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“Impacts of EPA Regulations on West Virginia’s Coal Production, Employment, Air Quality, Community Wellness, Climate Risk, and Local Government Operations”

My name is James M. Van Nostrand. I am a Professor of Law and Director of the Center for Energy & Sustainable Development at the WVU College of Law. The Center is an energy and environmental research organization founded in 2011, with a focus on promoting practices that balance the continuing demand for energy resources—and the associated economic benefits—alongside the need to reduce the environmental impacts of developing the nation’s natural resources. I appreciate the opportunity to provide testimony at this field hearing regarding the impacts of regulations of the U.S. Environmental Protection Agency (EPA) on West Virginia and, in particular, coal production, employment, air quality and community wellness, climate and local government operations.

The Center has been following closely the actions of the EPA in regulating greenhouse gas (GHG) emissions from power plants. The Center’s third annual national energy conference, held in February 2014, focused on the then-anticipated proposed rules under 111(d) of the Clean Air Act. The conference, titled “Regulation of CO₂ Emissions from Power Plants: Flexibility and the Path Forward for Coal Dependent States,” brought together representatives from government, industry, labor, academia, and the environmental community for a day-long discussion about challenges and opportunities for coal dependent states. Senator Manchin was the keynote speaker at that event and, in his remarks, acknowledged the role of human activity in contributing to climate change. In June 2014, the Center commenced a long-term research project, funded with a grant from the Appalachian Stewardship Foundation and conducted jointly with Downstream Strategies, to examine the impact of the Clean Power Plan on West Virginia, and to develop possible compliance strategies for the Mountain State. The project is part of a broader Center initiative to support constructive dialogue around energy policy choices in West Virginia that would enhance economic opportunity, reduce the environmental impacts of energy development, and put West Virginia on track to meet its CO₂ emission reduction obligations under the Clean Power Plan.

As part of that project, the Center released a Discussion Paper in October 2014 that previewed a preliminary analysis of one potential Compliance Scenario for West Virginia under

the proposed Clean Power Plan.¹ In June 2015, the Center released a more comprehensive report analyzing the proposed rule, *The Clean Power Plan and West Virginia: Compliance Options and New Economic Opportunities*.² That report modeled five possible compliance scenarios under the proposed rule, and offered policy recommendations that would help West Virginia better capture the emission-reduction opportunities and economic benefits that could result from developing an all-of-the-above energy strategy. Following EPA's issuance of its Final Rule in the summer of 2015, the Center on July 21, 2016 issued its final report, *Expanding Economic Opportunities for West Virginia under the Clean Power Plan*.³ That report includes results from modeling two different scenarios that demonstrate the feasibility of meeting West Virginia's Clean Power Plan obligations, and offers policy recommendations that would help to put West Virginia on track to meet carbon pollution standards while further expanding the state's energy sector, promoting economic growth, creating new job opportunities, and providing energy savings to consumers. My testimony today draws upon many of the findings and recommendations from the Center's July 2016 final report.

The Coal Mining Communities of West Virginia

There is no question that the coal mining communities of southern West Virginia are bearing the consequences of a global transition to clean energy. Demand for coal continues to decline as utilities switch to natural gas-fired generation and renewable energy resources, while regulation of fossil fuel pollutants has become more stringent due to concerns about public health and the global climate. Policymakers at the federal level are recognizing the pressing need for addressing the devastating impacts being borne by coal communities arising from this clean energy transition. President Obama's POWER+ Plan, for example, is a \$10 billion initiative to assist communities struggling with the decline of the coal industry in growing and diversifying their economies.⁴ In August 2016, more than \$38.8 million in funding was awarded to groups in the Appalachian region for efforts in education, infrastructure improvements, business development, manufacturing expansions and workforce training.⁵

To focus attention on the pressing needs of the coal mining communities of West Virginia, the Center focused its fifth annual energy conference on these issues, *Building a Resilient West Virginia: Taking Control of the Mountain State's Future*, co-presented with the John D.

¹ *Carbon Dioxide Emission Reduction Opportunities for the West Virginia Power Sector*, CENTER FOR ENERGY & SUSTAINABLE DEVELOPMENT, available at <http://energy.law.wvu.edu/r/download/201008>.

² Available at <http://energy.law.wvu.edu/files/d/e9535d93-d237-42b2-8305-175ec728fce4/cpp-final-6-14-2015-1.pdf>

³ Available at <http://energy.law.wvu.edu/files/d/585cffce-0aea-4535-84d0-7344591cfbb8/cpp-phase-ii-final.pdf>

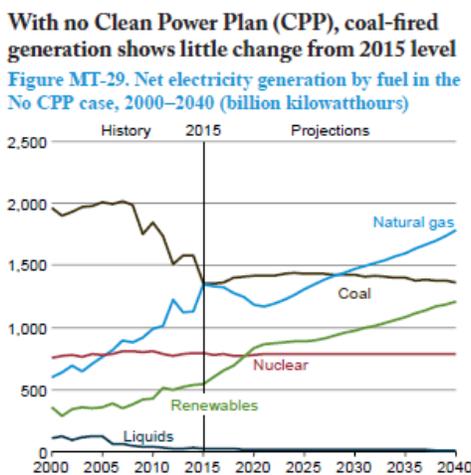
⁴ The President's Budget, Fiscal Year 2016, available at https://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/fact_sheets/investing-in-coal-communities-workers-and-technology-the-power-plan.pdf

⁵ Andrew Brown, *Federal grants from POWER Plus Plan Announced for WV*, CHARLESTON GAZETTE-MAIL, Aug. 24, 2016, available at <http://www.wvgazette.com/news-business/20160824/federal-grants-from-power-plus-plan-announced-for-wv#sthash.xcsEvMJU.dpuf>

Rockefeller IV School of Policy and Politics. The April 2016 conference featured former Senator Rockefeller as the keynote speaker, and also included video presentations by Senator Manchin and Congressman Jenkins. The program examined fundamental changes underway in the generation of electricity, trends in Appalachian coal production and energy sector employment, followed by a closer look at programs currently being offered in Central Appalachia (e.g., Coalfield Development Corporation, Eastern Kentucky Concentrated Employment Program, Refresh Appalachia) as well as a panel discussion regarding the necessary elements of a successful program for providing transition assistance for coal-reliant communities (which included Eugene Trisko, representing the United Mine Workers). The conference concluded with an examination of the resources available to assist in this transition, with participation by the Benedum Foundation and the Rockefeller Family Fund.

The Drivers of this Transition

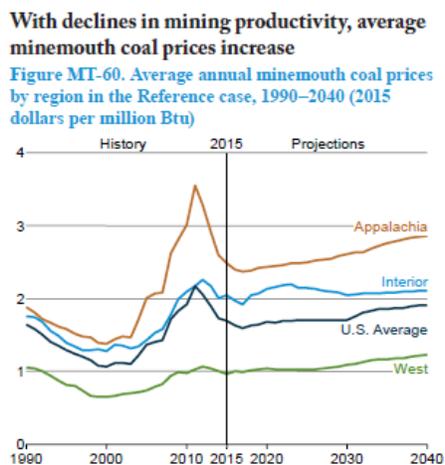
While it is beyond dispute that coal communities in West Virginia, and coal-reliant communities across the U.S., have suffered disproportionately harsh impacts from the transition away from coal, the same clarity does not extend to identifying the drivers of this transition. On a national level, the decline in natural gas prices since 2009 has threatened the cost competitiveness of existing U.S. coal-fired generators, resulting in a 25 percent reduction in coal-fired generation in 2015 from its level in the mid-2000s. In its Annual Energy Outlook for 2016, the Energy Information Administration (EIA) modeled two scenarios—one assuming implementation of the Clean Power Plan, and the other without any impacts of the Clean Power Plan. Under its “No CPP” scenario, the coal share of total electricity generation falls from 48 percent in 2008 to 31 percent in 2029, when the natural gas share surpasses it, and then continues to decline, falling to a 26 percent share in 2040. So in other words, even in the absence of the Clean Power Plan, coal generation is essentially flat from 2015 to 2040.



Source: EIA, 2016 Annual Energy Outlook at MT-16

In addition to these national trends, West Virginia bears the impacts of other factors that contribute to the decline of coal production: lower productivity of mines in Central Appalachia,

and the retirement of aging coal plants. With respect to the former, EIA’s Annual Energy Outlook for 2016 projects that average minemouth coal prices in the Appalachian region will increase by 0.5 percent/year from 2015–40 as mine productivity continues to decline, thereby jeopardizing the cost-competitiveness of West Virginia coal versus other coal-producing regions of the country. With respect to the latter factor, sixteen coal plants operated in West Virginia in 2012, generating approximately 95 percent of the electricity produced in the state. Six of the plants that operated in 2012 have since deactivated, however, representing a loss of approximately 17 percent of the state’s total generating capacity. The retiring plants have operated for an average of 60 years and have reached the end of their useful life, absent significant upgrade or retrofit investments.



Source: 2016 EIA Annual Energy Outlook at MT-31

The national trend away from coal fired generation, and production declines in the Appalachian coal mining industry over the long-term, suggest that the broader socio-economic challenge for coal producing states is to prepare for a future that is less dependent upon coal—irrespective of the impact of more stringent environmental regulations. And while coal mining will continue to be an important part of West Virginia’s economy for the foreseeable future, the state must look for additional drivers of economic development to mitigate the impacts of the decades-long decline in the coal industry.

The Need for Carbon Regulation

Climate change, largely attributable to increasing concentrations of GHGs in the atmosphere, is the most serious threat facing the planet. The National Climate Assessment, for example, presents compelling evidence of long-term climate trends, and the likely future for the remainder of the 21st century, if we fail to take action to reduce GHG emissions. Within the state of West Virginia, we are already seeing the impacts of climate change, as evidenced by the historic flooding experienced this past summer. The part of the United States that includes West Virginia has seen a 71 percent increase in extreme precipitation since 1958, according to the National

Climate Assessment.⁶ According to the Charleston Gazette-Mail, “[s]everal national climate experts said the severity of the Mountain State devastation during the recent flood was almost certainly worsened by human-caused global warming.”⁷ In my view, doing nothing to address this urgent problem is not an option.

Nor is there is any question that the EPA has the legal authority to regulate GHGs as a pollutant under the Clean Air Act, following the decision of the U.S. Supreme Court in *Massachusetts v. EPA* (2007) and the subsequent endangerment finding by the EPA in December 2009. The EPA moved beyond its endangerment finding to adopt the Clean Power Plan in August 2015, using its authority under Section 111(b) of the Clean Air Act to regulate GHGs from new power plants and under 111(d) for existing power plants. The current litigation regarding the legality of the Clean Power Plan, which consumed six hours of oral argument last Tuesday in the D.C. Circuit Court of Appeals, will likely resolve most of the legal issues regarding the validity of this particular incarnation of carbon regulation.

But even if the Clean Power Plan is ultimately struck down, the guidance provided by the court decision will result in a “new and improved” form of carbon regulation. Making the Clean Power Plan go away does not make climate change go away. Nor would it strip away the U.S. commitment under the Paris Agreement to reduce its GHG emissions by 26-28 percent below the 2005 level in 2025, and to make “best efforts” to reduce emissions by 28 percent. (That would include curbs on carbon dioxide, methane, nitrous oxide, perfluorocarbons, sulfur hexafluoride and nitrogen trifluoride, all of which contribute to global warming.) With India ratifying its participation in the Paris Agreement last Sunday (October 2), 62 countries representing about 52 percent of global GHG emissions are now on board, making it virtually certain that the level of participation will reach the levels necessary to make the Paris Agreement binding on its signatories.

Impact of the Clean Power Plan on West Virginia

The Clean Power Plan is designed to produce a 32 percent reduction of CO₂ pollution from power plants in the U.S. by 2030, as compared with 2005 levels. It sets state-specific emission limits in the form of an emission rate—pounds of carbon dioxide per megawatt-hour of net electricity produced. The final rule also translates rate-based limits into mass-based limits (total CO₂ emissions in tons). West Virginia’s Clean Power Plan obligations require emissions reductions from a rate of 2,064 pounds per megawatt-hour in 2012 to 1,305 pounds per megawatt-hour in 2030. Under a mass-based standard, West Virginia would be required to reduce carbon dioxide emissions from 72,319 thousand short tons in 2012 to 51,325 thousand short tons by 2030 if only existing sources are considered or 51,857 thousand short tons if both existing and new sources are considered.

⁶ Doyle Rice, *Why the W.Va. Floods Were So Deadly and Destructive*, USA TODAY, June 27, 2016, available at <http://www.usatoday.com/story/weather/2016/06/27/west-virginia-floods-storm-train/86429020/>

⁷ *Gazette Editorial: Floods Part of Climate Change in WV*, July 24, 2016, available at <http://www.wvgazette.com/gazette-editorials/20160715/gazette-editorial-floods-part-of-climate-change-in-wv>

The targets would seem to represent a significant challenge for West Virginia: the rate-based target requires a 37 percent reduction in carbon dioxide emissions per megawatt-hour, while the mass-based approach requires a 29 percent reduction in total emissions from existing sources. In the months following EPA adoption of the Clean Power Plan in August 2015, considerable analyses were undertaken to evaluate the ability of West Virginia to meet the required carbon emissions reductions.

DEP Feasibility Study Emissions Trading Modeling

One such analysis was presented by the West Virginia Department of Environmental Protection (DEP) pursuant to a legislative mandate enacted during the 2015 legislative session. House Bill (HB) 2004, codified at West Virginia Code § 22-5-20, included a number of provisions associated with Clean Power Plan implementation in West Virginia. Among other things, HB 2004 directed the West Virginia DEP to prepare a feasibility study regarding the state’s ability to comply with the Clean Power Plan, and to submit this study to the Legislature no later than 180 days following finalization of the federal rule. In compliance with HB 2004, the West Virginia DEP submitted its Feasibility Study to the Legislature on April 20, 2016.⁸

The modeling performed in connection with the DEP Feasibility Study showed that using a mass-based compliance approach coupled with national emissions trading would be the “least impactful” for West Virginia, followed by a rate-based approach with national trading. Importantly, the DEP Feasibility Report concludes that “*compliance with the 111(d) rule is feasible from an economic standpoint under either of these scenarios.*”⁹

Modeling of Emissions Trading Programs

Other analyses have confirmed that the availability of multi-state emissions trading—either regionally or nationally—produces relatively low compliance costs for West Virginia. Preliminary modeling by PJM, for example, shows that regional emissions trading allows coal-dominant states to lower their costs of buying allowances and thereby preserve the useful life of existing assets.¹⁰ The PJM analysis shows that although West Virginia’s average annual CO₂ emissions would substantially exceed its state mass-based cap during the 2022-2037 period, the availability of relatively low-cost allowances would allow West Virginia’s coal plants to continue operating, with the “excess” emissions covered through the purchase of emissions allowances from surrounding PJM states with excess allowances due to a lower-carbon profile.

Analyses performed for the Natural Resources Defense Council (NRDC) by M.J. Bradley & Associates also show that emissions trading on a national scale will result in relatively low

⁸ West Virginia DEP, Feasibility Report for a State Plan under EPA’s Clean Air Act Section 111(d) Rule Regulating Carbon Dioxide Emissions from Existing Fossil Fuel-Fired Electric Generating Units (Apr. 20, 2016), available at <http://www.dep.wv.gov/pio/Pages/Clean-Power-Plan.aspx> [hereinafter “DEP FEASIBILITY STUDY”]

⁹ *Id.* at 6 (emphasis added).

¹⁰ PJM Clean Power Plan Modeling Preliminary Phase 1 Long-Term Economic Compliance Analysis Results (May 6, 2016).

allowance prices.¹¹ In fact, under a national trading scenario, the allowance price would be zero through 2025 and would rise only to \$4.14 per ton in 2030 (assuming current levels of energy efficiency savings). Scaling up energy efficiency programs would lead to even lower allowance prices, to \$2.97 per ton. Importantly for West Virginia, the M.J. Bradley analysis for NRDC shows that national emissions trading, coupled with increased the level of energy efficiency, results in a reduction in the amount of coal plant retirements.

While it may seem counterintuitive that increasing investment in energy efficiency programs results in a lower level of coal plant retirements, supply and demand in the allowance market drive this result: increased energy efficiency savings result in a greater number of emissions allowances, thereby producing lower allowance costs, which results in lower compliance costs for existing coal plants to continue operating by covering their “excess” emissions with low-cost allowances. The compliance approach modeled by M.J. Bradley is similar to that modeled by PJM: West Virginia’s coal-fired power plants would comply by purchasing allowances from other states.

Findings of the Center’s Report

The final report performed by the Center jointly with Downstream Strategies, as noted above, modeled two scenarios showing how West Virginia could achieve compliance with the Clean Power Plan:

- **Existing Sources.** This scenario demonstrates how West Virginia could achieve compliance with mass-based compliance targets applied to existing sources only. West Virginia would maintain its role as a major electricity exporter through the use of a mix of generation and demand-side resources. This scenario illustrates how high levels of coal-fired generation can be combined with new natural gas combined cycle plants, modest levels of natural gas co-firing at two coal-fired power plants, and modest levels of new renewable energy and demand-side energy efficiency. This scenario does not address the issue of leakage.¹²
- **Existing Plus New Sources.** This scenario demonstrates how West Virginia could achieve compliance with mass-based compliance targets applied to existing and new sources, thereby directly addressing the issue of leakage. Compared with the Existing Sources Scenario, this scenario includes additional natural gas combined cycle capacity starting in 2030 and additional renewable energy and demand-side energy efficiency starting in 2018. In addition, it includes heat rate improvements at West Virginia’s coal-fired power plants. Even with this greater diversification of electricity generation

¹¹ M.J. Bradley & Associates. 2016. EPA’s Clean Power Plan, Summary of IPM Modeling Results with ITC/PTC Extension (June 10, 2016).

¹² As part of compliance with the Clean Power Plan, the EPA requires mass-based state plans to address the issue of “emissions leakage,” which results from the incentives under a mass-based plan to shift generation and emissions to new fossil-fired power plants outside the program.) Because nearly 1,900 megawatts of new natural gas combined cycle units are expected to come online in West Virginia before 2021, addressing leakage presents a challenge for West Virginia plan compliance. West Virginia can address the leakage issue by including these new plants under Section 111(d) and using the New Source Complement under the Clean Power Plan, which provides a slightly higher mass-based target to accommodate emissions from new sources.

sources, coal-fired generation would remain the main source of electricity generation in West Virginia. But by incorporating many other energy resources, West Virginia could actually generate new jobs, tax revenues, and environmental benefits of developing new energy resources, while maintaining its position as a major electricity exporter.

The table below shows the assumptions included in each of the two scenarios. Both involve modest increases in energy efficiency (i.e., utility programs to encourage customers to conserve energy and/or make investments in energy efficiency measures) and renewable energy resources (wind and solar), as well as some co-firing of natural gas at existing coal plants. The scenarios also reflect the projected addition of new natural gas-fired generation in West Virginia. While no natural gas-fired power plants currently operate in West Virginia, a combined-cycle combustion turbine is now being built in Moundsville, and is expected to bring 595 MW of high-efficiency capacity into service in 2018. Moreover, during the past year, Energy Solutions Consortium, LLC, a New York–based company, announced plans to build two additional natural gas–fired plants in West Virginia: a 750-MW plant in Brooke County at Follansbee, fueled with natural gas produced in the Utica Shale, and a 550-MW plant in Harrison County at Clarksbur that will take advantage of the output of the Marcellus Shale. Both plants have an expected in-service date of June 1, 2020.

Measure	Existing Sources	Existing Plus New Sources
Improve heat rates at coal-fired power plants	N/A	3% improvement
Increase non-hydropower renewables	2.8% of total generation by 2030	4.4% of total generation by 2030
Improve end-use energy efficiency	Cumulative savings of 5% by 2030	Cumulative savings of 15% by 2030
Hydropower	2.0% of total generation by 2030	2.4% of total generation by 2030
New natural gas combined cycle plants	595 MW in 2018; additional 1,235 MW in 2020	595 MW in 2018; additional 1,235 MW in 2020; additional 245 in 2030
Natural gas co-firing	15% co-firing at two plants—one in 2020 and the other in 2022	15% co-firing at two plants—one in 2020 and the other in 2022
Electricity exports	2012 exports continue through 2030	2012 exports continue through 2030

Low Compliance Costs—But Is That All?

As described in the preceding section, the Clean Power Plan presents some challenges for West Virginia, but *achieving the required CO₂ emissions reductions is eminently achievable*. That seems to be the consensus of the DEP Feasibility Study, the modeling performed by PJM and M.J. Bradley, as well as the report prepared by the Center and Downstream Strategies. But that is not—and should not be—the end of the discussion. *Are there actions that West Virginia policymakers should be taking to put the state in the position to take advantage of the economic opportunities that will be created by nationwide implementation of the Clean Power Plan?* The

answer is clearly “**YES!**” That is the focus of the “Policy Recommendations” section of the Center’s July 2016 final report. As will be discussed below, West Virginia policymakers in recent years generally *have moved in the wrong direction* to position the state for compliance with the Clean Power Plan and, more broadly, for the state to participate in the clean energy transformation that is underway nationally, whether we like it or not.

- Rather than provide the West Virginia DEP with all the available tools to fashion a compliance strategy for West Virginia under the Clean Power Plan that will work for West Virginia and will take advantage of the flexibility afforded by the Clean Power Plan, the legislature passed a law in 2015 that severely limits DEP’s tools for developing a compliance strategy and creates a situation virtually guaranteeing the imposition of a Federal Implementation Plan by the EPA using its authority under the Clean Air Act.
- Rather than requiring electric utilities in the state to engage in a meaningful long-term planning process that is geared toward keeping rates low for utility customers and taking advantage of all the resource options at the utility’s disposal—including energy efficiency—West Virginia law fails to require utilities to treat energy efficiency as a “resource” and to plan with an eye toward keeping rates reasonable.
- Rather than requiring utilities to offer meaningful energy efficiency programs for their customers—and thereby give customers the tools necessary to manage their energy costs—the electric utilities operating in West Virginia are allowed to offer token energy efficiency programs that place the Mountain State near the bottom of all the states in the U.S. with respect to energy efficiency offerings.
- Rather than encouraging the development of renewable resources within West Virginia, the legislature as one of its first actions of the 2015 legislative session repealed the Alternative and Renewable Energy Portfolio Standard, leaving West Virginia without any measures that stimulate the development of renewable resources in the state.
- Rather than encouraging the development of distributed energy resources in West Virginia, and thus allowing West Virginians to participate in the new energy economy created by rapid expansion of distributed solar resources throughout the United States, the legislature in 2015 passed a law directing the West Virginia Public Service Commission (PSC) to ensure that no “cross-subsidization” arises from the state’s existing net metering policies. The effect of this law was to create a cloud of uncertainty over what could be a vibrant market for utility customers in West Virginia seeking resources to generate their own electricity and help manage their energy costs. Moreover, West Virginia remains one of the few states in the country that does not allow power purchase agreements or lease arrangements for utility customers seeking to install solar PV panels.

It's time to take decisive action to position West Virginians to be players in this new, clean energy economy. Compliance with the Clean Power Plan regionally and nationally is going to stimulate tremendous economic opportunities, as states compete to generate the zero- and low-carbon resources (e.g., renewable and low-carbon energy sources and expanded energy efficiency programs) that carbon emitters will need in order to achieve compliance with the Clean Power Plan. In other words, West Virginia has an opportunity to generate the “currency” that will be used in the clean energy markets of the future. As described in the DEP Feasibility Study:

“As part of the system for effecting this change, the EPA rule establishes a form of ‘currency’ which electric generating units must acquire in order to comply. For states that choose to adopt a mass-based plan, the units of this currency are called allowances. For states that adopt a rate-based plan, the units are called emission rate credits (ERCs). In either system, a generating unit must possess enough currency at the end of the compliance period to enable it to meet the limit for that period. A state plan may allow trading of this currency on an in-state-only, a multistate or a national basis. Generally, the wider the market for trading is, the lower the per-unit cost of the currency is anticipated to be. The mass and rate-based markets are structured differently, but both are intended to encourage movement away from high carbon sources of electricity to lower emitting sources.”¹³

The pathway for compliance with the Clean Power Plan in West Virginia will be a much easier one if West Virginia policymakers start implementing the measures that will produce the “currency” of the energy markets of the future, and thereby enable the state to take advantage of the economic opportunities created by the Clean Power Plan. The recommended actions are fairly straightforward, as discussed in the next section.

Recommended Policies to Increase Economic Opportunities for West Virginians

- Remove legislative restrictions on state plan development

As noted above, West Virginia enacted HB 2004 in 2015, codified at W.Va. Code § 22-5-20. This legislation would severely limit restrict the ability of the West Virginia DEP to take advantage of the flexibility afforded under the Clean Power Plan to develop a compliance strategy that works for West Virginia. A strict interpretation of HB 2004 suggests that DEP could be limited to developing performance standards based solely on the emission reduction potential of heat rate improvements at individual power plants. In its Feasibility Study, DEP took the position that the effect of certain provisions in W.Va. Code §§ 22-5-20-(e) and (f) would limit the compliance approaches that DEP may wish to use in developing a state plan. Specifically, DEP interpreted the statute to allow consideration of only “inside the fence” measures (i.e., modification

¹³ DEP FEASIBILITY STUDY at 26.

of individual generating units to improve their performance) and to preclude the trading of ERCs or allowances. The DEP Feasibility Study recommended that state law be changed to expressly permit a mass-based plan with trading as a means of compliance.¹⁴ Removing the limitations imposed in W.Va. Code § 22-5-20 is essential to afford DEP with maximum flexibility to choose among the various compliance options available under the Clean Power Plan when developing a state plan for West Virginia. The preferred path identified by DEP in its Feasibility Study, as discussed above, relies on the availability of trading ERCs or allowances as the least disruptive compliance strategy for West Virginia.

- Issue revised integrated resource planning requirements for electric utilities

Integrated resource plans (IRPs) evaluate a full range of supply- and demand-side resource alternatives for meeting projected electric power demand in order to provide adequate and reliable service to customers at the lowest system cost. This range of alternatives includes, among other things, new generating capacity, power purchases, energy conservation and efficiency, combined heat and power (CHP), district heating and cooling applications, and renewable energy resources.

The “integrated” aspect of IRPs ensures that a utility considers demand-side (e.g., conservation and energy efficiency) and other customer-sited resources (e.g., solar PV and co-generation) on the same footing as the addition of traditional supply-side resources (large, utility-owned generating plants) when it evaluates options for meeting future system needs. West Virginia adopted legislation in 2014 requiring the state’s utilities to engage in integrated resource planning. The PSC issued an order in March 2015 requiring West Virginia utilities to submit IRPs by January 1, 2016 and at least every five years after that date. There is nothing in the 2014 legislation or in the PSC order, however, that requires *integration* of supply-side and demand-side resources in the development of IRPs.

FirstEnergy’s 2015 IRP, for example, fails to integrate energy efficiency as a resource, and in fact concludes that “[p]rograms to reduce demand cannot consistently and reliably fulfill the long term need for supply side resources,”¹⁵ an analysis—or lack thereof—that utterly fails to fulfill the “integrated” requirement of integrated resource planning. FirstEnergy continues to pursue its path of meager energy efficiency savings—0.1 percent per year through 2018—notwithstanding the compelling evidence that energy efficiency is the most cost-effective tool for addressing utility resource needs as well as reducing GHG emissions. In sharp contrast, the Appalachian Power IRP treats energy efficiency as a “stand-alone resource” to be incorporated in an optimum resource portfolio, and it similarly integrates wind and solar resources as economically justifiable supply-side acquisitions.¹⁶

¹⁴ *Id.* at 9.

¹⁵ 2015 Integrated Resource Plan, Monongahela Power Company and The Potomac Edison Company, Dec 30, 2015 [hereinafter “FIRSTENERGY IRP”], p. 56.

¹⁶ Appalachian Power, Integrated Resource Plan to the Public Service Commission of West Virginia, Jan. 1, 2016., p. ES-5.

In addition to its rejection of energy efficiency as a resource and its dismissal of renewable resources as “expensive” and “intermittent,” FirstEnergy’s 2015 IRP lays the groundwork, without any supporting quantitative analysis, for the possible purchase of the Pleasants Power Station—a 1,300-MW coal-fired generating station constructed in the late 1970s and currently owned by its unregulated subsidiary, FirstEnergy Solutions. FirstEnergy’s regulated subsidiaries in West Virginia, MonPower and Potomac Edison, would purchase this plant. It is difficult to explain from the ratepayers’ perspective how acquisition of another coal-fired generating unit makes sense as a long-term resource strategy, given the carbon constraints imposed under the Clean Power Plan. The acquisition, apart from being completely contrary to the trend of other utilities in the U.S. to divest themselves of coal-fired generation, would result in capacity and energy additions that seem to be far in excess of the needs of the MonPower and Potomac Edison ratepayers. As in the case of FirstEnergy’s successful sale of 80 percent of its Harrison Power Station from its unregulated subsidiary to MonPower in 2013, FirstEnergy will likely contend that any excess capacity can be sold in the wholesale energy markets, thereby resulting in benefits for its regulated customers from acquisition of this “low cost producer” from FirstEnergy Solutions. At \$57 per MWh,¹⁷ however, this resource will likely not be “in the money” in the competitive PJM energy markets, and West Virginia ratepayers may be saddled with another non-competitive coal plant that, like the Harrison acquisition, contributes to upward rate pressures as the forecasted wholesale revenues fail to materialize.¹⁸ The harsh realities of the competitive wholesale marketplace in PJM can only be expected to worsen for coal plants in the medium-term, given the anticipated addition of nearly 1,900 MW of highly efficient natural gas-fired plants in West Virginia over the next five years.

A robust IRP requirement would ensure that energy efficiency, renewables, natural gas, coal, and other resources are evaluated on equal footing so that West Virginia consumers receive the benefit of a reliable energy system at the lowest system cost over the long term. Well-designed IRP rules would also provide a transparent framework for evaluating and securing the lowest-cost compliance options under the Clean Power Plan.

- Adopt an Energy Efficiency Resource Standard

Energy efficiency programs offer consumers the tools to take control of their energy bills through appliance, equipment, heating, air conditioning, lighting, weatherization, and other upgrades that result in the use of less energy while still receiving the same level of energy service. Twenty-six states (including neighbors Ohio, Maryland, Pennsylvania, and Virginia) have energy efficiency mandates (either by legislation or regulatory order) that require utilities or state agencies to develop programs that help their customers implement end use energy efficiency improvements. The mandates are often referred to as EERSs. Some states require utilities to meet annual energy

¹⁷ FIRSTENERGY IRP, Figure 16 at 53.

¹⁸ A report recently issued by the Institute for Energy Economics and Financial Analysis found that Mon Power customers have borne \$164 million in additional costs attributable to the Harrison acquisition. Cathy Kunkel, *Re-Regulating Coal Plants in West Virginia: A Boon to FirstEnergy, a Burden to Ratepayers*, Sep. 2016, available at http://ieefa.org/wp-content/uploads/2016/09/Re-regulating-Coal-Plants-in-West-Virginia_September-2016.pdf

efficiency savings targets, while others require utilities to spend a specified percentage of total retail sales on energy efficiency programs. Even though energy efficiency programs vary by state, they all bring energy savings benefits to consumers.

Unfortunately, utility customers in West Virginia do not have the same opportunity to access energy efficiency programs that customers of those same utilities have in neighboring states. As a result, West Virginia residents pay higher electricity bills than residents in most states and will likely see even higher bills as utilities continue to seek annual rate increases under the power cost recovery mechanism currently in place in West Virginia. In its recent ranking of states with respect to the effectiveness of their energy efficiency programs, the American Council for an Energy Efficient Economy (ACEEE) ranked West Virginia No. 44 out of the 51 states evaluated (including the District of Columbia).¹⁹ West Virginia received a total of 8 points out of the 50 points possible in the ranking system and, remarkably, on the metric of utility program offerings, West Virginia received a *minus 0.5* score out of the 20 points possible.²⁰ According to the ACEEE report, although electric utilities in West Virginia implement efficiency programs, they “achieve low levels of savings,” and “the state has not enacted any adjustments to the utility business model to incent utilities to include energy efficiency as part of resource planning.”²¹

The adoption of an EERS in West Virginia would provide tangible economic benefits to residents and business and a low-cost emission reduction measure under the Clean Power Plan. West Virginia utility customers should have the same opportunity to access energy efficiency savings as utility customers in neighboring states. Ohio and Pennsylvania require AEP and FirstEnergy affiliates to meet energy efficiency goals, and in Kentucky, customers are benefiting from energy efficiency upgrades through the How\$martKY program. How\$martKY employs one of the many customer-based financing mechanisms—on-bill financing—to allow customers to pay for the customer portion of energy efficiency retrofits over time with the savings generated from the retrofits. West Virginia should adopt an EERS that requires the state’s utilities meet an energy efficiency goal of at least 15 percent by 2030 and that sets goals for achieving a percentage of the cumulative 2030 target at five-year intervals.

- Adopt a Renewable Energy Portfolio Standard

Renewable energy is a rapidly growing component of the U.S. economy and provided the largest portion of new capacity additions and total electric generation in the U.S. in 2014. Renewable energy, including wind, solar, and hydropower, has strong potential for future growth in West Virginia. Twenty-nine states, including Maryland, Ohio, and Pennsylvania, have adopted renewable energy standards to incentivize the development of renewable energy resources in their state and to capitalize on the energy and economic benefits of including these resources as part of

¹⁹ ACEEE, The 2016 State Energy Efficiency Scorecard, available at <http://aceee.org/state-policy/scorecard>.

²⁰ ACEEE, The 2016 State Energy Efficiency Scorecard, West Virginia, available at <http://database.aceee.org/state/west-virginia>

²¹ ACEEE, The 2016 State Energy Efficiency Scorecard, West Virginia Fact Sheet, available at <http://aceee.org/sites/default/files/pdf/state-sheet/2016/west-virginia.pdf>

a diverse energy portfolio. West Virginia should adopt an RPS that includes binding targets for the development of new renewable energy resources such as wind, solar, and hydropower.

West Virginia enacted its AREPS in 2010, but that law was repealed in 2015. The AREPS required utilities to meet increasing percentages of their electricity supply through either “alternative” or “renewable” energy sources. The AREPS legislation was structured, however, so that utilities could meet the portfolio standard entirely with “alternative” resources—which included burning natural gas, tires, and coal—thereby creating no additional incentive for the development of renewable energy in West Virginia.

The Legislature could adopt a new RPS that requires a percentage of or retail or total electric generation be met with electricity generated from renewable energy sources. The RPS could set a target date of 2030 and provide interim target dates by which increasingly greater portions of the final target must be achieved. An RPS should also incorporate a carve-out requiring a percentage of the renewable energy standards be met with solar energy. Many states throughout the U.S. are moving to integrate more solar PV to take advantage of this increasingly cost-competitive distributed energy resource that brings diversification to a utility’s power supply portfolio and provides customers another tool by which to control their energy costs. Incentives such as an RPS with a solar carve-out would have a positive impact on renewable investment decisions, and would stimulate production of valuable zero-carbon “currency.”

- Adopt policies that encourage investment in clean distributed generation resources

DG resources are generating facilities (typically not more than 20 MW) that are interconnected to a local distribution system. DG resources include CHP, solar PV, anaerobic digestion, fuel cells, and other small-scale generation resources. These resources are typically owned by customers, not distribution utilities, and are sited at or very close to a customer’s home or business. Investment in DG, particularly solar PV, has increased dramatically in recent years as equipment and installation costs have declined significantly. State policies that facilitate interconnection and net metering, remove discriminatory utility tariffs, and facilitate alternative financing structures that provide customers different financing options are important factors in creating a market structure in which the benefits of DG resources can be realized by consumers, utilities, and grid operators.

West Virginia currently has interconnection and net metering policies in place that facilitate the development of DG resources by providing utility customers with certainty as to utility interconnection practices and the revenue they will receive for electricity produced through customer-sited generation. In 2015, however, the Legislature enacted HB 2201, which requires the PSC to ensure that net metering rates do not result in “cross-subsidization” of customer generators by customers who do not generate their own power. The enactment of HB 2201 creates uncertainty and casts some doubt on the prices that utilities will be required to pay for customer-generated power, given HB 2201’s prohibition on “cross-subsidization,” the complexities of the rate-setting process, and the poor track record of West Virginia utilities with respect to integration of DG resources. Rather than enhancing the ability of individual West Virginians to take control over

their energy costs by generating their own electricity, HB 2201 does precisely the opposite—it creates uncertainty and increases the risks associated with investment in DG resources.

In May 2015, the PSC appointed a net metering task force to undertake a review of net metering policies, as required by HB 2201. That task force met for several months thereafter, and PSC staff filed its final report with the PSC in September 2015, recommending generally that “cross-subsidization” be defined narrowly to include only costs “directly incurred” by the utility to accommodate net metering customers—a recommendation that would largely leave the existing net metering provisions in place.²² Although most members of the net metering task force expressed support for the Staff position, both FirstEnergy and AEP dissented from those recommendations and urged the PSC to adopt a different approach for net metering customers that would impose additional charges (i.e., standby charges) and/or eliminate the utilities’ obligation to purchase customer-generated energy at retail rates. One year later, the PSC has yet to act on the recommendations of the net metering task force, and the future of net metering in West Virginia remains uncertain.

Moreover, West Virginia remains one of the few states in the country that does not allow power purchase agreements (PPAs) or lease arrangements for utility customers seeking to install solar PV panels. As a result, customers seeking to install solar panels must bear the full up-front capital costs, rather than have the option available in most other states to contract with a solar developer to lease panels or enter into a PPA that will make distributed solar more feasible for the average homeowner or business.

Impact of EPA Regulations on Air Quality

While not directly related to carbon regulation under the Clean Power Plan, the EPA has also taken action to make the ozone standard more stringent. Relevant to this testimony, West Virginia apparently has achieved compliance with this stronger standard. On October 1, 2015, the EPA revised the primary and secondary ozone National Ambient Air Quality Standard (NAAQS) under the Clean Air Act, strengthening both the standards from 75 parts per billion (ppb) to 70 ppb. (Primary standards are health-based to protect people; secondary standards provide protection against decreased visibility and damage to animals, crops, vegetation and buildings.) The West Virginia DEP announced on Friday that it has recommended to the EPA that the entire state of West Virginia be designated as being in attainment with the new ozone NAAQS. The recommendation is based upon quality assured data submitted by the DEP’s Division of Air Quality (DAQ) from its EPA-approved statewide monitoring network. If EPA doesn’t modify the state’s recommended designation, it becomes effective Oct. 1, 2017. In commenting on DEP’s recommendations to the EPA, DEP Cabinet Secretary Randy C. Huffman stated that “the fact that our ozone design values have continued to decrease and we are meeting EPA’s most stringent

²² West Virginia PSC, Case No. 15-0682-E-GI.

ozone standard yet is a great testament to the success of our state and regional air pollution control programs.”²³

Conclusion

There is no question that the coal mining communities of southern West Virginia are bearing the brunt of the nation’s transition to a clean energy economy. This transition is driven by a number of factors, only one of which is the role of regulations adopted by EPA under the Clean Air Act, such as the Mercury and Air Toxics Standard (MATS) and the Clean Power Plan. Other drivers include the overall de-carbonization of the nation’s electricity supply due to the availability of relatively cheap and plentiful natural gas and dramatic declines in the cost of renewable energy resources, as well as the cost disadvantage of Central Appalachian coal due to the decreasing productivity of coal mines in the region. With respect to the impact of the Clean Power Plan in West Virginia in particular, a number of independent analyses have concluded that the Mountain State can achieve compliance with the required reductions in GHG emissions without significant repercussions to West Virginia’s economy. Given the dire economic circumstances currently prevailing in southern West Virginia and the fiscal impacts that flow through to state and local governments as coal production continues to decline, however, **any** adverse impact should be avoided.

These adverse impacts can be mitigated, however, by acting promptly to position the state to take advantage of the economic opportunities that will be stimulated by regional and national efforts to comply with the Clean Power Plan. In the words of Albert Einstein, “in the middle of every difficulty lies opportunity.” These compliance strategies are going to stimulate tremendous economic activity, as states compete to generate the “currency” of the energy markets of the future, in the form of zero- and low-carbon resources (e.g., renewable and low-carbon energy sources and expanded energy efficiency programs). With an “all-of-the-above” energy strategy, West Virginia can be a successful participant in these carbon markets, and tap into the resulting job creation and economic benefits that will be generated over the coming decades. The pathway for compliance with the Clean Power Plan in West Virginia will be a much easier one if West Virginia policymakers start implementing the measures that will produce the “currency” of the energy markets of the future, and thereby enable the state to take advantage of the economic opportunities created by the Clean Power Plan.

²³ West Virginia DEP, *Data Shows West Virginia Complies with New Ozone Standard*, Sep. 30, 2016, available at <http://www.dep.wv.gov/news/Pages/Data-Shows-West-Virginia-Complies-with-New-Ozone-Standard.aspx>