Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

April 26, 2018

Docket ID No. EPA-HQ-OAR-2017-0355
Administrator Scott Pruitt
Environmental Protection Agency
EPA Docket Center (EPA/DC)
1200 Pennsylvania Ave. NW
Washington, DC 20460

Subject: Comments on Proposed Rulemaking - Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units

Dear Administrator Pruitt:

The North Carolina Department of Environmental Quality (NCDEQ) is providing comments on the proposed rule "Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" published in the *Federal Register* on October 16, 2017 (82 *FR* 48035). NCDEQ protects North Carolina's environment and natural resources by administering regulatory and public assistance programs aimed at safeguarding the state's air, water, waste, land resources, coastal fisheries, and the public's health while advancing energy strategies that ensure a sustainable and affordable energy future for its residents. As North Carolina's lead agency charged with implementing the Clean Air Act (CAA), NCDEQ is committed to protecting and improving ambient air quality for the health, benefit and economic well-being of all its citizens. It is in recognition of this responsibility to the citizens of North Carolina, the environment and the state's natural resources that we oppose the proposed repeal of the Clean Power Plan (CPP).

We offer the following comments starting with the acknowledgment that (1) anthropogenic greenhouse gas (GHG) emissions contribute to climate change, (2) North Carolina is already experiencing the effects of climate change, (3) EPA has a legal obligation to control GHG emissions from stationary sources, (4) the CPP regulatory framework is a reasonable and cost-effective regulatory approach based on North Carolina's experience transitioning to a clean energy economy, (5) the CPP does not have a vast economic, policy and political significance, (6) the CPP does not regulate the energy sector (7) the CPP does not infringe on state or federal regulatory authority, and (8) EPA's revised economic analysis underestimates the benefits and inflates the costs of the CPP. We trust that this input will be considered as EPA considers whether to repeal this important environmental rule.

1. EPA's Endangerment Finding is in effect and EPA must regulate GHG emissions from power plants.

NCDEQ agrees with EPA's Endangerment Finding under Section 202(a) of the CAA that anthropogenic GHG emissions threaten the public health and welfare of current and future generations. This Endangerment Finding remains in effect, and thus EPA has a statutory obligation to regulate GHG emissions from stationary sources per the U.S. Supreme Court's holding that GHGs are air pollutants

under the CAA in *Massachusetts v. EPA*[1] and that EPA must establish emission guidelines and performance standards under Section 111 for categories of stationary sources that endanger public health or welfare in *AEP v. Connecticut*[2] and *New York v. EPA.*[3,4]

With over 3,375 miles of shoreline, a robust economy dependent on agriculture and forestry resources, tourism, and coastal estuaries, North Carolina is particularly vulnerable to the effects of climate change. These effects have been felt, in varying degrees, from the mountains to the sea and across every sector of the state's economy in the form of hurricanes, sea level rise, heat waves, droughts, heavy precipitation, salt water intrusion, flooding and fire events. These phenomena pose serious public health risks, especially to vulnerable populations such as the elderly and children, disadvantaged communities located in vulnerable areas and local economies most affected by weather events. Although a single event may not be attributed to climate change, a collection of these events over an extended period of time leads to an economy-wide impact, including damage to our built environment and infrastructure system (transportation, housing, water resources, energy generation/distribution/use, dams and water management, and coastal resources), as highlighted below.

- The North Carolina Coastal Resources Commission's Science Panel predicts sea levels will rise by 1.9 to 10.6 inches at different locations along North Carolina's coast by 2045.[5] The North Carolina Division of Emergency Management (NCEM) predicts that in the next century, 9% of the land area in the 20 coastal counties will experience inundation.[6] NCEM also predicts sea level rise could cause the regulatory floodplain to expand by 350 square miles, causing the loss of 5,000 buildings worth $923 million, and adding 24,000 buildings to the floodplain.[7] Another study predicts that 13 North Carolina communities will face chronic inundation from sea level rise by 2035 and that a further 36 communities will experience chronic inundation by 2100.[8]

- North Carolina's coastal wetlands and estuaries that support fisheries will be affected from salt water intrusion and increased storm damage.

- North Carolina is located within a frequent hurricane path. According to the 2014 National Climate Assessment report by the U.S. Global Change Research Program, the number of Category 4 and 5 hurricanes in the North Atlantic and the amount of rain falling in very heavy precipitation events have increased over recent decades, and further increases are projected. The report stated that the Southeast has been affected by more billion-dollar disasters than any other region. The primary disaster type for coastal states such as North Carolina is hurricanes.

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[1] *549 U.S. 497, 528-29, 533 (2007).*
[2] *564 U.S. at 426-427 (2011)*
[3] *No. 06-1322 (D.C. Cir., filed Sept. 13, 2006)*
[4] *75 FR 82,393 (Dec. 30, 2010)*
[5] *N.C. Coastal Resource Commission Science Panel, North Carolina Sea-Level Rise Assessment Report: 2015 Update to 2010 Report and 2012 Addendum (March 31, 2015), https://files.nc.gov/ncdeq/Coastal%20Management/documents/PDF/Science%20Panel/2015%20NC%20SLR%20Assessment-FINAL%20REPORT%20Jan%2028%202016.pdf.*
[6] *North Carolina Department of Public Safety, North Carolina Emergency Management Geospatial and Technology Management, North Carolina Sea Level Rise Impact Study: Final Study Report (June 2014).*
[7] *North Carolina Department of Public Safety, North Carolina Emergency Management Geospatial and Technology Management, North Carolina Sea Level Rise Impact Study: Final Study Report (June 2014).*
[8] *Union of Concerned Scientists, When Rising Seas Hit Home: Fact Sheet: North Carolina Faces Chronic Inundation (July 2017), https://www.ucsusa.org/sites/default/files/attach/2017/07/when-rising-seas-hit-home-northcarolina-fact-sheet.pdf.*

- Climate change in North Carolina will impact the agriculture sector, which contributed $84 billion to the state's economy in 2016.[9] More severe droughts and higher temperatures can lead to crop failures and reduced livestock productivity.[10] Increasingly severe and frequent hurricanes will also damage forestlands. A study of North Carolina estimated that forest damages rise by $500 million for every increase in category level of hurricane.[11]

- North Carolina's tourism industry generated $22.9 billion in visitor spending in 2016.[12] Costs to tourism include losses of beach area due to sea level rise and decreased demand for beach trips.[13] The lost recreation value due to climate change-induced sea-level rise to local beach goers is projected to be $93 million a year by 2030 and $223 million a year by 2080 for the southern North Carolina beaches. Furthermore, annual spending by non-local North Carolina residents on beach trips is estimated to drop by 16% by 2030 and by 48% by 2080.[14]

- Heat waves and extended periods of drought will increase the risk of wildfires. Between October and November of 2016, 30 fires, including some set by arson, scorched 80,000 acres in drought-stricken western North Carolina counties. The smoke produced by the worst rash of fires on record in North Carolina carried particle pollution that reached dangerous levels. State air quality officials detected 24 instances of code orange conditions during the fires, 11 instances of code red, 2 in code purple and 2 in code maroon. State firefighting costs were estimated to be over $50 million. More frequent and severe fires are linked to climate change, and their effects on this vital part of North Carolina's economy must be recognized.

- In a 2012 article, Munich Re, the world's largest reinsurer, reported that North America has seen the biggest increase in the world in natural catastrophes over the past 30 years. Another study published by Ceres, a nonprofit business sustainability group that works closely with the insurance industry, warns that extreme weather risks, including rising sea levels, are growing for the property and casualty insurance sector. The same study concluded that extreme weather events cost insurers more than $32 billion in losses in 2011 and the industry's net underwriting loss in 2011 was $34 billion, a result of a record 99 disaster declarations by the federal government.[15]

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[9] *Brian Long, Today's Topic: Economic impact of NC agriculture, agribusiness increases to $84 billion, http://info.ncagr.gov/blog/2016/06/07/todays-topic-economic-impact-of-nc-agriculture-agribusiness-increases-to-84-billion/ (June 7, 2016).*

[10] *EPA, What Climate Means for North Carolina, (August 2016), https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nc.pdf.*

[11] *University of Maryland, Center for Integrative Environmental Research, Economic Impacts of Climate Change on North Carolina (Sept. 2008), http://cier.umd.edu/climateadaptation/North%20Carolina%20Economic%20Impacts%20of%20Climate%20Change%20Full%20Report.pdf.*

[12] *Economic Development Partnership of North Carolina,* North Carolina Tourism Generates Record Employment and Visitor Spending in 2016, *(May 8, 2017), https://edpnc.com/north-carolina-tourism-generates-record-employment-visitor-spending-2016/.*

[13] *University of Maryland, Center for Integrative Environmental Research,* Economic Impacts of Climate Change on North Carolina *(Sept. 2008), http://cier.umd.edu/climateadaptation/North%20Carolina%20Economic%20Impacts%20of%20Climate%20Change%20Full%20Report.pdf.*

[14] *Impacts of Global Warming on North Carolina's Coastal Economy, a joint study by Department of Economics, East Carolina University, Department of Economics and Finance, University of North Carolina at Wilmington, Duke University, Nicholas School of the Environment, and Department of Economics, Appalachian State University, Boone, NC, http://bipartisanpolicy.org/wp-content/uploads/sites/default/files/NC%20Climate_0.pdf.*

[15] *Climate Change, Insurance and the Coast, part 1, Coastal Review Online, (November 08, 2012), https://www.coastalreview.org/2012/11/climate-change-insurance-and-the-coast-part-1/.*

The current and anticipated impacts of climate change in North Carolina are consistent with the scientific community's understanding of the earth's climate system and the well-accepted consensus by multi-disciplinary scientific data, analysis, and predictive modeling that the climate system is changing rapidly primarily due to human activities, particularly from emissions of GHGs.[16,17] The predictions indicate that early actions to curb GHG emissions can stabilize global temperatures and effective mitigation activities must be implemented to achieve the desired emission reductions.

Unlike criteria pollutants, the effects of GHGs are felt regionally, nationally, and globally over a span of generations. Singular actions by a local or state government are insufficient to reduce GHG emissions below the critical threshold identified by a consensus of the scientific community. North Carolina recognizes and accepts this challenge and is committed to do its part to reduce GHG emissions and adapt to the changing climate to build resiliency and protect its citizens, environment, natural resources, economy and its built infrastructure. As a member of the U.S. Climate Alliance, we have pledged to collectively achieve GHG targets and to accelerate the state's transition to a clean energy economy.

Federal action to reduce GHG emissions is necessary to address the health and welfare of all Americans. The notice of proposed repeal barely acknowledges the enormity of risks posed by global climate change, much less proposing an alternative interpretation that will deliver similar (or greater) carbon pollution reductions. The term "climate change" is referenced only once in the proposed rule and is found in the Regulatory Impact Analysis section. The Advanced Notice of Proposed Rulemaking is ambiguous and noncommittal with respect to the timing or scope of a possible replacement rule.[18] If EPA wishes to repeal the CPP, the Agency cannot return to an unregulated landscape; rather, EPA must replace the CPP with an alternative rule that achieves meaningful emission reductions or allow the courts to complete their review of the legality of the CPP.

2. The CPP framework is a reasonable regulatory approach.

North Carolina's experience transitioning into a clean energy economy provides a real-world example that the CPP framework is based on a reasonable regulatory approach. As discussed below, North Carolina's experience shows that emission reduction requirements at coal-fired power plants and legislative mandates to increase zero and low-emitting generation resources can result in significant reduction in emissions while providing safe, reliable, and affordable electricity.

North Carolina has a history of being a national leader in developing common-sense environmental policies in the absence of federal mandates. In 2002, the North Carolina General Assembly enacted the bi-partisan Clean Smokestacks Act (CSA) to reduce emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from coal-fired power plants by 2007 and 2013.[19] Looking beyond NOx and SO_2, the CSA directed a review of the need for additional controls for mercury and carbon dioxide (CO_2) emissions. It was over 10 years later when similar EPA regulations became effective nationally pursuant to the Cross-State Air Pollution Rule and Mercury and Air Toxics Rule. North Carolina also implemented the CAA 112(j) permitting program to control air toxics from industrial, commercial and institutional boilers while EPA's boiler rules stalled in the courts for years due to vacatur and reconsiderations.

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[16] *USGCRP: Climate Science Special Report: Fourth National Climate Assessment, Volume 1, U.S. Global Change Research Program, Washington, DC, USE 470 pp, (2017).*
[17] *The National Academies of Sciences and the Royal Society, "Climate Change: Evidence & Causes," (February 27, 2014), http://nas-sites.org/americasclimatechoices/events/a-discussion-on-climate-change-evidence-and-causes/.*
[18] *82 FR 61507, (December 28, 2017).*
[19] *North Carolina Session Law 2002-4, Senate Bill 1078, Improve Air Quality/Electric Utilities, North Carolina General Assembly, (August 24, 2002), https://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2001&BillID=S1078.*

The CSA, combined with low natural gas prices, resulted in the closure of older, inefficient coal plants, and the expansion of new, more efficient and less polluting natural gas combined cycle (NGCC) plants. This transition propelled North Carolina into a low carbon energy state. For the remaining coal-fired power plants, heat rate improvement measures were made at the same time the units were retrofitted for NOx, SO_2 and PM2.5 control systems. In 2012, the state's coal plants had the lowest CO_2 emission rate in the country. In 2013, according to a July 17, 2014 Power Engineering article, two of the top five most efficient coal plants in the country operated in North Carolina.

North Carolina's low carbon energy trend was further accelerated by the enactment of the state's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) in 2007, the first in the southeast.[20] The REPS is flexible in its approach to renewable energy (RE), similar to the CPP, by allowing generation and use to occur both in- and out-of-state. North Carolina has developed a robust measurement, tracking, and banking system for solar and energy efficiency (EE), similar to what is allowed under the CPP, all of which has been accomplished at marginal cost to rate payers of North Carolina. A 2015 study determined that the REPS program will result in $651 million in cost savings for ratepayers between 2008 and 2029. It also determined that electricity costs are "expected to be lower than they would have been had North Carolina continued to only use existing, conventional generation sources."[21]

The utilities and smaller power providers are currently meeting or exceeding their REPS goals while maintaining costs below the cost recovery caps set by the statute.[22] In addition to enacting REPS, North Carolina has incentivized the growth of the RE sector through the state's Utility Savings Initiative,[23] property tax abatements for solar energy electric systems,[24] and most recently, the passage of the Competitive Energy Solutions for North Carolina Act (HB589).[25,26] By 2021, the REPS program requires 12.5% of electricity sales to come from renewable resources and EE measures. Under the new HB589 legislation, it is estimated that between 17% and 19% of electricity sales will come from non-fossil sources between 2018 and 2023.

Together, these policies and programs have spurred remarkable growth in North Carolina's clean energy industry. Between 2007 and 2016, approximately $10 billion was invested in clean energy development in the state.[27] North Carolina is now home to over 34,000 clean energy jobs[28] and has the second-largest

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[20] *North Carolina Session Law 2007-397, Senate Bill 3, North Carolina General Assembly, (August 20, 2007),* https://www.ncleg.net/Sessions/2007/Bills/Senate/PDF/S3v6.pdf *and* http://www.ncuc.commerce.state.nc.us/reps/reps.htm.

[21] *Economic and Rate Impact Analysis of Clean Energy Development in North Carolina, Summary Findings, RTI International and ScottMadden Management Consultants, (February 2015),* https://energync.org/wp-content/uploads/2017/10/Summary-Findings_Economic-and-Rate-Impact-Analysis-of-Clean-Energy-Development-in-North-Carolina%E2%80%942017-Update-October-Version.pdf.

[22] *Annual Report Regarding Renewable Energy and Energy Efficiency Portfolio Standard in North Carolina Required Pursuant to G.S. 62-133.8(J), Submitted by The North Carolina Utilities Commission, (October 1, 2017),* http://www.ncuc.commerce.state.nc.us/reports/repsreport2017.pdf.

[23] *NC DEQ, Utility Savings Initiative,* https://deq.nc.gov/conservation/energy-efficiency-resources/utility-savings-initiative *(last visited Jan. 4, 2018)*

[24] *N.C. Gen. Stat. § 105-275(45)*

[25] *NC House Bill 589, Session Law 2017-192, Competitive Energy Solutions for NC, July 2017,* https://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2017&BillID=H58 *(last visited April 20, 2018)*

[26] *Gov. Cooper Signs Law Securing Thriving Solar Industry, Shows Commitment to Wind Energy with Strong Executive Order, NC Governor Roy Cooper* https://governor.nc.gov/news/gov-cooper-signs-law-securing-thriving-solar-industry-shows-commitment-wind-energy-strong *(July 27, 2017).*

[27] RTI International, *Economic Impact Analysis of Clean Energy Development in North Carolina – 2017 Update*, (Oct. 2017), https://energync.org/wp-content/uploads/2017/10/Summary-Findings_Economic-and-Rate-Impact-Analysis-of-Clean-Energy-Development-in-North-Carolina%E2%80%942017-Update-October-Version.pdf

[28] U.S. Climate Alliance, *2017 Annual Report*, https://static1.squarespace.com/static/5936b0bde4fcb5371d7ebe4c/t/59bc4959bebafb2c44067922/1505511771219/USCA_Climate

amount of installed solar capacity among the states.[29] And in 2017, a 208 megawatt wind farm came online in North Carolina, making the state home to the largest wind farm in the Southeast.[30] According to a recent report, between 2000 and 2014 North Carolina reduced its total CO_2 emissions by 14.6%, with minimal impact on electricity rates while growing the state's GDP by 26.3%.[31]

North Carolina's experience demonstrates that power plants can and do reduce emissions by replacing higher-emitting generation with zero- and lower-emitting generation, or generation shifting based on the interconnected nature of the power grid. In light of the CSA's emissions caps on coal-fired units, the REPS, and market forces between 2010 and 2014, North Carolina has retired over 3,000 MW of coal capacity and has built highly efficient and cleaner burning NGCC plants. By 2020, coal retirements will increase by another 1,300 MW, most of which will be replaced by new NGCC plants. Furthermore, plans are under way to co-fire at least one coal-fired unit with natural gas. In 2016, North Carolina had over 7.5 million megawatt hours in documented RE generation and EE avoided generation under the REPS. Additional private sector RE and EE actions are not included in this value.

These changes in the electricity sector have had a dramatic impact on CO_2 emissions in North Carolina. In 2017, emissions from North Carolina's affected sources under the CPP were well below the 2030 CPP mass target for the state while an estimated 3 million tons of CO_2 emissions were avoided due to the REPS.[32] Between 2005 and 2016, North Carolina's CO_2, NOx, and SO_2 emissions from EGUs decreased by 32%, 55%, and 90%, respectively,[33] mainly due to the retirement of coal plants. In 2016 alone, North Carolina's REPS resulted in avoided emissions of over 2,200 tons NOx and 2,600 tons of SO_2 in 2016, which is equivalent to a 700 MW coal plant retirement.

Many states are also undergoing a similar transformation. A new analysis by the Rhodium Group estimates that U.S. electricity emissions are currently on track to fall 27 to 35% below 2005 levels by 2030, within the range of what the CPP originally envisioned. The same group estimated that with CPP in place, 12 to 21 states would have to make deeper reductions than they are currently expected to do without the rule.[34] NCDEQ finds that the flexible regulatory framework of the CPP is reasonable and consistent with real world trends in the power sector. The CPP should be maintained to achieve the much-needed emissions reductions from the remaining 12 to 21 states.

3. The clear statement rule is not triggered because the CPP does not have vast economic and political significance.

The proposed rule states that addressing CO_2 emissions would be vast economic and political significance, and would represent an improper shift in EPA's regulatory duties from environmental to energy-related policy development. The rule infers that such actions would infringe upon the rights of states.

Report-V2A-Online-RGB.PDF; *RTI International, Economic Impact Analysis of Clean Energy Development in North Carolina – 2017 Update*, (Revised October 2017)

[29] *Solar Industry Data, Solar Energy Industries Association, https://www.seia.org/solar-industry-data (Last visited Jan. 4, 2018).*

[30] *State Profiles and Energy Estimates: North Carolina, U.S. Energy Information Administration https://www.eia.gov/state/?sid=NC (Last updated Aug. 17, 2017).*

[31] *Devashree Saha & Mark Muro, Brookings Institute, Growth, carbon, and Trump: State progress and drift on economic growth and emissions 'decoupling' (Dec. 8, 2016) https://www.brookings.edu/research/growth-carbon-and-trump-state-progress-and-drift-on-economic-growth-and-emissions-decoupling/#fullreport.*

[32] *Annual Report Regarding Renewable Energy and Energy Efficiency Portfolio Standard in North Carolina Required Pursuant to G.S. 62-133.8(J), Submitted by The North Carolina Utilities Commission, October 1, 2017, http://www.ncuc.commerce.state.nc.us/reports/repsreport2017.pdf*

[33] *Energy Information Administration, 1990-2016 U.S. Electric Power Industry Estimated Emissions by State (EIA-767, EIA-906, EIA-920, and EIA-923). (December 2017).*

[34] *John Larson and Whitney Herndon, The Rhodium Group, What the CPP Would Have Done, (October 9, 2017), http://rhg.com/notes/what-the-cpp-would-have-done.*

NCDEQ finds that the addressing CO_2 emissions through regulation is not only essential for maintaining human and environmental health, it is also legally required by the U.S. Supreme Court. The 2007 decision made during the Bush Administration means that the CPP is aligned with the legal responsibilities of EPA and does not represent a vast or significant change.

The CPP would not cause a radical departure from current market trends in the power sector, and, could yield positive economic impacts. The electricity sector is already undergoing significant changes. The combination of low-cost abundant natural gas, more efficient and flexible NGCC generation, an aging coal plant fleet, and the declining cost of EE and RE technologies has shifted power markets toward low- and zero- emission sources. Natural gas continues to lead additions in new generating capacity across the country, as is the case in North Carolina. Complying with the CPP would involve actions similar to those already taking place in the electricity sector. These same methods have been used successfully to reduce emissions of both criteria pollutants and CO_2. NCDEQ believes that repealing the CPP will create industry uncertainty over carbon regulation and failure to significantly address CO_2 emissions could have vast economic impacts due to the reasons cited above.

Complying with the CPP will be less costly than EPA estimated when finalizing the CPP. In its January 2017 updated implementation cost schedule, the Agency found that the average marginal cost of CO_2 reduction would be $4 per ton, compared to the original RIA's finding of an average marginal cost of $11 per ton.[35] In the same report, generators in eighteen states were found to be able to comply with the rule with zero compliance costs. Furthermore, the CPP would create much needed and sustained economic benefits. As demonstrated in North Carolina, it is possible to simultaneously drive economic growth while reducing emissions.

North Carolina's experience demonstrates that the CPP framework will not contribute to vast economic impacts. Based on the earlier discussion, there is evidence that the CPP will not result in a large rate increase as the REPS program has maintained costs below the cost recovery caps. Moreover, the CPP has a potential to create a new market, parallel to the REPS program, that values carbon benefits of low- and zero-emitting energy resources. North Carolina met its final 2030 CPP mass-based goal using cost effective approaches that rely on market drivers, environmental regulations, and other state policies. This reduction in emissions was accomplished in a growing economy through the redispatching to natural gas, RE, and EE. Duke Energy, which operates 20 of 24 affected units in North Carolina, has a climate commitment to maintain a low carbon energy portfolio. Its emissions projections provided to NCDEQ indicate that emissions will continue on a downward trajectory below the CPP levels. However, the utility's data indicate that in a carbon constraint regime, additional reductions can be achieved than those projected without a regulatory requirement.

NCDEQ also does not see a vast political significance to retaining the CPP, contrary to statements in the proposed repeal. The courts already have mandated that EPA use its discretion to implement carbon regulations under Section 111 of the CAA. In addition, the CPP is the result of extensive public engagement process that addressed 4 million comments and convened many public meeting and hearings.

4. The CPP does not regulate the energy sector.

The CPP regulates carbon dioxide, an air pollutant subject to CAA requirements, not the entire energy sector. To comply with the standard of performance defined by each state, it is up to the regulated source

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[35] *U.S. EPA, Basis of Denial of Petitions to Reconsider and Petitions to Stay the CAA section 111(d) Emission Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units, Appendix 1: States' Progress and Trends 8, January 2017.*

to factor the cost of controls into its decision-making, including retrofits or upgrades, new construction, shut down, investment in cleaner generation sources, or trading allowances. State energy regulators oversee these decisions and work with utilities to ensure that the electricity system delivers safe, reliable power supply to customers at reasonable cost. Regardless of decisions made by state energy regulators, generators must meet applicable state and federal requirements. As was the case with CSA compliance, redispatching to natural gas and RE occurred because those were the least-costly options for the affected sources. For this reason, NCDEQ does not believe that CPP regulates the energy sector or infringes on either FERC jurisdiction or the role of the North Carolina Utilities Commission.

Energy and environmental regulation have co-existed successfully in North Carolina. NCDEQ, the State Energy Office, North Carolina Utilities Commission, and the Utilities Commission Public Staff have collaborated on energy and environmental projects for many years. This includes work on formulating, implementing and reporting compliance activities for the CSA. The interagency cooperation also included providing assistance on the development and reporting on the implementation of the REPS program. The agencies also worked extensively on CPP comments and developed early strategies for implementation. Lastly, the agencies participated in workshops designed to educate their staff on various rules, programs, and opportunities to reduce both electricity demand and costs and to identify ways to work together for the citizens of North Carolina. Regulations related to energy generation and environmental protection co-exist successfully within the jurisdiction of the respective agency and in collaboration with one another. Under the CPP, North Carolina's energy regulators would maintain their independent authority to oversee retail electricity prices, to license new and modified electric generating capacity and to ensure reliability.

5. The CPP does not result in a significant policy shift in relationship between federal and state government.

NCDEQ agrees that under Section 111(d), EPA provides emission guidelines by determining the degree of emission limitation that standards must reflect based on what can be achieved by sources through the application of BSER. While EPA's determination of BSER informs the stringency of the emission standards, state plans establish standards of performance for each affected source. The CPP is consistent with that direction in that states set the emission standards for and applicable to individual sources. The CPP does not, as EPA indicates in the Agency's proposed repeal, establish standards "for other sources or entities."

EPA has a legal obligation to provide emission guidelines for CO_2 emissions from power plants. For this reason, the CPP must be retained.

6. In the revised Regulatory Impact Analysis (RIA), EPA's economic analysis underestimates the benefits and inflates the costs of the CPP without valid scientific and analytical basis.

The revised RIA contains several serious flaws, including: (a) not addressing environmental justice issues, (b) inappropriate use of a high discount rate, (c) underestimating the social cost of carbon, (d) overestimating avoided compliance costs, (e) underestimating co-benefits, and (f) improperly changing the way in which EE is accounted.

6a. Not addressing Environmental Justice impacts

Both the 2015 RIA and 2017 revised RIA analyses discuss the effect that the CPP has on low income and minority communities. In the 2015 report, potential effects to environmental justice (EJ) communities are discussed in great depth and includes a detailed community engagement plan, while the 2017 RIA applies

flawed arguments and lacks any public engagement plan. Additionally, the terms used in the 2017 RIA are not clearly oriented towards an EJ analysis, and the arguments made do not adequately address the EJ concerns. Specific points of concern in the 2017 revised analysis are as follows:

- The CPP final rule found a higher proportion of low-income and minority communities living within three miles of electric generating units (EGUs); however, the 2017 RIA focuses on the uncertainties of health outcomes and air dispersion patterns and does not include research into detailed examples or communication with specific communities.

- The revised RIA acknowledges that the previous RIA found that low-income and minority communities located in proximity to EGUs "may have experienced an improvement in air quality as a result of the CPP." However, the repeal action argues that this analysis is uncertain and did not account for the "potential distribution of compliance costs." The qualitative analysis in the proposed repeal is purely speculative and does not have the credibility of a well-documented quantitative assessment. Based on North Carolina's experience, our state can attest that air quality has improved in communities surrounding EGUs. It would be relatively easy for EPA to develop an estimate based on air quality monitoring data and emissions of power plants that have retired, converted to natural gas, or switched to alternative fuels in EJ communities.

- The revised RIA contemplates that the CPP will cause certain coal plants to shut down, resulting in job losses in economically disadvantaged and vulnerable populations. EPA infers that such unemployment will result in negative health impacts to the affected community such as substance abuse. EPA has not attempted to estimate the unemployment cost impacts in communities affected by plant shutdowns or positive economic resurgence from alternative energy sources. Regardless it is likely that direct health and environment impacts of exposure to pollution from power plants would outweigh these costs.

- The revised RIA claims that the overall distribution of health impacts will depend on how people "change their housing location choice in response to air quality changes," which fails to address the inability of low-income households to move due to the high costs associated with relocation.

- The revised RIA fails to address the points detailed in the 2015 RIA regarding large scale disproportionate impacts of climate change on low income communities that will accelerate with no reduction in CO_2 emissions.

6b. Inappropriate use of a high discount rate

The revised RIA states that a discount rate of 7% should be used for the impact analysis for consistency with the Office of Management and Budget (OMB) Circular A-4. This discount rate represents the historical before-tax return on private capital. While the use of a 7% discount rate is consistent with past regulatory guidance under OMB circular A-4, this high discount rate is inappropriate for use in estimating the Social Cost of Carbon (SCC).

The models used to calculate the economic impact of climate change and SCC estimates report their output in terms of "consumption-equivalent" impacts, which is intended to reflect the effective impact on people's consumption, not private capital rates of return. Standard economic practice is to discount consumption equivalents at the "consumption rate of interest," which according to previous OMB guidance developed by the Interagency Working Group on the Social Cost of Carbon (IWG), is a 3%

discount rate. [36] Additionally, the researchers who developed the climate damage models used by EPA do not employ discount rates as high as 7% in their work. For these reasons, it is clearly more appropriate to use discount rates on the order of 3% rather than 7% to properly estimate the SCC.

The use of a high-7%- discount rate biases the consideration of benefits toward the current population at the expense of the welfare of future generations. This is incompatible with the long-lived nature of GHG emissions in the atmosphere, and the fact that damages from emissions today will continue to impact generations to come. Moreover, a recent report from the Council of Economic Advisors found that evidence supports a rate lower than 3% as the norm for the consumption rate of discount, which it suggested should be at most 2% given historical trends and expected future conditions.[37]

Historic OMB guidance documents on discount rates, that were written prior to OMB/IWG research and analysis conducted to develop SCC estimates, can no longer be employed. Applying this older economic approach is arbitrary and capricious since more recent peer-reviewed economic models on the SCC indicate that lower discount rates are indeed more appropriate. EPA and OMB must provide a peer-reviewed, economically appropriate, discount rate (or range of discount rates) and rationales that support them in order to revise the discount rates used to estimate the SCC for the Review of the CPP. Justifying the use of a 7% discount rate for the sole reason that it has been applied historically is not an adequate rationale to repeal such an important rule.

EPA does state that it intends to develop a more appropriate SCC in the future. However, utilizing arbitrary economic methods, which are inadequate to model the actual regulatory impact of regulations involving GHG emissions, cannot be allowed. Methods that have been through peer review and judicial review are more appropriate at this time and for a rulemaking this significant.

6c. Underestimating the Social Cost of Carbon

The SCC is defined as the economic cost caused by an additional ton of CO_2 emissions, or its equivalent, into the atmosphere. The SCC quantifies climate change damages due to such factors as agricultural productivity, human health, property damage from flooding, and building energy costs. Federal agencies use the SCC in cost-benefit analysis to measure the monetary benefits of proposed regulations that reduce GHG emissions and weigh them against the costs of the regulation.

In 2009, the US government established the Interagency Working Group on Social Cost of Carbon (IWG) composed of members from six federal agencies and various White House offices. The IWG was an effort to provide a consistent and transparent method for agencies to calculate and use the SCC based on the best available science, economics, and data. In 2013, the IWG published a comprehensive set of SCC valuations for CO_2, methane and nitrous oxide using the global impacts of climate change over a range of discount rates (2.5% to 5%) from 2010 to 2050. The working group issued four updates to its analysis and results between 2013 and 2016. The SCC estimates represent the US federal government's best estimate of the economic welfare impacts of carbon emissions.

On March 28, 2017, Section 5 of the Executive Order (EO) on Promoting Energy Independence and Economic Growth disbanded the IWG. In addition, the EO withdrew the six technical support documents presenting the development of the SCC for use in RIA. Finally, the EO stated that "agencies shall ensure, to the extent permitted by law, that any such estimates are consistent with the guidance contained in OMB

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[36] *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, August 2016.*
[37] *Theory and Recent Evidence on the Merits of Updating the Discount Rate, Council of Economic Advisers Issue Brief, January 2017.*

Circular A-4 of September 17, 2003 (Regulatory Analysis)". The EO specifically addressed the use of domestic versus international impacts and consideration of appropriate discount rates when developing the SCC. The EO states that the guidance in OMB Circular A-4 guidance was issued after peer review and public comment and has been widely accepted for more than a decade. However, the SCC estimates published by the IWG used for federal rulemaking have also undergone peer review, public comment, and had been reviewed and upheld in federal court. There are several issues with this approach to regulatory analysis as discussed in following paragraphs.

The global SCC estimates underwent public comment in the joint EPA and Department of Transportation (DOT) proposed rulemaking on fuel economy and CO_2 tailpipe emission standards. Furthermore, these SCC estimates were used by the Department of Energy (DOE) in developing EE standards for commercial refrigeration equipment in which the use of these estimates were challenged in federal court. On August 8, 2016, the 7th U.S. Circuit Court of Appeals upheld the DOE's use of the global SCC in its analysis.

Specifically, the Court ruled that DOE can consider the SCC under the Energy Policy and Conservation Act and that it was reasonable to consider global climate benefits when calculating domestic regulatory costs. Other court cases have also required the use of the global SCC when estimating regulatory impacts including: 2008 decision by the U.S Court of Appeals for the Ninth Circuit in *Center for Biological Diversity v. NHTSA* and the 2014 decision by the United States District Court for the District of Colorado in *High Country Conservation Advocates v. U.S. Forest Service.*

Since federal courts have upheld the use of global SCC estimates and since the guidance under OMB Circular A-4 does not specifically prohibit the use of larger regional impacts and benefits, the use of global SCC estimates in conjunction with domestic costs has legal precedent over the use of domestic-only SCC estimates.

The Trump Administration cannot justify the use of domestic-only SCC impacts in regulatory analyses by issuing an executive order and citing a guidance document that pre-dates the court rulings. If the Administration would like to apply a different methodology, EPA must provide a legally defensible rationale as to why the regulatory impact analysis of the Review of the CPP should be limited to a domestic-only SCC estimate, given that this domestic-only estimate has not been peer reviewed, been open to public comment, or been subject to judicial review.

6d. Overestimating avoided compliance costs

In January 2017, EPA demonstrated that the trends toward low- and zero-emitting energy, upon which the CPP builds, continue to reform the energy sector and in some states, have accelerated since the EPA promulgated the CPP.[38] These trends represent CPP compliance costs that have already been realized (i.e., these costs have been expended). Therefore, EPA has failed to deduct the portion of compliance costs that have already been realized, resulting in an overestimate of the remaining compliance costs in the revised RIA.

6e. Underestimating co-benefits

The revised RIA's use of National Ambient Air Quality Standards (NAAQS) as compliance thresholds eliminates all foregone benefits associated with exposure to air pollution below those standards, thus

[38] *U.S. EPA, Basis of Denial of Petitions to Reconsider and Petitions to Stay the CAA Section 111(d) Emission Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units, Appendix 1: States' Progress and Trends 8, January 2017.*

significantly underestimate the actual benefits associated with the CPP. The NAAQS were established as reasonable benchmarks for limiting unacceptable risks to public health. EPA's use of the NAAQS as thresholds ignores the public health costs that result at exposures below those limits. By doing so, EPA assumes that NAAQS represent limits below which there are no discernible benefits. This assumption is simply wrong and inconsistent with the EPA Administrator's testimony before the Environment Subcommittee of the House Committee on Energy and Commerce during which he stated that scientists agree that fine particulate matter ($PM_{2.5}$) is a dangerous health hazard and that no safe level of exposure has been identified.[39,40]

In the revised RIA, EPA chose to include two additional estimates of the benefits from reductions in $PM_{2.5}$ emissions: (1) eliminating the health benefits of $PM_{2.5}$ reductions below the established NAAQS threshold and (2) eliminating the health benefits of reductions below the lowest measured level (LML) threshold observed in major studies. EPA argues that these changes better reflected the uncertainties associated with estimating such benefits. However, EPA has consistently evaluated the health risks from individual pollutants, and where no safe level of exposure to a pollutant has been identified, the health benefits are included for reductions at all levels. Ignoring those benefits ignores the real lives that would be saved in our states from those reductions, something no regulatory analysis should do. We believe that this is a complex matter that requires rigorous scientific analysis, debate, and public discussion. We request that EPA remove this new approach for estimating health benefits of reductions in emissions of $PM_{2.5}$ as it represents has far-reaching impacts to future regulatory impact analysis, and instead recommend that the Agency convene a scientific panel and open a national dialogue to address the fate of the $PM_{2.5}$ health benefit analysis process.

Furthermore, EPA's own revised results call into question the new assumptions the Agency is applying. In the revised RIA, in one scenario, the air pollution and health benefits of the CPP are shown to be even greater than those EPA forecasted just two years ago. In the 2015 CPP analysis, EPA estimated that CPP could annually prevent between 1,500 to 3,600 premature deaths by 2030. In one scenario of the revised RIA (using 2017 annual energy outlook), EPA estimates that the CPP would prevent between 1,900 to 4,500 premature deaths per year by 2030 and even greater potential benefits. The foregone health and domestic climate benefits in 2030 would be $18 billion to $42 billion, much larger than the foregone costs of $14 billion. The difference is approximately 400 to 900 deaths per year, or around $4 to 8 billion annually in health costs.[41] The EIA's 2017 estimate that the CPP would have an even sharper effect in reducing emissions means an even larger effect on air pollution.[42]

In North Carolina, CSA related emissions reductions played a major role in the attainment of the ozone and $PM_{2.5}$ standards and improved visibility at our national parks and wilderness areas. As a result of these demonstrations, the CSA emission caps were adopted into the state implementation plan, and are federally enforceable. In the recent years, numerous independent studies have documented both the health and economic benefits related to declining pollution levels. A study by the University of North Carolina–Chapel Hill estimated that CSA related air quality improvements decreased the risk of

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[39] *The Mission of the EPA: Hearing Before the Subcommittee on Environment, H. Comm. On Energy and Commerce, 115th Congress, 2017, Statement of Administrator Scott Pruitt.*
[40] *U.S. EPA, Summary of Expert Opinions on the Existence of a Threshold in the Concentration-Response Function for PM2.5 related Mortality, June 2010, https://www3.epa.gov/ttnecas1/regdata/Benefits/thresholdstsd.pdf.*
[41] *Statement by Jonathan Levy, Professor at the Boston University School of Public Health, in a Washington Post article. https://www.washingtonpost.com/news/energy-environment/wp/2017/11/01/trumps-epa-says-obamas-climate-rule-could-prevent-up-to-4500-dealths-annually-moves-to-scrap-it/?utm_term=.d5fc991a3fc7.*
[42] *Statement by Dallas Burtaw of Resources for the Future in a Washington Post article. https://www.washingtonpost.com/news/energy-environment/wp/2017/11/01/trumps-epa-says-obamas-climate-rule-could-prevent-up-to-4500-dealths-annually-moves-to-scrap-it/?utm_term=.d5fc991a3fc7.*

premature death attributable to $PM_{2.5}$ sulfate in North Carolina by about 63%, resulting in an estimated 1700 deaths prevented in 2012.[43]

6f. Changes to demand side EE cash flow methodology

In the revised RIA, EPA changes the way demand side EE costs and benefits are both calculated and accounted. This leads to an artificial decrease in the benefits of EE under the CPP by approximately 50%. Given that the U.S. government has long recognized the significant economic benefits of EE measures since the 1970's, this decrease in benefits is not justified using the rationale provided by EPA.

Under the final CPP RIA, impacts of EE measures on the power sector were modeled using EPA's Integrated Planning Model (IPM). This model is a sophisticated economic model of the electric power sector and has been used for regulatory impact analysis by EPA for many years. EPA now says that IPM is inadequate since it is not able to present one EE parameter - the reduced power sector generating costs due to EE measures - as a stand-alone number. EPA states it needs this value in order to move this value from a negative cost to a positive benefit. It states that OMB requires this value to be a benefit rather than a negative cost.

In Section 3.3 of the revised RIA, EPA states, "in terms of calculating a net benefit estimate, it does not matter if these energy cost savings are treated on the cost side – or the benefit side – of the ledger." However, the Agency's revised accounting system decreases the foregone benefits of EE by approximately 50%; it seems that it does matter. EPA's revised accounting method has a significant impact.

EPA explains that the revised RIA presents a "revised methodology that provides a rough approximation of the reduced costs associated with demand-side EE measures." EPA attempts to quantify the reduced production costs due to EE measures using a simplistic graph and the annual average wholesale price in each region, as projected in the 2015 RIA. EPA justifies this approach by saying it is a lower bound. This over-simplification is unacceptable given the complexities of the IPM model in calculating the costs and the understood savings and benefits of employing EE measures.

EPA must identify a better method to quantify the costs, avoided costs, cost savings, and benefits of EE, including:

1. Reduction in demand due to on-the-books EE programs under the base case,
2. Reduction in demand due to the additional EE projected for CPP compliance,
3. Cost and benefits for consumers (including avoided capital costs for building new plants) under both 1 and 2,
4. Costs and revenues for utilities under 1 and 2 including avoided/incurred capital (new plants) and fuel costs for utilities, and
5. Non-monetary benefits for the public from reduced demand, including benefits of avoiding building new plants on the environment, and EJ communities.

After these costs, avoided costs, savings and benefits have been developed, EPA can then place them in the appropriate category (cost or benefit) for the impact analysis. NCDEQ finds it unacceptable that EPA has decreased the benefits of EE through its "revised accounting system." The benefits of EE programs have been widely established by many federal, state, and local regulations and by implementing agencies including environmental, transportation and energy.

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[43] *Health and Air Quality Benefits of Policies to Reduce Coal-Fired Power Plant Emissions: A Case Study in North Carolina, Ya-Ru Li and Jacqueline MacDonald Gibson, Environmental Science and Technology, American Chemical Society, (July 2014).*

Thank you again for the opportunity to comment on this proposed rule. I trust that the comments will be considered as the EPA moves forward to address this very important air pollutant and environmental concern. If you have any questions regarding our comments, please contact Sheila Holman, DEQ's Assistant Secretary for the Environment at (919) 707-8619 or sheila.holman@ncdenr.gov.

Sincerely,

Michael S. Regan,
Secretary, NCDEQ

MSR/ssm

cc: The Honorable Roy Cooper
Mr. Josh Stein, NC Attorney General
Chairman Edward Finley, NCUC
Mr. Christopher J. Ayers, Public Staff-NCUC
Chairman J.D. Solomon, NCEMC
Ms. Sheila Holman, NCDEQ
Mr. Bill Lane, NCDEQ