acknowledge my parents for making it possible for me to be here today. My mother started programming in the 1950s at the University of Pennsylvania, when there were only two women in her class at Wharton. She has been a lifelong role model for me.

My father, who believed that all of his children, including his daughters, could do anything they set out to do, inspired me to pursue my dream, even in the male dominated field of engineering and technology.

My father's family is full of engineers and I have always loved technology, so it was no surprise that I studied engineering in college. I chose industrial engineering because I cared about people and systems as well as things.

After graduating from the Georgia Institute of Technology, I joined Hewlett Packard where I worked for nearly 20 years. I started as a manufacturing engineer and quickly moved into manufacturing management where I learned the core values that were embodied in the HP way and that even today, guide my work as a leader, values such as treating people with trust and respect, always acting with integrity and accomplishing results through team work.

Over time, I moved from manufacturing management to software quality to research and development, to operations and then information technology earning progressively more responsibility along the way.

I worked on many exciting projects and programs running operations for HP's Internet startup businesses during the dot-com boom to developing tools to support printer R&D to managing IT for Indigo, an Israeli digital press manufacturer that HP acquired. My final position at HP was back in R&D as the program manager for a major new printer development program.

Throughout my time in HP's technology intensive environment, I learned how to manage, lead and optimize technology functions. Since people are any organization's greatest asset, I learned how to work with and lead people at the same time. From managing a small development team to leading a group of 500 programmers as a program manager, I developed my professional expertise in designing and running technical organizations at one of the best technology companies in history.

After I left HP, I joined the Palo Alto Unified School District as the Director of Technology and later, as the Chief Technology Officer, where I am responsible for envisioning, procuring, and supporting technology solutions to enable the work of 12,500 high-achieving K-12 students, along with nearly 2,000 faculty and staff.

While I loved building exciting new technology at HP, I found that working for the Palo Alto Unified School District and helping every student and staff member achieve their potential have been more meaningful to me. Working in the public sector has allowed me to contribute more profoundly to my community than working in the private sector.

I come to work every morning knowing that my work and that of my team is improving the education of every child in our district. I am proud of what we have accomplished in the time have been with the district.

If confirmed, joining the Environmental Protection Agency would be a natural next step in my personal, professional development as it would be an opportunity to contribute not just to my local community but to impact the entire country and help improve the quality of life for every American.

While I have not yet worked directly in the environmental field, I have had a lifelong concern for environmental issues. Having grown up in the 1970s, I was part of a generation that experienced the Nation's increasing awareness of the importance of caring for our environment.

Hewlett Packard was an early leader in environmental stewardship and environmental considerations were always high on our list of concerns in both product development and operations.

In Palo Alto, we emphasize environmentally sound practices such as safe technology recycling, reduced energy use and overall environmental sensitivity.

I was thrilled to have been nominated to this job and look forward to the chance to bring my experience and expertise to bear for this country. Should I be confirmed, it would be my honor and privilege to serve as the Assistant Administrator for Environmental Information for the EPA and I would work every day to be worthy of the opportunity.

Thank you, Chairman Boxer, Ranking Member Vitter and members of the committee, for the opportunity to meet with you today.

I am happy to answer your questions.

[The prepared statement of Ms. Dunkin follows:]

STATEMENT OF ANN ELIZABETH DUNKIN
NOMINEE FOR ASSISTANT ADMINSTRATOR FOR ENVIRONMENTAL INFORMATION
ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
APRIL 8, 2014

Good afternoon Chairman Boxer, Ranking Member Vitter and other members of the Committee.

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Over time I moved from manufacturing management to software quality to research and development to operations and then to information technology, earning progressively more responsibility along the way. I worked on many exciting projects and programs ranging from running operations for HP's entrepreneurial internet startup businesses during the dot.com boom to developing tools to support printer R&D to managing the IT organization for Indigo, an Israeli digital press manufacturer that HP acquired. My final position at HP was back in R&D as the program manager for a major new product development program.

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While I have not yet directly worked in the environmental field, I have had a lifelong concern for environmental issues. Having grown up in the 1970s, I was part of a generation that experienced the nation's increasing awareness of the importance of caring for our environment. Hewlett-Packard was an early leader in environmental stewardship and environmental considerations were always high on our list of concerns in both product development and operations. In Palo Alto we emphasize environmentally sound practices such as safe technology recycling, reduced energy use, and overall environmental sensitivity.

I was thrilled to have been nominated to this job and look forward to the chance to bring my experience and expertise to bear for this country. Should I be confirmed, it would be my honor and privilege to serve as the Assistant Administrator for Environmental Information for the EPA and I would work every day to be worthy of the opportunity.

Thank you Chairman Boxer and members of the Committee, for the opportunity to meet with you today. I am happy to answer any questions.

Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission
Hearing on the Nomination of Ann E. Dunkin to be the
Assistant Administrator for the
Environmental Protection Agency

Senator David Vitter:

1. On April 2, 2014, you met with my staff to discuss several concerns that I have with the performance of the Office of Environmental Information. In particular, my staff discussed the Office's shortcomings with regard to compliance with the Freedom of Information Act (FOIA) and timely responses to Congress as exemplified in DPA's failure to adequately respond to letters sent on April 29, 2013 and May 17, 2013 (attached). At that meeting, my staff requested that EPA implement an expedited timeframe to fully respond to the April letter, as nearly a full year has passed and the request has not yet been fulfilled. In addition, my staff requested that EPA finally produce correspondence between the agency and FOIA fee requestors, documents that were requested in last May's letter. What is the status of these requests?
2. I understand the EPA's process to respond to a Congressional request is cumbersome and inefficient. Your office has to identify the potential custodians, provide them with search terms, transfer self-identified documents to the FOIA office, and then turn the documents over to Congress after review. (See example of April 29, 2013 letter). This process is cumbersome and drains staff resources, while simultaneously hindering transparency. However, we know that the IG has the ability to directly access resources at the Office of Information Technology – plug in search terms – and obtain responsive documents fairly instantly. Will you commit to investigating how your office could transition away from the slow and cumbersome process currently employed by EPA, and towards a system that utilizes the technology EPA already has in place, and is used by the EPAIG, to speed up EPA's response time to Congressional inquiries? Will you commit to providing me a summary of your findings no later than one month after you are in office?

Response:

As I mentioned during my meeting with your staff, I am not familiar with these particular requests or the history underlying these issues. However, if confirmed, I will be happy to further investigate your requests and explore ways to mitigate any issues impeding a complete response.

Senator John Boozman:

1. Do you support allowing the public to participate in the nomination process for Science Advisory board Members and to provide public comments?
2. At times, SAB members have been involved both directly and indirectly in reviewing their own work. This violates principles outlined in the EPA's Peer Review handbook. Do you agree that Board members should not participate in advisory activities that directly or indirectly involve review and evaluation of their own work?
3. Do you believe that Science Advisory board members with dissenting views should be empowered to make those views known to the public and to the EPA Administrator?
4. Risk or hazard assessments include many of the most significant and consequential scientific undertakings at the EPA. Do you believe that EPA's Science Advisory Boards should review each of these assessments and provide advice and comment?
5. Do you believe that Science Advisory Boards should be limited from providing non-scientific policy advice?

Response:

It is my understanding that matters with respect to the Science Advisory Board fall outside the scope of the Office of Environmental Information. However, if confirmed, and if there are issues related to the Science Advisory Board that intersect with my roles and responsibilities as the Assistant Administrator of the Office of Environmental Information, I would be happy to investigate them further.

Senator BOXER. Thank you.
Mr. Ehrlich.

**STATEMENT OF MANUEL H. EHRLICH, JR., NOMINATED TO BE
A MEMBER OF THE CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD**

Mr. EHRLICH. Thank you, Chairman Boxer.

Good morning, Madam Chairperson, Ranking Member Vitter and members of the committee. My name is Manny Ehrlich, and I very much appreciate the chance to appear before you today as President Obama's nominee to be a member of the Chemical Safety and Hazard Investigation Board.

I have dedicated my entire career to protecting health and safety through prevention and investigation of chemical incidents, and I am humbled and honored to have been nominated to a position that will enable me to apply that experience in service to our country.

I currently reside in northern New Jersey but very much look forward to relocating to the Washington area should I receive the honor of confirmation. I have spent over 50 years in the chemical industry in a variety of positions of increasing responsibility ranging from analytical bench chemist to Vice President of Health Safety and Relations, to general manager of the largest hazardous materials training response academy in the United States.

I am currently a health safety and environmental consultant with a broad range of clients around the country.

I have spent much of my career with BASF, one of the largest chemical companies in the world where I progressed from plant management to lead emergency response efforts across North America. In that capacity, I responded to, managed and investigated numerous hazardous material incidents in the United States, Canada and Mexico.

During my career, I concentrated heavily on programs both inside and outside of companies that helped improve overall chemical worker safety. I have been very active in the American Chemistry Council, formerly known as the Chemical Manufacturers Association, participating in or leading many committees whose primary objectives were to develop and implement programs designed to train and educate members of the chemical community in improving response and protecting safety.

Having matured, which is a euphemism for aged, to positions beyond the wearing of personal protective equipment, I have spent the last 15 to 20 years sharing lessons learned throughout my career with members of the chemical industry and emergency responders. My focus is primarily centered on accident avoidance and prevention, incident investigation and root cause determination which includes the critical practice of updating tools and techniques required to address each of these areas.

I am currently the on-call chemist for the Chemical Transportation Emergency Response Center, also known as CHEMTREC in the United States, a 24-hour service that assists responders on the scene of chemical incidents. I am also a member of the National Fire Protection Association's committee that develops competency standards for chemical emergency responders.

My background in chemistry, engineering and education has allowed me to take very complex subjects and present them to personnel at all levels in an easily understood manner so that maximum learning may be garnered by the audience.

The CSB is nationally and internationally recognized for its excellence in investigations and preparation of technical information relative to those investigations. If confirmed, I will rely upon my half-century of experience to further the critical CSB mission in order to support the excellent work done by the board and its investigators. I have long shared their goals for making the chemical industry a safer place to work and protecting communities.

Sadly, early in my career in the industry, I experienced the tragic loss of life of workers in facility accidents where I was employed. I made a commitment then and there to dedicate my career to preventing such accidents from happening to anyone else. Thus, my focus across the years has continued to revolve around the commitment to do all within my power to assure that employees return from work at days end in the same condition as they reported to work that day.

Finally, this nomination is a watershed moment in my career. I can think of no better way, if confirmed, to continue to have a positive impact on the safety of the chemical industry, its workers and neighboring communities, by applying my skills and abilities for the betterment of my country.

I want to thank Mona Holzberg, Joe Gehrum, and Tim and Toni Fay for coming to Washington with me today to lend support. My daughter, Beth Kanderski, texted me and said she is here in spirit.

I want to thank you for allowing me to appear before you today and look forward to your questions.

Thank you, Madam Chairman.

[The prepared statement of Mr. Ehrlich follows:]

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2 of the Committee.

3

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68 safety of the chemical industry, its workers and neighboring communities,
69 by applying my skills and abilities for the betterment of my country.

70 I want to thank xxx and xxxx for traveling to Washington with me today to
71 and for Tim Butters from PHMSA ET AL provide moral support.

72

73 Thank you again for allowing me to appear before you today, and I look
74 forward to taking your questions.

**Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission**

Questions for Ehrlich, Jr.

Questions from:

Senator Barbara Boxer

Thank you for the opportunity to provide clarification further to my April 8 testimony;

1. Based on your extensive experience as a chemical industry safety and emergency response manager, what are the most important things that facility managers can do to prevent accidents in their plants? Do you agree that the burden should be on the chemical facility operator to show that the design and operation of the facility is as safe as possible to protect workers and the public from releases of chemicals?

Response Senator Boxer:

1. Managers must lead by example. They must establish an understanding that safety and accident prevention is each and every person's responsibility.

Facility managers must insist that plant personnel are constantly vigilant to any sign or indication that there is even the slightest hint that an unacceptable event is in the making. They must be proactive and inform their employees that they have the obligation to make decisions to avoid any potentially unacceptable event. Again reminding their employees that acts of commission are much more acceptable than acts of omission. Any unacceptable behaviors must be corrected immediately, regardless of how minor they may be perceived to be.

Emphasis has to be placed on the fact that safety and health are at least equal to, if not more important than, any other aspect of plant operation. Management must establish a standard of care and ensure that even if a certain material or operation does not fall within a regulatory definition, that all personnel should be trained and well versed on possible unacceptable consequences of the operations in which they are working and encouraged to ask "what if" questions.

Training must be established on a basis where competency is evaluated and appropriate measures taken to guarantee competency where it may be lacking.

Senior employees should be encouraged to coach and mentor more junior employees and evaluate their understanding of risk and prevention measures.

**Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission**

Questions for Ehrlich, Jr.

Questions from:

Senator Barbara Boxer

They must be constantly reminded of their obligations to protect the total health and well-being of the environment in and around the facilities in which they function.

Sending people home at the end of the day in the same condition that they reported to work is the critical goal.

Chemical facility owners and operators have a constant and on going obligation to ensure that their facilities are being operated in a manner that will ensure protection of employees and the public from chemical releases. They have an obligation to ask tough questions about modernization and apply lessons learned from the industry in which they operate. However, there are shared responsibilities on the part of regulatory agencies, federal bodies, community action panels and other stakeholders. Best practices have to be shared with all and critically evaluated and implemented in applicable situations. Information must be disseminated and reviewed. Recommendations from various stakeholders, regulatory bodies and partners including the Chemical Safety Board must be disseminated, evaluated and implemented in a collaborative manner.

Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission

Questions for Ehrlich, Jr.

Questions from:

Senator David Vitter

Thank you for the opportunity to follow-up on my April 8 testimony before the Committee.

1. In January of this year, a majority of the U.S. Chemical Safety Board (CSB) refused to endorse recommendations made in a staff report made in relation to the Chevron refinery fire in California in 2012. One of the key recommendations in the staff report was implementations of so-called "safety case" principles for industry which would add new regulatory requirements and not enhance overall safety for covered workplaces.
 - a. Have you reviewed the CSB staff report's recommendations? If so, do you support the staff report's recommendations related to the implementation of a regulatory program based on "safety case" principles?
 - b. Do you agree with a statement made by CSB Chairman Rafael Moure-Eraso that the CSB majority's call for "additional study" constituted "kicking the can down the road"?
 - c. Do you agree with former CSB Chairman John Bresland who stated that "[t]here is no proof that the safety case system would be better than California's current system."?
2. As you are aware, implementations of so-called "safety case" principles for industry would involve a new regulatory framework managed by the U.S. Environmental Protection Agency (EPA). Do you believe EPA possesses the necessary resources and expertise to implement this new regime?
3. Are you aware that 18 USC 1913 prohibits federal agencies from using appropriated funds for lobbying? Are you aware that Section 402 of Title IV, Division G of the Department of Interior, Environment and Related Agencies Appropriations for FY 2014 reiterates this lobbying prohibition? Are you aware that the CSB posted on its website a video entitled "The Human Cost of Gasoline" that includes an individual urging the federal government to enact new laws based on her experience? If the CSB produced or caused to be produced this video with appropriated federal funds, can you explain whether it violates either of these provisions? If confirmed, will you commit to adhering to the letter and spirit of these prohibitions? Will you work to ensure the CSB does not undertake activities that would use appropriated funds in a prohibited manner?

Environment and Public Works Committee Hearing
April 8, 2014
Follow-Up Questions for Written Submission

Questions for Ehrlich, Jr.

Questions from:

Senator David Vitter

Responses to Senator Vitter:

Question 1 and 2.

I am not familiar enough with the "safety case" regime to adequately respond to your question. Prior to the initiation of my consideration as a Member of the Chemical Safety Board, I was

unfamiliar with this issue. I still do not fully understand the proposed "safety case" process. I can assure you that should I be confirmed I will take the steps necessary to develop a comprehensive understanding of the "safety case" and will be more than willing to share my views with my Board colleagues as well as with the EPW Committee.

Question 3.

I am not a lawyer and do not have any training or experience to determine what constitutes compliance (or in this case non-compliance) with the cited statute.

I can assure you that if confirmed I will always seek professional counsel to ensure that I am adhering to the letter and spirit of all applicable laws. At this juncture, I do not have enough of a background in the operations of the CSB to adequately address this issue.

Again, I assure you that I will seek counsel with respect to all CSB operational matters that I may encounter in order to ensure that I comply with relevant law.

Questions for Ehrlich, Jr.

Questions from Senator Fischer

1. How will you maintain an objective, unbiased, and independent view as a CSB Board member that is distinct from other regulatory agencies such as OSHA, EPA, NLRB, etc.?
2. Should the CSB have a regulatory role in matters of chemical safety and security?
3. What in your opinion is the greatest risk that needs to be addressed in chemical safety today? Are there particular processes or chemistries that you believe should be priorities for attention?
4. Do you believe the Federal Government should dictate business practices to industrial and commercial facilities?

Responses to Senator Fischer:

1. If confirmed, I will bring to bear my over 50 years of experience in industry to ensure that the independent nature of the CSB is maintained. I am not a regulator and have never served in a regulatory or governmental position. My primary concern is safety management, which I believe is distinct from the regulatory and/or enforcement nature of the agencies you have cited.

In addition, during my many years of management in various positions of responsibility at chemical plants, I have come to adopt a questioning, non-judgmental, and non-biased perspective that carries over into everything that I do. This assignment, should I be confirmed, will be no different.
2. The CSB is chartered as an independent, investigatory body. I do not see that role changing, nor do I think it should.
3. Aging and deteriorating facilities should be carefully examined relative to increased risk. Where an unacceptable risk exists, a decision should be made based on an examination and evaluation of the data relative to the question "what could happen if nothing is done?" Root causes from events investigated by the CSB need to be taken to the chemical community and reviewed at the highest levels of the organization to help reduce risk.

Processes and chemistries that produce and/or use reactive chemicals as well as those that involve the generation of combustible and explosive dusts should receive priority attention.

4. I do not believe that the Federal Government should dictate business practices to industrial and commercial facilities. I do believe that where there is an absence of or a need for regulation the federal government has a role to play. However, I believe that the federal role should be to work in a more collaborative environment with business to see that accepted business practices are complied with.

Senator BOXER. Thank you all. I want to thank you all for your very good statements and very to the point. I am very proud of the quality of nominees.

To all the families here, we really are so glad you are here because we know as people with families ourselves, we couldn't be here without the support of our families. I am really happy you brought them.

Before I get into my questions, I wanted to ask each of you to say yes or no to each of these questions. I will ask the question and then go this way around.

Do you, if confirmed, to appear before this committee or designated members of this committee and other appropriate committees of the Congress and provide information subject to appropriate and necessary security protections with respect to your responsibilities?

Ms. MCCABE. Yes, I do.

Ms. DUNKIN. Yes, I do.

Mr. EHRlich. Yes, I do.

Senator BOXER. Second, do you agree to ensure that testimony, briefings, documents in electronic and other forms of communication of information are provided to this committee, its staff and other appropriate committees in a timely manner?

Ms. MCCABE. Yes, I do.

Ms. DUNKIN. Yes, I do.

Mr. EHRlich. Yes, I do.

Senator BOXER. Do you know of any matters which you may or may not have disclosed that might place you in any conflict of interest if you are confirmed?

Ms. MCCABE. No, I don't.

Ms. DUNKIN. No.

Mr. EHRlich. No, I don't.

Senator BOXER. I will start my questions.

Ms. McCabe, this is a report, I trust you are familiar with it, on our Nation's air from 2010. The information in there is that since 1990, the Clean Air Act has resulted in the average emission of the six common air pollutants, including particulate matter, VO_x and NO_x , dropping 59 percent, while the U.S. economy grew by 65 percent. Americans drove 40 percent more miles, the population grew 24 percent and our energy use increased 15 percent.

We have seen a reduction in the pollutants and a big rise in the economy. Are you aware of this study?

Ms. MCCABE. I am, Senator.

Senator BOXER. I assume from your testimony that you believe it is really important that as we move forward with regulations that we understand that we don't want to stifle or hurt people in their jobs. I am assuming you are aware of that?

Ms. MCCABE. Absolutely.

Senator BOXER. But health comes first. I want to hold up a picture of what it looks like out the window in China. Anyone who says that this is what is good for America, they won't say that but they go after the EPA with a vengeance even though 80 percent of the people support the EPA doing more.

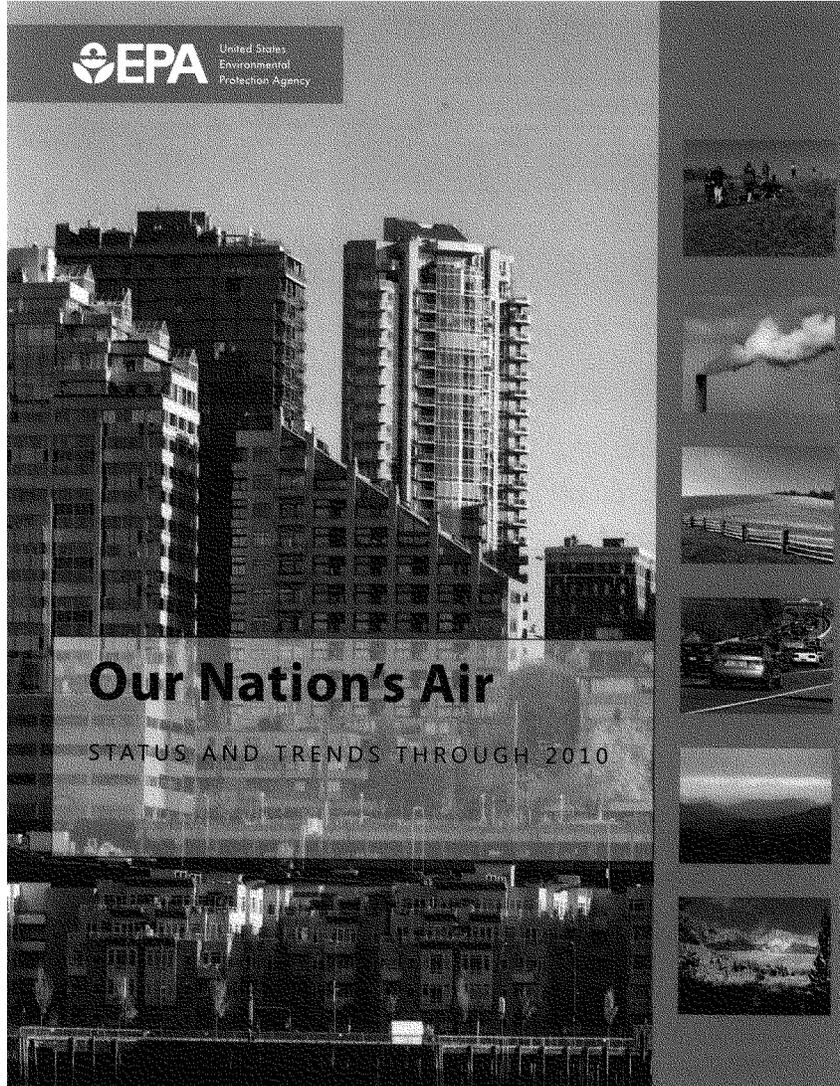
I just want you to know, we don't need to speculate. We can see what happens in a country where the environment is thrown under

the bus. I don't need your comments. I am laying those out here because the split on this committee is enormous.

Even my dear friend who I am going to give 8 minutes to counter everything I have said, Senator Inhofe has stated that if he gets the gavel—he doesn't say if, he says when, which he said for a long time—that his first thing is to go after the EPA because he says they are going after the petroleum industry. I don't think that is the job of this committee to risk the public health of the people for any industry.

We have to grow our economy and make sure we have prosperous businesses, while we cleanup the air. We know in eastern Europe when the walls came down, you couldn't really see the air. The first thing they did was clean it up so they could have economic growth.

[The referenced report follows:]



Our Nation's Air

STATUS AND TRENDS THROUGH 2010

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina

EPA-454/R-12-001
February 2012



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More information and discussion on additional air quality topics are available at
<http://www.epa.gov/airtrends/2010>.



Improving public health by reducing air pollution and improving air quality is one of the U.S. Environmental Protection Agency's (EPA's) top priorities. This summary report presents EPA's most recent evaluation of our nation's air quality status and trends through 2010.

Levels of Six Common Pollutants Continue to Decline

- Cleaner cars, industries, and consumer products have contributed to cleaner air for much of the U. S.
- Since 1990, nationwide air quality has improved significantly for the six common air pollutants. These six pollutants are ground-level ozone, particle pollution [particles 2.5 micrometers in diameter and smaller (PM_{2.5}) and particles 10 micrometers and smaller (PM₁₀)], lead, nitrogen dioxide (NO₂), carbon monoxide (CO), and sulfur dioxide (SO₂). Nationally, air pollution was lower in 2010 than in 1990 for:
 - 8-hour ozone, by 17 percent
 - 24-hour PM₁₀, by 38 percent
 - 3-month average lead, by 83 percent
 - annual NO₂, by 45 percent
 - 8-hour CO, by 73 percent
 - annual SO₂, by 75 percent

- Nationally, annual PM_{2.5} concentrations were 24 percent lower in 2010 compared to 2001. 24-hour PM_{2.5} concentrations were 28 percent lower in 2010 compared to 2001.
- Ozone levels did not improve in much of the East until 2002, after which there was a significant decline. 8-hour ozone concentrations were 13 percent lower in 2010 than in 2001. This decline is largely due to reductions in oxides of nitrogen (NOx) emissions required by EPA rules including the NOx State Implementation Plan (SIP) Call, preliminary implementation of the Clean Air Interstate Rule (CAIR), and Tier 2 Light Duty Vehicle Emissions Standards.
- Despite clean air progress, approximately 124 million people lived in counties that exceeded one or more national ambient air quality standard (NAAQS) in 2010, as shown in Figure 1. Ground-level ozone and particle pollution still present challenges in many areas of the country.

Levels of Many Toxic Air Pollutants Have Declined

- Total emissions of toxic air pollutants have decreased by approximately 42 percent between 1990 and 2005. Control programs for mobile sources and facilities such as chemical plants, dry cleaners, coke ovens, and incinerators are primarily responsible for these reductions.

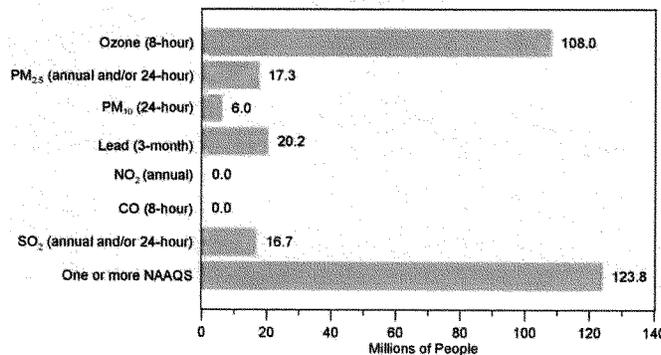


Figure 1. Number of people (in millions) living in counties with air quality concentrations above the level of the primary (health-based) National Ambient Air Quality Standards (NAAQS) in 2010.

Note: Projected population data for 2009 (U.S. Census Bureau, 2009). Ozone (8-hour) is based on the 2008 revised ozone NAAQS of 0.075 ppm. The revised 1-hour standards for NO₂ and SO₂ are not included.

Highlights

- Monitored concentrations of toxic pollutants such as benzene, 1,3-butadiene, ethylbenzene, and toluene decreased by 5 percent or more per year between 2003 and 2010 at more than half of ambient monitoring sites. Other toxic air pollutants of concern to public health such as carbon tetrachloride, formaldehyde, and several metals, declined at most sites.

Air Quality and Greenhouse Gases

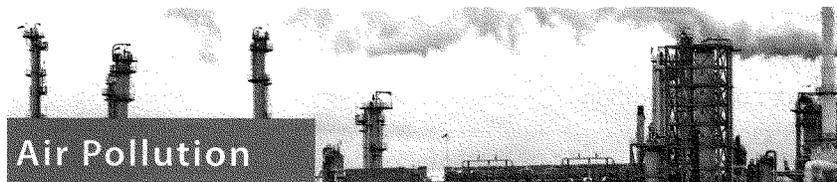
- EPA has concluded that there is compelling evidence that many fundamental measures of climate in the United States (e.g., air temperature) are changing, and many of these changes are linked to the accumulation of greenhouse gases (GHGs) in the atmosphere. GHG emissions from the U.S. have increased by approximately 7 percent since 1990 and global GHG emissions are increasing at an even greater rate. Among other impacts, climate change also contributes to worsening air quality that can endanger public health.
- While reductions in emissions of long-lived GHGs like CO₂ will be essential for addressing

climate change in the long term, there are also climate benefits associated with reductions in certain short lived pollutants. In addition to known health benefits, reductions in black carbon particle pollution and ozone are also likely to lead to climate benefits.

More Improvements Anticipated

EPA expects air quality to continue to improve as recently adopted regulations are fully implemented and states work to meet current and recently revised national air quality standards. Key regulations include the Locomotive Engines and Marine Compression-Ignition Engines Rule, the Tier 2 Vehicle and Gasoline Sulfur Rule, the Heavy-Duty Highway Diesel Rule, the Clean Air Non-Road Diesel Rule, the Mobile Source Air Toxics Rule, the Cross State Air Pollution Rule and the Mercury and Air Toxics Standards.





Health and Environmental Impacts

Air pollution can affect our health in many ways. Numerous scientific studies have linked air pollution to a variety of health problems including: (1) aggravation of respiratory and cardiovascular disease; (2) decreased lung function; (3) increased frequency and severity of respiratory symptoms such as difficulty breathing and coughing; (4) increased susceptibility to respiratory infections; (5) effects on the nervous system, including the brain, such as IQ loss and impacts on learning, memory, and behavior; (6) cancer; and (7) premature death. Some sensitive individuals appear to be at greater

risk for air pollution-related health effects, for example, those with pre-existing heart and lung diseases (e.g., heart failure/ischemic heart disease, asthma, emphysema, and chronic bronchitis), diabetics, older adults, and children.

Air pollution also damages our environment. For example, ozone can damage vegetation, adversely impacting the growth of plants and trees. These impacts can reduce the ability of plants to uptake carbon dioxide (CO₂) from the atmosphere and indirectly affect entire ecosystems.

Sources and Health Effects of Air Pollution		
Pollutant	Sources	Health Effects
Ozone (O ₃)	Secondary pollutant typically formed by chemical reaction of volatile organic compounds (VOCs) and NO _x in the presence of sunlight.	Decreases lung function and causes respiratory symptoms, such as coughing and shortness of breath; aggravates asthma and other lung diseases leading to increased medication use, hospital admissions, emergency department (ED) visits, and premature mortality.
Particulate Matter (PM)	Emitted or formed through chemical reactions; fuel combustion (e.g., burning coal, wood, diesel); industrial processes; agriculture (plowing, field burning); and unpaved roads.	Short-term exposures can aggravate heart or lung diseases leading to respiratory symptoms, increased medication use, hospital admissions, ED visits, and premature mortality; long-term exposures can lead to the development of heart or lung disease and premature mortality.
Lead	Smelters (metal refineries) and other metal industries; combustion of leaded gasoline in piston engine aircraft; waste incinerators; and battery manufacturing.	Damages the developing nervous system, resulting in IQ loss and impacts on learning, memory, and behavior in children. Cardiovascular and renal effects in adults and early effects related to anemia.
Oxides of Nitrogen (NO _x)	Fuel combustion (e.g., electric utilities, industrial boilers, and vehicles) and wood burning.	Aggravate lung diseases leading to respiratory symptoms, hospital admissions, and ED visits; increased susceptibility to respiratory infection.
Carbon Monoxide (CO)	Fuel combustion (especially vehicles).	Reduces the amount of oxygen reaching the body's organs and tissues; aggravates heart disease, resulting in chest pain and other symptoms leading to hospital admissions and ED visits.
Sulfur Dioxide (SO ₂)	Fuel combustion (especially high-sulfur coal); electric utilities and industrial processes; and natural sources such as volcanoes.	Aggravates asthma and increased respiratory symptoms. Contributes to particle formation with associated health effects.

Air Pollution

Sources of Air Pollution

Air pollution consists of gas and particle contaminants that are present in the atmosphere. Gaseous pollutants include SO₂, NO_x, ozone, CO, volatile organic compounds (VOCs), certain toxic air pollutants, and some gaseous forms of metals. Particle pollution (PM_{2.5} and PM₁₀) includes a mixture of compounds. The majority of these compounds can be grouped into five categories: sulfate, nitrate, elemental (black) carbon, organic carbon, and crustal material.

Some pollutants are released directly into the atmosphere. Other pollutants are formed in the air. Ground-level ozone forms when emissions of NO_x and VOCs react in the presence of sunlight. Similarly, some particles are formed from other directly emitted pollutants. For example, sulfate particles are formed from complex reactions in the atmosphere of SO₂ emissions from power plants and industrial facilities. Weather plays an important role in the formation of secondarily formed air pollutants, as discussed later in the Ozone and Particle Pollution sections.

EPA and states track direct emissions of air pollutants and emissions that contribute to the formation of key pollutants, also known as precursor emissions. Emissions data are compiled from many different organizations, including industry and state, tribal, and local agencies. Some emissions data are based on actual

measurements while others are estimates.

Generally, emissions come from large stationary fuel combustion sources (such as electric utilities and industrial boilers), industrial and other processes (such as metal smelters, petroleum refineries, cement kilns, manufacturing facilities, and solvent utilization), and mobile sources including highway vehicles and non-road sources (such as recreational and construction equipment, marine vessels, aircraft, and locomotives). Sources emit different combinations of pollutants. For example, electric utilities release SO₂, NO_x, and particles.

Figure 2 shows the distribution of national total emissions estimates by source category for specific pollutants in 2010. Electric utilities contribute over 60 percent of national SO₂ emissions. Agricultural operations (included in the “other processes” category) contribute over 80 percent of national NH₃ emissions. Almost 50 percent of the national VOC emissions originate from solvent use (included in the “other processes” category). Highway vehicles and non-road mobile sources together contribute approximately 60 percent of national CO emissions. Pollutant levels differ across regions of the country and within local areas, depending on the size and type of sources present.

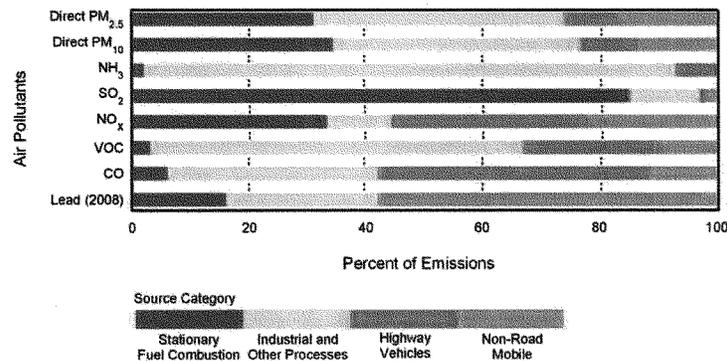


Figure 2. Distribution of national total emissions estimates by source category for specific pollutants, 2010.

Note: Lead emissions estimates are for 2008.

Tracking Pollutant Emissions

Since 1990, national annual air pollutant emissions have declined, with the greatest percentage drop in lead emissions. Direct PM_{2.5} emissions have declined by more than half; PM₁₀ and SO₂ emissions have declined by more than 60 percent, and NO_x and VOC emissions have declined by more than 40 percent. The combined emissions of the six common pollutants and their precursors (PM_{2.5} and PM₁₀, SO₂, NO_x, VOCs, CO, and lead) dropped 59 percent on average since 1990, as shown in Figure 3. This progress has occurred while the U.S. economy continued to grow, Americans drove more miles, and population and energy use increased. These emissions reductions were achieved through regulations, voluntary measures taken by industry, partnerships between federal, state, local,

and tribal governments; academia; industrial groups; and environmental organizations. This environmental progress has occurred while overall, the U.S. economy grew 65 percent, Americans drove 40 percent more miles, and population and energy use increased by 24 and 15 percent respectively. There was a noticeable decline in Gross Domestic Product between 2008 and 2009. There was also a notable reduction in vehicle miles traveled and energy consumed from 2007 to 2009. Factors likely contributing to these reductions include the nationwide spike in gasoline prices during 2008 and the economic recession that began in 2008. These indicators showed an increase in 2010. Figure 3 also shows total CO₂ emissions increasing by about 8 percent from 1990 to 2009 (<http://epa.gov/climatechange/emissions/usinventoryreport.html>).

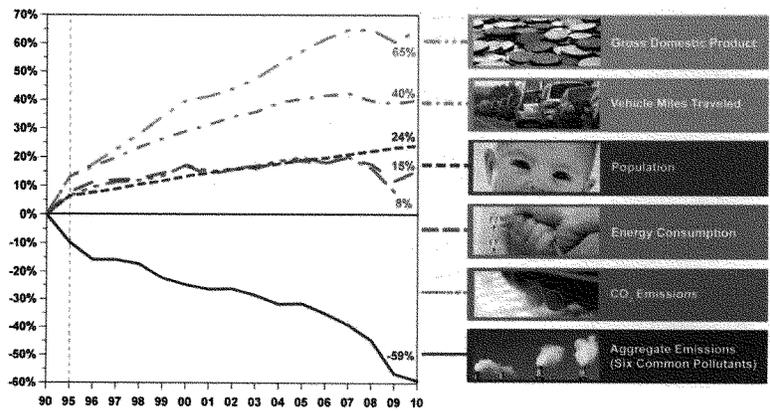


Figure 3. Comparison of growth measures and emissions, 1990-2010.

Note: CO₂ emissions estimates are from 1990 to 2009.



The Clean Air Act requires EPA to set national air quality standards for specific pollutants to safeguard human health and the environment. These standards define the levels of air quality that EPA determines are necessary to protect against the adverse impacts of air pollution based on scientific evidence. EPA has established standards for six common air pollutants, which are referred to as "criteria" pollutants: ozone (O₃), particle pollution (PM), lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), and sulfur dioxide (SO₂).

Trends in National Air Quality Concentrations

Air quality has improved continuously across the U.S.

since the Clean Air Act was amended more than two decades ago. The downward trend in air pollution has been especially evident over the past several years as shown in Figure 4. The record-low air pollution levels observed in 2009 were primarily the result of numerous national and local regulations that have sharply reduced emissions. Also, meteorological conditions favorable to lower air pollution levels and the economic slowdown likely also contributed to the relatively clean conditions in 2009. This downward trend in air quality concentrations is expected to have had profound health benefits for the American people.

Figure 4 shows the national trend in lead and the national trends in the other five criteria pollutants between 1990 and 2010, relative to their respective

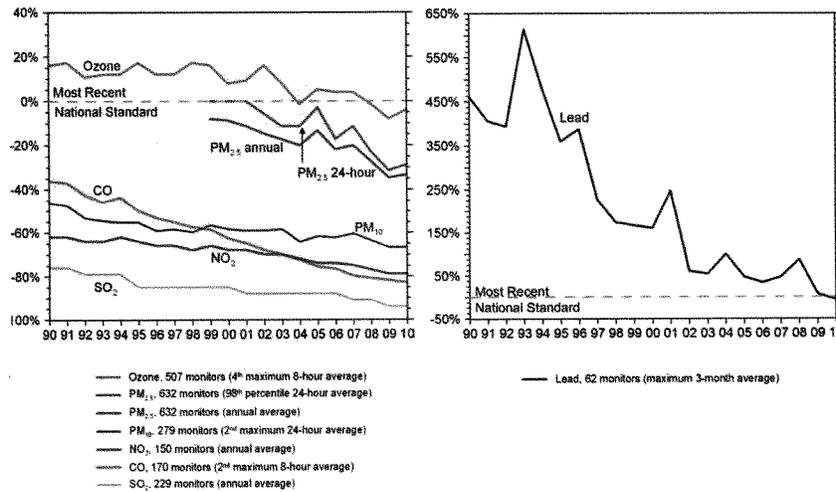


Figure 4. Comparison of national levels of the six common pollutants to the most recent national ambient air quality standards, 1990-2010. National levels are averages across all monitors with complete data for the time period. Note: Air quality data for PM2.5 start in 1999.

Six Common Pollutants

national ambient air quality standards. As noted above, most pollutants show a steady decline throughout that time period. For lead, there are significant year-to-year changes in lead concentrations largely driven by changes in lead concentrations at monitoring sites near stationary sources. These year-to-year changes reflect changes in operating schedules and plant closings. For ozone and particle pollution shown in Figure 4, the trends exhibit an even sharper decline over the past three to five years although meteorological conditions favorable to higher levels of ozone and particle pollution likely contributed to higher levels in 2010 compared to 2009.

Air Quality in Nonattainment Areas

EPA works collaboratively with state, local, and tribal agencies to identify areas of the U.S. that do not meet the national ambient air quality standards (NAAQS). These areas, known as nonattainment areas, must develop plans to reduce air pollution and attain the NAAQS. EPA tracks the progress these areas make to assure air quality continues to improve in places where improvements are most needed.

Consistent with national averages, air quality in nonattainment areas has also improved. As of 2010, there were no violations of the annual standards for

CO, NO₂, and SO₂. Figure 5 shows trends in average concentrations of ozone and particle pollution only in existing nonattainment areas with air quality exceeding one or more of these standards in 2010. Although many areas exceeded the level of the standard in 2010, there have been improvements in the levels of these pollutants in nonattainment areas since 2001. For example, between 2001 and 2010, ozone nonattainment areas showed a 9 percent improvement in ozone concentration levels. Figure 5 does not include all areas that are designated nonattainment for the pollutant shown. For more information on areas designated as nonattainment visit www.epa.gov/airquality/greenbook.

Despite these improvements, further reductions in air pollution are needed over parts of the country. EPA expects air quality to continue to improve as recent regulations are fully implemented and new measures are finalized. EPA periodically reviews and revises the national air quality standards as needed to protect public health and the environment. This means that although there is clear progress in reducing air pollution, and we expect that trend to continue, there may be a need to implement further control measures to meet new more protective air quality standards.

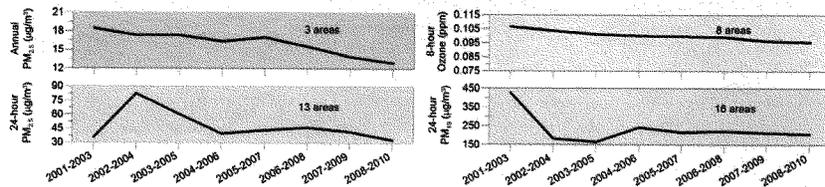


Figure 5. Air quality trends in nonattainment areas exceeding the ozone and particle pollution standards in 2010.

Six Common Pollutants

Trends in Unhealthy Air Quality Days

The Air Quality Index (AQI) relates daily air pollution concentrations for ozone particle pollution, NO₂, CO, and SO₂ to health concerns for sensitive groups and for the general public. A value of 100 generally corresponds to the national air quality standard for each pollutant. Values below 100 are considered satisfactory. Values above 100 are considered unhealthy – first for certain sensitive groups of people, then for everyone as the AQI values increase.

Figure 6 shows the number of days on which the AQI exceeded 100 for each of the past nine years at 35 select metropolitan areas. All areas experienced fewer unhealthy days in 2010 compared to 2009. Ozone and particle pollution are the primary contributors to unhealthy AQI days. Weather conditions, as well as emissions, contribute to ozone

EPA's Air Quality Index (AQI)



AQI Values	Level of Health Concern
0-50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy
301-500	Hazardous

<http://www.airnow.gov>

and particle pollution formation. Some areas in the eastern U.S. experienced more unhealthy days in 2010 compared to 2009, mostly due to weather conditions being more conducive to ozone formation in these areas in 2010.

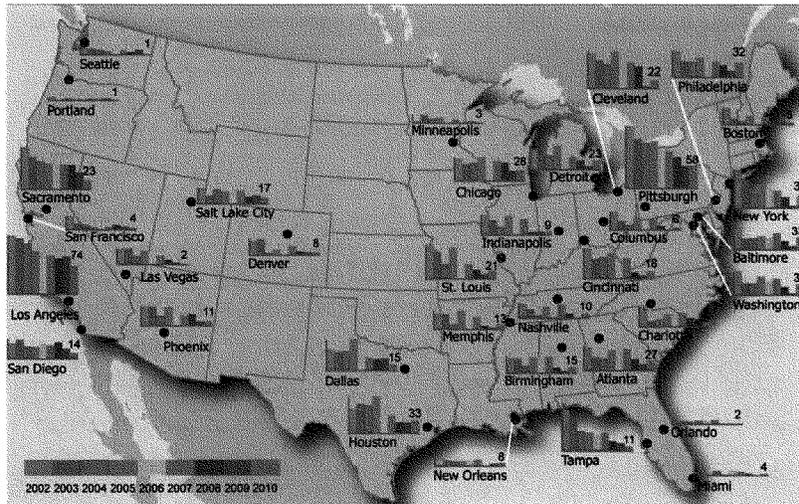


Figure 6. Number of days on which AQI values were greater than 100 during 2002-2010 in selected cities.



Trends in Ground-Level Ozone Concentrations

In March 2008, EPA strengthened the national standards for ground-level ozone, setting an 8-hour standard at 0.075 parts per million (ppm). Nationally, average ground-level ozone concentrations were 13 percent lower in 2010 than in 2001, as shown in Figure 7. The trend showed a notable decline after 2002. When comparing the three-year periods 2001-2003 and 2008-2010, approximately 82 percent of the monitoring sites recorded a significant decline (> 0.005 ppm) in ozone concentrations. Sites that showed the greatest improvement were in or near the following metropolitan areas: South Bend, IN; Buffalo, NY; Chicago, IL; Milwaukee, WI; and Cleveland, OH. Ozone trends can vary locally. One site may show increases in ozone levels while nearby sites show decreases.

Ozone

Figure 8 shows a snapshot of ozone concentrations in 2010. The highest ozone concentrations occurred in California. Note that the high concentration levels in Utah occurred in winter. Elevated wintertime ozone concentrations are most likely to occur when local sources of NO_x and VOC emissions are trapped in a snow-covered valley on a clear day with light winds. Nationally, approximately 24 percent of all sites measured concentrations above the standard of 0.075 ppm on four or more days in 2010.

Over the years, EPA has adopted a number of regulations that helped reduce ozone levels nationwide. Other recently adopted regulations will help to continue to make progress toward lower, healthier ozone levels. These regulations include:

- Coordinated steps to reduce power plant pollution
 - » NO_x State Implementation Plan (SIP) Call
 - » Acid Rain Program
 - » Cross-State Air Pollution Rule (CSAPR)
- Requiring other stationary sources to reduce pollution
 - » Aerosol, architectural, autobody, and miscellaneous coatings
 - » Consumer products
 - » Regional haze requirements
- Limiting emissions from mobile sources
 - » Light Duty Tier 2 Rule - new cars, SUVs, trucks and vans
 - » Heavy-Duty Diesel Rule on and nonroad
 - » Requirements for marine vehicles, and locomotives
- On December 30, 2011, the D.C. Circuit Court stayed the CSAPR rule pending judicial review. This decision delays implementation of CSAPR and leaves the Clean Air Interstate Rule in place pending the court's decision.

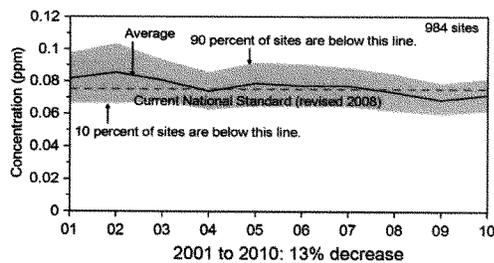


Figure 7. National 8-hour ozone air quality trend, 2001-2010 (average of annual fourth highest daily maximum 8 hour concentrations in ppm).

Ozone

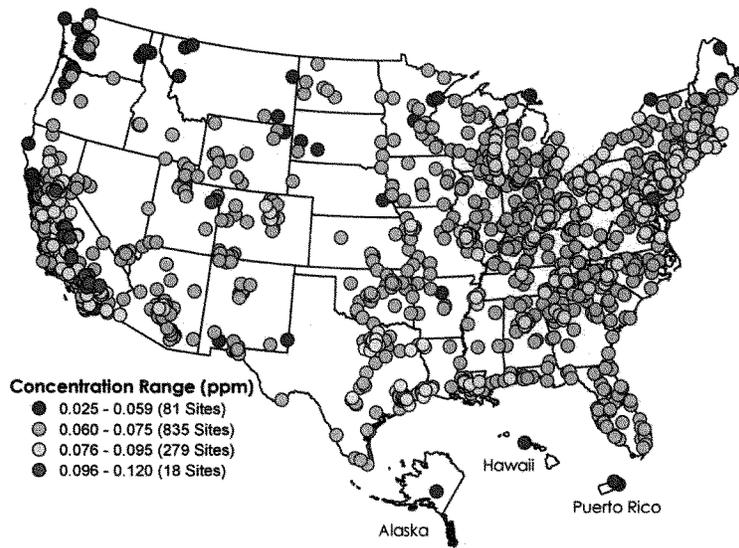


Figure 8. Ozone concentrations in ppm, 2010 (fourth highest daily maximum 8-hour concentration).

Weather Influences Ozone

In addition to precursor emissions, weather plays an important role in the formation of ozone. A large number of hot, dry days can lead to higher ozone levels in any given year, even if ozone-forming emissions remain unchanged. To better evaluate the progress and effectiveness of ozone precursor emission reduction programs, EPA uses a statistical model to estimate the influence of weather on ozone formation.

Figure 9 shows trends in average seasonal ozone levels from 2001 through 2010 across 180 selected sites, before and after adjusting for weather-related effects. For example, the summer of 2009 was characterized by cooler than normal conditions across much of the Eastern U.S., which contributed to less ozone formation and resulted in an upward adjustment to the ozone trend. By contrast, hot and dry conditions in the

Eastern U.S. during the summer of 2010 contributed to more ozone formation, resulting in a downward adjustment to the ozone trend.

Both the observed and adjusted ozone trends are characterized by a large decrease in ozone in the Eastern U.S. between 2002 and 2004. This abrupt decline in ozone levels coincides with the large reduction in NO_x emissions brought about by EPA's NO_x SIP Call program which began in 2003 and was fully implemented in 2004. Removing the effects of weather confirms that ozone levels have continued to improve across the U.S. in recent years due to emission reduction programs.

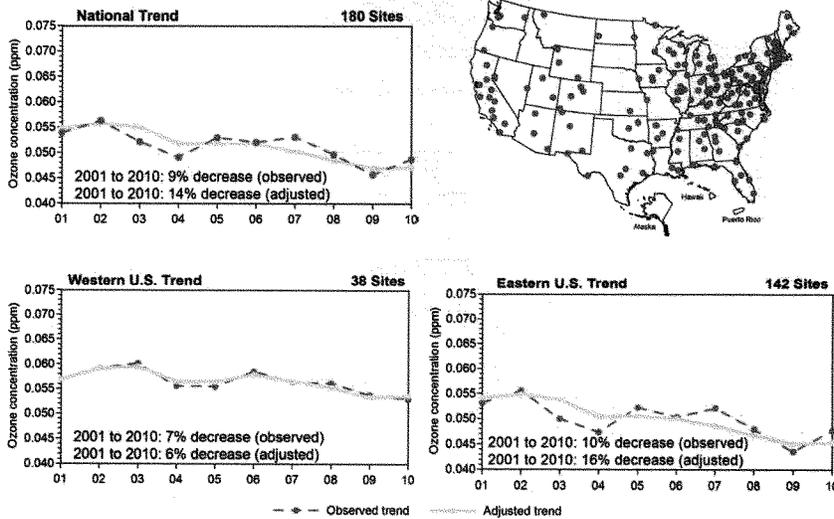
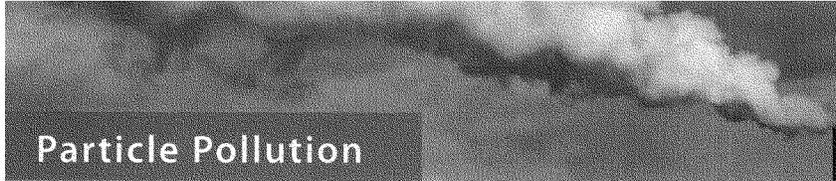


Figure 9. Trends in average summertime daily maximum 8-hour ozone concentrations in ppm (May-September), before and after adjusting for weather nationally, in western states, and in eastern states, (and the location of monitoring sites used in the averages).



EPA has set national standards to protect against the health and welfare effects associated with exposure to fine and coarse particles. Fine particles are generally considered to be less than or equal to 2.5 micrometers (μm) in aerodynamic diameter, or $\text{PM}_{2.5}$. Coarse particles are those between 2.5 and 10 μm in diameter. PM_{10} is the indicator used for the coarse particle standard.

Trends in $\text{PM}_{2.5}$ Concentrations

There are two national air quality standards for $\text{PM}_{2.5}$: an annual standard ($15 \mu\text{g}/\text{m}^3$) and a 24-hour standard ($35 \mu\text{g}/\text{m}^3$). Nationally, annual and 24-hour $\text{PM}_{2.5}$ concentrations declined by 24 and 28 percent, respectively, between 2001 and 2010, as shown in Figure 10.

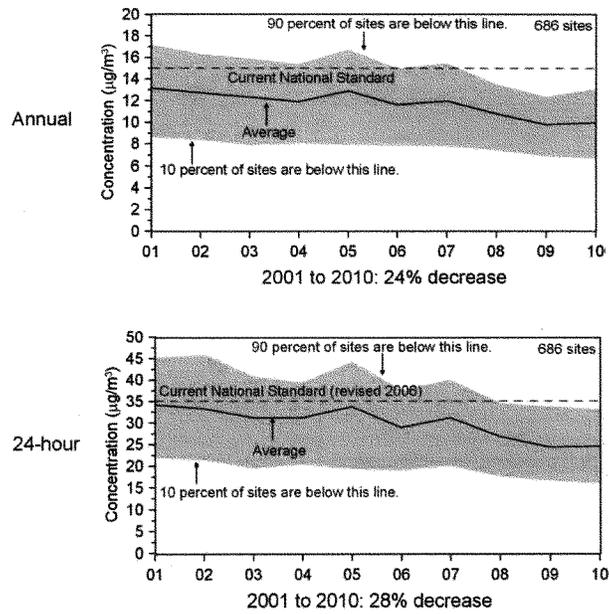


Figure 10. National $\text{PM}_{2.5}$ air quality trends, 2001-2010 (annual average concentration and 98th percentile of 24-hour concentration in $\mu\text{g}/\text{m}^3$).

Particle Pollution

In 2010, the highest annual average $PM_{2.5}$ concentrations were in California, Indiana, Pennsylvania and Hawaii, as shown in Figure 11. The highest 24-hour $PM_{2.5}$ concentrations were in California and Alaska.

Some sites showed high 24-hour $PM_{2.5}$ concentrations but low annual $PM_{2.5}$ concentrations. Sites that show high 24-hour concentrations but low or moderate annual concentrations exhibit substantial variability from season to season. For example, sites in the Northwest generally show low concentrations in warm

months but are prone to much higher concentrations in the winter. Factors that contribute to the higher levels in the winter are extensive woodstove use coupled with prevalent cold temperature inversions that trap pollution near the ground. Nationally, more sites exceeded the level of the 24-hour $PM_{2.5}$ standard than the annual $PM_{2.5}$ standard, as indicated by yellow and red dots on the maps below. Of the 6 sites that exceeded the annual standard and 43 sites that exceeded the 24-hour standard, 4 sites exceeded both.

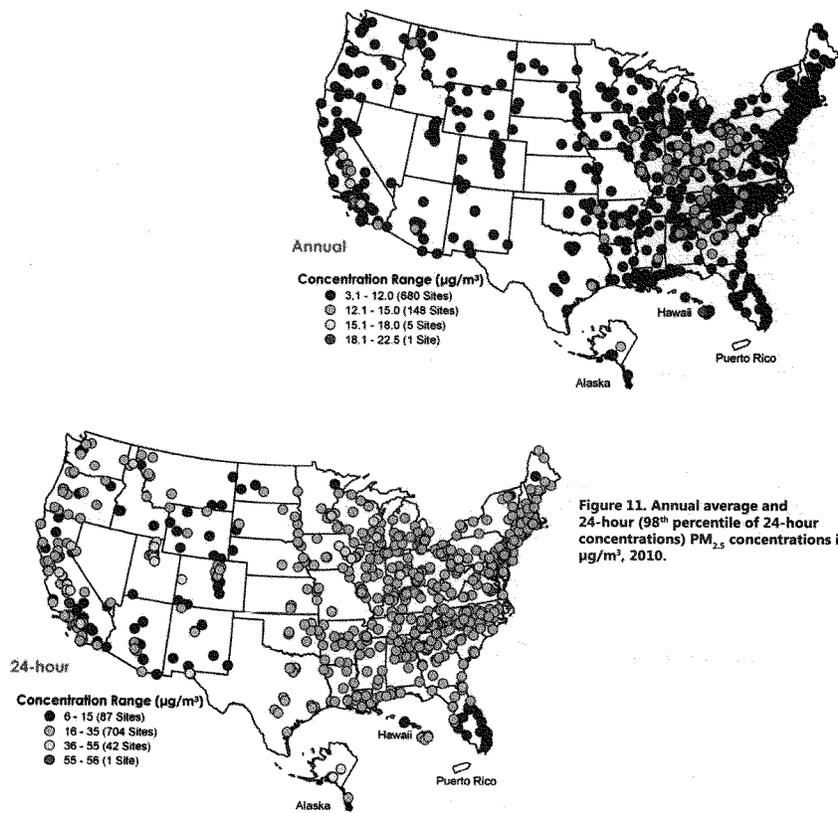


Figure 11. Annual average and 24-hour (98th percentile of 24-hour concentrations) $PM_{2.5}$ concentrations in $\mu\text{g}/\text{m}^3$, 2010.

Particle Pollution

Weather Influences PM_{2.5}

In addition to emissions, weather plays an important role in the formation of PM_{2.5}. PM_{2.5} tends to be dominated by different components at different times of the year (e.g. sulfates in the summer and nitrates in the winter), so the statistical model adjusting the PM_{2.5} trend for weather is split into a 'warm months' trend running from May to September and a 'cool months' trend encompassing the remaining months of the year. The two trends were combined to form the annual trend using a weighted average.

Figure 12 shows trends in PM_{2.5} from 2001 to 2010, averaged across 145 selected sites before and after adjusting for weather. The warm months trend is characterized by a large decrease in average PM_{2.5} between 2008 and 2010, while the cool months trend shows a slow but steady decrease in PM_{2.5} over the past decade. Overall, average PM_{2.5} concentrations in the U.S. have declined steadily since 2005 after removing the effects due to weather indicating improvement based on recently enacted emissions reduction programs.

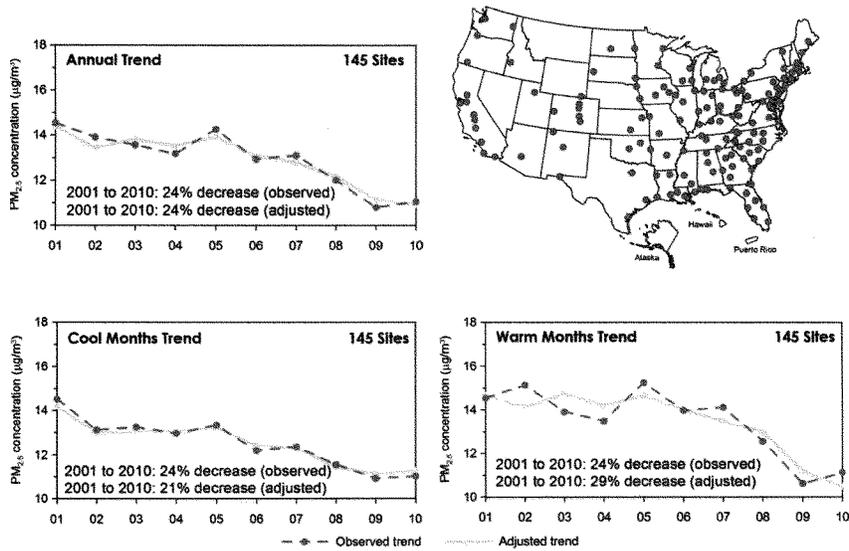


Figure 12. Trends in annual, cool-month (October–April) and warm-month (May–September) average PM_{2.5} concentrations in µg/m³ (before and after adjusting for weather), and the location of monitoring sites used in the average.

Particle Pollution

Trends in PM₁₀ Concentrations

Nationally, 24-hour PM₁₀ concentrations declined by 29 percent between 2001 and 2010, as shown in Figure 13.

Figure 14 shows that in 2010, the highest PM₁₀ concentrations were located in California, Utah, Colorado and New Mexico. However, within these same states some sites showed a decline greater than 50 µg/m³. Highest concentrations are largely located in dry and/or industrial areas with a high number of coarse particle sources.

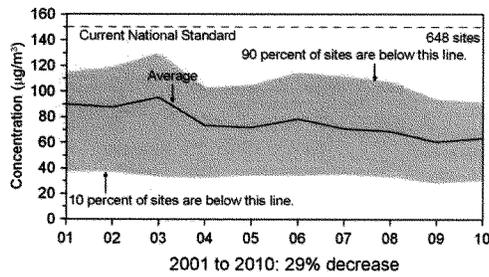
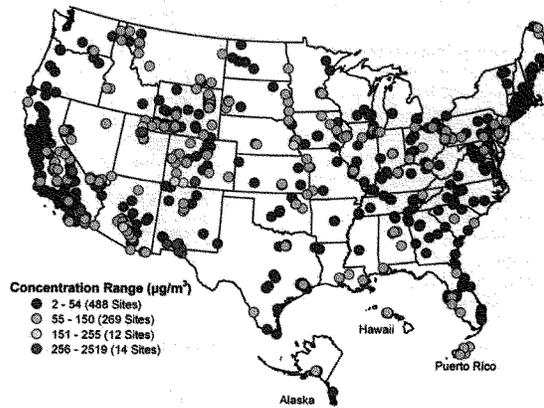


Figure 13. National PM₁₀ air quality trend, 2001-2010 (second maximum 24-hour concentration in µg/m³).

Figure 14. PM₁₀ concentrations in µg/m³, 2010 (second maximum 24-hour concentration).





Trends in Lead Concentrations

Concentrations of lead decreased approximately 71 percent between 2001 and 2010, as shown in Figure 15. Average concentrations are shown for 39 sites near large stationary sources and 63 sites that are not near stationary industrial sources. The typical average concentration near a stationary source (e.g., metals processors, battery manufacturers, and mining operations) is approximately eight times the typical concentration at a site that is not near a stationary industrial source. There are significant year-to-year changes in lead concentrations at sites near stationary sources; these reflect changes in emissions due to changes in operating schedules and plant closings. For example, national lead concentrations declined between 2001 and 2002, mostly due to lower lead concentrations at sites in Herculaneum, MO.

Figure 16 shows lead concentrations in 2010. Of the 196 sites shown, 34 sites exceeded the 2008 lead standard (0.15 $\mu\text{g}/\text{m}^3$). All of these sites are located near stationary lead sources. Also in 2010, EPA promulgated requirements for monitoring near additional stationary lead sources that are estimated to have 0.50 or more tons per year (tpy) lead emissions. Up to 270 new locations will be monitoring lead concentrations by the end of 2011 as a result of changes to the monitoring requirements made in 2008 and 2010.

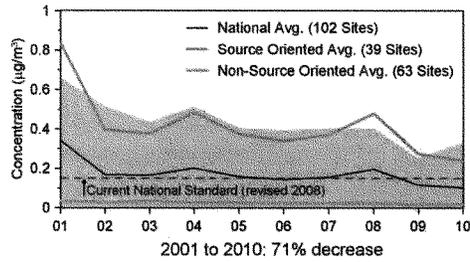


Figure 15. National lead air quality trend, 2001-2010 (maximum 3-month average in $\mu\text{g}/\text{m}^3$).

Note: 90 percent of sites are shown in the orange area.

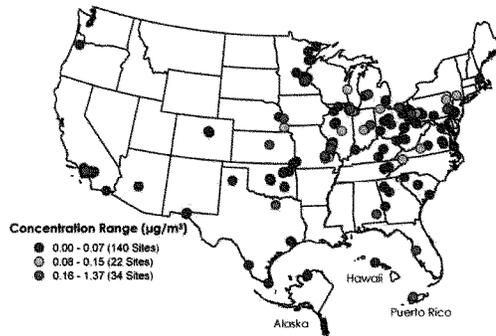


Figure 16. Lead concentrations in $\mu\text{g}/\text{m}^3$, 2010 (maximum 3-month averages).

Note: The number of sites in Figure 15 (102) differs from the number of sites in Figure 16 (196) due to differences in the requirements for lead data to be considered complete for each figure



Trends in NO₂, CO, and SO₂ Concentrations

Nationally, annual mean concentrations of NO₂ decreased 33 percent between 2001 and 2010, as shown in Figure 17. In 2010, NO₂ concentrations were the lowest of the ten-year period. All recorded concentrations were well below the level of the annual standard (53 ppb).

Nationally, concentrations of 8-hour CO decreased 52 percent between 2001 and 2010, as shown in Figure 18. In 2010, CO concentrations were the lowest in the past ten years. All concentrations were below the 8-hour standard (9 ppm) and 1-hour standard (35 ppm).

Nationally, annual mean concentrations of SO₂ decreased 50 percent between 2001 and 2010, as shown in Figure 19. In 2010, annual SO₂ concentrations were the lowest of the ten-year period. One site in Hawaii showed concentrations above the level of the annual standard (30 ppb) and four sites in Hawaii showed concentrations above the level of the 24-hour standard (140 ppb). These high measurements were probably caused by emissions from a nearby volcano.

Downward trends in annual NO₂, CO, and SO₂ are the result of various national emissions control programs. Even though concentrations of these pollutants are low with respect to national annual standards, EPA continues to track these pollutants because of their contribution to other air pollutants (e.g., ozone and PM_{2.5}) and reduced visibility. On August 12, 2011, EPA finalized the decision to retain existing primary CO standards.

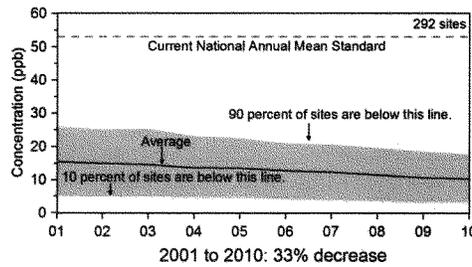


Figure 17. National NO₂ air quality trend, 2001-2010 (annual average in ppm).

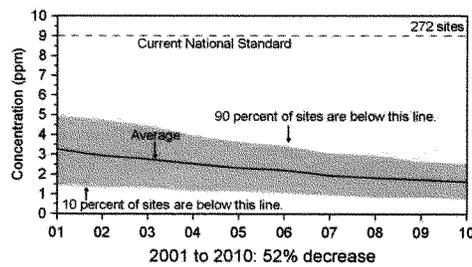


Figure 18. National CO air quality trend, 2001-2010 (second maximum 8-hour average in ppm).

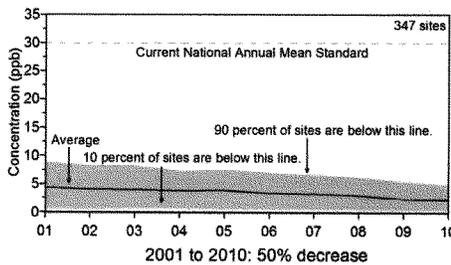


Figure 19. National SO₂ air quality trend, 2001-2010 (annual average in ppm).

NO₂, CO₂, SO₂

2010 NO₂ and SO₂ Standards

On January 22, 2010, EPA strengthened the health-based NAAQS for NO₂. This action did not impact the NO₂ secondary standard, set to protect public welfare. EPA set the new 1-hour NO₂ standard at the level of 100 ppb. The form for the 1-hour NO₂ standard is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations. EPA also retained, with no change, the current annual average NO₂ standard of 53 ppb. Although this new standard is a 3-year average, Figure 20 shows a snapshot of the 98th percentile of the 1-hour daily maximum NO₂ concentration for 2010 only.

On June 2, 2010, EPA strengthened the health-based NAAQS for SO₂. This action did not impact the SO₂ secondary standard, set to protect public welfare, which is currently under review. EPA replaced the existing annual and 24-hour primary SO₂ standards with a new 1-hour SO₂ standard set at 75 ppb to better protect public health by reducing exposure to high short-term (5 minutes to 24 hours) concentrations of SO₂. Although this new standard is based on a 3-year average, Figure 21 shows a snapshot of the 99th percentile of the daily 1-hour maximum SO₂ concentration for 2010 only. Note that Figure 21 shows that the highest daily 1-hour maximum SO₂ concentrations occurred at sites in the Upper Midwest and portions of the Northeastern U.S.

On July 12, 2011, EPA proposed action on the combined review of the secondary NAAQS for oxides of nitrogen (NO_x) and oxides of sulfur (SO_x). EPA sets secondary standards to protect against environmental damage caused by certain air pollutants. Consistent with the scientific evidence pointing to the interrelated impacts of NO_x and SO_x on plants, soils, lakes, and streams, EPA assessed the environmental effects of these pollutants together. Based on this scientific evidence, EPA is proposing to retain the existing secondary standards for NO_x and SO_x. The existing secondary standards are:

- NO_x: 53 ppb (parts per billion) averaged over a year; and
- SO_x: 0.5 ppm averaged over three hours, not to be exceeded more than once per year.

Also, EPA is proposing to establish an additional set of secondary standards identical to the new health-based primary standards the Agency set in 2010. The proposed new secondary standards would be:

- For NO_x: 100 ppb (parts per billion) averaged over one hour; and
- For SO_x: 75 ppb averaged over one hour.

For additional information on the proposed secondary standards visit www.epa.gov/air/nitrogenoxides/actions.html.

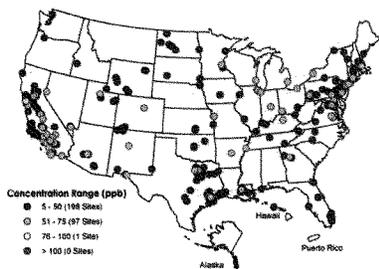


Figure 20. NO₂ concentrations in ppb, 2010 (98th percentile of daily 1-hr maximum).

Note: Typically the 1-hour standard is determined as the three-year average of the 98th (NO₂) or 99th (SO₂) percentile of the daily maximum 1-hour average; however, these maps only include one year (2010).

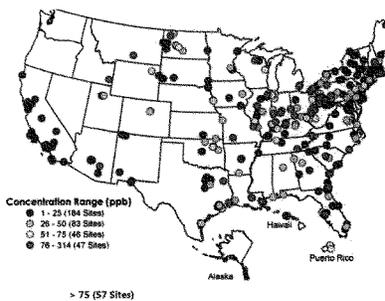


Figure 21. SO₂ concentrations in ppb, 2010 (99th percentile of daily 1-hr maximum).



Trends in Toxic Air Pollutant Concentrations

Under the Clean Air Act, EPA regulates 187 toxic air pollutants. Toxicity levels, or the potential for adverse effects on human health and the environment, vary from pollutant to pollutant. For example, a few pounds of a relatively toxic pollutant may have a greater health effect than several tons of emissions of a less toxic pollutant. EPA recommends a set of benchmark toxicity levels for estimating the effects of exposure to individual toxic air pollutants. For more information, visit <http://www.epa.gov/ttn/atw/toxsource/table1.pdf>.

EPA frequently relies on modeling studies to supplement air toxic monitoring data and to better define trends in toxic air pollutants. One such modeling study, the National-Scale Air Toxics Assessment (NATA), is a nationwide study of ambient levels, inhalation exposures, and health risks associated with emissions of 177 toxic air pollutants plus diesel particulate (assessed for noncancer only). NATA examines individual pollutant effects as well as cumulative effects on human health.

Figure 22 shows the estimated lifetime cancer risk across the continental U.S. by census tract based on 2005 NATA model estimates. The national average cancer risk level in 2005 is 50 in a million. Many urban areas as well as transportation corridors show a risk above the national average. From a national perspective, formaldehyde and benzene are the most significant toxic air pollutants for which EPA could estimate cancer risk. These toxic air pollutants contributed nearly 60 percent of the average individual cancer risk identified in the 2005 assessment. In addition to the census tract level ambient concentrations predicted by the NATA 2005, EPA also used the model to compare with monitored air toxics concentrations at over 1000 locations. When comparing modeling results to monitored data, a model-to-monitor ratio close to 1 for a particular toxic pollutant at a monitoring site indicates a high level of confidence in the modeling results for that toxic pollutant and monitoring site. Good agreement was seen between the model and monitors for the following pollutants: acetaldehyde, arsenic (PM_{2.5}), benzene, carbon tetrachloride, formaldehyde, methyl chloride and toluene. Results

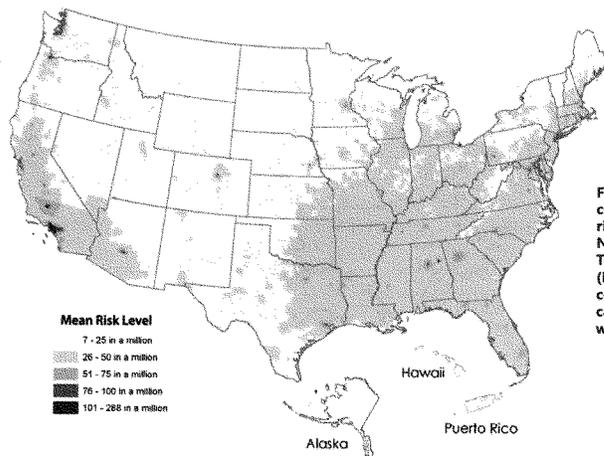


Figure 22. Estimated census-tract cancer risk from the 2005 National-Scale Air Toxics Assessment (NATA2005). Darker colors show greater cancer risk associated with toxic air pollutants.

Toxic Air Pollutants

of this model-to-monitor comparison can be found at <http://www.epa.gov/ttn/atw/nata2005/compare.html>.

Though not included in the figure below, exposure to diesel exhaust is also widespread. EPA has not adopted specific risk estimates for diesel exhaust but has concluded that diesel exhaust is a likely human carcinogen and ranks with the other substances that the national-scale assessment suggests pose the greatest relative risk to human health. For more information on NATA visit <http://www.epa.gov/ttn/atw/natamain>.

Since 2003, EPA, working with state and local partners, has nationally monitored air toxic pollutants through the National Air Toxics Trends Station (NATTS) program. The principal objective of the NATTS network is to provide long-term monitoring data across representative areas of the country for NATA priority pollutants (e.g., benzene, formaldehyde, 1,3-butadiene, hexavalent chromium, and polycyclic aromatic hydrocarbons [PAHs] such as naphthalene) in order to establish overall trends. During 2010, data were collected every one in six days at 27 NATTS sites as shown in Figure 23 (20 urban and 7 rural) for PM10 metals, VOCs, carbonyls, hexavalent chromium, and PAHs. In addition to the NATTS program, about 300

monitoring sites—operated by state, local, and tribal agencies—are currently collecting data to help track toxic air pollutant levels across the country. For more information on NATTS visit <http://www.epa.gov/ttn/amtic/natts.html>.

Figure 24 shows the trends from 2003 to 2010 in ambient monitoring levels for some of the important air toxic air pollutants. When the median percent change per year (marked by an x for each pollutant shown) is below zero, the majority of sites in the U.S. show a decrease in concentrations. Ambient monitoring data show that some of the toxic air pollutants of greatest widespread concern to public health, such as benzene, 1,3-butadiene, formaldehyde and several metals, are declining at most sites. Monitoring data shown in Figure 24 represent compilation of data from monitoring sites nationwide including data from the NATTS sites. Pollutants represented have at least a minimum of 40 valid trends sites with 35 percent of the data being measured at levels above monitor detection limits. Some pollutants which are more widely monitored such as lead and manganese may include data from several hundred sites which meet the 35 percent criteria. Some pollutants such as methyl



Figure 23. National Air Toxics Trends Sites (NATTS)

tert-butyl ether (MTBE) whose use was discontinued after 2006 are no longer being measured at ambient monitoring sites as the levels are very low. There are two chlorinated VOCs which appear to have increased slightly, dichloromethane (methylene chloride) which is commonly used as a solvent, and chloromethane which was once used as a refrigerant and is also naturally formed in the oceans.

Assessing Outdoor Air Near Schools

In March 2009, EPA released a list of schools that would be part of an initiative to understand whether outdoor toxic air pollution poses health concerns to schoolchildren. The monitoring took place at 65 schools in 22 states and 2 tribal areas. EPA selected the schools using a number of factors, including results from computer modeling analyses – the 2002 NATA, results presented in a newspaper series on air toxics at schools, and in consultation with state and local air agencies. The pollutants monitored varied by school. EPA identified pollutants to measure at each school based on the best available information about the pollution sources, potential air concentrations, and risk in each area. Initial monitoring was completed for all schools in May 2010. EPA posted monitoring results after data was quality-assured and intends to post final reports for each monitoring location as the information is analyzed. For the majority of schools, monitored concentrations have been lower than EPA's models predicted. However, additional monitoring will be conducted for a few schools for various reasons. As a follow on to the schools program, EPA issued a request in 2011 for proposals for grants for community-scale air toxics ambient monitoring projects. Through these grants, local air toxics concerns will be investigated by state and local agencies. For more information, visit <http://www.epa.gov/schoolair/>.

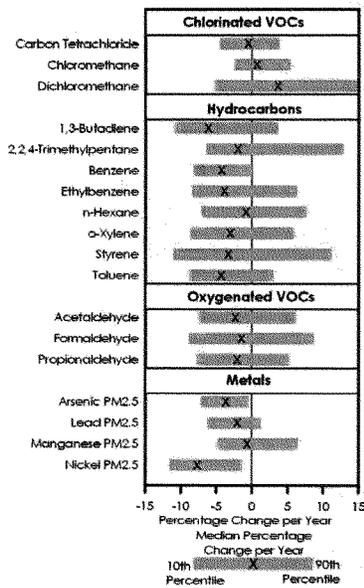


Figure 24. Distribution of changes in ambient concentrations at U.S. toxic air pollutant monitoring sites, 2003-2010 (percent change in annual average concentrations).



Climate Change and GHG Emissions Trends

Climate change and air pollution are closely coupled. Just as air pollution can have adverse effects on human health and ecosystems, it can also impact the Earth's climate. When energy from the sun reaches the Earth, the planet absorbs some of this energy and radiates the rest back to space as heat. The Earth's surface temperature depends on this balance between incoming and outgoing energy. Atmospheric greenhouse gases (GHGs) like carbon dioxide (CO₂) and methane (CH₄) can trap this energy and prevent the heat from escaping.

In 2009, EPA issued a finding under the Clean Air Act that GHGs constitute air pollution that threatens public health and welfare. The science supporting that finding allowed EPA to conclude that warming of the climate system is unequivocal, and that most of the observed increase in global average temperatures since the mid-20th century is very likely due to the anthropogenic increase in GHG concentrations (EPA, 2009). EPA has further concluded that there is compelling evidence that many fundamental measures of climate in the United States are changing, and

many of these changes are linked to the accumulation of GHGs in the atmosphere. Examples of these climate-driven effects include warmer air and ocean temperatures, more high-intensity rainfall events, and more frequent heat waves.

In collaboration with other government agencies, EPA tracks both GHG emissions (EPA, 2011) and indicators of climate change (EPA, 2010). Figure 25 shows trends in domestic GHG emissions over the past two decades. Total U.S. GHG emissions have increased 7.3 percent from 1990 to 2009. The majority of domestic GHG emissions result from electricity generation and transportation.

In January 2012, EPA released for the first time comprehensive greenhouse gas (GHG) emissions data reported directly from large facilities and suppliers across the country through the GHG Reporting Program. The 2010 GHG data includes public information from facilities in nine industry groups that directly emit large quantities of GHGs (e.g., power plants, petroleum refineries, landfills, etc.) as well as suppliers of certain fossil fuels. EPA's online data publication tool allows users to view and sort GHG

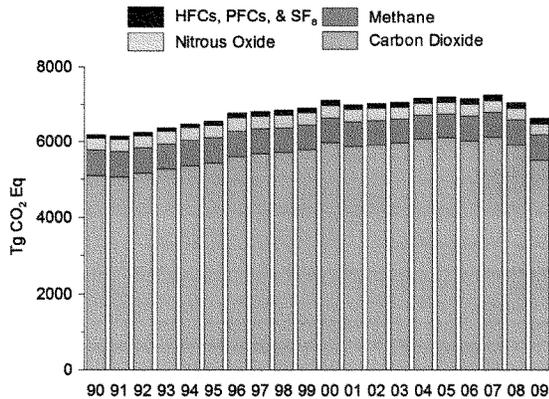


Figure 25. Domestic greenhouse gas emissions in teragrams of carbon dioxide equivalents (Tg CO₂ eq), 1990-2009. (EPA, 2011)

Notes: A teragram is equal to 1 million metric tons. Emissions in the figure include fluorocarbons (HFCs, PFCs) and sulfur hexafluoride (SF₆). CO₂ eq refers to the global warming potential (GWP) of each greenhouse gas (e.g., nitrous oxide) as compared to the GWP of CO₂ (EPA, 2011)

data from more than 6,700 facilities in a variety of ways; including by facility, location, industrial sector, and type of GHG emitted. This information can be used by communities to identify nearby sources of greenhouse gas emissions, help businesses track emissions and find cost- and fuel-saving opportunities, and provide information to the finance and investment communities. For more information, visit <http://epa.gov/climatechange/emissions/ghgdata>.

Climate Impacts of Air Pollution

Conventional air pollutants such as ozone and particle pollution can also contribute to climate change. Because ozone and particle pollution stay in the atmosphere for only a few days or weeks, reducing these emissions can help reduce climate impacts in the near-term.

Ozone is a significant contributor to climate warming, as shown in Figure 25. The climate impacts of ozone are greatest when the ozone is located in the upper part of the troposphere. Concentrations of ozone in this part of the Earth's atmosphere, sometimes referred to as "global background ozone," are determined by worldwide emissions of CH₄, CO, NO_x, and VOCs; as well as by natural processes like lightning and transport from the stratosphere. While ground-level ozone concentrations over the U.S. are generally declining, there is evidence that global background ozone levels continue to rise (Cooper, 2010).

Particle pollution can also have significant impacts on climate, both directly and indirectly. The direct effects come from particles' ability to absorb and scatter light. Different types of particles have different impacts on climate: some warm (e.g., black carbon); others cool (e.g., sulfates and nitrates). Black carbon, a component of soot particles, contributes to global warming by absorbing sunlight, thereby heating the atmosphere. When black carbon is deposited on snow and ice, melting accelerates. Black carbon's effects are particularly strong in the Arctic and other alpine regions. The direct effects of particles on climate are shown in Figure 25. Particle pollution can also have important indirect effects on climate. For example, particles can change the reflectivity of clouds and also indirectly influence cloud lifetime and precipitation.

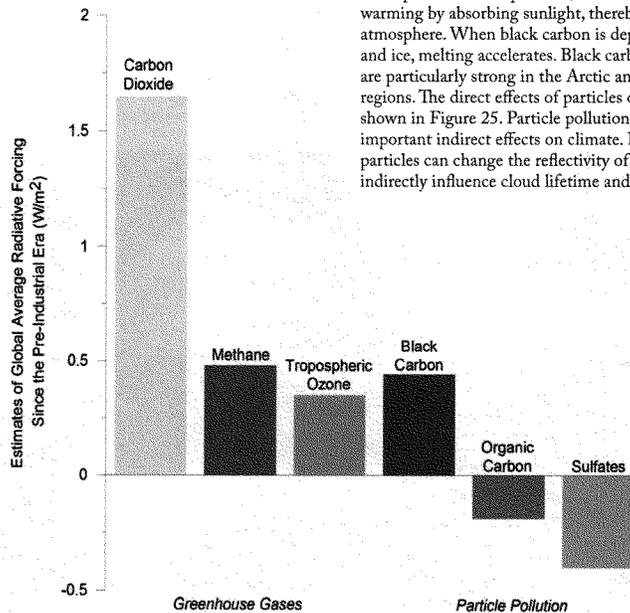


Figure 26. Estimates of global average radiative forcing (W/m²) resulting from changes in key climate-related air pollutants between the pre-industrial era and 2005. Data source: Forster, et. al., 2007. For additional information on the level of scientific understanding for key climate-related air pollutants see Forster, et.al., 2007.

Climate Change & Air Quality

The net effect for all particles in the atmosphere is cooling, as scattering generally dominates, though effects can vary dramatically by region (Forster et. al., 2007). While the health benefits of reducing all types of emissions contributing to particle pollution are relatively clear, the net climate impact of emissions reduction strategies will depend on the relative reductions in particles of different types.

Air Quality Impacts of Climate Change

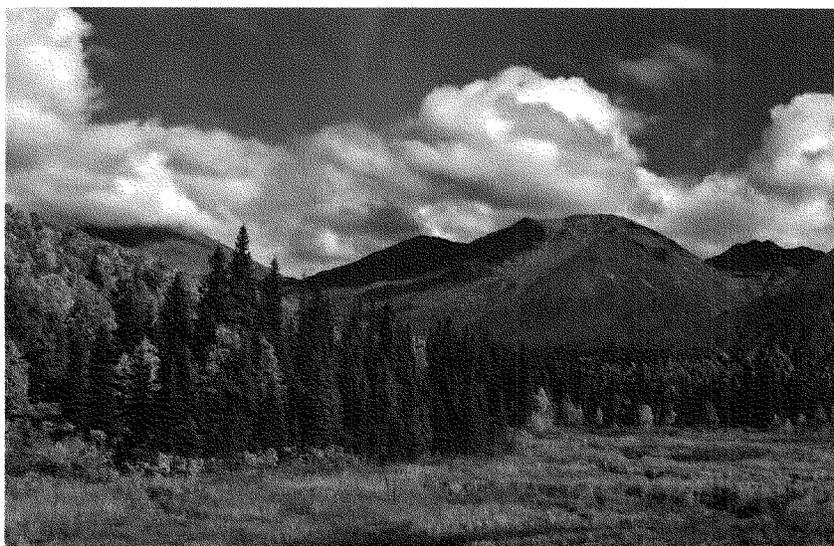
The close connection between climate and air quality is also reflected in the impacts of climate change on air pollution levels. As previously discussed, ozone and particle pollution are strongly influenced by shifts in the weather (e.g., heat waves or droughts). Based on projected future climate scenarios, and in the absence of additional emissions reductions, the Intergovernmental Panel on Climate Change (IPCC) projected “declining air quality in cities” into the future as a result of climate change. Further, EPA concluded in 2009 that GHG emissions “may reasonably be anticipated both to endanger public health and to endanger public welfare.”

This endangerment finding was based, in part, on the potential for climate change to worsen air quality over the U.S. and the accompanying public health impacts that would result.

EPA has concluded (EPA, 2009) that climate change could have the following impacts on national air quality levels:

- Produce 2-8 ppb increases in summertime average ground-level ozone concentrations in many regions of the country.
- Further exacerbate ozone concentrations on days when weather is already conducive to high ozone concentrations
- Lengthen the ozone season
- Produce both increases and decreases in particle pollution over different regions of the U.S.

Because climate represents meteorological conditions over a long period of time, it is difficult to identify a climate fingerprint in the current trends in air quality discussed earlier in this report. Given the general improvement in air quality over the past decade, it appears that emissions reductions from air quality regulations are outpacing any climate-driven impacts.





Terminology

AQI	Air Quality Index	NEI	National Emissions Inventory
AQS	Air Quality System	NH ₃	ammonia
BC	black carbon	NO _x	oxides of nitrogen
CASTNET	Clean Air Status and Trends Network	NO ₂	nitrogen dioxide
CFCs	chlorofluorocarbons	O ₃	ground-level ozone
CH ₄	methane	PAHs	polycyclic aromatic hydrocarbons
CO	carbon monoxide	PFCs	perfluorinated compounds
CO ₂	carbon dioxide	PM	particulate matter (particle pollution)
EPA	U.S. Environmental Protection Agency	PM _{2.5}	particulate matter (fine) 2.5 μm or less in size
GHG	greenhouse gas	PM ₁₀	particulate matter 10 μm or less in size
HFCs	hydrofluorocarbons	ppb	parts per billion
IPCC	Intergovernmental Panel on Climate Change	ppm	parts per million
NAAQS	National Ambient Air Quality Standards	SF ₆	sulfur hexafluoride
NAS	National Academy of Sciences	SIP	state implementation plan
NATA	National-Scale Air Toxic Assessment	SO ₂	sulfur dioxide
NATTS	National Air Toxics Trends Stations	μm	micrometers (microns)
		μg/m ³	micrograms per cubic meter
		VOCs	volatile organic compounds

Appendix

Websites

Background/General Information

Air Quality Index: <http://www.airnow.gov>
 Air Quality System: <http://www.epa.gov/ttn/airs/airsaqs/>
 Air Quality System Detailed Data: <http://www.epa.gov/ttn/airs/airsaqs/detaildata>
 Health and Ecological Effects: <http://www.epa.gov/air/urbanair/>
 National Ambient Air Quality Standards: <http://www.epa.gov/air/criteria.html>
 National Center for Environmental Assessment: <http://cfpub.epa.gov/ncea/>
 Office of Air and Radiation: <http://www.epa.gov/air/>
 Office of Air Quality Planning and Standards: <http://www.epa.gov/air/oaqps/>
 Office of Atmospheric Programs: <http://www.epa.gov/air/oap.html>
 Office of Transportation and Air Quality: <http://www.epa.gov/otaq/>

Climate Change

Climate change: <http://www.epa.gov/climatechange/>
 U.S. Climate Change Science Program: <http://www.climatescience.gov>
 Emissions and trends in greenhouse gases:
<http://www.epa.gov/climatechange/emissions/usinventoryreport.html>
 Intergovernmental Panel on Climate Change: <http://www.ipcc.ch>

Emissions and Control Programs

Emissions: <http://www.epa.gov/air/emissions/>
 NO_x Budget Trading Program/NO_x SIP Call: <http://www.epa.gov/airmarkets/progsregs/nox/sip.html>

Toxic Air Pollutants

2002 National-Scale Air Toxics Assessment: <http://www.epa.gov/ttn/atw/nata2002/>

Measurements and Trends

Air Quality Trends: <http://www.epa.gov/airtrends/>
 Air Trends Design Values: <http://www.epa.gov/air/airtrends/values.html>
 Clean Air Status and Trends Network: <http://www.epa.gov/castnet/>
 EPA Monitoring Network: <http://www.epa.gov/ttn/amtic/>
 Local air quality trends: <http://www.epa.gov/airtrends/where.html>
 National Core Monitoring Network: <http://www.epa.gov/ttn/amtic/ncore/index.html>
 Trends in ozone adjusted for weather conditions: <http://www.epa.gov/airtrends/weather.html>

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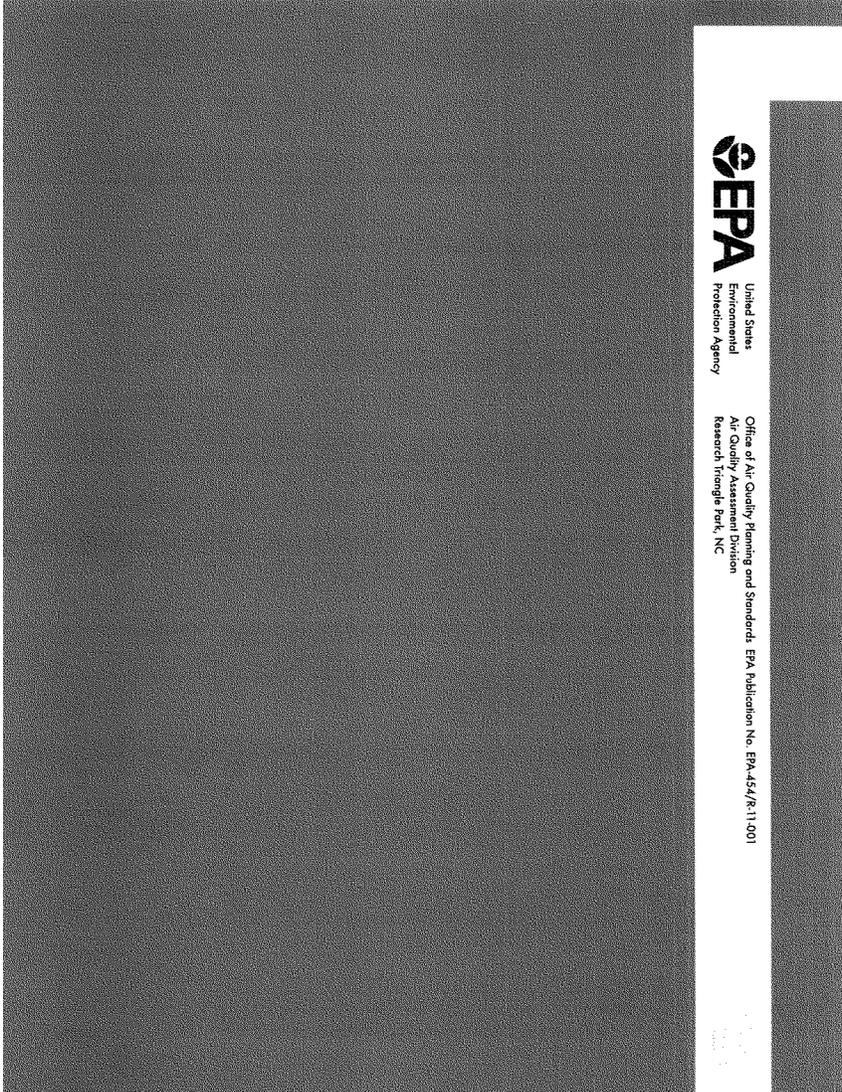
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U.S. Environmental Protection Agency, 2011. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009, EPA 430-R-11-005, Washington, D.C.



United States
Environmental
Protection Agency

Office of Air Quality Planning and Standards
Air Quality Assessment Division
Research Triangle Park, NC

EPA Publication No. EPA-454/R-11-001

Senator BOXER. Ms. McCabe, you said you would base all your decisions on science. Could you reiterate that?

Ms. MCCABE. Yes, absolutely, Senator Boxer. Our decisions are based on sound science, following accepted and peer-reviewed methodologies.

Senator BOXER. The issue has been raised that the rogue, crazy person who made believe he was a CIA agent, the catch me if you can guy, who is now in jail and has paid back money to the taxpayers, that in fact he was making all the clean air decisions over there.

Isn't it true that every decision is peer-reviewed and every rule is subjected to public comment before it becomes a rule?

Ms. MCCABE. That is absolutely right.

Senator BOXER. And that science is involved in all that?

Ms. MCCABE. Absolutely, it is.

Senator BOXER. At every step?

Ms. MCCABE. Every step.

Senator BOXER. Is it correct that the vast majority of public comments on the rules for new power plants, the vast majority of those are comments to limit carbon emissions from power plants? I understand the agency received over 2.5 million public comments, is that correct?

Ms. MCCABE. That is correct.

Senator BOXER. The vast majority supported EPA actions to limit carbon emissions?

Ms. MCCABE. There were many, many comments in support of those limitations.

Senator BOXER. Mr. Ehrlich, can you describe how your background—all of you gave beautiful opening statements—in the chemical industry gives you the qualifications to do this job? You mentioned you witnessed a horrible accident. Where and when was that?

Mr. EHRLICH. It was in Wyandot, Michigan, in 1978 or 1979.

Senator BOXER. What happened there?

Mr. EHRLICH. We had an explosion in a chemical plant that fatally injured my plant superintendent. I think one of the things that has been lacking, at least it was in my experience at this point in time, was information wasn't passed along basically from generation to generation, if you will.

I think that is a very important issue for the Chemical Safety Board. They have tremendous resources. They have tremendous information and it is important to get that information out to industry to people who are going to continue to work in the industry and make it a safer place to work.

If nominated, I really hope that is one of my assignments.

Senator BOXER. Yes, because we have so much information, for example, if the plant in Texas had had the right information.

Last question. Ms. Dunkin, EPA plans to use more electronic filing of monitoring reports and other documents to support EPA in the States' compliance. EPA and the States have had to do more with less these days and it is even more important than ever that agency staff and the public have access to monitoring reports to identify releases of toxic substances that may be harming people and the environment.

Will you work with the Office of Enforcement and Compliance Assurance to make sure that timely monitoring data is made easily accessible to the agencies, States and the public?

Ms. DUNKIN. If confirmed, it would be my pleasure to work with that organization.

Senator BOXER. We will follow up with you on that.

Senator VITTER.

Senator VITTER. I am going to defer to Senator Inhofe so he can get back to his other committee. I will follow Senator Inhofe.

Senator BOXER. OK, that is fine. Senator Inhofe has 8 minutes.

Senator INHOFE. If I can do an opening statement, can I have 5 minutes for questions?

Senator BOXER. You have 8 minutes. That is what your staff asked for, and that is what you were given.

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

Senator INHOFE. OK. I am going to talk to my staff then.

Ms. McCabe, it is good to see you again. Thank you for taking time to come to my office last week. I enjoyed our visit. We had some disagreements. I expressed grave concern over the EPA's distortion of the cost of regulation.

The cost of regulation is something that has to be considered. During the Obama administration, the agency regularly understated the cost and overstated the benefits of the EPA's rules so that it can get away with more expensive regulations that are actually allowed.

Now that we are 5 years into the Administration, we are starting to see the true impact of the President's and the EPA's war on fossil fuel. When you compare what has actually happened to what the EPA said would happen, it is quite startling.

With the utility MACT, for example, the EPA said it would result in the retirement of fewer than 10,000 megawatts of electricity generation. This is substantial in its own right if it is 10,000. Reality is proving it far worse.

In direct response to the EPA's rules, power generation companies have announced plans to shutter 51,000 megawatts of generation. Most of these would be closed down during the next 53 weeks as the compliance deadline for the utility MACT will arrive.

If this were not bad enough, the EPA in the new 2 weeks will go final with the 316(b) rule for water intake cooling towers according to the NERF. This rule is expected to take another 40,000 megawatts of electricity generation.

If you add that together, 51,000 and 40,000, that is 91,000 megawatts of electricity. Together the real world impact of these regulations is causing massive risk to our Nation's electricity reliability. In fact, one commissioner at FERC recently said we are likely to see rolling electricity blackouts during the summer months in just a few years. He went on to say this could very likely and will very likely happen the summer after next.

Everyone seems to agree these risks are being caused by the EPA. We all understand that. Rolling blackouts are coming and it is because of this Administration and its policies. The Administration is not stopping there. These figures are concerns and concerns

do not even take into account the new greenhouse gas regulations that EPA is rushing to enact.

The new source performance standards, NSPS, on new and existing power plants are going to make it economically impossible to maintain any diversity in our electricity and fuel supplies. This will make us even more vulnerable to supply shortages and to price shocks. To make matters worse, the Administration is making strides to regulate hydraulic fracturing and methane emissions from the natural gas production and transmission process which could further drive up the price of energy and electricity. This kind of regulatory onslaught is no way to run the machine called America.

During our meeting, Ms. McCabe, you told me that you were designing your regulations to give States flexibility as they begin to implement these policies. But the flexibilities allowed only point to renewable fuels, which are neither reliable nor affordable. Americans cannot run on renewables alone but that is where the war on fossil fuel leads.

The impacts we are beginning to see are extremely negative. The Administration and the EPA don't seem to care about that. The electricity affordability and reliability is no part of the EPA's thought process.

I made this commitment yesterday. I am going to have a Congressional Review Act and I am going to use that on every one of these regulations because the problem you have here is it all sounds very good here in this committee but when it gets down to it, the people who are elected need to be participating in the process.

You, Ms. McCabe, are able to do it. You are not elected, you are taking over and you are a very quality person. I have enjoyed working with you in the past but you are not elected and these guys are.

The CRA is an ability to make sure that people understand the penalties we pay for these excessive regulations, the cost in terms of money, in terms of employment and they can get involved in the process.

[The prepared statement of Senator Inhofe follows:]

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

Ms. McCabe, it is good to see you again. Thank you for taking time to come into my office last week. I enjoyed meeting you.

During our meeting I expressed grave concern over the EPA's systematic distortion of the cost of its regulations. During the Obama administration, the agency has regularly understated the costs and overstated the benefits of the EPA's rules so that it can get away with more expensive and onerous regulations than are actually allowed.

Now that we are 5 years into the Obama administration, we are starting to see the true impact of the President's and the EPA's War on Fossil Fuels. And when you compare what's actually happening to what the EPA said would happen, it's quite startling.

With the Utility MACT rule, for example, the EPA said it would result in the retirement of fewer than 10,000 MW of electricity generation.

This is substantial in its own right, but reality is proving to be far worse. In direct response to EPA rules, power generation companies have announced plans to shutter 51,000 MW of generation. Most of these will be closing down in the next 53 weeks as the compliance deadline for the Utility MACT rule arrives.

And if this were not bad enough, the EPA—in the next 2 weeks—will go final with its 316(b) rule for water intake cooling towers. According to the NERC, this rule is expected to take another 40,000 MW of electricity generation offline.

Together, the real world impacts of these regulations are causing a massive risk to our Nation's electricity reliability. In fact, one Commissioner of FERC recently said that we are likely to see rolling electricity blackouts during the summer months in just the next few years. What everyone seems to agree on is that these risks are being caused by the EPA.

So this is what is already happening. Rolling blackouts are coming, and it's because of the Obama administration.

But the Administration is not stopping there. These figures and concerns do not even take into account the new greenhouse gas regulations the EPA is rushing to enact. The New Source Performance Standards on new and existing power plants are going to make it economically impossible to maintain any diversity in our electricity fuel supply. This will make us even more vulnerable to supply shortages and price shocks.

To make matters worse, the Administration is making strides to regulate hydraulic fracturing and methane emissions from the natural gas production and transmission processes, which could further drive up the price of energy and electricity.

This kind of regulatory onslaught is no way to run this machine called America.

During our meeting, Ms. McCabe, you told me that you were designing your regulations to give States flexibility as they begin to implement these policies. But the flexibilities allowed only point to renewable fuels, which are neither reliable nor affordable. They may work in some scenarios and as part of our broader energy portfolio—but America cannot run on renewables alone. But that is the world where the War on Fossil Fuels leads.

The impacts we're beginning to see are extremely negative, but the Administration and the EPA do not seem to care. Electricity affordability and reliability clearly have no part in the EPA's thought process.

But this is something I want to change, and it's why I'm committed to using the Congressional Review Act on any significant EPA regulation that comes out until the EPA gets honest about the cost accounting it uses in its rules. Because if the agency is not going to be honest, then the EPA, the President, and the Members who support their policies need to own them, which in the Senate means up or down votes on whether to keep or get rid of the EPA's regulations.

Senator INHOFE. With that, I would ask you, Ms. McCabe, when the EPA put out its utility MACT rule, it estimated it would result in retirement of fewer than 10,000 megawatts at power plants. That was 2 years ago. Do you stand by that assessment?

Ms. MCCABE. Senator Inhofe, let me first say how much I enjoyed meeting with you the other day and look forward to working with you.

As I recall from that record, what was estimated as part of that record was that less than half of a percent of coal-fired generation would retire as a result of the MACT's rule.

Senator INHOFE. In spite of what they have said, a recent report concluded that 51,000 megawatts of generation as a direct result of this regulation and most of this will occur in the next 53 weeks, as I said in my opening statement, when you add to that the 316 rule.

FERC Commissioner Moeller recently said these reductions to our baseload electricity generation could result in rolling blackouts in the next few years. If we find ourselves in that situation of blackouts and you are in the position you own right now, will you admit that this the fault of the EPA and its regulations?

Ms. MCCABE. I am not familiar with the specific statistics that you are citing, Senator. I will tell you that we work very closely with the Department of Energy and with FERC.

Senator INHOFE. That's fine. This was 1977 or whenever it was the Clean Air Act was passed or the amendments, section 321(a) says the Administrator shall conduct continuing evaluations of po-

tential loss or shifts of employment which may result from the administration or enforcement of the provisions of this Act and applicable implementation plans.

You said in my office, when I read this to you—to me this is very specific—what is vague about this statement?

Ms. MCCABE. I don't think I suggested anything was vague about the statement, Senator. The agency does conduct ongoing reviews and inquiries into the expected impacts of the rules through the regulatory impact assessments that we do with every single rule.

Senator INHOFE. If you are doing that, you are doing it internally because nobody knows this is going on. Since you made that statement, let me ask this question.

I have a Senate bill, we now have quite a number of co-sponsors, that will put teeth in 321(a) because I don't believe you have been complying with this. The bill that we would have, the amendment I would have that we are going to try to get through would say you have to do it before you pass or bring forth any more regulations.

In other words, it puts teeth in it, says you have to do it. Would you support that?

Ms. MCCABE. I am not going to take a position on the bill, Senator, but I will tell you that through the rulemaking process, which is a public and open process, we do conduct economic analyses.

Senator INHOFE. If that is true, then why would you not want to support legislation that makes it a requirement because you may be gone some day and someone else may be in there and they may not be as cooperative as you are?

Senator BOXER. Senator Vitter.

Senator VITTER. Thank you, Madam Chair.

Let me briefly respond to some of the Chair's comments in her time.

First of all, the report she highlighted, I just want to point out, that half the time period covered by that report covers EPA under Republican leadership, so that report reflects EPA under half Republican and half Democratic leadership.

Second, let me ask Chairman Boxer's staff to hold up the smog poster. I just want to state for the record no Republican supports anything like that situation and certainly we have supported and will support regulations that always avoid that and reduce that sort of risk.

Third, let me point out that we are probably going to talk 99 percent of our time today about carbon and greenhouse gas issues that have nothing to do with smog and particulate matter, nothing at all. I just wanted to point that out.

I know a lot of political debate in Washington is pretty cartoonish, but I would hope that in the committee of jurisdiction for the EPA, we can get beyond that and talk about facts and substance in a meaningful way. That is what I am going to try to do.

Ms. McCabe, electricity reliability, yesterday, as I am sure you know, Administrator McCarthy noted that EPA needs to closely align with DOE and FERC when designing the greenhouse gas emissions proposal for existing power plants.

Last week, importantly, at FERC, there was a discussion about how the sizable increase in electricity demand in January was served mostly from coal-fired generation while natural gas genera-

tion actually declined. Have you reached out to FERC to discuss those findings since it is relevant to the greenhouse gas emission discussion?

Ms. MCCABE. We do communicate with FERC and with DOE on an ongoing basis about our rules.

Senator VITTER. Do you personally talk to FERC about this issue?

Ms. MCCABE. I have not personally talked to FERC about the issue to which you just referred.

Senator VITTER. Has your staff directly talked to FERC about their presentation last week and the consequences of that?

Ms. MCCABE. I don't know, Senator.

Senator VITTER. You can supplement the record on that.

Ms. MCCABE. Sure.

Senator VITTER. Do you agree that this scenario illustrates the need for additional sources of reliable energy in major quantities besides natural gas or electricity generation?

Ms. MCCABE. I agree that we need to pay close attention to making sure that we have reliable energy supply and that a diverse energy supply is important to this country.

Senator VITTER. Thank you.

I want to move to the Endangered Species Act. EPA's proposed NSPS rule will likely force a shift away from coal-fired energy toward many things that are much more land intensive sources of energy. In addition, things like wind have the potential to kill endangered species like the California condor.

According to Fish and Wildlife Director Dan Ashe, his agency has an obligation to consult when there are potential impacts to endangered or threatened species. Yet, EPA and his agency are not consulting on that NSPS rule. What are the specific legal and policy reasons behind EPA not consulting with Dan Ashe and his agency about that while consulting, for instance, on 316 rulemaking which would seem to have a much less serious potential impact?

Ms. MCCABE. I am familiar with the Endangered Species Act requirements. I want to emphasize that we are early in the process of this particular rulemaking. Before we finalize any rule under this program, we would make sure that we satisfied our obligations under the Endangered Species Act.

Senator VITTER. Would that include formal consultation, which has not yet been triggered, with Fish and Wildlife?

Ms. MCCABE. If that is determined to be required, Senator.

Senator VITTER. Why wouldn't that be appropriate given what I talked about, given the shift toward much more land intensive energy sources and wind which has consequences on birds?

Ms. MCCABE. I think as we move through the rulemaking process, we need to evaluate exactly what is required under the Endangered Species Act and that is what we intend to do.

Senator VITTER. Finally, on social cost of carbon, as you know we discovered last November that your office provided technical assistance for modeling on this ongoing effort. I have three related questions.

One, did you participate in the interagency working group? Two, did you sign off on any contributions made by your office, including the technical assistance and modeling provided? Three, in our con-

tinued effort to bring transparency to a process that seems very closed, would you commit to providing the committee with names and vitals of those in your office who participated or signed off on EPA's contributions to the development of the social cost of carbon estimates and if so, by what date?

Ms. MCCABE. I did not personally participate in those discussions. That is a process that is not run by the Office of Air and Radiation, nor by the EPA, so I am not in a position to commit to providing information about it but I will be glad to take that question back.

Senator VITTER. If you could answer the other parts of the question for the record, did you sign off on the work that did come out of your office related to this? Will you provide names, titles, participation levels of anyone out of Air and Radiation on this project?

Ms. MCCABE. I am sorry, I thought I caught most of the parts of those questions. I did not officially sign off in writing on participation. Certainly EPA scientists and technical experts do participate in various interagency workgroups, so I was aware of that. As I said, I would be glad to take back your request that we provide more specific information.

Senator VITTER. The request is specifically about your office.

Ms. MCCABE. I understand.

Senator VITTER. It is fully within your bailiwick. We are trying to understand this process which has been quite hidden, quite frankly. We just want to know who is in it and what their involvement was.

Ms. MCCABE. I understand your interest, Senator.

Senator BOXER. Senator Carper.

Senator CARPER. Thank you. Ms. McCabe, nice to see you. Thanks for visiting with me here recently.

I have been following the status of renewable fuel standards and our progress toward advanced biofuels. It is a matter of great interest to us in Delaware.

On November 15, 2013, last year, the EPA issued proposed renewable fuel volume standards for 2014. As you are well aware, these standards were supposed to be finalized I believe last year in 2013 before the compliance year begins. Recently, we heard these standards will not be out until June 2014, so I have a couple questions.

The first one is do you have a better idea today when new standards will be released? If in June, do you expect the industry will ask for additional time for compliance similar to what happened this year?

Ms. MCCABE. I do expect those rules will be finalized in June. As we said previously, we will certainly consider the needs for compliance time as we finalize those rules.

Senator CARPER. My question is, is this the new norm? Do you expect future rules to be implemented this late in the game?

Ms. MCCABE. It is very much our desire to be timely with the issuance of these rules. In fact, in this particular rulemaking, we laid out some alternatives to set up a more routine process. We understand that certainty and predictability is really important to the industry and would very much like to be able to get onto a path

where we are meeting those timely obligations in a routine way. Hopefully we will be able to lay out a more routine approach.

Senator CARPER. To my colleagues, to the extent that we want to make sure the industry, those who count on these rules actually being developed and promulgated, to the extent we can actually vet nominations and where they find favor, approve them, confirm them, we actually provide that certainty. I urge my colleagues to keep that in mind.

Staying on the subject, what has EPA done to increase transparency in the REN markets and does the EPA intend to do more?

Ms. MCCABE. We do provide information on our Web site and our data base about the REN market. We understand the interest in that. We have a rule working its way through the process that addresses inappropriate development and sale of REN, so we are very mindful of the need for greater transparency.

Senator CARPER. I am going to channel George Voinovich for a minute, our former colleague and Governor, and here on this committee for a number of years. George and I worked with a number of my colleagues, including Jim Inhofe, Democrats and Republicans on diesel emission reduction and legislation, one of our proudest accomplishments over the last dozen or so years.

I was encouraged by much of what was in the President's Climate Action Plan. However, I was surprised and in fact, disappointed to see what was not included and that is to support our efforts to reduce black carbon here at home.

Recent studies have shown, as I think you know, black carbon was the second most damaging greenhouse agent behind carbon dioxide. The most effective way to reduce black carbon is by cleaning up diesel emissions. Do you believe the Diesel Emission Reduction Act and other domestic clean diesel programs should be part of our strategy to address climate here at home?

Ms. MCCABE. These are very important programs for public health in this country. I agree.

Senator CARPER. Why didn't the Administration include it?

Ms. MCCABE. There were some very, very difficult choices that needed to be made in the President's budget this year, Senator Carper, and that unfortunately was one of them.

Senator CARPER. It was a bad choice. We are going to do everything we can to reverse that.

I want to ask you a question, Ms. McCabe, about reaching out to business. Since you have been at EPA, what have you done to make sure that all stakeholders are heard during the regulatory process, especially those that will be impacted the most?

Ms. MCCABE. This is extremely important. As I said in my opening statement, we can't make good decisions without having everybody at the table.

With respect to the power plant regulations we were discussing a minute ago, we have had over 300 meetings, even before a rule is out on the street, a proposal, to make sure that we are hearing from everyone.

I and my staff are very regularly in contact with stakeholders of all sorts, including business and industry on any rules with which we are proceeding and other programs because we do a lot in the

Office of Air and Radiation that is not regulatory to make sure that we have them at the table and that we are getting their good ideas.

Senator CARPER. Thanks so much.

Thank you, Madam Chair.

Senator BOXER. Senator Barrasso.

Senator BARRASSO. Thank you, Madam Chairman.

Ms. McCabe, I always have concern about loss of electric generation capacity in the country as a result of closures of coal-fired power plants. I don't know if you have done anything to evaluate in terms of what gets retrofitted versus what just closes in terms of energy generating capacity, will the decisions be made to retrofit, go to the expense of that versus just close a power plant based on greenhouse gases, ozone, mercury, whatever.

Could you give me an estimate of what electric generation capacity you think is going to get closed rather than retrofitted as a result of the EPA's new and proposed rules under the Administration?

Ms. MCCABE. We do pay a lot of attention and we have particularly in the mercury and air toxic standards. We consulted with those in the energy field to try to get a sense of what the effect would be on the industry. There are many, many things that go into a decision of a power plant closing.

Senator BARRASSO. Cumulative impact, though? Do you have an idea of what kind of generating capacity is going to be lost cumulatively for the country as a result of the rules and regulations?

Ms. MCCABE. In each rule that we do, we look at the impacts of that rule in the context of the rules that have gone before it.

Senator BARRASSO. Do you have any idea of the cumulative impact of what is being proposed and what has been proposed on actually closing electric generation for the country?

Ms. MCCABE. It actually would be very difficult to estimate the closures versus retrofits due to environmental regulations alone because there are so many factors that go into those decisions. I will tell you that the facilities we see making the decisions to close right now tend to be the older, less well controlled and less used power plants.

Senator BARRASSO. There is not an assessment of the overall loss of electricity generation potential.

The President, when he was running in 2008, talked about the issue of coal. Under his plan, he said electricity rates wouldn't necessarily skyrocket. I look at all the States where there are coal-fired power plants and the impact on people's electric bills. I guess the question is where is the same affordable and reliable replacement power for all of those folks who I worry about going into energy poverty in short term? If the coal-fired power plants close, what happens in this country?

Ms. MCCABE. Senator, this is a very important issue. As I mentioned in my opening, I come from Indiana where people rely on coal—90 percent I think of the State's power comes from coal.

Senator BARRASSO. That is what Senator Evan Bayh used to say, so it is important in Indiana, yes.

Ms. MCCABE. I am glad that I agree with Senator Bayh.

We looked at the expected effects on electricity costs when we did the mercury and toxic rules in consultation with DOE and other

agencies. We estimated that electricity prices might go up by 3 percent which is well within the range of normal fluctuations in electricity prices. This is an issue that we look at. It is in our regulatory impact assessment process so is open to public comment and review, as is every rule that we do.

Senator BARRASSO. The EPA stated in their proposed rule for new coal-fired power plants that carbon capture and storage for coal is commercially available. I strongly disagree. I believe as industry has stated, technology is not currently and may never be commercially available.

My question is, are you aware of any effort or have you participated in any conversations in your office to consider carbon capture and sequestration standards for new and existing natural gas-fired power plants?

Ms. MCCABE. When we put out the proposal under 111(b) for new power plants, we looked at the information that was available for both coal-fired and gas-fired power plants. We have to go through a very well established process to determine the best system of emission reduction. For the coal sector, because of the availability and use, in some cases for decades, of carbon capture and sequestration technology, we felt that it had been adequately demonstrated for the coal industry.

We did not find the same information available for natural gas which, as you know, is already much lower emitting.

Senator BARRASSO. Do you believe the technology is there for natural gas for carbon capture and sequestration?

Ms. MCCABE. I don't believe that we have a record to show that it is the best system of emission reduction as required under the law.

Senator BARRASSO. Thank you.

Thank you, Madam Chairman.

Senator BOXER. I am going to call on Senator Whitehouse but before I do, I am going to put a couple of things in the record I think Senator Barrasso would find interesting.

In December 2013, Michigan's DTE Energy announced it was lowering rates for retail customers by 6.5 percent in 2014 because of lower fuel supply costs. The average residential customer would see a savings of \$80 a year and business rates will drop.

AEP, American Electric Power, on January 14, proposed a rate reduction to Ohio customers beginning in the summer of 2015 because of falling prices for electricity in the wholesale market because of decreased demand.

It goes on and I will put the rest of that in the record.

[The referenced information follows:]

4/11/2014

DTE Energy customers to see lower rates in 2014



DTE Energy customers to see lower rates in 2014

David Muller | dmuller@mlive.com By David Muller | dmuller@mlive.com

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on December 20, 2013 at 1:11 PM, updated December 20, 2013 at 2:32 PM

DETROIT, MI - DTE Energy announced Friday it is lowering rates by about 6.5 percent for residential customers in 2014 thanks to lower fuel supply costs.

The average residential customer will see annual savings of about \$80, the Detroit-based utility said. Business customers' rates will drop by about 5.5 to 7.4 percent.

DTE said that an improved cost supply structure, such as more efficiency in drawing energy from wind power, is also helping to bring down customers' bills.



DTE Energy headquarters in Detroit.

File photo

DTE says it has an overall plan is to reduce both residential and commercial customers' rates by about \$300 million a year. That plan has been approved by the Michigan Public Service Commission.

"We are working hard to keep energy costs down for Michigan customers, and are pleased to offer this plan that will save customers money on their bills," Gerry Anderson, DTE Energy chairman, president and CEO, said in a statement. "We're pleased that the commission approved this plan, which has been made possible by the continued efforts and hard work of our employees to find savings by using continuous improvement, streamlining processes, controlling operating costs and deploying improved technologies."

DTE has about 2.1 million electric customers in Southeast Michigan, and 1.2 million customers for natural gas throughout the state.

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AEP plans rate drop in Ohio beginning in 2015



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By The Associated Press
Posted Jan. 5, 2014 @ 7:26 pm

COLUMBUS American Electric Power is proposing a rate reduction for Ohio customers beginning in the summer of 2015 — one the state's ratepayer watchdog says may not go far enough.

The utility expects its electricity rates to fall by as much as 9 percent over the three-year period starting in June of 2015, which adds up to a monthly savings of around \$9 per month for a typical household.

AEP's plan still needs approval from the Public Utilities Commission of Ohio. A decision is expected sometime this summer.

The lower rates are expected because of falling prices for electricity in wholesale market fueled by plentiful supplies and sluggish demand.

The Ohio Consumers' Counsel, who represents utility ratepayer interests, says the utility's rates are above market rates and would still be too high even with the reduction.

"There are 32 states that have residential electricity prices that are, on average, lower than electricity prices for consumers in Ohio," said Marty Berkowitz, a spokesman for the OCC office. "Of the four major Ohio electric utilities, AEP is one of the two utilities charging the highest rates to customers."

The office is still deciding whether the utility's proposal is enough of a decrease, he told The Columbus Dispatch.

AEP, based in Columbus, provides electricity in Ohio to 3.5 million customers mainly in central, southeastern, eastern and northwestern Ohio.

The company said its rate proposal would not lower bills for those customers who buy electricity from competitive suppliers who operate within AEP's territory. Those rates should stay the same over the three years, AEP said.

AEP also wants the utilities commission to allow it to continue charging customers a fee for maintaining its operations.

In addition, AEP proposed a temporary charge that would allow the company to cover the costs of unpaid bills through late payment charges for those who buy electricity from competitive suppliers.

Company spokeswoman Terri Flora told The Advocate newspaper in Newark that the idea would allow the company to offer budget or payment plans to those customers.

AEP could bill all of its utility customers if revenue from late payment charges does not cover the costs of the bad debt, Flora said. "We're not talking \$5 or \$10," she said. "We might be talking pennies."

Online:

American Electric Power: <http://www.aep.com>

<http://www.cantonrep.com/article/20140105/NEWS/140109758/10283/NEWS>

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- Van Houten, Sextuplets' Dad, Dies at Age 39
- Bob Saget Forbid Own Kids Watching 'Full House'
- Alec Baldwin Accused of Homophobia
- Katherine Heigl Sues for \$6 Million Over Tweet
- Study: Superbugs Spread by Cutting Boards
- Doctor Reveals Popular Foods Drenched in Cancer-Causing Chemicals
- Discover Your Risk for Heart Disease. Take the Test Now

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Senator BOXER. It is also important to note—as you defend coal which is your absolute right and I respect you totally for it—that the Koch Brothers said so much natural gas has been discovered from shale drilling that gas is very, very cheap now, so electricity from gas is cheaper than electricity from coal.

Jim Rogers, CEO of Duke Energy, said “The new climate rule is in line with market forces. Anyway, we are not going to build any coal plants. In any event, you are going to choose to build gas plants every time regardless of what the rule is.” There are other quotes backing that up. We will put that side by side with Senator Barrasso’s comments.

I will turn to Senator Whitehouse.

Senator WHITEHOUSE. Thank you very much, Madam Chair.

Ms. McCabe, I was encouraged to see that the carbon pollution standards for existing power plants have been sent to OMB. I believe that happened last week.

The Presidential memorandum on power sector carbon pollution standards instructed EPA to work with the States while formulating those standards. What can you tell us now—I understand it is over at OMB and the text of the bill has not been made public, the standards have not been made public—what can you tell us about how you have reacted to the instruction to work with the States while formulating these standards?

Ms. MCCABE. Since late last summer, I personally, as well as my staff and the Administrator, have had dozens and dozens of meetings, phone calls, conference calls and opportunities to discuss these rules with the States. It has been an incredibly helpful and fascinating process.

Actually there is a lot of commonality among what we are hearing from the States, even though there certainly are differences in State views about these issues. They are things like we need to make sure we provide as much flexibility in the rules as we can for States to develop their plans. Of course this is built into 111(b); it is all about EPA setting the national expectation but then States building a plan that can be suited to their particular State situations.

Having been a State regulator myself, I am very aware of the State’s role and responsibility and opportunity in that partnership, in that element of the Clean Air Act.

Senator WHITEHOUSE. If a State wished to step in, it could engage under these rules to reduce carbon in ways beyond simply what including plants could do in terms of reducing their emissions?

Ms. MCCABE. Many States are very forward looking right now in things they are doing to reduce the carbon intensity in their States. They would certainly be able, we hope, to write guidelines that will provide them as much flexibility as allowed by the law to pursue those sorts of things.

Senator WHITEHOUSE. When you are looking at the economic effects, you are allowed to look at economic effects, are you not?

Ms. MCCABE. That is right.

Senator WHITEHOUSE. When you look at the economic effects, do you look broadly at the economic effects with concern on the one

hand there may be some increases in power costs to individuals as a result of changes to different industries.

On the other hand, I was just in Iowa and they have, I want to say, 28 percent of their power coming from wind. They are manufacturing turbines at a company called TPI in Iowa. I think they have manufactured 100,000 blades. They are paying farmers thousands of dollars to locate the wind turbines on their farms. You can farm up to within 20 feet of them, so it doesn't interfere too badly with the farmer's use of his land for agricultural purposes.

These are local jobs in Iowa and they are important enough to Iowa that the Iowa legislature unanimously—not just bipartisan but in unanimous fashion—passed a resolution asking us to continue the production tax credits to help support this industry that is so important to Iowa.

Would those types of considerations come into your economic analysis as well, the local jobs, local industry and local economic growth that can be created when you move away from fossil fuels?

Ms. MCCABE. To the extent that there is data and that there are approved methodologies available for us to evaluate those sorts of impacts, we certainly will, Senator. I want to mention that those windmills are becoming more and more prevalent in my home State as well as you see across the corn fields.

Senator WHITEHOUSE. We hope they are going to be prevalent off the shores of Rhode Island fairly soon as well. We have some going in offshore.

My final comment to you is I would ask that you not be deterred from doing what is the right thing to do administratively under the theory that this should be handled by Congress and the Administration shouldn't act under its administrative authorities while Congress isn't acting legislatively.

I think, frankly, that is an unfair comment when people make that because the polluting industries have basically got Congress locked down. It is very hard to negotiate with somebody over a good carbon bill when they are pretending that carbon pollution doesn't cause climate change, when they are pretending that the 10 inches of sea level rise we have seen off Rhode Island isn't real or doesn't matter.

Until people are willing to come out of their bunker and say OK, this isn't real, let's negotiate, we are not going to get anything done. They shouldn't both stop negotiations in Congress and then tell you that you shouldn't act until Congress has taken this up. They are the ones who are causing Congress not to take it up. I hope you will go ahead boldly and follow the facts and science.

Thank you.

Senator BOXER. Senator, thank you so much.

Senator Vitter made a good point when he showed the great progress that the Clean Air Act has achieved—amazing, lives saved, working days saved, children's visits to the emergency room saved—since 1990 and the Clean Air Act amendments. Senator Vitter makes a point. Half of those were controlled by Republicans, half were controlled by Democrats.

It is true but I remember the days when this committee was led by a Republican, John Chafee, who was so pro-environment and

from Rhode Island. The environment was a bipartisan issue. It breaks my heart to see what has happened.

In this committee, when it is infrastructure, we are really on the same page and I am so grateful for that. We work very well together. On the environment, it is so difficult. I would argue to my friend that because it is no longer a bipartisan issue, things have changed.

I would put in the record an executive summary of a report that showed in the 112th Congress, the last Congress, there were 95 votes to undermine the Clean Air Act protections, including votes to repeal the health-based standards that are the heart of the Clean Air Act and block EPA regulation of toxic mercury and other harmful emissions from power plants. Those all passed.

[The referenced information was not received at time of print.]

Senator BOXER. Then in the 113th, and we are still in it, the House has voted 20 times to weaken the Clean Air Act. This has nothing to do with climate change. This is direct assault on the Clean Air Act. Unfortunately, we stopped it in the Senate and it didn't go anywhere. Even if it did, the President would definitely veto that. I am convinced of that. Just by the grace of God we have been able to stop the repeal of all the very important Clean Air Act. I won't even go into the Clean Water Act.

The last point I am going to make is this. My colleagues are very astute, and every time I show a picture of China—let's show it again—they point out what does this have to do with us? We don't want to do that. Of course they don't want to do that. It is the result of what they are trying to do to the Clean Air Act that would eviscerate it.

I remember in Los Angeles, we had 110 days, I think, a year of alerts. We had that there. I don't want to make it up; I want to show you the absolute truth—166 days in Los Angeles before the Clean Air Act kicked in, where you couldn't go outside and now it is zero. Now hold up the picture of China. This is not rhetoric, this is proven fact and science.

My friends always say whenever we talk about climate change that climate change has nothing to do with these kinds of air quality problems. I went back and looked at the endangerment finding which the draft was written by George Bush's Administration and passed by the Obama administration and upheld by the Supreme Court.

Listen to this. "Climate change is expected to increase regional ozone pollution with associated risks in respiratory illnesses and premature death." That is in the Federal Register, 66525. Then there is this one. "Climate change can affect ozone by modifying emissions of precursors, atmospheric chemistry, transport and removal. This is consistent. There is now consistent evidence from models and observations that 21st century climate change will worsen summertime surface ozone in polluted regions of North America compared to future with no climate change.

"In addition, there is an expectation there will be an increase in levels of ambient ozone leading to increased risk of morbidity and mortality from exposure to ozone."

All of these are the effects of climate. I hear this whole argument from my friends on the other side—climate change, that's carbon,

that doesn't hurt anything. Just read the science and the Supreme Court decision that said absolutely carbon is a pollutant under the Clean Air Act. As much as you want to, you can't separate dirty, filthy air from carbon because that is part of the problem.

I want to say to you because my time is running out, I don't have a lot of questions for the three of you and I will tell you the reason. I just think you are eminently qualified and I am proud of these nominations. I am proud of your motivation, each of you, in accepting this challenge. It is hard to put yourself out here, it is hard to be the recipient of some of these questions on both sides. We are tough, I admit that and part of your job is to respond and you have. You have responded with dignity and the facts.

Thank you very much.

With that, I will call on Senator Vitter.

Senator VITTER. I have just a brief rebuttal.

Chairman Boxer, again, I think to hold up the poster from China and suggest that result is a Republican agenda is absurd and it is completely irresponsible.

Senator BOXER. Let me correct the record.

Senator VITTER. Can I please have my time undisturbed as you did?

Senator BOXER. No, no, no. I will give you an extra 3 minutes.

Senator VITTER. And you will continually interrupt which is unprofessional.

Senator BOXER. I am not unprofessional.

Senator VITTER. You are interrupting me. I gave you uninterrupted time. It is my time to speak.

Senator BOXER. I am the chairman. You characterized my comments and when one person characterizes the comments, the other person has the right to rebuttal. I will give you an additional 3 minutes. You will have 8 minutes.

Senator VITTER. Uninterrupted? Will it be uninterrupted?

Senator BOXER. Yes, I will reserve my time for when you are done, if I have to respond, but I would urge you not to characterize what I said. I never said it was the Republican agenda.

Could you hold up the picture? What I said was, when you try to repeal 28 times various portions of the Clean Air Act, when you try to stop a rule that will cleanup coal-fired plants and that rule, by the way, isn't even done yet Senator McConnell is trying to repeal it before it is even put into place, you don't intend for this to happen. Trust me, the leaders in China didn't either. This is not good for them.

We have seen what happens when you don't have Clean Air Act protections in place. I never said it was part of the agenda; I said it would be a consequence of repealing all of these landmark laws.

Now I will turn it over to Senator Vitter for 8 minutes.

Senator VITTER. Uninterrupted, thank you.

Again, you are saying that poster is a consequence, that poster which is laughable is a consequence of Republican proposals. That is exactly what you said and that is ridiculous, cartoonish and irresponsible.

We just passed in this committee four environmental bills on a broad bipartisan basis. The graph you just showed of bad air days

declining in California in 1976 is under Republican national governance as much as Democratic national governance.

To talk about amendments to the Clean Air Act, yes, the Clean Air Act is, in fact, where the whole carbon debate is centered. That is the vehicle inappropriately, in our opinion, for this administrative onslaught. Yes, of course there are going to be proposals about the Clean Air Act. Nobody is trying to repeal the Clean Air Act. Folks are trying to move forward with the Clean Air Act according to its intention, in my opinion, and that agenda.

To suggest that somehow that is the same as smog and particulate matter and we are trying to repeal the Clean Air Act is just completely cartoonish. For the committee of jurisdiction to sort of dip that low to create a cartoon debate, I don't think serves anyone well at all.

Senator BOXER. You are done?

Senator VITTER. Yes, I'm done.

Senator BOXER. Is Senator Markey going to speak?

As long as I have some time, that photo is not a cartoon.

Senator VITTER. Thanks, Madam Chair.

Senator BOXER. You're welcome.

That photo is not a cartoon, it is the reality for people who live in a country where the environment has been thrown under the bus.

House Republicans even voted to rescind EPA's regulation to reduce emissions of sulfur dioxide and nitrogen oxide from power plants that cause ozone and particulate matter violations in downwind States.

People can walk out, it is their right. They can say I reached a new low by showing a picture that is clearly not made up or a cartoon but is reality, or a chart. They can do that but here is the deal. I am going to tell the truth and here is the deal, the truth.

I am reading from a report, Energy and Commerce Committee, House Republicans voted to repeal a rule that will prevent up to 34,000 deaths, 15,000 heart attacks, 400,000 cases of aggravated asthma, and 1.8 million lost work days each year and produce health benefits of up to \$280 billion annually, outweighing its estimated annual cost by as much as 350 to 1.

That is unbelievable. That is just one regulation, reducing emissions of sulfur dioxide and nitrogen oxide.

Senator Markey was over in the House through a lot of these votes. I know he knows what they are. This is real. Say what you want, colleagues, or leave, it doesn't matter. The facts are the facts and the American people want their air clean and they want their water safe. They don't want chemicals exploding.

I am sorry to say and reiterate what has happened in this country until the people demand it to change. The environment has become a partisan issue and it hurts me to say it because when I started in politics, it was totally a bipartisan issue. As a matter of fact, the leader in my home county was a Republican named Peter Behr who was a beloved senator, a State senator, whom I supported, who was the leader on a clean and healthy environment.

It saddens me that we have to face vote after vote, 28 times, 38 times, 48 times, environmental riders. It is wrong. I won't be intimidated.

Senator Markey.

Senator MARKEY. Thank you, Madam Chair, very much.

We welcome our nominees. You are each eminently qualified and we thank you for your willingness to serve our country in these enhanced roles.

Ms. McCabe, you worked up in Massachusetts over the years, and that is going to qualify you to be the one that can understand and translate Administrator McCarthy's Boston accent for the others at EPA. I think that is going to be a very important role for you.

Ms. McCabe, you have an important task before you in setting standards to reduce carbon pollution from power plants in the United States. I am confident that it can be done in a way which is good for the environment and good for the pocketbooks of the people in our country.

I am confident because of what I have seen happen in my own State of Massachusetts. There has been an 11 percent annual growth in the clean energy sector in the creation of jobs as the State has invested almost 90 percent of the proceeds from the regional greenhouse gas actions into energy efficiency, helping to make our State amongst the most energy efficient in the Nation.

In addition to working with States that primarily produce fossil fuels, will you also be working with States that are innovating new ways to cut carbon pollution while growing their economies as you craft new standards for carbon pollution with power plants?

Ms. MCCABE. We certainly will, Senator. You are absolutely right that States like Massachusetts are leaders on energy efficiency and other very innovative and positive ways to reduce the energy we use in ways that save people money.

Senator MARKEY. We are a small State but we now have 5,000 companies with 80,000 jobs in the clean energy sector in Massachusetts. Most of that is just in the last 5 or 6 years, tremendous growth and it reflects the innovation that can happen as we move to these new technologies of the 21st century.

I also wanted to focus on methane emissions from natural gas, which also impact the climate, public health and the energy bills of most Americans. I would just note for my Republican colleagues who have expressed concern that protecting people's health might increase the cost of electricity, that they should be concerned that exporting America's natural gas overseas will also raise electricity prices and harm the manufacturing resurgence and job growth America has been experiencing in the last few years.

The explosion in Harlem in March tragically underscored the threat that old natural gas distribution pipelines can pose. A report I released last summer found that gas customers in Massachusetts paid up to \$1.5 billion in extra charges from 2000 to 2011 because of the leaking gas pipelines.

The cost to consumers nationwide was in the tens of billions. Besides wasting money, this leaked natural gas, which is primarily methane, is a potent climate pollutant.

Ms. McCabe, the Interagency Methane Strategy that was recently released raises concerns about methane leaks on the distribution side of the natural gas system. Is that something the EPA will be looking at further?

Ms. MCCABE. Yes, in cooperation with the Department of Energy, which has significant responsibilities in these areas. The Office of Air and Radiation doesn't have as much responsibility on those particular aspects, but we will certainly be working with the Department of Energy on those issues.

Senator MARKEY. Finally, Ms. McCabe, just a quick comment on ongoing work at the EPA on bioenergy. In 2011, the EPA granted a 3-year exemption from regulation under the Clean Air Act for carbon emissions from bioenergy facilities. EPA then commissioned an expert panel of the Science Advisory Board to review the agency's proposed bioenergy carbon accounting framework.

They found that EPA's framework needed to account for the important ongoing role that forests play in sequestering atmospheric carbon dioxide and that we cannot automatically assume biomass energy is carbon neutral. Basically, you can't cut down a 150-year-old forest, burn it and assume there are no net carbon impacts.

In 2012, my home State of Massachusetts published final carbon accounting regulations using a methodology very similar to those recommended by the Science Advisory Board. I would encourage EPA to incorporate these key science-based recommendations into whatever new rules are established to govern carbon emissions related to bioenergy.

Ms. MCCABE. We will make sure to take a look at those.

Senator MARKEY. Thank you. I thank all of you so much for your service.

The planet is running a fever. There are no emergency rooms for planets, so we have to engage in the kind of smart, forward looking activities that help us to avoid the worst, most catastrophic consequences of global warming.

You are on the front lines of doing this but being smart as you are doing it. I think there is a way we can move forward that actually creates hundreds of thousands of new jobs in our country. I think that should be our goal.

I thank you, Madam Chair.

Senator BOXER. Senator, thank you so much.

Senator SESSIONS.

Senator SESSIONS. Thank you, Madam Chairman.

I have two additional committees at this very moment so it is a good panel and I appreciate you being here.

An abstract of a recent article linking climate change to extreme weather may be a powerful way to motivate people. The IPCC has tended to over generalize its research results and accentuate the negative side of climate change. This is somebody who supports the climate change agenda.

Taken together, considerable evidence suggests that the international mainstream media and pro-environmental organizations have the tendency to accentuate or even exaggerate the damage caused by climate change.

In this article, we suggest that information manipulation, which is generally overlooked in the literature, can be a novel and helpful mechanism for resolving the climate problem.

Ms. McCabe, it seems to me it says quite plainly, these are professors from Singapore, I believe, maybe not as politically correct and sophisticated in western concerns, but it seems to me that it

suggests what we have been seeing, an exaggeration of many of the complaints about global warming.

My question to you is do you believe this is justified? If you are confirmed to this important office, will you tell the American people resolutely the truth as it exists according to the best science that you have, yes or no?

Ms. MCCABE. I am not a climate scientist myself. I work with climate scientists and I will do my best to make sure that all of our programs and policies are based on the best available science that is thoroughly debated in the public.

Senator SESSIONS. Let me ask you this. Have hurricanes increased in intensity or number in the last 50 years around the world?

Ms. MCCABE. Senator, I am not familiar with exact statistics. I am aware that when the climate warms, which it is, that creates more energy in the atmosphere that can lead to more extreme weather events as well as droughts and wildfires.

Senator SESSIONS. That is a really good theory. That is what we are being told by the people that taxpayers pay to take high government office. That is what the President of the United States has said. I would agree.

However, Dr. Pielke testified at that table last year it is misleading and just plain incorrect to claim that disasters associated with hurricanes, tornadoes, floods or droughts have increased on climate time scales either in the United States or globally. In fact, the IPCC says "current datasets indicate no significant observable trends in global tropical cyclone frequency over the last century." Does that not dispute what you just told us?

Ms. MCCABE. Senator, I am not exactly familiar with what you are quoting from but there are numerous reports that have been put out by U.S. scientists, government scientists, and international scientists that have gone through extensive peer review.

Senator SESSIONS. So you are going to continue to insist that we have had more hurricanes over the last 50 or 100 years when the numbers are plain? They are accounted for worldwide each year and their intensity is accounted for and all you have to do is add them up. If you do that and it shows you are incorrect, will you acknowledge that?

Ms. MCCABE. Senator, the scientific evidence is out and available for the public for them to understand and use and talk to us about.

Senator SESSIONS. You are about to take this office. I asked you this question in private and you said, and said it again as I understand it in public, you believe that we have had more storms and more hurricanes.

Ms. MCCABE. I believe that the scientific record shows that over a long period of time and over broad geographic areas, there have been changes.

Senator SESSIONS. You dispute then the IPCC's recent finding that current datasets indicate no significant observed trends in global tropical cyclone frequency over the last century. That is the International Panel on Climate Change.

Ms. MCCABE. I can't speak to that exact quote, Senator, but I know that the IPCC has made many findings relative to the effects of climate change around the world.

Senator SESSIONS. I am just going to tell you. I am going to submit this in writing to you and if you continue to insist that we have had more hurricanes in the last century and that they have increased as a result of global warming and climate change, I don't see how I can support your nomination. I don't see how I can support somebody who believes they can advocate against plain fact.

My time is up. Thank you, Madam Chair.

Senator BOXER. Ms. McCabe, I didn't hear you say there were more hurricanes. I heard you say that it is a scientific fact that when the air warms, it can create more hurricanes. Am I right?

Ms. MCCABE. That's correct.

Senator BOXER. OK. Let the record show that.

Senator SESSIONS. That is not what she told me in the office. That is not what is being said publicly. This is a clever alternative.

I am going to ask you. Have they increased or not? That would be my question.

Senator BOXER. Let the record show I was interrupted by Senator Sessions and I didn't mind.

Here is the thing. There is a stark divide between the parties on environmental issues. If anyone doubts that, all they have to do is watch this committee when we take up the environment. It is laid bare here which I think is important. We shouldn't gloss over it or not respond to each other, so it is laid bare.

All three of you are going to be working to protect global health and the environment, you, Ms. Dunkin, in a little different way by providing information stats and such, but particularly Mr. Ehrlich and Ms. McCabe. I know that you are going to do the right thing when it comes to protecting public health and safety because you are going to pay attention to the science. Am I right on that, Ms. McCabe?

Ms. MCCABE. Absolutely, Senator.

Senator BOXER. Am I right on that, Mr. Ehrlich?

Mr. EHRLICH. Yes, ma'am.

Senator BOXER. Ms. Dunkin, when you do your numbers, you are going to do them objectively?

Ms. DUNKIN. Yes, ma'am.

Senator BOXER. OK. Here is the deal. Senator Sessions is extremely upset with some of the reports coming out and he cited two people in Singapore, which is his right. I would like to cite the leaders in America, my country.

The U.S. Global Change Research Program is an intergovernmental agency effort led by the National Oceanic Administration. I have never heard them being attacked by name, so let's be clear, the organization that is giving you, Ms. McCabe, this information on climate is the U.S. Global Change Research Program, not Singapore, not Pakistan, not France, it is the U.S. Global Change Research Program headed by NOAA, including in the interagency, the Department of Defense, the Department of Energy, NASA, the National Science Foundation and the Smithsonian Institute.

They all reached agreement on the following statement I will put in the record and read into the record. "Global change is happening now. Increases in population, industrialization and human activities have altered the world's climate, oceans, land, ice cover and ecosystems. In the United States, climate change has already re-

sulted in more frequent heat waves, extreme precipitation, wild fires and water scarcity.” The source is U.S. Global Change Research Program, Our Changing Climate, 2013, a NOAA-led effort.
[The referenced information follows:]

OUR CHANGING PLANET: THE FISCAL YEAR 2013 U.S. GLOBAL CHANGE RESEARCH PROGRAM

Since 1990, the United States Global Change Research Program (USGCRP) has developed and submitted an annual report, *Our Changing Planet*, to Congress describing the current state of the USGCRP and ongoing Federal research activities focused on global change. This Fiscal Year 2013 edition summarizes the Program's achievements, progress made, future priorities, and budgetary information. It thereby responds to the requirements of the U.S. Global Change Research Act of 1990 (GCRA; Section 102, P.L. 101-606) for an annual report on "Federal global change research priorities, policies, and programs.

The report highlights recent activities by 13 Federal agencies to strengthen our scientific understanding of global changes—including climate change—the threats and opportunities they present, and how they are likely to evolve over time. In addition, the *Our Changing Planet* report showcases tangible results of work carried out by USGCRP agencies, including, for example, some of the most detailed, data-rich maps of Alaskan permafrost ever generated; the most precise map ever produced of carbon stored in Earth's tropical forests; critical information about the number and magnitude of extreme weather events in the United States; and updated maps that help gardeners and growers plan for harvesting seasons.

The USGCRP is committed to building a knowledge base that informs human responses to global change through coordinated and integrated federal programs of research, education, communication, and decision support.

Senator BOXER. My colleagues can rant and rave about this all they want. They have every right to rant and rave. I rant and rave with them, too. That is fine. The facts are the facts and the fact is the leading voices in America are warning us.

This stark divide exposed today for all the world to see, which I think it is really important that the world see it, because the people don't believe it when I speak at conferences about what it is like over here, is very regrettable.

As I said before, it is totally different from when I got into politics. My first elected office was in 1976, I hate to say that, it was so long ago. It is ancient history and the young people are thinking, is she really that old? The fact is environment used to be bipartisan. It was wonderful. You could disagree on 50 other things but you came together because we all breathe the same air, a Republican, a Democrat, an Independent, a Green, anybody. We breathe the same air and drink the same water. We need the protections.

I just wanted all three of you to know I am sorry you had to be subjected to this difficult hearing. Because it was difficult, but I think it is healthy and important that people speak from their heart, wherever that leads them, and that people lay out what the differences are because the American people need to understand it.

I hope the young people who were here, I don't know where you come down on the issue of the environment, but I hope you will look into this more. I hope it will motivate you. If you feel that we need action on climate change, I hope you will push forward on that. Do something about that. Exercise your rights to make sure you breathe clean air and drink clean water.

By the way, if you are on the other side, and you want to see these laws repealed, exercise that right. I hope you won't, but it is your right, for sure.

In California, we are going through this horrific drought. Our leaders in California say it is related in fact, most of them, some of them say they are going to wait and see, but I will tell you this. It is hurting our State. Thank goodness we had a few major storms in the last couple of weeks. It was really rare to see this rain late, but everything is changing.

There are very serious consequences to the economy, to people's health, to certainly our farm economy, our Silicon Valley people, and of course, our water users, our consumers. Eighty percent of our water is used for agriculture because we are the breadbasket in California, freely a lot more than the country, and in many ways, the world.

It is a tough time but there are things we can do, but we can't do them if we keep on fighting over the very fact that climate change is here as our own leaders are telling us. Our Supreme Court said, this Supreme Court that is a tough court for progressives, that in fact carbon pollution is covered under the Clean Air Act. It took 8 years to get that decision.

I want to thank all of you for being here. The three nominees, you are great. I am going to do everything I can in my power to get you confirmed. Even though I know we will have a few opponents, I think we can get this job done because we need you in your jobs.

Thank you very much.

We stand adjourned.

[Whereupon, at 11:45 a.m., the committee was adjourned.]

[The following statements were submitted for the record:]

STATEMENT OF HON. BENJAMIN L. CARDIN,
U.S. SENATOR FROM THE STATE OF MARYLAND

Madam Chairman, thank you for holding today's hearing to fill three critical positions within our Federal Government. I want to welcome the nominees to the committee. I greatly appreciate your willingness and interest to answer our President's call to serve, and I wish you the best of luck and speed with your confirmations.

EPA's Office of Air is of critical importance to fulfilling the mission of the Federal agency responsible for keeping our communities safe and healthy from pollutants emitting into our environment. There was a time not too long ago that smog congestion in our cities was so bad you taste it in the air. There were summer days in this city and its surrounding suburbs, which I represent, that children and the elderly were advised to stay indoors because ground level ozone would reach such high and unhealthy levels.

Because of the Clean Air Act, the frequency of bad air days has diminished significantly, and as I'm sure the chairman can attest to, you can actually see the sky again in L.A.

The debates we have in this committee over the efficacy and stringency of these laws clearly demonstrate that some take this progress for granted.

I for one don't take it for granted. The Maryland Department of Environment reports that between 2001 and 2005 the State only achieved good to moderate air quality for 84.6 percent of the year, with the majority of the 15.4 percent of those bad air days occurring in summer when the heat is a major contributing factor to ground level ozone. Compare that to 2011, one of the hottest years on record, and yet despite the incredible heat that exacerbates bad air days, the percentage of bad days on the year was just 8.8 percent.

So my message to Ms. McCabe is that I certainly appreciate the work EPA is doing to protect Americans from harmful air quality.

I also want to encourage the nominee to keep working hard to finalize rules to address power sector sources of carbon pollution under the authorities of section 111 of the Clean Air Act. If Congress lacks the will to act on the greatest threat to our environment, and given the Court's decision in *Massachusetts v. EPA*, than I believe EPA must act to regulate carbon pollution.

I also want to thank Ms. McCabe for our conversation the other day on the Renewable Fuel Standard. We discussed my efforts to reform the law and my interest in EPA's revising its proposed 2014 RVO for advanced biofuels. I really appreciate her listening to me and having her commitment to work with me to address my concerns.

Last, Mr. Ehrlich, I want you to know that January's chemical spill in central West Virginia shined a clear spotlight on the importance of the Chemical Safety Board. I want to know how you will work to make the CSB more effective in protecting public safety from such incidents and situations in the future.

STATEMENT OF HON. DEB FISCHER,
U.S. SENATOR FROM THE STATE OF NEBRASKA

Thank you, Chairman Boxer and Ranking Member Vitter, for holding today's nominations hearing. Thank you, nominees, for being here and for your willingness to serve the public. I appreciate the opportunity to share with you the concerns of my constituents.

EPA's work is of great consequence to our country and to my home State of Nebraska—impacting everything from agricultural practices to energy production. I take very seriously my responsibility as a U.S. Senator to review and consider these nominations.

A clean and healthy environment is important to us all. Over the past several decades, we have made great strides in improving our air and water quality and protecting our natural resources—while still growing our economy. In Nebraska, farmers and ranchers are growing more food and fiber in an increasingly responsible and sustainable manner. Our public power utilities are serving more customers than ever while reducing emissions. Businesses are innovating to provide better goods and services to enhance quality of life, as they maximize efficiencies and reduce their environmental footprint.

As I travel around Nebraska, pleas for regulatory relief come from families facing higher electricity bills, businesses and utilities confronting the compliance costs of

new rules, and producers who are frustrated with a bureaucracy that simply does not understand the nature of their business.

I am concerned about the increasing cost of compliance with environmental regulations for Nebraska's public power utilities. Today, advanced pollution control equipment can account for up to 25 percent of the cost to build a new power plant. Nebraska utilities have spent tens of millions of dollars complying with air emissions regulations, and these costs are expected to continue to rise. These regulations lead directly to increasing electricity prices and the monthly bills of all Nebraskans.

Nebraska utility providers work hard to provide low cost electricity that is clean and reliable. We rely heavily on coal-fired generation because for now it remains the least expensive way to generate electricity. The barrage of current regulations as well as those being proposed under the Clean Air Act will likely cause Nebraska's utility producers to close some of our coal-fired power plants because of the cost to bring them up to the new emissions standards.

Because greenhouse gas emissions are global in nature, we must examine what benefit we are seeking by limiting American utilities' choice of power generation technologies. We know that strict measures will drive up electricity costs and customers' monthly bills and jeopardize energy reliability. The people of the United States deserve affordable energy from our domestic energy producing natural resources.

While EPA routinely claims benefits in excess of the regulatory costs, the benefit estimates are speculative at best. We simply must have more transparency and accountability when it comes to the underlying scientific justification of these rules.

The people and public power utilities in Nebraska are poised to work with EPA to make reasonable and cost-effective changes that result in meaningful environmental improvements. What we cannot tolerate, however, is a lack of transparency, secret scientific findings, a failure to consider economic impacts, and increasing regulatory uncertainty.

We must work together to pursue a path forward that continues both these environmental and economic achievements, one that encourages meaningful environmental improvements without stifling economic growth.

I am hopeful that we can continue to make progress on these issues. Ms. McCabe, Ms. Dunkin, and Mr. Ehrlich, thank you again for being here today. I look forward to your responses about how we can work together to address these important objectives.

