



Legal Department

December 22, 2014

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Re: *In the Matter of the Application Seeking Approval of Ohio Power Company's Proposal to Enter into an Affiliate Power Purchase Agreement for Inclusion in the Power Purchase Agreement Rider, Case No. 14-1693-EL-RDR; In the Matter of the Application of Ohio Power Company for Approval of Certain Accounting Authority, Case No. 14-1694-EL-AAM*

Dear Attorney Examiners:

On October 3, 2014, Ohio Power Company (AEP Ohio) filed its Application to initiate the above-captioned proceeding. On December 14, 2016, Signatory Parties filed a Joint Stipulation and Recommendation (Stipulation), which was subsequently modified and adopted in the Commission's March 31, 2016 Opinion and Order and November 3, 2016 Second Entry on Rehearing. Section III.E and F of the Stipulation, among other things, relate to AEP Ohio's carbon reduction commitment and require AEP Ohio to file a Carbon Emission Reduction Plan by December 31, 2016. Enclosed is the Company's Carbon Emission Reduction Plan.

Thank you for your attention to this matter.

Respectfully Submitted,

cc: Parties of Record

## **AEP 2016 Carbon Emission Reduction Plan**

### **Introduction**

Pursuant to Section III.E and III.F of the Stipulation, as approved, modified and adopted by the Commission in Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM in its March 31, 2016 Opinion and Order, this report outlines the current strategy of American Electric Power Company, Inc. (“AEP” or “Company”) for the reduction of carbon emissions. It is in the context of this and other goals that AEP Ohio plans to pursue its commitment to protecting the environment while delivering safe, reliable, clean and affordable electricity to customers.

AEP and its affiliate companies, are committed to protecting the environment while delivering safe, reliable electricity. From 2000 through 2016, AEP has made environmental-related generation investments totaling an estimated \$8.5 billion<sup>1</sup>, and by mid-2016 has retired approximately 6,500 megawatts (MW) of coal generating capacity as a result of the Mercury and Air Toxics Standards. These upgrades to AEP’s existing plants and the retirement of older coal-fired power plants, along with the addition of renewable resources and natural gas-fired power plants to our fleet, are projected to reduce emissions of sulfur dioxide, nitrogen oxides, and mercury by 94%, 89%, and 87%, respectively, from 1990 through 2017<sup>2</sup>. CO<sub>2</sub> emissions are steadily decreasing as the size of our coal-fired generation fleet decreases and the use of less carbon-intensive natural gas and renewable resources increases. CO<sub>2</sub> emissions in 2017 are projected to be 46% below 2000 levels<sup>2</sup> (as seen in Exhibit A, pg. 3), with further reductions in future years.

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<sup>1</sup>Slide 18, [http://www.aep.com/investors/eventspresentationsandwebcasts/documents/2016BAMLSept15\\_2016.pdf](http://www.aep.com/investors/eventspresentationsandwebcasts/documents/2016BAMLSept15_2016.pdf)

<sup>2</sup> Slide 44, [http://www.aep.com/investors/eventspresentationsandwebcasts/documents/2016\\_EEI\\_Handout.pdf](http://www.aep.com/investors/eventspresentationsandwebcasts/documents/2016_EEI_Handout.pdf)

## **Background**

This Carbon Emission Reduction Plan is being created to meet the requirements of the Stipulated Settlement Agreement entered into by AEP Ohio and other parties as part of Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM, and approved by the Commission in its Opinion and Order in those cases on March 31, 2016. In that Stipulated Settlement agreement, AEP Ohio agreed to, by December 31, 2016:

...file a carbon emission reduction plan indicating how the Company and its affiliates intend to promote fuel diversification and carbon emission reduction, including an analysis of the economic impact of any proposals for the Commission's consideration. AEP Ohio will incorporate AEP's activities and plans relating to carbon reduction into the filed carbon emission reduction plan. For example, AEP's goals for transforming its generation fleet (while maintaining 6 percent nuclear generation) include: (1) reducing reliance on coal/lignite generation from 74 percent in 2005 to 48 percent by 2026; (2) increasing natural gas generation from 17 percent in 2005 to 25 percent by 2026; (3) increasing hydro/wind/solar/pumped storage from 3 percent in 2005 to 15 percent in 2026; and (4) increasing energy efficiency/demand response from less than 1 percent in 2005 to 6 percent in 2026. Reliance on resources with higher carbon emissions may be replaced with renewable resources, energy efficiency, and other advanced technologies, including batteries. (Joint Ex. 1 at 28-29.)

This carbon emission reduction plan summarizes actions the Company has taken to date, as well as outlines the processes that the Company is undertaking to meet the future needs of its customers in a manner that is both economic and protective of the environment. Additionally, this report summarizes the current forecasts prepared by the Company across its various subsidiaries, and how those forecasts meet the Company's broad goal of reducing carbon emissions. These plans are reasonable, and consistent with the current state of carbon regulation in the various jurisdictions.

Attached to this report is Exhibit A which summarizes the past and future planned actions of the Company. These charts demonstrate AEP's commitment to reducing carbon

emissions and diversifying its fuel mix. These charts were part of a presentation by the Company at the 2016 Edison Electric Institute (EEI) Financial Conference in November 2016.

### **Recent Reductions in Carbon Emissions**

AEP's CO<sub>2</sub> emissions significantly decreased between 2014 and 2015, largely due to low natural gas prices, slowing load growth and coal unit retirements. AEP's CO<sub>2</sub> emissions were approximately 123 million metric tons in 2014, they were approximately 102 million metric tons in 2015. This represents a 16.5 percent decrease compared with 2014 and an approximate 39 percent reduction compared with our 2000 CO<sub>2</sub> emissions of about 167 million metric tons.

AEP's subsidiaries retired approximately 6,500 MW of coal-fired capacity through mid-2016 due to the Mercury and Air Toxics Standards (MATS) Rule. These were generally older units that were not already equipped with advanced pollution controls for sulfur dioxide or nitrogen oxides, and could not be economically retrofitted with the controls necessary to comply with the rule.

Due to the requirements of existing and proposed environmental regulations, the permitting and construction of new coal plants is not practical. As reflected in the Carbon Profile Analysis of AEP's 2016 Corporate Accountability Report, "AEP has no plans to build new coal plants and is carefully scrutinizing all investments in our existing coal fleet".<sup>3</sup>

### **Increasing Natural Gas Generation**

The shale gas revolution has had a major impact on the markets in which AEP operates. The persistently low natural gas prices, relatively low emission rates for key pollutants from natural gas, and increasing cost of coal-fired generation, have moved AEP and

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<sup>3</sup> <https://www.aepsustainability.com/about/carbon.aspx>

other companies toward increasing reliance on natural gas for generating energy. This is reflected in the charts on Pages 1 and 2 of Exhibit A, which demonstrate AEP's anticipated increase in reliance on natural gas.

AEP reports annually to the [Carbon Disclosure Project](#). This information is shared with investor groups, shareholders, government agencies, and other public organizations. These responses provide a valuable insight into how the company addresses and manages what many consider to be important business risks.

### **Forecasts for the Future**

As the size of AEP's coal fleet is decreasing, the needs of our customers will be met by increasing the supply of power with natural gas and renewables, as well as increased energy efficiency and demand response activities. The impacts of the changes can be seen in the graph labeled *AEP's Generating Resource Portfolio*, which can be found on page 2 in Exhibit A to this report. This graph summarizes the effects of the aforementioned coal plant retirements, coupled with the Company's planned resource additions identified on Page 1 in Exhibit A.

AEP subsidiaries utilize Integrated Resource Plans ("IRPs") to create reasonable plans to meet the anticipated future capacity and energy needs of their customers. IRPs incorporate the best information available at the time they are developed and consider inputs including, but not limited to: customer load requirements, commodity prices, supply-side alternative costs, demand side program costs and impacts, and the requirements of current and reasonably anticipated environmental regulations. These IRPs are developed on varying schedules dictated by their respective jurisdictions or planning needs.

The Company's investment decisions are based in large part on the IRP analyses. Across all AEP subsidiaries, the forecasts lean toward purchase and/or ownership of additional

universal-scale renewable resources, addition of more natural gas-fired resources, and inclusion of customer-installed renewable resources such as rooftop solar that may offset some portion of customers' needs. The graph on page 1 of Exhibit A provides a summary of anticipated needs for the addition of new generation across AEP's footprint. These additions are comprised of 3,400 MW (nameplate) of solar capacity, 5,400 MW (nameplate) of wind capacity, and 3,000 MW of gas-fired capacity. It should be noted that additions of solar and wind capacity exceed the amount of natural gas additions, and that natural gas is the only fossil fuel addition planned.

### **Increasing Energy Efficiency, Demand Response**

Energy efficiency and demand response programs are employed to reduce energy consumption by customers. New technologies such as Volt Var Optimization are also used to reduce energy needs and thus energy production.

### **Maintaining Nuclear Generation**

AEP plans to maintain its current level of nuclear output through the prudent management of its Cook Nuclear Plant located in Bridgman, Michigan. In 2005, AEP received license extensions for Cook Units 1 and 2 to operate until 2034 and 2037, respectively. I&M has also undertaken a Life Cycle Management program at the Cook Plant to ensure that the plant is capable of running safely and reliably to continue providing carbon-free emissions to its customers over the remaining life of those units.

### **Greenhouse Gas ("GHG") Control**

System-wide, AEP is currently focused on taking practical, short-term actions to reduce carbon emissions, such as improving energy efficiency, investing in the development of cost-effective and less carbon-intensive technologies and evaluating our assets – power plants, office buildings, and mobile fleet – across a range of reasonable scenarios. The transformation of our

generation business is expected to reduce our reliance on coal and lignite from 68% of our generating capacity in 1999 to approximately 47% in 2017, as shown on Page 1 of Exhibit A. AEP affiliates are heavily invested in renewable energy resources, and highly successful energy efficiency programs. The corresponding reduction in carbon emissions can be seen on Page 3 of Exhibit A to the report.

In 2015, a number of global policy developments brought climate change and the role of carbon to the forefront of public discourse. From the Clean Power Plan to the United Nations-sponsored global climate talks and subsequent multi-nation agreement in Paris, the issue of carbon and climate intensified political and civil society scrutiny of carbon-intensive industries. Among them – the electric power sector.

AEP has had many discussions with investors, environmental groups and other stakeholders about this issue and AEP's plan to reduce carbon emissions. Regardless of the outcome of legal challenges to the Clean Power Plan, AEP realizes that there will be carbon regulations in the future.

AEP has proactively addressed carbon emissions through voluntary actions as a member of the former Chicago Climate Exchange, and through our resource planning and investment processes. AEP is already less carbon-intensive than a decade ago. As we retire additional coal units and increase our use of renewables and other clean energy resources, our carbon footprint will continue to shrink. Our integrated resource plans reflect this diversification and incorporate a price for carbon, starting in 2022, as a proxy for future carbon regulations.

With respect to mandated climate action, AEP strongly believes that any carbon policy or regulation must be rational in terms of timing, scope and reduction targets. Additionally, any climate action framework should be built on a rational approach and take into account the

regional differences in the role of carbon within our economy to ensure that there is not undue economic harm.

The U.S. EPA finalized the Clean Power Plan (“CPP”) in October 2015, using an existing section of the Clean Air Act. The CPP would require states to develop state-level compliance plans. AEP began discussions with our states, urging them to develop state implementation plans, rather than be forced to comply with a federal implementation plan that would not account for each state’s unique energy and economic needs.

The final rule raised legal concerns and was subsequently challenged in the D.C. Circuit Court by a number of stakeholders, including the Utility Air Regulatory Group, of which AEP is a member.

In February 2016, the rule was subject to a stay order from the U.S. Supreme Court to allow for the appropriate legal review of the rule. We continue to advocate that any plan to reduce greenhouse gas emissions be accompanied by a thorough assessment of the impact on grid reliability, allow adequate time for implementation, respect the authority of states and other federal agencies, and preserve a balanced, diverse mix of energy resources for electricity generation.

The Supreme Court stay order doesn’t change AEP’s focus on generating and delivering electricity in ways that meet the needs and expectations of our customers. That includes diversifying our resource mix and investing in renewable generation and other innovations that increase efficiency and reduce emissions.

While the courts conduct a legal review of the CPP, AEP will continue its long-term commitment to serving our customers in cost effective and environmentally responsible ways.



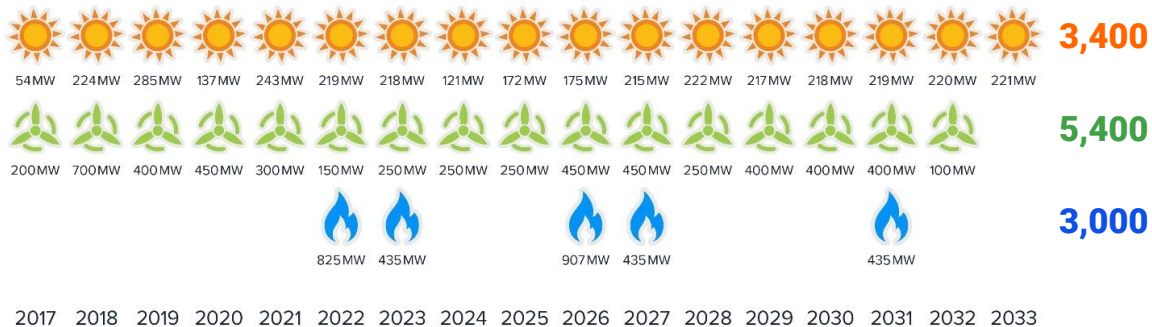
Through 2015, AEP's carbon dioxide emissions (CO<sub>2</sub>) have been reduced 39 percent from 2000 levels, and we will continue to reduce carbon dioxide emissions as we transition to more natural gas and renewable resources in the future. Our current resource plans have been developed to insure we are factoring in future carbon regulations, but they are not CPP compliance plans, because we cannot develop such plans until after the states take action in response to the final rule.

# INVESTING IN A GREENER FUTURE

## AEP SYSTEM PLANNED GENERATION RESOURCE ADDITIONS

regulated and AEP Ohio Purchase Power Agreement

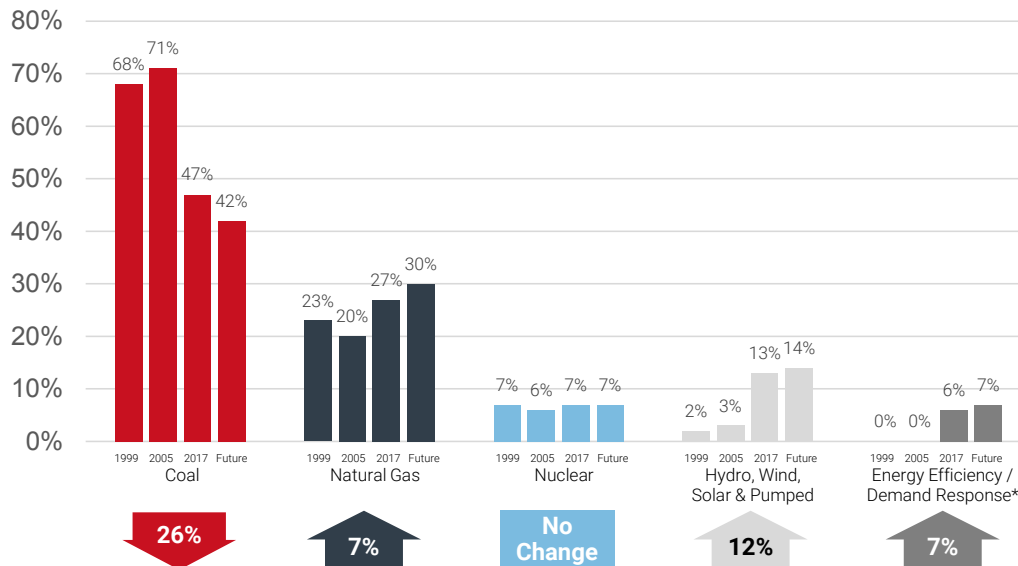
**Total MW**



Source: Current internal Integrated Resource Plans, which largely do not reflect ITC/PTC extension or Bonus Depreciation.  
Wind and solar represent nameplate MW capacity.

# AEP'S GENERATING RESOURCE PORTFOLIO

## PAST AND FUTURE CAPACITY



1999 includes AEP and Central and South West generation combined. All periods presented include Purchase Power Agreements

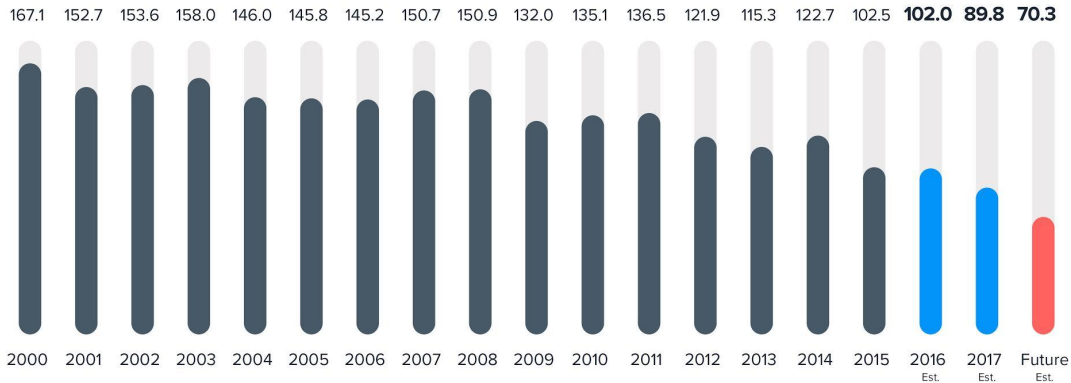
Future excludes Cardinal, Conesville, Stuart and Zimmer plants

\* Energy Efficiency / Demand Response represents avoided capacity rather than physical assets

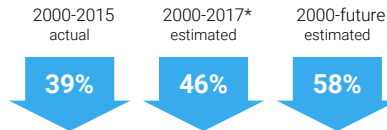
# DRAMATIC REDUCTIONS IN EMISSIONS

## TOTAL AEP SYSTEM – ANNUAL CO<sub>2</sub> EMISSIONS

in million metric tons



CO<sub>2</sub>



\* Reflects impact of sale of Lawrenceburg, Waterford, Darby and Gavin plants  
Future excludes Cardinal, Conesville, Stuart and Zimmer plants

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**12/22/2016 11:13:29 AM**

**in**

**Case No(s). 14-1693-EL-RDR, 14-1694-EL-AAM**

Summary: Correspondence - AEP Ohio 2016 Carbon Reduction Plan Submitted by Ohio Power Company electronically filed by Mr. Steven T Nourse on behalf of Ohio Power Company