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**DRAFT**                      **DRAFT**                      **DRAFT**                      **DRAFT**

November 14, 2013

The Honorable Brent Jackson- (Chair)  
The Honorable Ruth Samuelson (Co-Chair)  
Environmental Review Commission

Subject: Emissions Reductions Beyond the Clean Smokestacks Act

Dear Sen. Jackson, Rep. Samuelson:

Session Law 2002-4 Section 11 (attached) instructs the Environmental Management Commission (EMC) to study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) beyond those required by the Clean Smokestacks Act (CSA). The EMC is to report its findings and recommendations biennially to the General Assembly and the Environmental Review Commission beginning September 1, 2011 (attached). (Note: Session Law 2010-142 changed the reporting frequency from annual to biennial and the beginning date of the requirements of this Section to September 1, 2011).

In the September 1, 2011 report, the EMC concluded that recent actions by the state, the federal government, the United States District Court for the Eastern District of Tennessee and the U.S. Court of Appeals for the D.C. Circuit will affect power plant emissions and NO<sub>x</sub> and SO<sub>2</sub> regulation. The EMC recommended that the study of further state action to achieve additional reduction of these air contaminants be presented on September 1, 2013. The reporting date would: (1) allow the affected public utilities in North Carolina time to implement their control strategies to meet the compliance deadline under CSA, (2) give the Department of Environment and Natural Resources (DENR) time to quantify air quality impacts from CSA compliance and evaluate necessary additional reductions needed to meet the new ambient air quality standards, and (3) give industry and DENR time to implement new federal rules and court actions.

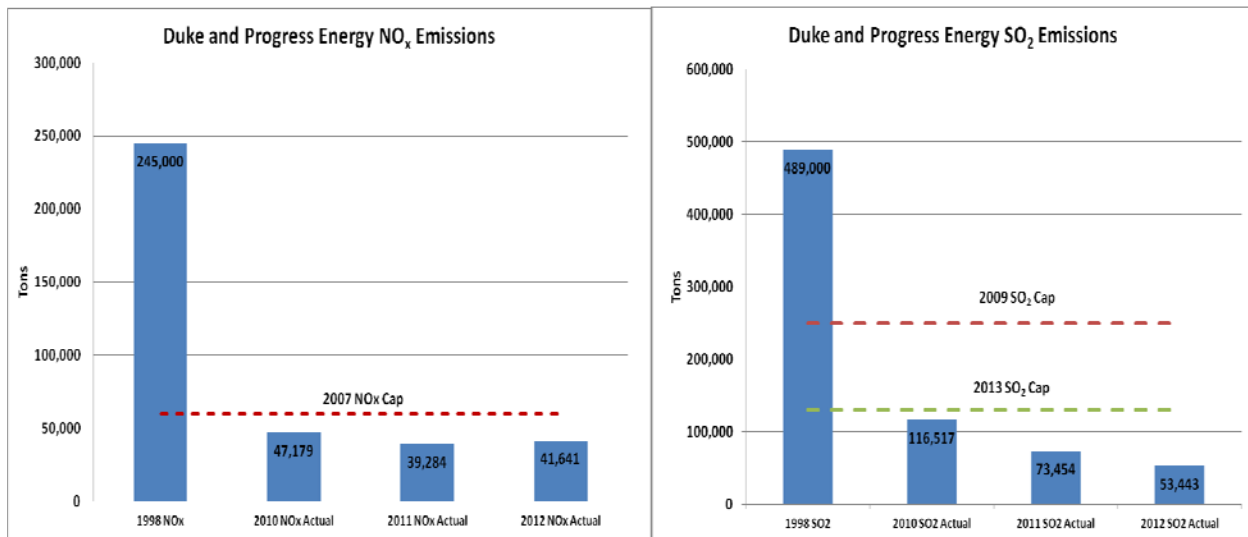
In this 2013 report, the EMC presents the status of key federal judicial and legislative actions for which the outcomes are still undetermined. For example, the Cross-State Air Pollution Rule (CSAPR) which regulated interstate pollution transport from electric generating units (EGUs), was vacated by the Court of Appeals for the D.C. Circuit in August 2012, and is currently on the Supreme Court docket for review based on petitions filed by the U.S.

Environmental Protection Agency (USEPA) and others. Additionally, USEPA is delaying the revisions of the National Ambient Air Quality Standards (NAAQS) for ozone until 2015. Given that these and other pending actions are affecting future EGU emissions, the EMC recommends that DENR continue to evaluate the need for reductions beyond CSA from the utilities based on what additional emission reductions are needed to attain and maintain the NAAQS. If additional controls are necessary, DENR will then initiate necessary rule changes, or open the permits for the respective power plant to include the new emissions limitation, or both. The evaluation of the need for additional controls occurs upon EPA issuing a new NAAQS. The EMC believes that a report every two years is no longer necessary.

### **Background on Compliance with the Clean Smokestack Act**

In the June 1, 2013 Implementation of the Clean Smokestack Act report to the Environmental Review Commission and the Joint Legislative Commission on Governmental Operations submitted by DENR and the North Carolina Utilities Commission, the Executive Summary reads as follows:

“For calendar year 2012, both utilities reported that they have continued to meet their respective limits. This has been confirmed by DENR/DAQ. The figure below shows the decrease in NO<sub>x</sub> and SO<sub>2</sub> emissions as a result of control measures implemented by Progress Energy and Duke Energy on a combined basis:



The reduction in SO<sub>2</sub> emissions required by CSA was paramount in attaining the fine particulate matter (PM<sub>2.5</sub>) standard in the Hickory and Greensboro/High Point areas in North Carolina. In December 2009, DENR submitted to USEPA a redesignation demonstration and maintenance plan for these areas and then supplemented the maintenance plan in December 2010. As part of the redesignation demonstration and maintenance plan, DENR relied on the CSA SO<sub>2</sub> reductions as permanent and enforceable measures that demonstrate continued maintenance of the PM<sub>2.5</sub> standard. On September 26, 2011, the EPA adopted the CSA emission caps into the State Implementation Plan (76 FR 59250). On November 18, 2011, the EPA approved the redesignation demonstration and maintenance plan for the Hickory and Greensboro/High Point areas (76 FR 71452 and 71455). In this action, the EPA redesignated the area to attainment,

effective December 19, 2011. The approval of the North Carolina PM<sub>2.5</sub> redesignation demonstration was made possible due to compliance with the CSA SO<sub>2</sub> emission caps.

The next milestone in emission reductions occurs in 2013, when Duke Energy and Progress Energy must reduce their annual SO<sub>2</sub> emissions to 80,000 tons and 50,000 tons, respectively (combined cap of 130,000 tons SO<sub>2</sub>). Duke Energy's calendar year 2012 SO<sub>2</sub> emissions (12,640 tons SO<sub>2</sub>) are well below the 2013 cap. Progress Energy's calendar year 2012 SO<sub>2</sub> emissions (40,803 tons SO<sub>2</sub>) are also below the 2013 cap.

Collectively, the two utilities have reduced NO<sub>x</sub> emissions by 83 percent and SO<sub>2</sub> emissions by 89 percent relative to 1998 emission levels."

### **Federal Regulatory Actions**

Clean Air Interstate Rule and Cross State Air Pollution Rule: In March 2005, USEPA issued the Clean Air Interstate Rule (CAIR) intended to be a solution to the problem of EGU interstate pollution drifting from one state to another in 27 eastern states. The CAIR is designed to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub> from power plants that cause particulate matter (PM) and ozone pollution across the eastern United States. The rule uses a cap and trade system to reduce SO<sub>2</sub> and NO<sub>x</sub> emissions by 70 percent. However, in December 2008 the U.S. Court of Appeals for the D.C. Circuit struck down CAIR but allowed it to remain in effect until replaced by a rule consistent with the court's opinion. CAIR was found to have several legal flaws concerning "good neighbor" considerations identified in the lawsuit brought by the State of North Carolina. The courts directed the USEPA to rewrite the rule.

On July 6, 2010, the USEPA released a revised rule, the Cross State Air Pollution Rule (CSAPR), as a second attempt to address interstate transport issues. This rule would also require 27 eastern states to reduce NO<sub>x</sub> and SO<sub>2</sub> emissions from EGUs but with a more limited cap and trade system than with CAIR. North Carolina utilities would be required to reduce emissions beyond the levels necessary to comply with the CSA and utilities in neighboring states would have to reduce their emissions as well. Compliance with CSAPR would result in reductions of largely NO<sub>x</sub> emissions beyond CSA for the North Carolina utilities. Full compliance with CSAPR throughout the covered states was expected to result in lower ozone and fine PM levels throughout the eastern United States. The first phase of the CSAPR reductions was scheduled to begin in January 2012 with the second phase scheduled to begin in 2014. Several petitions were filed in the D.C. Circuit for judicial review of CSAPR. Those petitions were consolidated and North Carolina, along with many other parties, intervened to assist EPA in the support of CSAPR.

On August 21, 2012, the U.S. Court of Appeals for the D.C. Circuit vacated and remanded CSAPR. The Court held that CSAPR was unlawful because (i) the USEPA sought to impose a Federal Implementation Plan on states before providing adequate guidance for states to develop their own implementation plans and (ii) USEPA improperly calculated states' contributions to other states' attainment problems. On January 24, 2013, the D.C. Circuit Court denied USEPA's petition for *en banc* review. But on June 24, 2013, the U.S. Supreme Court granted the U.S. Solicitor General's petition to review the decision to vacate CSAPR. Oral arguments and a decision are due in the Supreme Court's next term, which starts in October and ends in June 2014. In the meantime, USEPA has reinstated CAIR, and has begun the process to

develop a replacement rule to address interstate ozone and PM pollution. Duke Energy Progress is currently meeting the CAIR emission allowances for NO<sub>x</sub> and SO<sub>2</sub> and appears to be in position to meet the more restrictive CAIR allowances for 2015. USEPA held meetings to facilitate discussion and collaboration among USEPA and states on what approach should be used to identify upwind states' emission reduction obligations. In the coming years, the path forward will be defined by the U.S. Supreme Court's decision.

Mercury and Air Toxics Standards (MATS) for EGUs: On February 16, 2012, USEPA promulgated the MATS rule for coal- and oil-fired EGUs. The rule sets emission limits for hazardous air pollutants including mercury, PM, heavy metals (*e.g.*, arsenic, cadmium), and acid gases (SO<sub>2</sub> and hydrochloric acid), but not for the criteria pollutants such as NO<sub>x</sub>. It requires continuous monitoring for mercury, acid gases (SO<sub>2</sub>), and PM emissions with a compliance date in March 2015. There are 26 smaller coal-fired EGUs in North Carolina with a combined capacity of 3.5 gigawatts that have or will be shut down by 2014. The 20 larger North Carolina coal-fired EGUs with a combined capacity of 10.5 gigawatts are equipped with state-of-the-art NO<sub>x</sub>, SO<sub>2</sub>, mercury, and PM emission controls in response to the CSA. The larger EGUs are currently well positioned to comply with the MATS emission limits by the compliance date. Similarly, utilities in nearby states will be significantly reducing their NO<sub>x</sub> and SO<sub>2</sub> emissions from EGUs by installing controls on their larger units and are planning to retire several of their smaller units in order to meet the requirements of the MATS rule by March 2015.

Ozone NAAQS: USEPA planned to propose revisions to the ozone NAAQS in December 2013; however, the agency recently announced that additional time was needed to develop second drafts of the Health and Welfare Risk and Exposure Assessments. The agency expects to release the supporting analysis and assessment in December 2013. Concerning scheduling, USEPA has not offered dates when it expects to propose and promulgate the revised ozone NAAQS which would set a time schedule for USEPA to designate ozone non attainment areas and for states to submit State Implementation Plans (SIPs). An attainment demonstration SIP identifies new NO<sub>x</sub> control strategies that may be needed to attain the new standard. That analysis may require additional targeted emission reductions beyond CSA in certain critical areas in North Carolina and in other states in order to show compliance with the new ozone standard.

On July 23, 2013 the U.S. Court of Appeals for the D.C. Circuit issued its opinion in which the Court considered several petitions challenging USEPA's 2008 revisions to the primary and secondary NAAQSs for ozone – with some petitioners alleging the standards were not protective enough and others alleging they were too protective. The Court denied the petitions for review of the 75-parts-per-billion (ppb) *primary* ozone standard – thus upholding it – but remanded the *secondary* ozone standard, set at the identical level as the primary one. In June 2013, a group of environmental and public health organizations filed a complaint in a U.S. District Court in California asking the court to order USEPA to take final action on the review of the ozone NAAQS by September 30, 2014.

PM NAAQS: On January 15, 2013, USEPA published a final rule revising the NAAQS for PM. The primary *annual* standard for *fine* particles (*i.e.*, PM with a particle diameter less than 2.5 microns, known as PM<sub>2.5</sub>) was lowered from 15 micrograms per cubic meter (µg/m<sup>3</sup>) to 12 µg/m<sup>3</sup>. USEPA retained the secondary *annual* standard at 15 µg/m<sup>3</sup> as well as the primary and secondary *24-hour* standards at 35 µg/m<sup>3</sup> for *fine* particles. USEPA also retained the primary

and secondary 24-hour standards for *coarse* particles (*i.e.*, PM with a diameter less than 10 microns, known as PM<sub>10</sub>) at 150 µg/m<sup>3</sup>. Several North Carolina counties are currently designated attainment/maintenance for the previous PM<sub>2.5</sub> NAAQS, and all counties are meeting the revised PM<sub>2.5</sub> NAAQS.

**NO<sub>2</sub> NAAQS:** On January 22, 2010, USEPA strengthened the NO<sub>2</sub> standard by adding a 1-hour NO<sub>2</sub> standard of 100 ppb to the existing unchanged annual standard of 53 ppb. All of North Carolina is designated unclassifiable/attainment. Currently, all monitors in the state are in compliance with the new 1-hour NO<sub>2</sub> standard. However, USEPA does not believe that the current monitoring network is adequate to determine if all areas are attaining the 1-hour standard. Given this belief, on March 7, 2013, USEPA finalized a rule to establish a series of four deadlines that require states to begin operating the near-road component of the NO<sub>2</sub> monitoring network in phases each year between January 2014 and January 2017. Near road monitoring is required in the Charlotte-Concord-Gastonia Metropolitan Statistical Area (MSA) and Raleigh MSA by January 2014 and Greensboro-High Point MSA and Durham-Chapel Hill MSA by January 2017. USEPA has indicated that an additional designation process will occur in 2017 after the new monitoring sites in Charlotte and Raleigh have gathered 3 years of complete data.

**SO<sub>2</sub> NAAQS:** USEPA revised the primary SO<sub>2</sub> standard on June 2, 2010, by setting a 1-hour standard of 75 ppb and revoking the previous annual and daily standards. On July 25, 2013, USEPA issued its first round of nonattainment designations for areas with violating monitors. For North Carolina and other states with no violating monitors, USEPA deferred designations for the entire state pending additional data collection. Recognizing that USEPA failed to designate areas according to the Clean Air Act and its amendments, the North Carolina Attorney General's office filed a Notice of Intent to Sue on August 2, 2013. Other states and groups have also filed similar notices.

Meanwhile, USEPA is moving forward with plans to collect data for areas with no designations. The strengthening of the SO<sub>2</sub> NAAQS has created technical and legal challenges for undesignated areas due to the novelty of the 1-hour standard. USEPA's initial plan was to base attainment status on dispersion modeling results; however, in response to comments from states concerned about this attainment status strategy based only on such modeling, USEPA adopted a strategy based on either modeling or enhanced monitoring. The details of the strategy are still being developed and a proposed rule outlining states' requirements is expected in late 2013. Coal-fired EGUs and certain industries are the largest sources of SO<sub>2</sub> emissions, and will most likely be affected by the future SO<sub>2</sub> implementation rule.

**Greenhouse Gas Regulations for Power Plants:** On June 25, 2013, President Obama unveiled a Climate Action Plan, including a separate memorandum to the USEPA Administrator with a timeline and guidance for moving forward on reducing emissions of greenhouse gases (GHGs) from power plants. For new power plants, the President directed USEPA to issue a revised proposal by September 20, 2013. (USEPA proposed carbon dioxide emissions standards under section 111(b) for new power plants in April 2012.) For modified, reconstructed and existing power plants, the President directed USEPA to issue a proposal by June 1, 2014, issue final standards by June 1, 2015, and to include in the guideline requirements that states submit implementation plans required under section

111(d) by no later than June 30, 2016. The memorandum also directs EPA to launch the effort on modified, reconstructed and existing power plants “through direct engagement with States, as they will play a central role in establishing and implementing standards for existing power plants.” At this time, it is unclear whether future GHG rule making will impact NO<sub>x</sub> and SO<sub>2</sub> emissions from coal-fired EGUs.

### **Judicial Actions**

Section 10 of the CSA directed the state to take actions to achieve emissions reductions in NO<sub>x</sub> and SO<sub>2</sub> from other states and entities contributing to air pollution in North Carolina. On January 20, 2006, the North Carolina Attorney General filed suit alleging that NO<sub>x</sub> and SO<sub>2</sub> emissions from TVA power plants were inadequately controlled and created a public nuisance. After a series of federal court decisions and reversals, on April 14, 2011, USEPA announced a settlement with TVA to resolve alleged Clean Air Act violations at coal-fired power plants in Alabama, Kentucky and Tennessee contributing to air pollution in North Carolina. The settlement requires TVA (i) to install state-of-the-art pollution controls at nearly all of its 59 coal-fired units between 2011 and 2018, (ii) subject SO<sub>2</sub> and NO<sub>x</sub> emissions at all of TVA’s coal-fired facilities to system-wide caps that decline on an annual basis to permanent levels of 110,000 tons of SO<sub>2</sub> in 2019 and 52,000 tons of NO<sub>x</sub> in 2018, and (ii) to pay North Carolina \$11.2 million to fund mitigation projects in North Carolina. Alternatively to the installation of controls, TVA may retire units or repower units to combust biomass. A consent decree implementing the agreement was signed by the U.S. District Court Judge on June 30, 2011 and is now final. The settlement is being successfully implemented, including the provision of funds directly to North Carolina for approved projects.

### **Legislative Actions**

Session Law 2009-390 has the potential to further reduce power plant emissions of NO<sub>x</sub> and SO<sub>2</sub> from Progress Energy (now part of Duke Energy Progress). Session Law 2009-390 amended G.S. § 62-110.1 by allowing an expedited certification process through the Utilities Commission when coal-fired generating units are retired and replaced by natural gas generating units. As compared to coal-fired units, natural gas units produce lower levels of NO<sub>x</sub>, SO<sub>2</sub> and other air pollutants, promoting cleaner air. Duke Energy Progress has formally announced that coal-fired boilers at four of its smaller facilities (Buck in Davidson County, Dan River in Rockingham County, Lee in Wayne County, and Sutton in New Hanover County) were or will be replaced with larger natural gas-fired EGUs between 2011 and 2013. Three other facilities with smaller coal-fired boilers (Cape Fear in Chatham County, Riverbend in Gaston County, and Weatherspoon in Robeson County) were retired recently without any gas-fired EGU replacement.

### **Recommendation**

In summary, North Carolina EGU emissions of SO<sub>2</sub> and NO<sub>x</sub> have been significantly reduced by 89 and 83 percent, respectively, in response to the CSA requirements in recent years and all of the state’s EGUs are reported to be on course to meet the CAIR and MATS rules. Utilities in nearby states with coal-fired EGUs are planning to significantly reduce their NO<sub>x</sub> and SO<sub>2</sub> emissions by installing controls on their larger units and closing their smaller ones in order to meet the USEPA MATS rule by March 2015. Whether these reductions are sufficient for North Carolina to attain a more stringent ozone standard will be determined by DENR following USEPA’s promulgation of such a standard, expected in 2015. Given that these and other pending

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actions are affecting future EGU emissions, the EMC recommends that DENR continue to evaluate the need for reductions beyond CSA from the utilities based on what additional emission reductions are needed to attain and maintain the NAAQS. If additional controls are necessary, DENR will then initiate necessary rule changes, or open the permits for the respective power plant to include the new emissions limitation, or both. The evaluation of the need for additional controls occurs upon USEPA issuing a new NAAQS. The EMC believes that a report every two years is no longer necessary.

Sincerely,

Benne Hutson, Chairman  
Environmental Management Commission

Attachment

BCH/ss

cc: Lacy Presnell  
Mitch Gillespie  
Sheila Holman  
Neil Robbins

**GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2001**

**SESSION LAW 2002-4  
SENATE BILL 1078**

**SECTION 11.** The Environmental Management Commission shall study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) beyond those required by G.S. 143-215.107D, as enacted by Section 1 of this act. The Environmental Management Commission shall consider the availability of emissions reduction technologies, increased cost to consumers of electric power, reliability of electric power supply, actions to reduce emissions of oxides of nitrogen (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) taken by states and other entities whose emissions negatively impact air quality in North Carolina or whose failure to achieve comparable reductions would place the economy of North Carolina at a competitive disadvantage, and the effects that these reductions would have on public health, the environment, and natural resources, including visibility. In its conduct of this study, the Environmental Management Commission may consult with the Utilities Commission and the Public Staff. The Environmental Management Commission shall report its findings and recommendations to the General Assembly and the Environmental Review Commission annually beginning 1 September 2005.



**GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2010**

**SESSION LAW 2010-142  
HOUSE BILL 1802**

**SECTION 6.** S.L. 2002-4, Section 11, as amended by S.L. 2006-79, reads as rewritten:

"SECTION 11. The Environmental Management Commission shall study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO<sub>2</sub>) beyond those required by G.S. 143-215.107D, as enacted by Section 1 of this act. The Environmental Management Commission shall consider the availability of emissions reduction technologies, increased cost to consumers of electric power, reliability of electric power supply, actions to reduce emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO<sub>2</sub>) taken by states and other entities whose emissions negatively impact air quality in North Carolina or whose failure to achieve comparable reductions would place the economy of North Carolina at a competitive disadvantage, and the effects that these reductions would have on public health, the environment, and natural resources, including visibility. In its conduct of this study, the Environmental Management Commission may consult with the Utilities Commission and the Public Staff. The Environmental Management Commission shall report its findings and recommendations to the General Assembly and the Environmental Review Commission ~~annually~~ biennially beginning ~~1 September 2007~~ 1 September 2011."