

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Duke Energy Ohio,) Case No. 14-0588-EL-ECP
Inc. Environmental Control Plan)

DUKE ENERGY OHIO, INC.'S ENVIRONMENTAL CONTROL PLAN

Pursuant to Section 4901:1-41-03 of the Ohio Administrative Code, Duke Energy Ohio, Inc. hereby submits the attached Environmental Control Plan.

Respectfully submitted,



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Elizabeth Watts (Counsel of Record)
Associate General Counsel
Duke Energy Business Services LLC
Counsel for Duke Energy Ohio

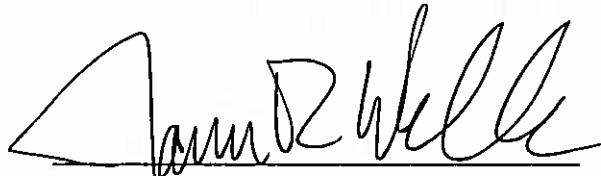
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CERTIFICATE OF SERVICE

I certify that a copy of the foregoing has been served via electronic mail, this 14th day of April, 2014 upon the following:

Craig W. Butler, Director
Ohio Environmental Protection Agency
50 West Town Street, Suite 700
Columbus, Ohio 43215



James R. Wells

Duke Energy Ohio, Inc.
Environmental Control Plan
April 14, 2014

Air Quality

Duke Energy Ohio, Inc. (Duke Energy Ohio) is required to comply with numerous state and federal air emission regulations. In addition to current programs and regulatory requirements several new regulations are in various stages of implementation and development that will impact operations at Duke Energy Ohio in the coming years. Some of the major rules include:

SO₂ and NO_x Interstate Transport Rulemakings

The US Environmental Protection Agency (EPA) finalized its Clean Air Interstate Rule (CAIR) in May 2005. The CAIR limits total annual and summertime NO_x emissions and annual SO₂ emissions from electric generating facilities across the Eastern U.S. through a two-phased cap-and-trade program. In December 2008, the D.C. Circuit issued a decision remanding the CAIR to the EPA, but directed the EPA to continue administering the rule until EPA developed a replacement regulations.

In August 2010, EPA published a proposed replacement rule for CAIR, known as the Cross State Air Pollution Rule (CSAPR). The CSAPR was finalized in August 2011, and vacated by the D.C. Circuit in August 2012. In its decision the court directed EPA to continue to implement the CAIR until it develops a viable replacement rule. On June 24, 2013, the U.S. Supreme Court granted the EPA's petitions for a writ of certiorari, and oral arguments were held December 10, 2013. The Supreme Court is likely to issue its decision on the merits by mid-2014.

The EPA is in the process of developing a proposed transport rule that will address ozone season NO_x emissions. EPA has stated that it anticipates issuing the proposal in the October 2014 timeframe, meaning the rule will not be ready for implementation for several years. The rule is being developed to address the 75 ppb ozone standard, where the CSAPR was designed

around the 80 ppb standard. EPA has stated that it has no plans to undertake a new transport rulemaking to address annual SO₂ and NO_x emissions as they relate to the fine particle NAAQS, although that could change in the future. Once finalized, this rule is expected to replace the CAIR ozone season program, but Phase II of the CAIR, which has tighter emission caps for annual SO₂ and NO_x and ozone season NO_x, is scheduled to take effect January 1, 2015.

Mercury and Air Toxics Standards

The EPA finalized the Mercury and Air Toxics Standards (MATS) rule in February 2012. The rule established emission limits for mercury, non-mercury metals, and acid gases from coal-fired and oil-fired steam electric generating units. The compliance date for the rule is April 16, 2015. States can grant sources up to one additional year on a case-by-case basis to comply if a source cannot install controls by April 2015, or to address reliability concerns. The rule is being litigated in the D.C. Circuit. Oral arguments were held in December 2013, and decision is expected in the first half of 2014. The rule is likely to require retirement of Duke Energy Ohio's Beckjord units rather than install controls to comply.

National Ambient Air Quality Standards (NAAQS)

8 Hour Ozone Standard

In March 2008, the EPA revised the 8-hour ozone standard by lowering it from 80 to 75 parts per billion (ppb). In September of 2009, EPA announced a decision to reconsider the 75 ppb standard in response to a court challenge from environmental groups and their own belief that a lower standard was justified. In September 2011 the EPA announced that it would not complete its reconsideration of the 75 ppb standard. Instead, EPA would implement the 75 ppb standard while it completed its normal 5-year review of that standard. The EPA is projecting that it will issue a proposed rule to revise the 75 ppb ozone standard in late 2014.

The EPA has designated several counties in the Cincinnati area as marginal nonattainment areas for the 75 ppb standard. These areas will have until December 31, 2015 to attain the 75 ppb standard. The EPA issued a proposed implementation rule for the 75 ppb standard in June 2013 but has yet to issue a final rule.

Fine Particle Standard

In late 2012 the EPA revised the annual fine particle (PM_{2.5}) NAAQS from 15 to 12 micrograms per cubic meter. Final area designations and classifications are expected in December 2014. Areas designated as moderate nonattainment will be required to attain the standard in the 2020 timeframe. It is not known at this time if the revised standard will have any impact on Duke Energy Ohio facilities.

SO₂ Standard

In June 2010 the EPA finalized a 1-hour SO₂ standard at the level of 75 parts per billion (ppb). In July 2013 the EPA designated a small area around Duke Energy Ohio's Beckjord station a nonattainment area. The Ohio EPA will be required to submit a state implementation plan by the end of 2014 that will bring the area into attainment by 2018. The MATS rule is likely to require the retirement of Duke Energy Ohio's Beckjord units by April 2015 rather than install controls to comply with the MATS rule.

Greenhouse Gas Regulation

In May 2010 the EPA finalized what is commonly referred to as the Tailoring Rule. Under the Tailoring Rule, Prevention of Significant Deterioration (PSD) permitting for greenhouse gas (GHG) emissions applies to a modification at an existing major stationary source that would result in a net emissions increase of at least 75,000 tons/year. Being subject to PSD permitting requirements for GHG emissions will require a Best Available Control Technology

(BACT) analysis and the application of BACT for GHGs. BACT will be determined by the state permitting authority. Since it is not known if, or when, a Duke Energy Ohio generating unit might undertake a modification that triggers PSD permitting requirements for GHGs and exactly what might constitute BACT, the potential implications of this regulatory requirement are unknown.

On January 8, 2014, the second version (EPA withdrew its first proposal) of EPA's proposed New Source Performance Standards (NSPS) for carbon dioxide (CO₂) emissions for new pulverized coal (PC), IGCC, and stationary natural gas-fired combustion turbines (both combined cycle and simple cycle) electric generating units was published in the federal register. The EPA proposed a limit of 1,100 lb CO₂/gross MWh for new PC and IGCC units, and 1,000 or 1,100 lb CO₂/gross MWh for stationary combustion turbines depending on unit size. EPA could finalize the rule in early 2015. Regardless of the final rule requirements, it will not impact any existing Duke Energy Ohio electric generating facility.

The EPA is expected to propose GHG emission guidelines for existing electric generating units by June 1, 2014, and to finalize the guidelines by June 1, 2015. These guidelines are also expected to address modified sources. Once EPA finalizes emission guidelines, the states will be required to develop the regulations that will apply to covered sources, based on the emission performance standards established by EPA in its guidelines. It is not known at this time how this rulemaking might impact Duke Energy Ohio electric generating facilities.

Duke Energy Ohio does not expect the U.S. Congress to pass federal climate change legislation limiting CO₂ emissions or otherwise setting a price on CO₂ emissions through a mechanism such as a tax or a cap-and-trade program in 2014.

CO₂ Control Planning

A key to significantly reducing CO₂ emissions from electricity generation is to develop and deploy new low- and zero-emitting generation technologies. Duke Energy is pursuing the deployment and demonstration of new energy efficiency programs, renewable generation, advanced nuclear and integrated gasification combined cycle (IGCC) technologies for power generation. Deploying these projects will contribute significantly to Duke Energy's ability to manage its climate change regulatory risk. Ohio is positioned well for a carbon constrained future due to the passage of Senate Bill 221. Senate Bill 221 when fully implemented in 2025 has an energy efficiency requirement of 22%, 12.5% renewable energy requirement and an additional 12.5% advanced energy requirement that can be served with additional renewables, nuclear or IGCC.

One of the most significant technologies for reducing/avoiding future CO₂ emissions from electricity generation is nuclear power. Today, Duke Energy operates eleven nuclear units with over 10,000 megawatts of generating capacity. Duke Energy's nuclear generation program, which began with the first unit commencing operation in 1971, has been a tremendous success for the company, its customers, and its shareholders. Duke Energy has received 20-year extensions to the operating licenses for all eleven units from the U.S. Nuclear Regulatory Commission (NRC), which means that this essential non-CO₂ emitting generation will be operating and helping to mitigate Duke Energy's climate change regulatory risk for many years to come. Expanding the use of nuclear power is essential for reducing future CO₂ emissions from electricity generation in the U.S. Duke Energy has submitted an application for a Construction and Operating License (COL) to the Nuclear Regulatory Commission for a new 2,234 megawatt 2-unit nuclear-powered generating facility in Cherokee County, S.C. While

submitting the COL application does not commit Duke Energy to build the facilities, it does keep the nuclear option available to Duke Energy as a potential significant climate change policy risk mitigation option. Not only is having the nuclear option available in the future critical for U.S. energy security, but also, if significant reductions in greenhouse gas emissions are mandated, new nuclear power plants must be a key part of the U.S. and Duke Energy strategy for achieving those reductions.

The continued use of coal, the most abundant domestic energy resource in the U.S., also plays a key role in Duke Energy's strategy to manage climate change regulatory risk. New low CO₂ emitting coal-based technologies must be developed and demonstrated to facilitate the continued use of coal in a carbon constrained world. Duke Energy recently completed a 618 MW state-of-the-art IGCC electric generating unit at its Edwardsport, Indiana site that will replace pulverized coal generating units constructed in the late 1940's and early 1950's. The new plant began commercial operation in 2013. IGCC technology gasifies solid fuels, typically coal, and uses the gas to fuel high-efficiency combined-cycle turbines to generate electricity. IGCC technology holds tremendous potential for the future as it can serve as a platform for being able to cost-effectively capture CO₂ emissions from coal-fired generation. Once captured, the CO₂ can be stored underground in appropriate geologic formations instead of being released to the atmosphere. Duke Energy's Edwardsport IGCC facility is located in a region where the geology holds significant promise for being able to store a large quantity of CO₂. IGCC technology has the potential to allow for the continued use of the country's vast coal reserves to help meet the country's future energy needs while significantly reducing CO₂ emissions. Therefore, development and demonstration of IGCC technology is a key part of a Duke Energy overall strategy for mitigating potential climate change regulatory risk.

Duke Energy is helping advance the demonstration of geologic CO₂ storage technology through its participation in three of the U.S. Department of Energy's (DOE) Regional Carbon Sequestration Partnership. For example, as a member of the Midwest Regional Carbon Sequestration Partnership, Duke Energy is helping demonstrate the technical feasibility and cost-effectiveness of sequestering CO₂ in geologic formations in the Midwest, identify gaps and necessary regulations to support commercial deployment of the technology, and evaluate life-cycle storage options according to environmental risk, measurement, monitoring and verification protocols, public acceptance and value-added benefits. Duke Energy is hosting a geologic CO₂ storage demonstration project at its East Bend Station electric generating facility in Kentucky to help characterize the potential sequestration opportunities in the region. The demonstration project involved injecting approximately 1,000 tons of CO₂ into the Mt. Simon deep saline reservoir – considered one of the largest and highest potential saline aquifers for CO₂ storage in the United States. Duke Energy's project at East Bend Station, actually the first project to inject CO₂ into the Mt. Simon, was a great success.

Duke Energy's 2013 Sustainability Report (<http://www.duke-energy.com/sustainability/sustainability.asp>) Error! Hyperlink reference not valid. contains the company's Sustainability Plan, which includes corporate goals to reduce CO₂ emissions from our generating fleet by 17% from 2005 levels by 2020, and to reduce the carbon intensity of our generation fleet from 1.28 pounds of CO₂ per kwh to 0.94 pounds of CO₂ per kwh in 2020.

Water Quality

CWA 316(b) Cooling Water Intake Structures

Federal regulations in Section 316(b) of the Clean Water Act may necessitate cooling water intake modifications for existing facilities to minimize impingement and entrainment of

aquatic organisms.

EPA published its proposed cooling water intake structures rule on April 20, 2011. The proposed rule establishes mortality reduction requirements due to both fish impingement and entrainment and advances one preferred approach and three alternatives. The EPA's preferred approach establishes aquatic protection requirements for existing facilities and new on-site generation that are defined as existing facilities with a design intake flow of 2 million gallons per day (MGD) or more from rivers, streams, lakes, reservoirs, estuaries, oceans, or other U.S. waters and utilizing at least 25% of the water withdrawn for cooling purposes. Based on the preferred approach, most, if not all of the Duke Energy Ohio coal-fired facilities are likely affected sources. Additional sources, including some combined-cycle combustion turbine facilities, may also be impacted, at least for impingement intake modifications, due to the 2 MGD design intake flow threshold.

In order to comply with impingement requirements, modified traveling intake screens with fish handling and return systems are a likely retrofit. EPA proposed a strict definition of closed-cycle cooling and closed-cycle cooling systems. However, the proposed rule does not mandate closed-cycle cooling at all sites. Site specific evaluations to determine the best technology available to address entrainment are required to be conducted and closed-cycle cooling and fine mesh screens must be evaluated. EPA published a Notice of Data Availability (NODA) in mid-2012 to solicit comments on "preapproved technologies" to address impingement and other compliance alternatives along with addressing new "benefits" information from a previous survey.

The current EPA settlement agreement calls for the EPA to finalize the 316(b) rule by April 17, 2014. At this time, the impacts this rule may have on Duke Energy Ohio's generating

units are not certain.

Steam Electric Effluent Limitation Guidelines

In September 2009, EPA announced plans to revise the steam electric effluent limitation guidelines, which are federally established, technology-based effluent limits based on the capability of the best technology available. The primary focus of the revised regulation is coal-fired generation, thus the major areas likely to be impacted are FGD wastewater treatment systems and ash handling systems. The EPA may set limits based on the performance of certain FGD wastewater treatment technologies for the industry and may require dry ash handling systems for both fly ash and bottom ash to be installed. EPA may also set limits on landfill leachate, possibly requiring leachate to be routed to a treatment system prior to it discharging to an ash basin or through an outfall.

Pursuant to a settlement agreement, EPA proposed the revised steam electric effluent guidelines in April 2013. EPA recently revised the settlement agreement to issue a final rule by September 30, 2015.

After the final rulemaking, effluent guideline requirements will be included in a station's NPDES permit renewals. Thus requirements to comply with NPDES permit conditions may begin as early as late-2018 for some facilities.

Waste Issues

Coal Combustion Residuals

Following TVA's Kingston ash dike failure in December 2008, EPA began an effort to assess the integrity of ash dikes nationwide and to begin developing a rule to manage coal combustion residuals (CCRs). CCRs include fly ash, bottom ash and Flue Gas Desulfurization byproducts (gypsum). In June 2010, EPA published its proposed rule regarding CCRs. The

proposed rule offers two options 1) a hazardous waste classification under RCRA Subtitle C, and 2) a non-hazardous waste classification under RCRA Subtitle D, along with dam safety and alternative rules. Both options would require strict new requirements regarding the handling, disposal and potential re-use ability of CCRs. The proposal will likely result in more conversions to dry handling of ash, more landfills, closure of existing ash ponds and the addition of new wastewater treatment systems. EPA's regulatory classification of CCRs as hazardous or non-hazardous will be critical in developing plans for handling CCRs in the future.

The EPA currently plans to issue a final CCR rule by December 9, 2014.

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Case No(s). 14-0588-EL-ECP

Summary: Notice Filing of Duke Energy Ohio's Environmental Control Plan electronically filed by Ms. Lisa A DeMarcus on behalf of Mr. James Wells and Ms. Amy Spiller and Ms. Elizabeth Watts and Duke Energy