John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

Testimony of Craig Butler
Director of Ohio EPA
Before the Energy Mandates Study Committee
February 5, 2015

Good morning, Chairman Balderson, Chairman Roegner, members of the committee. I appreciate the opportunity to provide testimony to the Energy Mandates Study Committee.

My name is Craig Butler, Director of Ohio EPA. I have been asked to provide testimony on Ohio's comments and interpretations of U.S. EPA's draft Clean Power Plan – an unprecedented proposal to overhaul the nation's power generation, transmission, and distribution system by reducing fossil fuel use and increasing reliance on natural gas, energy efficiency, and renewable energy to meet our future power demands.

My testimony for you today will describe the highly inclusive process Ohio used to review and respond to this massive proposal as well as to provide you with a summary of the complex history around how U.S. EPA is attempting to regulate carbon via carbon dioxide emissions from predominantly fossil fuel power plants.

Most importantly, I would like to provide several specific issues and objections we have raised to the U.S. EPA on their Plan. I will say as an overall comment included in our 180 pages (excluding supporting materials) of highly technical comments that this federal plan has significant legal and technical flaws that will need to be resolved and/or addressed before any rule focusing on carbon emissions can be finalized and presented to states demanding compliance.

Lastly, my testimony will provide some thoughts about implementing this rule in Ohio (if finalized as-is) and how recommendations relative to Ohio's renewable energy and energy efficiency standards from this Study Committee may impact how Ohio develops and implements a plan to comply with this rule.

Background on Air Quality Standards

Before we discuss carbon and carbon dioxide regulation, I think it's helpful to understand some basics about the way U.S. EPA regulates emissions from sources like power plants.

In accordance with the federal Clean Air Act, U.S. EPA establishes air quality standards for six specific air pollutants at levels deemed to be protective of human health based on the best available science. Those pollutants are carbon monoxide, lead, nitrogen dioxide, sulfur dioxide, ozone and particulate matter.

Similarly, they develop regulations for the many types of operations that emit air pollution. Examples would be utilities, foundries, large printing operations, hazardous waste incinerators, glass furnaces, landfills and coal-fired power plants.

Please note that carbon or carbon dioxide is **not** one of these expressly defined under the federal Clean Air Act.

The Clean Air Act requires a review, once every five years, of all of the latest research on each criteria pollutant by a scientific advisory committee. That committee then makes a recommendation to U.S. EPA on whether or not the standard should be changed.

Ohio is approved and fully delegated by U.S. EPA to implement the federal air program on their behalf. Therefore, if new standards are needed and U.S. EPA finalizes them in rule, states such as Ohio are responsible for figuring out how to achieve these standards in a way that works for their respective states, by the deadline established by U.S. EPA. This process is completed through a "State Implementation Plan" developed by states and submitted to U.S. EPA for review. State legislation, regulation or enforceable measures are generally required to comply with the federal mandate. Most of Ohio EPA's air statutes and regulations are the result of this procedure.

Carbon History

The story of carbon regulation in the United States began in May 2007 when the Supreme Court ruled that greenhouse gases, including CO2, were within the definition of an "air pollutant" under the Clean Air Act. As a result of this ruling, in December of 2009 U.S. EPA released an Endangerment Finding that greenhouse gases endanger the health of citizens in the United States. This finding set the stage for subsequent carbon or carbon dioxide (CO2) regulations.

In March of 2009, Congressional members formulated a plan to control CO2 emissions from power plants and other sources. Congressman Henry Waxman from California and Ed Markey from Massachusetts sponsored a bill that would cover approximately 85% of the total U. S. greenhouse gas emissions. The bill would allocate CO2 allowances to sources and then reduce those allocations over time. Trading within the cap would be allowed. The bill would have reduced emissions by 20% from 2005 levels by 2020 and 83% below 2005 levels by 2050. The legislation was advertised as an energy transformation in the United States economy by increasing renewable energy, improving carbon capture and storage technology,

increasing nuclear power and promoting major investments in energy efficiency. In June 2009, the bill was approved by the House, but was not taken up for consideration in the U.S. Senate.

Inaction at the congressional level prompted U.S. EPA to move down the path of carbon regulations on their own. U.S. EPA started by tightening CO2 emissions from vehicles through the Light-Duty Vehicle Standards and Corporate Average Fuel Economy Standards Rule, in May 2010.

U.S. EPA then targeted fossil fuel-fired power generation. Currently, U.S. EPA has a pending proposed regulation for coal-fired power plants that requires carbon capture and sequestration on all new units. It is our (and others) belief that this technology is so costly and unproven that it essentially, and intentionally, places an unattainable standard in front of any new coal-fired generation being built in the country that is not heavily subsidized by the government.

U.S. EPA also has a pending proposed rule for Modified & Reconstructed power plants with its own unique language.

Their final step to attack all possible sources of CO2 from fossil fuel generation, especially coal, is to regulate existing power plants via the titled Clean Power Plan.

In total, it is clear to see that U.S. EPA is implementing a comprehensive, systematic effort to dis-incentivize coal as a source of power and dramatically enhance the development of lower carbon impact electricity generation, such as renewable energy and energy efficiency, without full regard to technical feasibility and possible significant costs to consumers.

Proposed Carbon Rules (Clean Power Plan) Legal Concerns

U.S. EPA estimates that coal-burning and natural gas power plants release roughly one-third of the domestic total carbon releases. Another third comes from vehicles, which U.S. EPA is already regulating and the remaining third is from various other sources. Ultimately U.S. EPA is trying to reduce carbon emissions, namely carbon dioxide, from power plant generation nationwide by roughly 30% below 2005 carbon emissions levels in accordance with Executive Orders and the Clean Power Plan.

As noted, U.S. EPA was not successful in obtaining a clear Congressional mandate to regulate CO2 via traditional approaches. Further, after analyzing the stated goal of President Obama to reduce carbon by 30 percent, they recognized that they could not achieve their goal by simply forcing power plants to reduce carbon emissions from their stacks.

Unable to achieve this 30% reduction goal, U.S. EPA decided to take an untraditional multi-pronged approach. This approach aims to force coal-fired plants to operate more efficiently, minimize their penetration in the marketplace, and reduce the need for what they sell – electricity. U.S. EPA's strategy of both regulating individual sources coupled with influencing

the national marketplace to reduce demand for their product is unprecedented in scope and is fraught with legal problems.

The first hurdle is that U.S. EPA is using Section 111(d) of the Clean Air Act to implement the plan. Section 111(d) is a rarely used section that reserves authority and flexibility to the states. It was designed by Congress to provide a method to regulate pollutants that are not "Criteria Pollutants" and not "Hazardous Air Pollutants." The problem is that U.S. EPA does not have authority under 111(d) because the plain language of the statute prohibits regulation of a source category (coal-fired power plants) if they have already been regulated under Section 112 of the Clean Air Act, which regulates hazardous air pollutants. Coal-fired power plants are already regulated under Section 112 for mercury emissions.

Murray Energy has already filed a petition in the D.C. Circuit court claiming that U.S. EPA is engaged in illegal rulemaking. Ohio, along with eight other states, has joined the case. Written briefs to the court are due in March.

A second major legal hurdle is that U.S. EPA is proposing to regulate aspects of the power system beyond the source itself, or beyond the "fence line". In the rare instances that 111(d) has been used, U.S. EPA confined its authority to the source of emissions. This rule proposes to expand their regulatory reach to all "affected entities," as they say, which include power generators, power users and all parties in between.

We believe that the vast expansion of authority and regulatory reach to the national power generation, transmission, distribution system, in addition to anyone who uses electricity, is not consistent with Congressional Intent and that these and other legal challenges will be argued as/if the rules become final later this year.

Comment Preparation

At this point I would like to transition to the technical analysis of this specific proposal and our response.

Despite the legal challenges associated with this rule, we felt an obligation to Ohio to dissect the proposed rule, not only from a legal standpoint, but from a technical standpoint as well. U.S. EPA's 650 page proposal and hundreds of pages of supporting guidance documents solicited comments well over 500 times. We assessed each request for a comment and did our best to respond in a responsible manner with data, research and a heavy critique of their proposal. Our response is exactly what they asked for in their proposal, on conference calls and during one-on-one meetings.

As we developed our comments Ohio EPA launched an unprecedented outreach and review process. Feedback from the numerous parties who will be affected either directly or indirectly was essential to understanding the feasibility of this rule. After all, this rule reaches into

territories that air pollution control programs have never had to regulate and where we do not have expertise.

- We conducted an extensive outreach effort to interested parties and stakeholders. Nobody was turned away and we met with anyone willing to discuss the proposal.
- We held joint PUCO-Ohio EPA Stakeholder Meetings where we solicited input from numerous affected entities.
- We partnered very closely with PUCO and the Attorney General to make sure our interpretations of the rule and conclusions represented the best interest of Ohio.
- We reached out to other sister Agencies in Ohio including OAQDA, Departments of Health, ODNR, Commerce, Development Services to seek their assistance and input.

Through this process the contributions, education and assistance from interested parties across the state was very encouraging and were essential to our finished product.

We acknowledge the value in Ohio's diversified energy resources and the critical importance of affordable and reliable power to the citizens, manufacturing and industry. We also recognize our responsibility to be good stewards of the environment and our natural resources. Throughout our comment preparation process, we heard the messages of maintaining affordable power to benefit Ohioans, continuing development within the state, balancing these needs with environmental protection as well as the larger discussion about carbon and the concerns relative to global climate change.

And while some would like to jump to and only have a debate about global climate change, at the end of the day, we feel the comments we provided to U.S.EPA were spot on and exactly what U.S.EPA was asking for --- detailed legal and technical comments that must be addressed or resolved prior to any final rule being issued or slated to implement.

Clean Power Plan

At this point, I'm going to provide you with a bit more explanation about the Clean Power Plan and our technical concerns with U.S. EPA's proposal.

Again, U.S. EPA recognized that they could not reach their goal of a 30 percent reduction in carbon dioxide emissions from the individual plants themselves. So they became a bit creative and developed four strategies which seek to make coal-fired power plants operate more efficiently, minimize their utilization and reduce demand for their product - electricity.

Each of these strategies are summed together to establish a carbon emissions rate for each respective state that, when combined, achieves U.S. EPA's ultimate reduction target of a 30% reduction below 2005 levels. Since each of these strategies operates somewhat independently, we will call each of these measures "Buckets."

As we go through these Buckets, keep in mind that U.S. EPA's goal for Ohio, the sum of reductions from all four Buckets, won't change once the final rule is released. However, Ohio can shift reductions in between the Buckets, taking more or less of each one to still achieve the ultimate goal.

Bucket 1: Requires a 4-6% improvement in the efficiency of how coal-fired power plants operate.

Bucket 2: Requires power generation to be redispatched from coal to natural gas by up to 70% of the available capacity.

Bucket 3: Dramatically increases Renewable Energy Development.

Bucket 4: Dramatically increase Energy Efficiency mandates.

Each of these requirements may seem reasonable on the surface, however as we dive into the details, significant problems arise for each.

Problems with Bucket 1 are as follows:

- Ohio power plants have significantly reduced carbon dioxide emissions from electricity generation below 2005 emissions levels. In fact, carbon dioxide emissions have dropped from 138 million tons in 2015 to 107 million tons in 2013 and we expect an additional 33.8 million tons by 2016. These reductions were accomplished without a state, federal or multistate agreement to limit carbon dioxide emissions and should count towards any new goal.

- When designing the Clean Power Plan and calculating targets for "Buckets" U.S. EPA started with 2012, not 2005. They do not recognize the state-wide reductions made prior to 2012, nor do they recognize improvements already made by plants.

- The fleet of coal power plants in Ohio has improved dramatically over the years and will continue to improve over the next couple years. With the closing of old inefficient plants due to U.S. EPA's air toxics Mercury rule, Ohio will be left with a well-controlled highly efficient fleet of coal plants. When we compare Ohio's fleet-wide average gross heat rate for 1997-2013 to the status in 2016, we will recognize a 5.4% improvement. To expect an additional 4-6% efficiency improvement on a per-plant basis is extremely unrealistic.

- In addition, the 4-6% improvement target for coal-fired plants was established through misapplication and overreliance on a research study by Sargent & Lundy. U.S. EPA's reliance on this study to justify specific improvements, the associated costs and assessed feasibility directly contradicts the author's stated purpose. Rather, they use the study to over-simplify coal plant design and each unit's ability to achieve efficiency improvements.

The second Bucket proposes to minimize the usage of coal-based power by requiring all natural gas power generators to be utilized at a minimum of 70% of their design capacity.

- In general, we have serious concerns about Bucket 2 exerting undo strain on both the natural gas and electrical distribution and transmission systems. Numerous stakeholders with intimate knowledge of the interstate transmission system have expressed similar concerns to U.S. EPA. Even U.S. EPA's own feasibility projections, performed to justify their proposal, could only predict 64% dispatch at the state level. Only through a regional approach could 70% be achieved.

- As you well know, in Ohio, power generation is regulated by the PUCO. Our two agencies partnered in an unprecedented manner during this comment process. The Commission conducted an even more detailed critique of this part of the proposal. Since Commissioner Haque is here today, you will hear his comments on this subject in a few minutes.

As for the increases in renewable energy and energy efficiency under Buckets 3 and 4, remember that U.S. EPA's primary objective is to reduce coal-burning power plants operating at current levels. The Clean Power Plan's renewable energy and energy efficiency goals are designed to reduce the need for fossil fuel fired power plants by eliminating demand for electricity or replacing it with non-carbon generating sources. U.S. EPA's goals for renewable energy were designed in a unique way. They grouped states into "regions" that had similar renewable energy development potential. These regions were perceived to have similar renewable energy development options. Ohio was grouped with Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Virginia and West Virginia.

Once regions were established, U.S. EPA analyzed the renewable and energy efficiency portfolio standards for all states within the region. These state-approved rules provided a perceived reasonable target for development options. Based on this assessment, a renewable energy target was developed and applied to all states in the region. If a state didn't have a portfolio standard, the regional target was still applied because the development potential was present.

U.S. EPA used SB 221 when developing the target for our region. Ultimately, the goal for Ohio is 10.6% of total net generation from renewable energy by 2029.

The Energy Efficiency target for each state increases 1.5% annually. Individual states start at various points, but the glide path to 1.5% is the same. In Ohio, by 2029 this goal will reach 11.6 %.

Regardless of the appropriateness of U.S. EPA's targets for Ohio, we have other serious concerns with including renewable energy and energy efficiency in our Implementation Plan.

Those concerns are:

- U.S. EPA is attempting to federalize programs that have historically been the domain of the states. The implications of this federalization are paramount because whatever programs are included in an Implementation Plan will become enforceable by not only the states, but U.S. EPA. Therefore, even if the Ohio General Assembly agrees that changes to the program are needed, they cannot be fully incorporated into Ohio's plan until U.S. EPA agrees with them.

- Qualifying renewable and energy efficiency programs have not yet been identified by U.S. EPA, but incompatibility between Ohio based programs and what is acceptable to U.S. EPA are fully expected.

Implementation

As we look to the future and how Ohio will develop an Implementation Plan, many unknowns still exist. For example, U.S. EPA intends to also release a proposed Federal Plan with the final rule. The Federal Plan will dictate necessary measures if an acceptable Implementation Plan is not approved. This is a recent announcement. No one has seen the details of what this may be, however, it will likely be draconian and designed to encourage states to develop their own Implementation Plans.

U.S. EPA has postposed their release of a final plan from June 2015 to "mid-summer" 2015. We don't know the outcome or when it will be released. However, they have made clear that the final state Implementation Plans will be due in June 2016. While we will pursue an extension of 1 or 2 years, as allowed, even the extension process is very demanding and may not be achievable due to the complexity the extension requests outlined in the rule. The timing of implementing this massive plan, whatever Ohio decides, will be extremely challenging as well necessitating significant statutory changes and development of rules.

Clean Power Plan and Energy Mandate Subcommittee

As I understand it, the Energy Mandate Subcommittee has been tasked with reviewing, and subsequently recommending to the General Assembly, by September 30, 2015, the appropriate path forward for State of Ohio renewable energy and/or energy efficiency mandates. Assuredly as you hear my remarks, you are thinking how all of this relates to the work of this subcommittee. Let me offer a few observations for your consideration:

U.S. EPA's proposed Clean Power Plan creates unique challenges for Ohio EPA if, as we expected, a final rule is released in mid-summer. Many of the questions that we intend to ask

as we develop an Implementation Plan for Ohio are strikingly similar to questions that this Subcommittee will need to address.

The most common question we are asked is whether the targets in SB 221 or 310 are enough for Ohio to meet the Clean Power Plan carbon dioxide reduction targets. I wish I could provide a clear answer to this Subcommittee. Unfortunately, that is not possible. Throughout our comment process U.S. EPA has provided little guidance or clarity. Rather, they have repeatedly asked for advice and a thorough critique of their proposal. Unanswered questions include,

- How will Advanced Energy and qualifying technologies be determined?
- How will RE credit be recognized from out-of-state sources?
- How will the demonstrated economic hardship aspects of Ohio's law be recognized by U.S. EPA?
- Will U.S. EPA allow credit for improvements already in place?
- Will Ohio's final targets be adjusted? If so, how?

These are fundamental questions that prevent any type of realistic projections by either PUCO or Ohio EPA. As a result, any compliance estimates should be viewed with a level of skepticism until additional information is released by U.S. EPA and sufficient analysis has been completed.

A second common question is whether U.S. EPA uses 2005 as the base year or 2012. We have found that regardless of U.S. EPA's announcement of "a reduction in Carbon Dioxide emissions of 30% below 2005" levels, all of their calculations use 2012 as the base year. Ohio's target is roughly 30% below 2012 carbon dioxide emissions.

Questions have arisen related to U.S. EPA's climate and health benefits, estimated to be in the billions of dollars. We, as a State of Ohio entity, are not able to provide any validity or credibility to U.S. EPA's projections. However, our understanding is that the climate and health benefits valued at 55-93 billion dollars in 2030 is an illustrative estimate by U.S. EPA because states will ultimately decide how to comply, making economic and health projections difficult. Therefore U.S. EPA made numerous assumptions regarding how each state will meet their goals. They based their calculations on projected health impacts and climate impacts separately then summed the two.

U.S. EPA recognizes that no scientific evidence ties direct health effects to Carbon Dioxide exposure. Therefore, when estimating health and cost savings they rely on secondary reductions in other criteria pollutants not limited through this proposed rule.

A final question relates to whether Ohio plans to develop a state-only plan or collaborate with other states to develop a multi-state agreement and whether this would be beneficial for

Ohio. Suffice to say that it is too soon to tell whether an agreement of this nature would benefit Ohio. We intend to explore this option along with many other potential compliance measures to provide Ohio with the best chance at success.

Final Thoughts

The U.S. EPA Clean Power Plan proposes an unprecedented overhaul of the power generation, transmission and distribution system across Ohio and the country. This overhaul relies inappropriately on Section 111(d) of the Clean Air Act and we believe the entire proposal should be reconsidered due to the serious and fatal legal and technical challenges presented in our and other stakeholder comments.

If U.S. EPA does as they have indicated and expedite the finalization of the flawed plan, we will seek to include in any final plan all attributes, including generation efficiency, energy efficiency, and renewable energy guidelines and recommendations set forth by the Ohio legislature so that Ohio is deemed compliant with federal rules.

In the last four years, Governor Kasich has supported an energy policy that is inclusive of all sources of generation. From our world-class energy summit held in 2011 where we discussed developing a broad portfolio of cost effective energy sources in Ohio, to recent legislative activity to include combined heat/ cogeneration to SB 221's list of qualifying energy sources. We have and will continue to embrace the often overused but certainly relevant "all of the above" energy strategy striving to provide affordable and reliable electricity for Ohio consumers in way that is protective of the citizens and environment.

And finally, I would like to thank my staff who worked tirelessly to complete this task and our agency partners at PUCO, AGO, OAQDA, ODH, Development Services Agency, DOD and the many other agencies and stakeholders that provided assistance throughout our comment process.

I am happy to answer any questions you may have. Thank you.