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April 15, 2011

Ms. Renee J. Jenkins  
Secretary of the Commission  
Public Utilities Commission of Ohio  
180 East Broad Street  
Columbus, Ohio 43215-3793

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**RE:** *In the Matter of the Annual Environmental Control Plan Under Rule 4901.1-41-03(B), Ohio Administrative Code, by Columbus Southern Power Company, Case No. 11-2421-EL-ECP and In the Matter of the Annual Environmental Control Plan Under Rule 4901.1-41-03(B), Ohio Administrative Code, by Ohio Power Company, Case No. 11-2422-EL-ECP*

Dear Ms. Jenkins:

I am submitting the enclosed 2010 Annual Environmental Control Plan (ECP) on behalf of Columbus Southern Power Company and Ohio Power Company (collectively "AEP Ohio"), pursuant to Rule 4901:1-41-03(B), Ohio Administrative Code (OAC). I have sent a copy of AEP Ohio's 2010 ECP to the Director of the Ohio Environmental Protection Agency in accordance with Rule 4901:1-41-03(B), OAC.

Thank you for your attention to this matter.

Respectfully Submitted,

/s/ Matthew J. Satterwhite  
Matthew J. Satterwhite

## **AEP Ohio Environmental Control Plan**

### **Criteria Pollutants**

Exhibit A summarizes the status of installation of SO<sub>2</sub> and NO<sub>x</sub>, and mercury control equipment at the Columbus Southern Power (CSP) and Ohio Power Company (OPCo), collectively referred to as “the Companies” or “AEP Ohio,” generating units as of December 2010. The control equipment listed represents installed or planned installations through 2020 that are currently required for compliance with the Clean Air Act (CAA), including the Clean Air Act Amendments of 1990 (CAAA), NO<sub>x</sub> SIP Call, and the Clean Air Interstate Rule (CAIR).

AEP entered into a New Source Review (NSR) Consent Decree with the Department of Justice to settle all complaints filed against AEP and its affiliates including AEP Ohio. With respect to generating facilities owned by AEP Ohio, these companies are bound by the decree and its schedule for the installation and operation of Selective Catalytic Reduction (SCR) and Flue Gas Desulphurization (FGD) systems on certain units, including Amos Unit 3, Cardinal Unit 1, Conesville 4, Gavin Units 1 and 2, Mitchell Units 1 and 2, and Muskingum River 5. The consent decree also requires the Companies to continuously operate overfire air on Kammer Units 1-3, and to continuously operate low NO<sub>x</sub> burners on Picway Unit 5.

AEP Ohio is also required to retire, repower, or retrofit Best Available Control Technology (BACT) environmental controls on Conesville Unit 3 by December 31, 2012, on Sporn Unit 5 by December 31, 2013, and on Muskingum River Units 1-4 by December 31, 2015. AEP Ohio has requested approval to retire Sporn Unit 5 in Case No. 10-1454-EL-

RDR. Finally, AEP is required to retire, repower, or retrofit BACT environmental controls on a total of at least 600 MW from several units, including Sporn Units 1-4, and/or Kammer Units 1-3 by December 31, 2018.

### **Carbon Dioxide Control**

AEP Ohio, along with the other operating company members of AEP, plans to continue reducing its greenhouse gas (GHG) emissions using a variety of market-based mechanisms and technology-based CO<sub>2</sub> mitigation options. The deployment of these options will depend on availability, risk and relative economics. The amount of GHG emission reductions required from AEP Ohio will be likely predicated upon federal legislation or regulation. As such, AEP Ohio, as one of the operating company members of AEP, is an active participant in ongoing discussion related to federal climate policy to assure that federal action supports economic growth and appropriate technology development funding and development timelines. Furthermore, AEP Ohio, as part of AEP, has been actively involved in a number of organizations setting the stage for climate change legislation. As a founding member of the former Chicago Climate Exchange (CCX), AEP made a voluntary but legally binding commitment to cumulatively reduce or offset 48 million metric tons of CO<sub>2</sub> emissions from 2003 to 2010.

Through 2010, AEP reduced or offset GHGs by a cumulative 95 million metric tons of GHG emissions — exceeding the target. AEP has done this in a number of ways, such as improving power plant efficiency, replacing or retiring less efficient and higher emitting units, increasing the use of renewable power, and reducing emissions of SF<sub>6</sub> (a potent GHG which is found in some electrical equipment). AEP will continue to achieve additional GHG emissions reductions as older, less efficient generating units are retired, transitioning to the

use of more natural gas generation, employment of more renewable forms of energy, operate more efficiently, invest in forestry projects domestically and abroad, and gradually deploy smart grid technology.

AEP's experience with purchases and sales of allowances among other members of the exchange provides insights into the market for carbon emissions. AEP is also an active member of the International Emissions Trading Association (IETA), which seeks to develop cost-effective market based solutions to environmental concerns. In the absence of federal legislation or regulation, these efforts will continue. However, the appetite for voluntary action has diminished during 2010 across some of our jurisdictions, as evidenced by the suspension of the CCX emission credit trading program at the end of 2010.

In 2009, AEP voluntarily increased its original renewable energy goal in an effort to further diversify its fuel portfolio. This is contingent on regulatory support and recovery of associated costs. AEP has made steady progress toward achieving this goal by completing wind and solar projects. For additional information and details on these efforts, please see the AEP Ohio Alternative Energy Portfolio Compliance Plan filed on April 15, 2011.

While many of the actions described above are initiated at a broader level, the net results are achieved through AEP Ohio and other operating companies in the form of reductions and increased operational experience in managing carbon emissions. As discussed in the following section, additional actions, including a future Carbon Capture and Storage (CCS) program, will be fundamental in further reducing in AEP's carbon footprint, as will be likely required under a federal GHG regulatory program.

The first tier of GHG reduction involves AEP Ohio meeting the renewable energy and energy efficiency targets as laid forth in S.B. 221. Achieving the renewable energy and

energy efficiency benchmarks will have the secondary benefit of directly reducing AEP Ohio's CO<sub>2</sub> emissions. Additional renewable energy resources directly displace fossil-fueled generation and increasing levels of end-use energy efficiency reduce the total amount of energy (mostly fossil-fuel based) needed to serve AEP Ohio's customers, both achieving a net CO<sub>2</sub> reduction. AEP Ohio retains the option to expand these programs beyond current state requirements should the economics warrant such actions to address GHG regulation.

As part of the renewable compliance effort, AEP Ohio signed a 20-year agreement to purchase the entire output of the Wyandot Solar Project located near Upper Sandusky, Ohio. Additionally, AEP Ohio announced it would purchase all of the output from the planned Turning Point Solar project in southeast Ohio and signed a long-term agreement to purchase power from the Timber Road wind project in northwestern Ohio. To meet other in-state renewable energy requirements, AEP has issued Requests for Proposals (RFP) and contracts for both renewable energy resources and biodiesel fuel sources. These projects will directly reduce the amount of fossil-fuel generated energy, and thus GHG emissions associated with serving AEP Ohio's customers. Please see the AEP Ohio Alternative Energy Portfolio Compliance Plan filed April 15, 2011 for further information on these topics.

Additionally, AEP Ohio has been actively investing in energy efficiency (EE) measures to directly reduce energy consumption within Ohio. These measures can be significant as MWh not produced mean a reduction in the amount of GHG produced. These EE measures will ramp up over coming years in conjunction with the requirements of S.B. 221. Additional benefits from EE may be achieved in coming years with increased deployment of smart grid technology. AEP currently is conducting a pilot project in N.E. Columbus with the installation of approximately 110,000 smart meters, using advanced

distribution grid management, and offering other consumer programs as appropriate. The EE and Peak Demand Reduction (PDR) programs are described in the March 15, 2011 filing in Case No. 11-1299-EL-EEC and Case No. 11-1300-EL-EEC.

In addition to renewable energy and EE/PDR, AEP Ohio is projecting to also invest in projects which will directly reduce CO<sub>2</sub> emissions from its generating fleet. Depending on the ultimate rules drafted to regulate GHGs, deployment of CCS could prove to be a very promising technology for keeping large amounts of GHG from reaching the atmosphere while allowing cheap, abundant coal to remain part of Ohio's energy future. An AEP pilot project in West Virginia is the first in the country to combine CO<sub>2</sub> from a coal-based electric generating unit with geologic sequestration of the carbon. Depending on financial incentives and the pace of technology development, AEP Ohio could potentially install similar carbon capture technology on one or more of its coal-fired units within the next decade. These investments on fossil generation could be enhanced by additional energy efficiency improvements at the plants to reduce the amount of CO<sub>2</sub> output per MWh produced. In addition, AEP is evaluating other CO<sub>2</sub> capture technologies. For example, AEP recently signed an agreement to evaluate the feasibility of China Huaneng Group's amine-based CO<sub>2</sub> technology for retrofit application on a supercritical coal-fired generating unit.

On December 14, 2010, AEP Ohio filed a waiver request of O.A.C. 4901:1-14-03 to allow the Companies to report GHGs using EPA's Mandatory Reporting Rule requirements rather than joining The Climate Registry. Per the Commission's March 16, 2011 Entry in Case No. 10-3103-EL-ACP, AEP Ohio plans to comply with the Federal GHG Rule in 40 CFR, Part 98.

# Exhibit A

AEP-Ohio Generating Unit Control Equipment Installed or Planned to be Installed for Air Emission Control for CAA *						
Plant Name / Unit Number	SO <sub>2</sub>	Installation Date <sup>††</sup>	NOx (Combustion Controls)	Installation Date <sup>††</sup>	NOx (SCR/SNCR)	Installation Date <sup>††</sup>
Amos 3	FGD	Installed ('09)	Low NOx Burners / CCV Burners	Installed ('98)	SCR	Installed ('02)
Beckjord 6						
Cardinal 1	FGD	Installed ('08)	Low NOx Burners	Installed ('98)	SCR	Installed ('03)
Conesville 3			Low NOx Burners	Installed ('94)		
Conesville 4	FGD	Installed ('09)	T-Fired Unit Simulated OFA / Concentric Firing System	Implemented / ('04)	SCR	Installed ('09)
Conesville 5	FGD Upgrade	Installed ('06)**	T-Fired -No Change / OFA with upgrades	Installed ('04)	SCR	Post 2011
Conesville 6	FGD Upgrade	Installed ('08)**	T-Fired -No Change / OFA with upgrades	Installed ('04)	SCR	Post 2011
Gavin 1	FGD	Installed ('95)	Low NOx Burners / CCV Burners	Installed ('98)	SCR	Installed ('01)
Gavin 2	FGD	Installed ('95)	Low NOx Burners / CCV Burners	Installed ('99)	SCR	Installed ('01)
Kammer 1			Over Fire Air / upgrades	Installed ('99 / '03)		
Kammer 2			Over Fire Air / upgrades	Installed ('98 / '04)		
Kammer 3			Over Fire Air / upgrades	Installed ('99 / '03)		
Mitchell 1	FGD	Installed ('07)	Low NOx Burners / with water injection	Installed ('93 / '03)	SCR	Installed ('07)
Mitchell 2	FGD	Installed ('06)	Low NOx Burners	Installed ('94)	SCR	Installed ('07)
Muskingum R 1			Over Fire Air	Installed ('99)		
Muskingum R 2			Over Fire Air	Installed ('00)		
Muskingum R 3			Over Fire Air / upgrades	Installed ('99 / '03)		
Muskingum R 4			Over Fire Air / upgrades	Installed ('99 / '03)		
Muskingum R 5	FGD <sup>†</sup>	2015	Low NOx Burners	Installed ('93)	SCR	Installed ('05)
Picway 5			Low NOx Burners	Installed ('95)		
Sporn 2			Low NOx Burners w/ Interjectory Air / upgrades	Installed ('97 / '04)		
Sporn 4			Low NOx Burners w/ Interjectory Air / upgrades	Installed ('97 / '04)	SNCR	Installed ('08)
Sporn 5			Low NOx Burners	Installed ('99)		
Stuart 1	FGD	Installed ('08)	Low NOx Burners	Installed	SCR	Installed ('04)
Stuart 2	FGD	Installed ('08)	Low NOx Burners	2011	SCR	Installed ('04)
Stuart 3	FGD	Installed ('08)	Low NOx Burners	Post 2011	SCR	Installed ('04)
Stuart 4	FGD	Installed ('08)	Low NOx Burners	Post 2011	SCR	Installed ('04)
Zimmer	FGD	Installed ('91)	Low NOx Burners	Installed	SCR	Installed ('04)

\* This Exhibit reflects installed or planned installations through 2020, as of December 2010 (Fleet Compliance Proposed Retrofits). Terms of NSR settlement Consent Decree are reflected.

\*\* Upgrade existing FGD to meet 95% 30-day rolling average removal efficiency

<sup>†</sup> Future installation required by NSR settlement Consent Decree

<sup>††</sup> In-service by end of year

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

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**Case No(s). 11-2421-EL-ECP, 11-2422-EL-ECP**

Summary: Annual Report Annual Environmental Control Plans electronically filed by Mr. Matthew J Satterwhite on behalf of Columbus Southern Power Company and Ohio Power Company