

AEP OHIO EX. NO. _____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application Seeking)	
Approval of Ohio Power Company's)	
Proposal to Enter into an Affiliate)	
Power Purchase Agreement for)	Case No. 14-1693-EL-RDR
Inclusion in the Power Purchase)	
Agreement Rider)	

In the Matter of the Application of)	
Ohio Power Company for Approval of)	Case No. 14-1694-EL-AAM
Certain Accounting Authority)	

DIRECT TESTIMONY OF
JOHN M. MCMANUS
IN SUPPORT OF AEP OHIO'S
AMENDED APPLICATION

Filed: May 15, 2015

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JOHN M. MCMANUS

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JOHN M. MCMANUS
ON BEHALF OF
OHIO POWER COMPANY

1 **PERSONAL DATA**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is John M. McManus, and my business address is 1 Riverside Plaza,
4 Columbus, Ohio 43215.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by American Electric Power Service Corporation (“AEPSC”) as Vice
7 President – Environmental Services. AEPSC is a wholly owned subsidiary of
8 American Electric Power Company, Inc. (“AEP”), the parent of Ohio Power Company
9 (“AEP Ohio”, or “the Company”) and AEP Generation Resources, Inc. (“AEPGR”).

10 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND**
11 **PROFESSIONAL BACKGROUND.**

12 A. I earned a Bachelor of Science Degree in Environmental Engineering from Rensselaer
13 Polytechnic Institute in 1976 and undertook graduate studies there from 1976-77. I
14 joined AEPSC’s Environmental Engineering Division in September 1977. After
15 holding various positions in the environmental division over the years, I was appointed
16 as Manager, Environmental Services in December 2002 and remained in that position
17 until April 2003. I was appointed to my current position as Vice President -
18 Environmental Services in April 2003. I am also a registered professional engineer in
19 the State of Ohio.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN ANY REGULATORY**
2 **PROCEEDINGS?**

3 A. Yes, I have previously testified before the Public Utilities Commission of Ohio
4 (“PUCO” or “the Commission”), Kentucky Public Service Commission, Virginia State
5 Corporation Commission, Indiana Utility Regulatory Commission, Public Service
6 Commission of West Virginia, and I have submitted written testimony before the Public
7 Utility Commission of Texas.

8 **Q. WHAT IS YOUR ROLE AS VICE PRESIDENT – ENVIRONMENTAL**
9 **SERVICES FOR AEPSC?**

10 A. As Vice President - Environmental Services for AEPSC I am responsible for leading
11 the organization that provides environmental compliance support for AEP’s operating
12 companies. With respect to generating facilities, my organization’s activities include
13 interpreting the requirements of existing and proposed environmental rules and
14 regulations, and providing support to affiliates for compliance planning. My group
15 communicates the requirements of regulations with AEP subsidiaries, such as AEPGR,
16 so that they can make informed managerial decisions regarding compliance with all
17 relevant environmental regulations. While AEP does not operate those units owned by
18 the Ohio Valley Electric Corporation (“OVEC”), Environmental Services also provides
19 environmental compliance support to this organization as needed.

20 **PURPOSE OF TESTIMONY**

21 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

22 A. The purpose of my testimony is twofold. First, I will discuss existing and proposed
23 environmental regulations that are likely to affect the generating units that are proposed

1 to be included in the Purchased Power Agreement Rider (“PPA” Rider). I will also
2 describe the ability of the generating units to comply with these environmental
3 regulations, with Company witness Thomas describing in more detail the major
4 environmental compliance projects that are planned for the affiliated units. This
5 discussion addresses Factor 3, described in the testimony of Company witness Vegas.

6 Second, I will describe, in detail, a proposed United States Environmental
7 Protection Agency (“EPA”) rulemaking to reduce greenhouse gas (“GHG”) emissions
8 from existing fossil fuel-fired electric generating units. The proposal was published in
9 the Federal Register on June 18, 2014, and is referred to as the Clean Power Plan
10 (“CPP”) or as the Clean Air Act Section 111(d) guidelines (“Guidelines”).
11 Specifically, I will describe the main provisions of the proposal and summarize key
12 issues that AEP has identified. I will also discuss why, in my opinion, the proxy for
13 future carbon regulation that witness Pearce included in the Companies' analysis
14 presented in this proceeding remains a reasonable surrogate for the potential effects of
15 the proposed CPP.

16 **ENVIRONMENTAL COMPLIANCE OF THE PPA RIDER UNITS**

17 **Q. WHAT GENERATING UNITS ARE PROPOSED TO BE INCLUDED IN THE**
18 **PPA RIDER?**

19 A. There are two groups of generating plants that are proposed to be included in the PPA
20 Rider. AEPGR’s generating units, which are described in more detail in the testimony
21 of Company witness Thomas and Company witness Vegas, include Cardinal Unit 1,
22 Conesville Units 4-6, Stuart Units 1-4, and Zimmer Unit 1 (the “Affiliated PPA
23 Units”). As part of this proceeding, the Company is also proposing to include Clifty

1 Creek Units 1-6 and Kyger Creek Units 1-5, for which AEP Ohio has a contractual
2 entitlement share through its participation in OVEC as described by Company witness
3 Allen (the “OVEC Units”). Collectively, I will refer to these twenty generating units
4 (the Affiliated PPA Units and the OVEC Units) as the PPA Rider Units.

5 **Q. PLEASE DESCRIBE THE ENVIRONMENTAL CONTROLS CURRENTLY IN**
6 **PLACE AT THE OVEC UNITS.**

7 A. All eleven of the OVEC units are equipped with over-fire air systems and, with the
8 exception of Clifty Creek Unit 6, are also equipped with selective catalytic reduction
9 (“SCR”) for the reduction of nitrogen oxide (“NO_x”) emissions. For control of
10 particulate matter, all units are equipped with electrostatic precipitators (“ESPs”),
11 which provide a reduction in particulate matter by more than 99%. All eleven of the
12 units have been retrofitted with flue gas desulfurization (“FGD”) systems for
13 mitigation of sulfur dioxide (“SO₂”) emissions.

14 **Q. WHAT EXISTING AND PROPOSED ENVIRONMENTAL REGULATIONS**
15 **ARE ANTICIPATED TO AFFECT THE PPA RIDER UNITS IN THE COMING**
16 **YEARS?**

17 A. There are myriad rules and regulations with which these generating units must
18 comply, but of particular interest are relatively recent regulations that are either
19 effective now, or are anticipated to become effective in the foreseeable future. This
20 includes both final regulations as well as regulations in various stages of proposal.

21 The environmental regulations that meet these criteria and are currently
22 included in compliance planning for these units consist of the existing Mercury and
23 Air Toxics Standards (“MATS Rule”), the recently reinstated Cross-State Air

1 Pollution Rule (“CSAPR”), the recently issued final Coal Combustion Residuals Rule
2 (“CCR Rule”), the final rulemaking under section 316(b) of the Clean Water Act (the
3 “316(b) Rule”), and the proposed Effluent Limitation Guidelines (“ELG Rule”). The
4 units proposed for inclusion in the PPA would also be anticipated to be subject to
5 future greenhouse gas regulations, like the proposed Clean Power Plan that I describe
6 later in this testimony.

7 **Q. PLEASE BRIEFLY DESCRIBE THE MATS RULE.**

8 **A.** The final MATS Rule became effective on April 16, 2012, with compliance required
9 within three years of that date (with the possibility of a compliance extension in
10 certain circumstances). The emission parameters regulated by this rule are: 1)
11 mercury; 2) several non-mercury metals such as arsenic, lead, cadmium and
12 selenium; 3) various acid gases including hydrochloric acid (HCl); and 4) many
13 organic HAPs. The rule includes stringent emission rate limits for these parameters.
14 In addition, the rule contains alternative stringent emission rate limits for surrogates
15 representing two classes of HAPs, acid gases and non-mercury particulate metal
16 HAPs. The surrogates for the non-mercury particulate metal and acid gas HAPs are
17 filterable particulate matter (PM) and HCl respectively. The rule regulates organic
18 HAPs through work practice standards.

19 **Q. HOW WILL THE PPA RIDER UNITS COMPLY WITH THE MATS RULE?**

20 **A.** For those units that are already equipped with SCR and FGD systems, compliance
21 with the MATS Rule is anticipated as they are currently configured. This includes
22 Clifty Creek Units 1-5, Kyger Creek Units 1-5, Cardinal Unit 1, Conesville Unit 4,
23 Stuart Units 1-4, and Zimmer Unit 1. Through the co-benefit of the SCR and FGD

1 systems, mercury will be converted to a soluble state as it passes through the SCR
2 systems and then is removed via the FGD systems. Acid gases will also be removed
3 through the FGD systems, while non-mercury trace metals will be removed through
4 the existing ESP systems. Although SCR technology is not installed on Clifty Creek
5 Unit 6 the facility utilizes a 90 day rolling site average and with the level of emission
6 reductions gained through the controls on Units 1-5, no additional controls are
7 anticipated to be necessary on Unit 6 as a result of the MATS Rule.

8 As described in the testimony of Company witness Thomas, additional
9 environmental controls are necessary at Conesville Units 5 and 6 to ensure compliance
10 with the stringent mercury limit established under the MATS Rule. Both Units 5 and 6
11 at the Conesville Plant have received administrative extensions under the MATS Rule
12 from the Ohio Environmental Protection Agency, which extend the MATS compliance
13 dates for those units by up to one year from the April 16, 2015 effective date for the
14 rule.

15 **Q. WHAT IS THE CSAPR?**

16 **A.** The CSAPR addresses National Ambient Air Quality Standards for ozone and
17 particulate matter in 28 eastern, southern and mid-western states – including Ohio.
18 The final CSAPR established state-specific annual emission budgets for SO₂ and
19 annual and seasonal budgets for NO_x. Based on this budget, each emitting unit within
20 each affected state was allocated a specified number of NO_x and SO₂ allowances for
21 the applicable compliance period, whether annual or ozone season (May through
22 September of each year). Allowance trading within and between states is allowed on
23 a regional basis, although the rule does contain assurance provisions intended to

1 increase compliance costs for any state that imports allowances beyond certain
2 thresholds.

3 The CSAPR is the replacement for the Clean Air Interstate Rule, which was
4 remanded to the EPA for rewriting in 2008 by the District of Columbia Circuit Court
5 of Appeals (“the Court”), but remained in effect until replaced by the CSAPR.

6 **Q. WHAT IS THE CURRENT STATUS OF THE CSAPR?**

7 **A.** The CSAPR was stayed on December 30, 2011 by the Court, and was subsequently
8 vacated. EPA and DOJ appealed the ruling to the Supreme Court of the United States
9 (“Supreme Court”). On April 29, 2014, the Supreme Court issued its decision
10 reversing the decision of the Court, and remanded the case to the Court for additional
11 proceedings. On June 26, 2014, EPA filed a motion to lift the stay of CSAPR which
12 the Court granted on October 23, 2014. While legal challenges associated with the
13 final outcome of this rule are still pending, the Court’s decision to lift the stay
14 resulted in the application of CSAPR Phase 1 emission budgets starting in 2015. The
15 CSAPR Phase 2 emission budgets will be applicable beginning in 2017.

16 **Q. ARE THE PPA RIDER UNITS POSITIONED TO COMPLY WITH THE**
17 **CSAPR?**

18 **A.** Yes. All of the PPA Rider Units are equipped with FGD systems for the reduction of
19 SO₂ emissions. Additionally, with the exception of Clifty Creek Unit 6 and
20 Conesville Units 5 and 6, all of the PPA Rider Units are equipped with SCR systems
21 for the reduction of NO_x emissions. These emission controls, in conjunction with the
22 availability of emission allowances in the market, position the PPA Rider Units for
23 compliance with the CSAPR.

1 **Q. WHAT IS THE CCR RULE AND WHAT DOES IT REQUIRE OF THE PPA**
2 **RIDER UNITS?**

3 **A.** The CCR Rule establishes, for coal-fired power plants, specific design and
4 monitoring standards for new and existing landfills and surface impoundments, as
5 well as measures to ensure and maintain the structural integrity of surface
6 impoundments/ponds. The CCR Rule could lead to converting “wet” ash disposal
7 systems to “dry” ash handling and disposal, the relining or closing of any ash ponds
8 that exceed groundwater quality standards and other site-specific location criteria, and
9 construction of additional wastewater treatment facilities.

10 Of the PPA Rider Units, the Kyger Creek units, Stuart units, and Cardinal
11 Unit 1 utilize wet ash handling systems. Upon completion of the necessary analysis
12 of the CCR Rule requirements as they apply to these facilities, conversion to dry ash
13 handling and closure of existing as ponds may be required.

14 Analysis is currently underway to determine the necessary modifications to
15 the PPA Rider Units’ surface impoundments required by the CCR Rule. The final
16 CCR was published in the *Federal Register* on April 17, 2015 and has an effective
17 date of October 14, 2015.

18 **Q. WHAT IS THE 316(b) RULE, AND WHAT IS REQUIRED OF THE PPA**
19 **RIDER UNITS TO BE COMPLIANT WITH THIS RULE?**

20 **A.** The 316(b) Rule requires existing power plants to comply with a standard that
21 addresses impingement of aquatic organisms on cooling water intake screens. The rule
22 also requires site-specific studies be performed to determine appropriate compliance
23 measures with respect to the entrainment of organisms in cooling water systems.

1 Because Conesville Units 4-6, Stuart Unit 4 and Zimmer Unit 1 are equipped
2 with natural or mechanical draft cooling towers, the most significant potential impact of
3 the proposed rule to these generating units would be the need to alter the design of
4 screens at the river intake structure, or install additional screens to mitigate harm to
5 organisms.

6 The Clifty and Kyger Creek Plants, Cardinal Unit 1, and Stuart Units 1-3 all
7 have once-through cooling systems whereby water is taken from and returned to the
8 river to provide unit cooling, without the use of cooling towers. Engineering studies
9 are underway to evaluate potential modification to the cooling water intake structures
10 for both plants to meet both the entrainment and impingement standards required by
11 this rule. These systems may require additional capital investment, but at this time the
12 rulemaking is not anticipated to require the units to install cooling towers. The
13 compliance timeframe based on the final 316(b) Rule is not later than 2022.

14 **Q. WHAT IS THE PROPOSED ELG RULE AND HOW WILL THE PPA RIDER**
15 **UNITS BE IMPACTED BY THIS RULEMAKING?**

16 **A.** The EPA has proposed an update to the technology-based ELG Rule for the steam
17 electric power generating category. The proposed ELG Rule would require more
18 stringent controls on certain discharges from certain electric generating units, and will
19 set technology-based limits for waste water discharges from power plants with a main
20 focus on process and wastewater from FGD, fly ash sluice water, bottom ash sluice
21 water and landfill/pond leachate. The expected date for a final ELG rule is
22 September 30, 2015. Based on preferred approaches outlined in the proposed version
23 of the rule it is anticipated that planned projects to comply with the CCR Rule will

1 position the generating units well for compliance with a future ELG Rule, with the
2 potential for future projects that will be required specifically by the final ELG Rule.

3 **SUMMARY OF THE PROPOSED CLEAN POWER PLAN**

4 **Q. PLEASE DESCRIBE THE CURRENT STATUS OF THE PROPOSED CPP.**

5 A. AEP, the Company, and others within the electric industry have known for some time
6 that the EPA would be issuing a proposal addressing GHG emissions from existing
7 fossil-fired power plants. EPA announced in December, 2010 its intent to develop a
8 program for these sources under Section 111 of the Clean Air Act. On June 25, 2013,
9 President Obama announced a climate action plan to address GHG emissions from a
10 number of sectors of the economy, which included a specific schedule for the EPA to
11 propose and finalize a greenhouse gas program for electric generating units. The
12 EPA announced proposed Guidelines on June 2, 2014, which were published in the
13 Federal Register on June 18, 2014. EPA is reviewing public comments and plans to
14 finalize the guidelines during the summer of 2015. Concurrently, EPA is preparing a
15 draft Federal Implementation Plan (“FIP”) for public comment that, when finalized,
16 could be implemented by EPA if a state fails to develop a compliance plan or
17 develops a 111(d) plan that EPA determines is inadequate. The anticipated schedule
18 for finalizing and implementing the proposed CPP is as follows:

- 19 ■ Summer 2015: EPA finalizes Section 111(d) regulation
- 20 ■ Summer 2016 (one year after rule finalized): States submit initial draft plan to
- 21 EPA for implementing the final Section 111(d) regulation
- 22 ■ Summer 2017 (two years after rule finalized): States submit final draft plan to
- 23 EPA if developing a single-state plan
- 24 ■ Summer 2018 (three years after rule finalized): States submit final draft plan to
- 25 EPA if developing a multi-state plan
- 26 ■ 2017 to 2019: EPA has one year to review and approve single- or multi-state
- 27 plans once a draft is submitted. If EPA disapproves a state plan, the agency can
- 28 implement a FIP

- 1 ▪ 2020: Requirements would become effective beginning in 2020 per the proposed
2 rule

3 **Q. PLEASE DESCRIBE THE MAJOR PROVISIONS OF THE PROPOSED CPP.**

4 A. The proposed CPP utilizes four “building blocks” that EPA uses to calculate state-
5 specific carbon dioxide (“CO₂”) emission rate targets. A summary of the building
6 blocks follows:

- 7 ▪ Block 1 (heat rate improvements at existing coal units): All coal units improve
8 their heat rate performance (operating efficiency) by 6%;
- 9 ▪ Block 2 (redispatch of natural gas generation): Existing and under construction
10 natural gas combined cycle units are redispatched at an annual 70% capacity
11 factor to displace more CO₂-intensive, coal and oil/gas steam generation;
- 12 ▪ Block 3 (zero or low-carbon generation): States increase utilization of
13 renewable generation to a level that effectively results in a 13% national
14 renewable portfolio standard by 2030; Block 3 also assumes the preservation of
15 existing nuclear capacity and that nuclear units currently under construction are
16 completed;
- 17 ▪ Block 4 (energy efficiency): States implement “best practices” for energy
18 efficiency programs that achieve incremental savings presumed to displace up
19 to 1.5% of electricity sales annually and up to 10% by 2030 and beyond.

20 Using 2012 as a baseline, EPA applied each building block to calculate state-specific
21 interim and final CO₂ emission rate goals that are expressed as pounds of carbon
22 dioxide per megawatt-hour net of generation (lb. CO₂/MWh-net). For Ohio, EPA
23 proposed a final goal of 1,338 lb. CO₂/MWh-net, which becomes effective in 2030
24 and represents a 28% reduction from 2012 levels. The interim goal is an average
25 emission rate of the individual annual targets from 2020 through 2029, which EPA
26 calculated at 1,452 lb. CO₂/MWh-net. The 2020 target of 1,570 lb. CO₂/MWh-net for
27 Ohio represents a 15% reduction from 2012 levels.

28 **Q. HAS AEP FILED COMMENTS ON THE PROPOSED CPP?**

1 A. Yes. On December 1, 2014 AEP filed 237 pages of comments on the proposed CPP,
2 along with another 187 pages of technical appendices.¹

3 **Q. PLEASE GENERALLY DESCRIBE AEP'S INITIAL ASSESSMENT OF THE**
4 **PROPOSED CPP.**

5 A. AEP identified a wide range of issues with the proposed rule, including those related
6 to EPA's interpretation of the scope of its legal authority to control all aspects of the
7 generation, transmission, distribution and use of electric energy. AEP's comments to
8 EPA included concerns regarding the technical information underlying EPA's
9 calculation of individual state emission rate goals, the proposed schedule for
10 development and submission of state plans, the challenges of demonstrating
11 compliance with the interim and final goals, and the risk for significant impacts to the
12 reliability of the electric transmission system. Based on the scope and depth of those
13 concerns, AEP recommended that EPA withdraw the proposal, address the significant
14 legal, technical, and practical flaws that exist, and repropose the guidelines for public
15 comment.

16 Because the four building blocks in the proposed rule are all used to establish the
17 targeted overall reductions in CO₂ emission rates, failure to achieve the reductions in any
18 one building block will lead to more stringent requirements in the other building blocks.
19 AEP views the targets included in each building block as aggressive, potentially making
20 overall compliance difficult under the proposal as it currently exists. Further, the
21 proposed timeline for implementing the guidelines is very aggressive as state plans likely
22 will not be approved until 2018 and possibly beyond 2019. Given that the interim goals

¹Comment submitted by John M. McManus, Vice President, Environmental Services, American Electric Power:
Comment on the EPA Proposed Rule: Carbon Pollution Emission Guidelines for Existing Stationary Sources:
Electric Utility Generating Units
<http://www.regulations.gov/#!documentDetail:D=EPA-HQ-OAR-2013-0602-24030>

1 are proposed to become effective in 2020, this aggressive schedule severely reduces any
2 flexibility for states to implement measures to meet the interim goal.

3 In addition, the proposal provides little credit for the significant CO₂ emission
4 reductions that have already been made by the electricity sector and that will continue to
5 be made through the remainder of this decade with the retirement of coal-fired generation
6 in response to environmental regulations and other factors. Across its eleven-state
7 footprint, AEP's CO₂ emissions have been reduced by more than 21 percent since 2005,
8 and will be even lower after more than one-fourth of our existing coal-fired generation
9 fleet is retired by 2016 to comply with other EPA regulations.

10 **Q. HOW DOES EACH BUILDING BLOCK POTENTIALLY IMPACT**
11 **ELECTRIC GENERATING UNITS IN OHIO?**

12 A. Building block one assumes that Ohio coal-fired power plants will invest in projects
13 or adjust operating practices to improve unit heat rate performance (or operating
14 efficiency), thus reducing the CO₂ emission rate from these units. AEP comments to
15 EPA on the proposed rule detail a number of concerns regarding EPA's methodology
16 and assumptions that indicate the proposal has overestimated the efficiency benefits
17 and the availability of improvement opportunities for the existing coal fleet, and has
18 underestimated the cost of such improvements.

19 Building block two assumes that existing natural gas combined cycle
20 ("NGCC") units in Ohio would increase operations to a 70% annual capacity factor
21 and thus displace existing coal and other fossil generation units. AEP comments to
22 EPA identified significant data quality and calculation methodology flaws in EPA's
23 building block two analysis for Ohio, which significantly overestimate the amount of
24 redispatch that may be available from Ohio NGCC units. For example, EPA's

1 calculations use incorrect 2012 generation data from AEP's Dresden unit. The
2 agency's calculations also do not account for the fact that both the AMP Fremont and
3 AEP Dresden NGCC units were under construction for a part of 2012. In addition,
4 EPA used nominal nameplate capacity values for all NGCC units, instead of the
5 lower net demonstrated capacities reported for these units. These errors understate
6 the historic operation of NGCC units in Ohio, which in turn overstates the capability
7 of these NGCC units to displace existing Ohio coal-fired capacity. Additional
8 concerns exist related to the feasibility of the existing fleet to sustainably achieve a
9 70% capacity factor due to uncertainties regarding whether the existing natural gas
10 delivery infrastructure is available to reliably support such high levels of operation at
11 all NGCC units, and whether any needed infrastructure improvements could be
12 completed in time to satisfy the compliance goals.

13 Building block three assumes increased use of renewable energy resources
14 and the continued operation of existing nuclear capacity in Ohio. Building block four
15 assumes an expanded use of end-use energy efficiency programs. With regard to
16 renewable energy and energy efficiency, AEP comments identified significant
17 concerns regarding the technical, financial, and practical feasibility of EPA's
18 assumptions for these programs. As proposed, increased renewable energy would be
19 anticipated to account for 8% of state reductions in the 2020 target and 29% of the
20 2030 reductions, while end-user energy efficiency is anticipated to contribute 29%
21 and 38% of the state reductions in 2020 and 2030, respectively. Based on Ohio's
22 existing nuclear fleet, and the assumption that no unplanned nuclear retirements

1 occur, continued operation of nuclear plants is expected to contribute 5% and 3% to
2 Ohio's CO₂ reductions in the 2020 and 2030 goals, respectively.

3 The following table summarizes the emission rate reductions that EPA
4 calculated for each building block in determining the proposed goals for Ohio. The
5 table is presented as a percent of the total reductions required to meet the Ohio goals.

Building Block	2020-2029 Reduction	2030 and Beyond Reduction
Coal Plant Efficiency	31%	16%
Gas Redispatch	27%	14%
Nuclear and Renewables	13%	32%
Energy Efficiency	29%	38%
Total Reduction	100%	100%

6
7 **Q. IS THERE A BENEFIT TO AEP OHIO THAT ALL PPA RIDER UNITS,**
8 **EXCEPT CLIFTY CREEK, ARE LOCATED IN OHIO?**

9 A. Yes, there is a benefit regardless of whether Ohio pursues a single-state plan or
10 multi-state compliance plan to meet the proposed CPP requirements. EPA's proposal
11 requires CO₂ reduction programs to be developed at the state level for sources and
12 customers located in that state. Ohio would develop a plan that takes into account the
13 circumstances of the fossil generating units located within the state, as well as factors
14 in the energy and economic needs of the state and its residents. Ohio would be able
15 to take into consideration the value that the Cardinal, Conesville, Kyger Creek, Stuart
16 and Zimmer generating units, proposed to be included in the PPA, provide in meeting
17 those needs, in context with implementation and compliance plans.

18 For example, under the proposed CPP, energy efficiency activities can only be
19 used to offset emissions from generating assets located in the state, unless a multi-
20 state or regional plan is developed. Because, with the exception of Clifty Creek, the

1 plants are in-state, they would be part of the four building blocks that Ohio may use
2 to meet the requirements of the proposed rule.

3 **Q. IS THERE A PLAN IN PLACE TO COMPLY WITH FUTURE GHG**
4 **REGULATIONS?**

5 A. No, currently there is no plan. However, AEP continues to study the proposed CPP to
6 assess potential requirements and evaluate potential compliance strategies in context
7 with the AEP generation fleet.

8 **Q. WOULD IT BE POSSIBLE FOR AEP TO CRAFT A COMPLIANCE PLAN**
9 **WITH THE PROPOSED CPP AT THIS TIME?**

10 A. No. Once EPA issues final guidelines, the State of Ohio will need to develop an
11 implementation plan, which in turn could specify obligations for existing generating
12 units. Alternatively, EPA has the option to implement a FIP if a state plan is not
13 approved. Without a final state plan or FIP, there is no certainty of the scope or
14 timing of requirements.

15 **Q. CAN YOU SAY WITH CERTAINTY THAT THERE WILL BE A FINAL**
16 **RULE PUBLISHED IN THE SUMMER OF 2015, AND THAT THE**
17 **RULEMAKING SCHEDULE YOU OUTLINE IN THIS TESTIMONY WILL**
18 **HOLD INTO THE FUTURE?**

19 A. No. The proposed CPP is currently a major focus of the EPA, and for that reason I
20 have no doubt that the agency is working diligently to maintain the schedule that has
21 been created for the rule's promulgation. However, this rule will impact the
22 generation of electricity throughout the U.S. in ways that we are still studying today.
23 There are already lawsuits related to the EPA's regulation of GHG emissions, and

1 even the proposed CPP, and there will certainly be more to follow in the future. The
2 EPA's announcement in January 2015 that finalization of the CPP will be extended
3 from their original early June target to the "summer" of 2015 is an indication of the
4 complex task that is before them: to craft a rule that is legally and technically sound.
5 Additional delays are certainly a possibility.

6 However, even in light of the future uncertainty of the rule and the timing of
7 its eventual implementation, the most prudent course of action for AEP is to plan for
8 some form of carbon regulation in the future.

9 **Q. PLEASE DESCRIBE IN MORE DETAIL WHY IT IS YOUR OPINION THAT**
10 **A DELAY IN THE IMPLEMENTATION OF THE PROPOSED CPP IS**
11 **POSSIBLE.**

12 A. Historically, EPA has regulated very few source categories under Section 111(d) of
13 the Clean Air Act, which is the section applicable to the Clean Power Plan. EPA first
14 issued guidelines for municipal solid waste landfills in this source category in 1991
15 but did not complete the rulemaking process and issue its final guidelines until March
16 of 1996, more than five years after its initial proposal. Final state plans were required
17 to be submitted within 9 months. However, state plans continued to be submitted and
18 approved until at least as late as December of 2003, more than 10 years after EPA's
19 initial proposal.

20 EPA's proposed CPP applies to many more facilities and is substantially more
21 complex than the emission guidelines for solid waste landfills. EPA had solicited
22 input from many stakeholders prior to its 1991 proposal for existing landfills, and the
23 agency received only 60 comment letters and public testimony from five individuals

1 at the public hearing on its original proposal. EPA conducted a similar public
2 outreach effort prior to issuing the CPP proposal. However, as of March 24, 2015
3 EPA has received over 4.29 million public comments² on the proposal, and heard
4 from thousands of individuals at the four 2-day public hearings held in July 2014.

5 Furthermore, although EPA has proposed to extend the schedule for
6 submission of state plans of a year or more depending on the scope of the state plans
7 ultimately required, EPA itself acknowledges that changes in state laws may be
8 required in order to implement and enforce certain aspects of the proposal.
9 Additionally, many states have legislative sessions that occur only once every two
10 years, which further challenges the feasibility of the ambitious implementation
11 schedule proposed by EPA. If states elect to pursue regional plans, the time for
12 negotiating interstate compacts, receiving legislative authorization to enter into such
13 compacts, and the administrative rulemaking process must all be considered and will
14 all add significant time and complexity to the implementation process, especially in
15 lieu of the significant uncertainty in terms of how such programs would be evaluated,
16 approved, administered, and enforced by state agencies and EPA.

17 It is also critical to recognize that while EPA has proposed state by state
18 targets, the electric system does not independently operate within state lines. A
19 significant amount of coal generation capacity will be retired across the country in the
20 near future, and the proposed CPP could drive additional transformations to the
21 generation mix. It will be critical to allow time for states and regional reliability

²Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units
Number as of May 14, 2015 based on information available at
<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-0001>

1 organizations to evaluate the implications of all of these changes on reliability of the
2 transmission grid before wholesale implementation of the program begins.

3 In addition, none of the considerations outlined above account for the
4 expected litigation over the final guidelines, and the subsequent delays that could
5 arise as a result of such litigation. Taking all of this together, it suggests a strong
6 possibility that the proposed initial year of 2020 could be delayed.

7 **Q. DID THE STATE OF OHIO AGENCIES FILE COMMENTS ON THE**
8 **PROPOSED CLEAN POWER PLAN?**

9 A. Yes. The Ohio Environmental Protection Agency (“OEPA”) and the PUCO both
10 submitted comments to EPA on the proposed rule. In addition, the Ohio Attorney
11 General, state-level elected officials, and multiple municipalities also submitted
12 comments.

13 **Q. WHAT KEY CONCERNS WERE IDENTIFIED IN THE COMMENTS**
14 **SUBMITTED BY THE OEPA AND PUCO?**

15 A. OEPA and the PUCO both identified significant technical, financial, and legal
16 concerns with the proposed rule. In addition, OEPA expressed extensive concerns
17 regarding the feasibility of implementing the program due to the aggressive schedule
18 proposed for implementing the requirements and uncertainties regarding the
19 regulatory authority to establish and enforce such requirements. OEPA summarized
20 their overall recommendation and concerns as follows:

21 *“Ohio EPA requests that U.S. EPA conduct a comprehensive review and*
22 *assessment of our comments. Ohio EPA believes the entire proposal should*

1 *be reconsidered... U.S. EPA’s proposed Clean Power Plan is technically*
2 *flawed, not legal and unworkable in its current form.”*³

3 The PUCO also identified significant legal, financial, and technical concerns with the
4 proposed rule, which the Commission summarized as follows:

5 *“Simply put, the CPP threatens the primary principle that the PUCO exists to*
6 *protect – the delivery of reliable electric service at affordable rates.”*⁴

7 **Q. ARE YOU FAMILIAR WITH THE PROXY FOR CARBON REGULATION**
8 **USED BY WITNESS PEARCE IN HIS ANALYSIS OF THE PROPOSED PPA**
9 **UNITS?**

10 A. Yes. Mr. Pearce added a cost of \$15/tonne of CO₂ emissions, beginning in 2022, to
11 the variable cost of fossil generation in his study.

12 **Q. IN YOUR OPINION, DOES THAT PROXY CONTINUE TO REASONABLY**
13 **ACCOUNT FOR POTENTIAL GHG REGULATION?**

14 A. It does, based on what is currently known regarding potential GHG regulation. As
15 indicated previously, AEP has anticipated that regulation of CO₂ emissions would
16 occur in the future, and has applied a proxy for that scenario that is factored into the
17 study presented by Company witness Pearce in his direct testimony. The CO₂ cost
18 described in his testimony is reasonable in that it affects the cost to dispatch the coal-
19 fired units proposed to be included in the PPA Rider, which lowers the capacity factor
20 for those units in the modeling years where that assumption is included. There is

³ Comment submitted by Craig W. Butler, Director, OEPA cover page to comments submitted on the proposed Clean Power Plan. Dec 1, 2014. pp. 3-4. www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-22760

⁴ Comment submitted by Jonathan Tauber, Ohio Federal Energy Advocate, PUCO comments submitted on the proposed Clean Power Plan. Dec 1, 2014. p. 6. <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-22762>

1 admittedly a difference in timing, with the carbon price assumption being applied
2 beginning in 2022 in the model compared to the proposed CPP taking effect in 2020.
3 However, as previously described, a delay in the implementation schedule is a strong
4 possibility. For those reasons and because the proposed rule has not been finalized,
5 the carbon price assumptions included in AEP's study continue to be a reasonable
6 proxy for future carbon regulation.

7 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

8 A. Yes, it does.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of Ohio Power Company's *Pre-Filed Direct Testimony of John M. McManus* have been served upon the below-named counsel and Attorney Examiners by electronic mail to all Parties this 15th day of May, 2015.

/s/ Steven T. Nourse
Steven T. Nourse

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