Testimony of Christina E. Simeone
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Environmental Resources and Energy Committee
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Good morning Chairman Miller, Chairman Vitali and members of the Environmental Resources and Energy Committee.

My name is Christina Simeone and I am the director of the Energy Center for Enterprise and the Environment at Citizens for Pennsylvania's Future, also known as PennFuture. PennFuture is non-profit, membership-based environmental advocacy organization focusing on land, air, water and energy issues that impact Pennsylvania.

Overview of Clean Power Plan (CPP)

In June of this year, the U.S. Environmental Protection Agency (EPA) proposed a rule to limit carbon emissions from existing power plants. The proposal, called the Clean Power Plan (CPP) aims to reduce national carbon emissions from the power sector 30 % (from 2005 levels) by 2030, with each state having its own "rate-based" (lbs of CO2 per megawatt hour) carbon reduction goal. State goals were developed by EPA through a standard methodology that examines four "building blocks" including improved energy efficiency at power plants, greater use of natural gas-fired electricity, enhanced retail energy efficiency and increasing zero-carbon sources of power, such as renewables and nuclear energy. States are required to develop and submit to EPA for approval, plans to meet these carbon reduction goals. States have the flexibility to use EPA's building blocks, or other strategies to reduce electricity system emissions. In addition, states can: join together to develop regional compliance approaches, propose market-based mechanisms, use a mass-based approach (a reduction goal based on total lbs of CO2 reduced) for goal setting, have optional lower interim reduction targets, and can apply for compliance timeline extensions.

EPA's goal setting process for Pennsylvania

EPA's goals for Pennsylvania's are very reasonable. The standards of performance EPA selected in developing this target were based on a "Best System of Emissions Reductions", which was developed by first looking at commercially available technologies. EPA also examined costs, air quality benefits to human health and the environment, energy requirements, non-air quality impacts, and the opportunities to promote the development and use of pollution control technology. The result is a system of emissions reductions that is both technically feasible and cost effective.

Pennsylvania is in good shape to meet EPA's goal

Pennsylvania's emissions-rate baseline for 2012 is 1,627 pounds of carbon dioxide per megawatt hour (lbs CO2/mWh) and our goal for 2030 is 1,052 lbs/mWh, an approximate 35% reduction. The national average reduction from the 2012 baseline is 42%, so Pennsylvania is being asked to achieve less than most other states. What is more, Pennsylvania already has a competitive advantage in meeting these goals:

- In 2012, Pennsylvania's natural gas combined cycle (NGCC) plants were operating at 63% capacity and EPA is modeling these plants to achieve 70% capacity. Pennsylvania will likely exceed this target, due to coal plants that have retired since 2012 or that announced plans to retire, prior to EPA's carbon proposal. Taking already announced retirements into effect, our emissions rate drops to 1,494 lbs/mWh.
- For nuclear energy, EPA's proposes to prevent approximately 5% of existing national nuclear capacity from going offline. This should not be a problem for Pennsylvania, as our five generating stations are licensed to operate beyond 2030. Assuming no uprates or addition of nuclear capacity, this brings our rate down to 1,448 lbs/mWh. This does not include the capacity uprate of 140 megawatts that was recently approved for Peach Bottom.
- For renewable energy, Pennsylvania's existing 8% Tier I renewable energy requirement in the Alternative Energy Portfolio Standard (AEPS) will reduce our emissions rate to 1,322 lbs/mWh.
- For energy efficiency, Pennsylvania's Act 129 has made great strides in achieving cost effective efficiency. It is not straightforward to compare Pennsylvania's Act 129 program goals to EPA's retail efficiency targets, due to Act 129's phased goal-setting approach. However, if you take account for energy efficiency achieved from Act 129's Phase II (since 2012) and assume that the Phase II annual target of 0.75% will continue to be cost effective (an extremely conservative assumption), Pennsylvania's emissions rate will drop to 1,296 lbs/mWh.

This basically means that by doing nothing other than following market conditions, and maintaining existing policies and business decisions, Pennsylvania will get more than half way to EPA's goal. This is before you talk about energy efficiency improvements at coal plants, scheduled nuclear uprates or increases to energy efficiency or renewables.

Why is EPA taking this action?

EPA is required by law (and associated settlement agreements) to reduce the carbon pollution that is causing climate change and harming public health, and existing power plants are the number one source of these emissions. According to the EPA, the CPP will lead to climate and health benefits worth an estimated $55 billion to $93 billion per year in 2030, including avoiding 2,700 – 6,600 premature deaths and up to 150,000 asthma attacks in children.[1] The climate and health benefits of the CPP far outweigh the estimated annual costs of the plan, which are $7.3 billion to $8.8 billion in 2030. From soot and

[1] U.S. EPA, Factsheet: Clean Power Plan Benefits, http://www2.epa.gov/carbon-pollution-standards/fact-sheet-clean-power-plan-benefits

smog reductions alone, for every dollar invested through the CPP, American families will see up to $7 in health benefits.[2]

The cost of inaction is too high for taxpayers

In 2012, extreme weather (Hurricane Sandy, droughts) cost every person in American more than $300, or $100 billion in total.[3] The National Flood Insurance Program is $24 billion in debt, the Federal Crop Insurance Program paid record claims of over $17 billion in 2012, and wildfire costs have tripled since the 1990s.[4] According to a report from the White House Council of Economic Advisors, for every decade of inaction, the costs to control climate change rise by 40%.[5] In Pennsylvania (and in other areas of the country), electric utilities are responding by proposing new fees – such as adjustable rate storm damage riders - to handle the significant costs related to extreme weather events.[6]

Pennsylvania is a major contributor to the climate problem

Historically and over the long-term, the United States has been the largest greenhouse gas emitter, eclipsed only recently by China. Pennsylvania is the third largest emitter of carbon pollution in the United States, and the third largest power producer in the country (behind Texas and Florida), we are also a major source of fossil fuel resources. Some argue that Pennsylvania has done its fair share to address climate change, because our Marcellus Shale formation has enabled lower-carbon natural gas resources to displace coal in electric power markets. However, these emissions reductions are 1) unclear given the uncertainty surrounding lifecycle methane leakage, and 2) are depended on market dynamics, therefore are not guaranteed to continue.

Other countries are taking action on climate change

Some believe that the U.S. should not take action to reduce carbon emissions because climate change is a global problem and other countries also need to act in order to address the problem. But other countries are taking action. For example, the European Union has a 20% reduction goal (from 1990 base) by 2020, 40% by 2030, and 80-95% by 2050. China's twelfth 5-year plan includes a 16% reduction in energy intensity (energy by GDP), a 17% reduction in carbon intensity, and an 11.4% increase in non-fossil fuel based energy. In 2013, China invested $61.3 billion in clean energy, while the United States invested $48.4 billion.[7]

United States action and leadership matters

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[2] U.S. EPA, Factsheet: Clean Power Plan Benefits

[3] Ceres, "Inaction on Climate Change: The Cost to Taxpayers", 2013, http://www.ceres.org/resources/reports/inaction-on-climate-change-the-cost-to-taxpayers/view

[4] Ceres, Inaction on Climate Change: The Cost to Taxpayers, 2013

[5] White House Council of Economic Advisors, "The Cost of Delaying Action to Stem Climate Change", July 2014, http://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf

[6] For example, PPL proposed a new fee – the storm damage expense rider – that would allow the utility to bill customers for weather related costs that exceed the $14.7 million already allowed collected in base rates.

[7] Bloomberg New Energy Finance, "Clean Energy Investment Falls for Second Year", January 15, 2014, http://about.bnef.com/press-releases/clean-energy-investment-falls-for-second-year/

The 1990 amendments to the Clean Air Act authorized the control of toxic mercury pollution from power plants. After decades of litigation, mercury limits on power plants were finalized in 2011. U.S. action on mercury was critical to spurring international action. The Minamata Conventions was introduced for vote in October 2013, with the U.S. playing a key role. Today, over 102 international governments, including the U.S., China and the European Union, have signed on to the Minamata Convention to control and reduce mercury emissions.[8]

Carbon regulation is not going away

Climate change was first recognized as a significant global issue by the United Nations in 1979.[9] From 1997 to 2014, almost 900 bills focused on climate change have been introduced in the U.S. Congress, not including the bills and amendments filed in 2009-2010 when climate legislation passed the House and stalled in the Senate.[10] In the absence of Congressional action, and under existing laws passed by Congress, EPA is being forced to act. The bottom line is the issue of addressing climate change is not going to go away, and markets, the insurance industry and investors all know this.

Electricity markets in transition

The truth is that electricity markets are in a period of transition, especially in the PJM interconnection. An analysis by SNL Energy Finance found that in the U.S. more than 14,000 megawatts of non-coal capacity (mostly less efficiency gas and oil plants) is scheduled to retire by 2023, with another 27,000 mw of coal retirements scheduled to retire by 2022, many of these retirements are happening in our very own electricity grid.[11] These old coal, gas and oil plants are being outcompeted by relatively newer, cleaner plants that are cheaper and more efficient to run. Lower natural gas commodity prices, coupled with more cost-effective energy efficiency and renewables are fundamentally changing electricity markets. As a result of this transition, new investments need to be made. However, investors will be hesitant to outlay capital in the midst of high levels of uncertainty.

We have choices, we can either continue to delay and deny, perpetuating investment uncertainty and stalling business growth opportunities. Or, we can develop the compromises needed to address the climate change situation, send clear signals to businesses and unleash America's ability to invest, innovate and grow.

The truth about coal

Not only is coal being outcompeted by cheaper, cleaner resources, it is also competing with itself. Within the coal industry, some geographic areas are more cost competitive than others, due to the economics of accessing coal reserves. For example, costs associated with surface mining in the Interior

[8] United Nations Environmental Programme, Minamata Convention on Mercury, http://www.mercuryconvention.org/

[9] Declaration of the World Climate Conference, http://www.dgvn.de/fileadmin/user_upload/DOKUMENTE/WCC-3/Declaration_WCC1.pdf

[10] Center for Climate and Energy Solutions, Climate Debate in Congress, http://www.c2es.org/federal/congress

[11] Omer Zahid, SNL Energy Finance, "More than 14 GW of non-coal capacity scheduled for retirement by 2023", April 24, 2014, http://www.snl.com/InteractiveX/Article.aspx?cdid=A-27811458-12076

and Western regions are generally less than costs to access coal via underground mines in Appalachia. From 2010 to 2013, northern and central Appalachian thermal coal mining costs increased from $58.08 to $69.75 per short ton in 2013. Conversely, mining costs in the Powder River Basin rose from only $8.81 to $10.26 per short ton.[12] Many newer coal plants that have installed scrubber technologies can now utilize lower-cost, lower heat value, high-sulfur coal from the Interior and Western coal formations, while meeting air quality emissions standards and enhancing profitability. This enhanced coal substitutability begins to erode some of the competitive advantage that Pennsylvania's northern Appalachian coal once maintained, even when volume differentials and transportation costs are included.

Pennsylvania can benefit from this rule

Energy efficiency is our lowest cost resource. According to the PA PUC, for every $1 spent on energy efficiency in Pennsylvania, ratepayers receive $3 in benefits. Moreover, the PUC found we have the ability to cost-effectively achieve 27% energy savings over the next 10 years. PJM interconnection, the electricity grid operator serving Pennsylvania and 12 other states, found that increasing renewable energy to 20-30% of the regional grid supply (up from the current ~2%) would reduce wholesale electricity prices by $9 - $21 billion annually, without sacrificing grid reliability.[13]

New solar and wind capacity will not only bring more clean domestic energy to the market, but recent modeling has shown that construction of these resources creates more jobs than building the equivalent fossil fuel capacity. PennFuture found that increasing the Alternative Energy Portfolio Standard (AEPS) Tier I requirements from the current 8% up to 20% would result in an additional 100,000 jobs in Pennsylvania as well as additional jobs within the PJM region.[14] On average, $1 million spent in the U.S. economy supports approximately 17 total jobs (direct, indirect, and induced), while $1 million invested in energy efficiency leads to 20 total jobs.[15]

CPP's impact on electricity reliability

Many will assert the CPP will lead to electricity reliability problems and skyrocketing electricity prices, and point to the January 2014 polar vortex situation as a warning. However, it is important to understand the reasons for the polar vortex-related reliability problems and what is being done to address the issue. Take January 7th, 2014 as an example, when extremely cold temperatures gripped the region. Approximately 40 gigawatts (GW) of power plant capacity was unable to provide power when needed, about 22% of PJM's supply. This is 2-3 times higher than the typical winter peak forced outage rate of 7-10%. About 34% (13.7 GW) was due to operational problems at coal plants that resulted in the

[12] Market Realist, "A must-know overview of the US thermal coal industry for investors", April 25, 2014, http://marketrealist.com/2014/04/overview-of-us-thermal-coal-industry-intro/

[13] PJM Renewable Integration Study, March 2014, http://pjm.com/~/media/committees-groups/task-forces/irtf/postings/pris-executive-summary.ashx

[14] "Clean Energy Wins: A Policy Roadmap for Pennsylvania", March 2014, www.cleanenergywins.org, job analysis at page 50

[15] American Council for an Energy-Efficient Economy "How Does Energy Efficiency Create Jobs?" http://aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf (March 2014)

coal plants not being able to perform. About 24% (9.7 GW) was related to operational issues at gas plants, resulting in these plants not being able to perform. About 23% was related to natural gas plant interruptions, for example, due to the inability for gas plants to secure affordable supply of natural gas fuel. This is in part related to the fact that our electricity grid has become more dependent on natural gas, and in extremely cold weather the demand for natural gas increases for home and business heating purposes. The result is an increase in the commodity price of gas and supply shortfalls. The combination of increased demand for power and inability of coal and gas generators being able to provide needed power supply led to increasing electricity prices and reliability concerns.

PJM has performed extensive analysis of the polar vortex reliability problems and is taking action. They identified the need to improve coordination between natural gas commodity markets and the electricity system, as well as improve the winter operations preparedness and performance at power plants. PJM is in the early stages of making changes to their capacity performance definition to ensure there are sufficient financial incentives to incent performance and penalties for failure to perform. PJM is also examining the need to shift their reserve capacity margin, essentially procuring a greater percentage of resources to ensure reliability.

PJM's market is dynamic and efforts are underway to address current reliability challenges in the market that have nothing to do with carbon emissions. PJM will be modeling the impacts of carbon pricing on its market and Pennsylvania can and should be doing much more work now to preparing for and investigate various CPP compliance options and any potential PJM market challenges that could arise.

Pennsylvania is not doing enough to ensure a positive outcome with carbon rule implementation

Although PennFuture was pleased to see the PA Department of Environmental Protection (DEP) act early to issue a draft carbon rule implementation white paper in April 2014, the approach outlined in the white paper would not be approved by EPA. At the June 27, 2014 hearing of the Senate Energy and Environment Committee, Mr. Vince Brisini, DEP's Deputy Secretary of Air, Waste and Radiation, acknowledged that the white paper would not meet EPA's criteria and would result in EPA imposing a federal plan.[16] In spite of DEP's acknowledgement of this shortcoming, the department has been unwilling to investigate other options. It is critically important that DEP begin working on alternative compliance pathways, based on the proposal EPA has set forth. Although EPA's final rule will likely deviate from the proposal, DEP should be utilizing all the time and information it has to analyze a wide variety of potential compliance solutions in order to determine what the best compliance solution is for Pennsylvanians.

Legislative oversight of the CPP

PennFuture continues to express concerns with pending proposals (such as House Bill 2354) to establish new legislative approval of CPP development and implementation. Currently, there are numerous and significant powers and processes in place that ensure legislative input and consultation into the

[16] Video testimony available at http://environmental.pasenategop.com/2014/06/19/epas-clean-power-plan/ referenced comment at minute 14:20

development of Pennsylvania's CPP compliance plan, especially oversight of any regulations that would be included in the plan. It is the legislature's prerogative to establish new governance authority, however, it is imperative that any new procedures do not undermine Pennsylvania's ability to maintain control over implementation of the CPP compliance program.

Conclusion

If done right, implementing the CPP can not only create jobs and lower electricity prices, but it can also help stem the billions of dollars of taxpayer costs that are occurring as a result of climate change impacts. If done wrong, Pennsylvanians could see job losses and higher electricity prices, in order to minimize the impacts and costs of climate change damage. Doing nothing or promoting continual delay should not be an option. Pennsylvanians will continue to spend more and more money on climate change related damages, the eventual cost of addressing climate change will increase and lead to severe future economic disruptions, and the impacted industries before you today will have more severe requirements and less flexibility.