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Comments on Proposed Rule, Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program

The Southern Environmental Law Center (SELC), Conservation Voters of South Carolina, North Carolina Interfaith Power & Light, North Carolina Council of Churches, South Carolina Wildlife Federation, MountainTrue, Tennessee Citizens for Wilderness Planning, Altamaha Riverkeeper, Energy Alabama, Tennessee Interfaith Power & Light, Virginia Conservation Network, Georgia Interfaith Power & Light, Coosa River Basin Initiative, Upstate Forever, Tennessee Chapter Sierra Club, Tennessee Clean Water Network, Gasp, Southern Alliance for Clean Energy, Environment Georgia, Alabama Interfaith Power & Light, Coastal Conservation League, North Carolina Conservation Network, Virginia League of Conservation Voters, South Carolina Interfaith Power & Light, Southface, Appalachian Voices, Clean Air Carolina, Alabama Rivers Alliance, and One Hundred Miles (collectively, Southeastern Conservation Groups) respectfully submit these comments on the proposal of the Environmental Protection Agency (EPA or Agency) to replace the Clean Power Plan (CPP) and to revise vital Clean Air Act (CAA) permitting safeguards (Replacement Rule).¹ We strongly oppose the Replacement Rule because it fails to adequately address climate change, which poses a genuine and immediate threat to the Southeast, and because it would increase conventional air pollution in our region, contrary to the Agency's bedrock mandate to protect public health.

In addition to our longstanding efforts to improve air quality in our communities, Southeastern Conservation Groups have a significant interest in meaningfully reducing carbon

¹ The Federal Register notice and accompanying materials style the Replacement Rule as the "Affordable Clean Energy" rule, or "ACE." *See, e.g.*, U.S. Environmental Protection Agency, Proposed Rule, Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program, Docket ID No. EPA-HQ-OAR-2017-0355, 83 Fed. Reg. 44746, 44748 (August 31, 2018) [hereinafter Replacement Rule]. However, as EPA's own record reflects and as these comments further explain, the Replacement Rule will make electricity less affordable and less clean.

dioxide (CO₂) emissions.² If the six Southeastern states of Tennessee, Virginia, North Carolina, South Carolina, Georgia, and Alabama were viewed as a country, it would rank eighth in the world in energy-related greenhouse gas pollution contributing to global warming.³ At the same time, the Southeast is home to unique natural areas—from the spruce-fir forests of the Appalachians to the coastal estuaries of our barrier islands—that are especially vulnerable to the effects of a warming climate.⁴ Compared to the rest of the country, these effects will disproportionately burden the economy of the South, in particular by raising sea levels along our shorelines, increasing storm damage, and causing weather-related deaths.⁵ Our continued reliance on fossil fuels to produce electricity is stressing and altering our environment, and that means not only losing our traditional natural heritage, but jeopardizing our economy and the quality of life it sustains.

Individually or collectively, the Southeastern Conservation Groups participated in several CPP rulemaking dockets under the Obama administration, including providing comments on the CPP proposal itself, the draft Model Trading Rule, and the proposed Clean Energy Incentive Program. In SELC's comments, we highlighted the trajectory in our states away from coal-fired power plants and toward clean, renewable energy. Our comments demonstrated, based on the knowledge we have gained in our decades of experience participating in state energy regulatory proceedings and other legal and policy matters concerning electricity generation and use in the Southeast, that the reasonable CO₂ emission targets established by the CPP would be easily achievable in our region. This is no less true today than it was when EPA finalized the CPP in 2015.

The Replacement Rule follows two previous rulemaking notices that initiated efforts to undo the CPP by the current administration. In October 2017, EPA issued a rule proposing to outright repeal the CPP without replacing it at all (Repeal Proposal). The Repeal Proposal was

² For more information about the work of Southeastern Conservation Groups, please see Appendix, About Our Organizations.”

³ Calculations based on emissions data compiled from the World Resources Institute CAIT Climate Data Explorer, <http://cait.wri.org/>. For a full report on WRI's sources and methods, see http://cait.wri.org/docs/CAIT2.0_CountryGHG_Methods.pdf (for country GHG emissions); http://cait.wri.org/docs/CAIT2.0_US_Documentation.pdf (for U.S. State emissions).

⁴ L.M. Carter et al., Ch. 17: Southeast and the Caribbean [hereinafter “Ch. 17: Southeast and the Caribbean,” in *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo et al., eds., U.S. Global Change Research Program, 396–417 (2014), doi:10.7930/JONP22CB, available at <http://nca2014.globalchange.gov/report/regions/southeast> [hereinafter “*Climate Change Impacts in the United States*”]. The final version of Volume II of *The Fourth National Climate Assessment* is expected to be published in December 2018. See U.S. Global Change Res. Program, *About NCA4 Vol. II*, <https://www.globalchange.gov/content/nca4-planning> (last visited Oct. 28, 2018). A draft is currently available but not citable.

⁵Hsiang, S., R. Kopp, A. Jina, J. Rising, M. Delgado, S. Mohan, D.J. Rasmussen, R. Muir-Wood, P. Wilson, M. Oppenheimer, K. Larsen, T. Houser, *Estimating economic damage from climate change in the United States*, SCIENCE, 356, 1362-1369 (June 2017).

premised on a change in EPA's interpretation of its own legal authority to require CO₂ emissions reductions from existing sources in the electric utility sector. While the Repeal Proposal was pending, in December 2017, EPA issued an Advance Notice of Proposed Rulemaking in anticipation of proposing a rule to replace the CPP (ANPRM). In the ANPRM, the Agency repeatedly instructed the public that it was seeking comments on how to regulate CO₂ pollution from existing fossil-fuel fired power plants within the confines of its change in legal interpretation proposed in the Repeal Proposal, if it would regulate them at all.⁶

In February 2018, SELC, on its own behalf, submitted comments on the ANPRM, focusing on EPA's insistence on a heat rate improvement-only approach to reducing CO₂ emissions.⁷ Our comments described the grave danger climate change poses to the Southeast and detailed the deficiencies in North Carolina's previously-proposed heat rate improvement-only plan as a cautionary tale regarding the inefficacy of such an approach in the face of the serious risks in our region.

In April 2018, SELC and a coalition of organizations from the South (including many of the Southeastern Conservation Groups) submitted comments on EPA's proposal to repeal the CPP. Our comments focused on (1) the trajectory of the utility sector in our states away from coal; and (2) the serious risk climate change poses to our region, particularly from sea level rise and increased mortality. We also took issue with EPA's ongoing attempt to evade judicial review of the limits of its authority under CAA section 111(d), the provision on which the CPP and the Replacement Rule are based.

⁶ See, e.g., U.S. Envtl. Prot. Agency, Advance Notice of Proposed Rulemaking, State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units, Docket No. EPA-HQ-OAR-2017-0545, 82 Fed. Reg. 61,510–11 (Dec. 28, 2017) [hereinafter ANPRM] (“The EPA also explains in [the repeal] proposal that the Agency is considering the scope of its legal authority to issue a potential new rule and, in this ANPRM, is soliciting information on systems of emission reduction that are in accord with the legal interpretation discussed in the CPP repeal proposal”); *id.* at 61,510 (soliciting comment on “application, in the specific context of limiting GHG emissions from existing EGUs, of reading CAA section 111(a)(1) as limited to emission measures that can be applied to or at a stationary source, at the source-specific level” and clarifying that the Agency is not soliciting comments on its legal interpretation generally in the ANPRM); *id.* at 61,511 (“This ANPRM further solicits comment . . . on the proper application in this context of the interpretation of CAA section 111 contained in the proposed repeal of the CPP—under which a BSER is limited to measures that apply to and at individual source, on the source-specific level”); *id.* at 61,512 (“The EPA is not soliciting comment through this ANPRM on this proposed interpretation: rather, comments on interpreting CAA section 111(a)(1) should be submitted on the CPP repeal proposal. Here, the EPA is requesting comment on how the program should be implemented assuming adoption of that proposed interpretation.”). See also Repeal Proposal 82 Fed. Reg. at 48,038–39 (basis for repeal is change in legal interpretation of “best system of emission reduction” to reflect only “emission reduction measures that can be applied to or at an individual stationary source” (emphasis in original)).

⁷ Attachment (Att.) 1, Southern Environmental Law Center, Comment on Advance Notice of Proposed Rulemaking; State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units, Docket ID No. EPA-HQ-OAR-2017-0545, submitted via regulations.gov on February 26, 2018.

The comments below build on our two previous sets of comments. Specifically, Southeastern Conservation Groups explain our view that (1) without significant efforts to reduce CO₂ pollution from power plants and other sectors of the economy, our communities in the South stand to suffer disproportionately the economic, health, and environmental impacts of climate change in the United States; (2) the Replacement Rule is not a meaningful effort to address CO₂ pollution from the electric sector; (3) the on-the-ground reality of the electric sector in the Southeast belies EPA's asserted concerns about the CPP interfering with electricity regulation and failing to account for economic uncertainty; and (4) the proposed changes to the CAA New Source Review (NSR) permitting program would subject our region to significantly more conventional air pollution from coal-fired power plants and other sources.

I. Southeastern communities, including our economies and our environment, are already disproportionately burdened by the effects of climate change, and it will get worse.

There is increasing evidence that climate change is altering the South and that the effects will grow. On average, our coastline areas have already experienced one foot of sea level rise in the last century, and have been besieged with worsening storm surge and associated damages.⁸ By the end of this century, the 12,500 miles of tidal shoreline along SELC's region could see an over six feet of sea level rise by intermediate estimates, and the severity of storms and the damages they cause will continue to increase.⁹ Our communities are also projected to be particularly hard-hit by increases in deaths attributed to warming and other economic damages associated with climate change, resulting in our region becoming poorer relative to other regions of the United States.¹⁰

⁸ According to gauge observational data not modeling. S. Jevrejeva et al., *Sea Level Projections to AD2500 with a New Generation of Climate Change Scenarios*, 80-81 GLOBAL & PLANETARY CHANGE 14 (2012), doi:10.1016/j.gloplacha.2011.09.006.

⁹ Probabilistically, the odds of an increased occurrence of very intense tropical cyclones are greater than 50% in the Atlantic basin. P.J. Webster et al., *Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment*, 309 Science 1844 (2005), doi: 10.1126/science.1116448; NOAA, *Global and Regional Sea Level Rise Scenarios for the United States*, CO-OPS Technical Report (Jan. 2017); Kevin J.E. Walsh et al., *Tropical Cyclones and Climate Change*, 7 WIREs Climate Change 65 (2015), <https://doi.org/10.1002/wcc.371>; Thomas R. Knutson et al., *Tropical Cyclones and Climate Change*, 3 Nature Geoscience 157 (2010), doi:10.1038/ngeo779; *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 12–34 (D.J. Wuebbles et al., eds. 2017), U.S. Global Change Research Program, doi: [10.7930/J0DJ5CTG](https://doi.org/10.7930/J0DJ5CTG) [hereinafter CSSR].

¹⁰Hsiang, et al., at 1362-1369.

A. In the United States, the Southeast is projected to bear disproportionate economic, environmental, and human damage from climate change.

The broad impacts of human-caused climate change are well-documented. Notably, in 2009, in response to the ruling by the United States Supreme Court in *Massachusetts v. EPA*, 549 U.S. 497 (2007), EPA determined that elevated levels of CO₂ and other greenhouse gases in the atmosphere endanger public health and welfare and should therefore be regulated under the Clean Air Act.¹¹ The Agency found the harms posed by CO₂ pollution to be pervasive and severe.¹² Based on the vast weight of scientific evidence, EPA found that “climate change associated with elevated atmospheric concentrations of CO₂ and the other well-mixed greenhouse gases have the potential to affect essentially every aspect of human health, society and the natural environment.”¹³ In making its endangerment finding, EPA specifically found that the harmful effects of human-induced climate change cut across multiple sectors and geographic areas, affecting “human health, air quality, food production and agriculture, forestry, water resources, sea level rise and coastal areas, the energy sector, infrastructure and settlements, and ecosystems and wildlife.”¹⁴

This determination has been buttressed numerous times by the scientific and governmental community, including in late 2017, by the U.S. Global Change Research Program, an authoritative research effort comprising 13 federal agencies.¹⁵ It confirmed and concluded in the *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, that “based on extensive evidence... it is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence.”¹⁶

¹¹ See U.S. Env'tl. Prot. Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,499, 66,516 (Dec. 15, 2009) [hereinafter Endangerment Finding]. Of the six greenhouse gases identified in EPA's Endangerment Finding, CO₂, along with methane, ranks as the most important directly emitted pollutant. *Id.* at 66,517.

¹² See *id.* at 66,523 (linking “human emissions and resulting elevated atmospheric concentrations of . . . greenhouse gases to observed global and regional temperature increases and other climate changes”).

¹³ *Id.*

¹⁴ *Id.*

¹⁵ The thirteen federal agencies involved in the U.S. Global Change Research Program include the Department of Agriculture, the Department of Commerce (NOAA), the Department of Defense, the Department of Energy, the Department of Health and Human Services, the Department of the Interior, the Department of State, the Department of Transportation, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Science Foundation, the Smithsonian Institution, and the U.S. Agency for International Development. See U.S. Global Change Res. Program, About this Report, in U.S. Global Change Res. Program, *Climate Science Special Report* (2017), <https://science2017.globalchange.gov/chapter/front-matter-about>.

¹⁶ CSSR, 12–34.

The current and projected future consequences of man-made climate change are particularly dire in the Southeast. They are also myriad. In the Third National Climate Assessment, published in 2014, U.S. Global Change Research Program researchers concluded that the Southeast is exceptionally vulnerable to sea level rise, extreme heat events, hurricanes, and decreased water availability.¹⁷ Rising global temperatures already are producing more frequent and more intense weather events, such as hurricanes and other storms, causing enormous damage to people, the environment, and the economy. As the figure below illustrates, the Southeast has already experienced disproportionate damage from such events.¹⁸

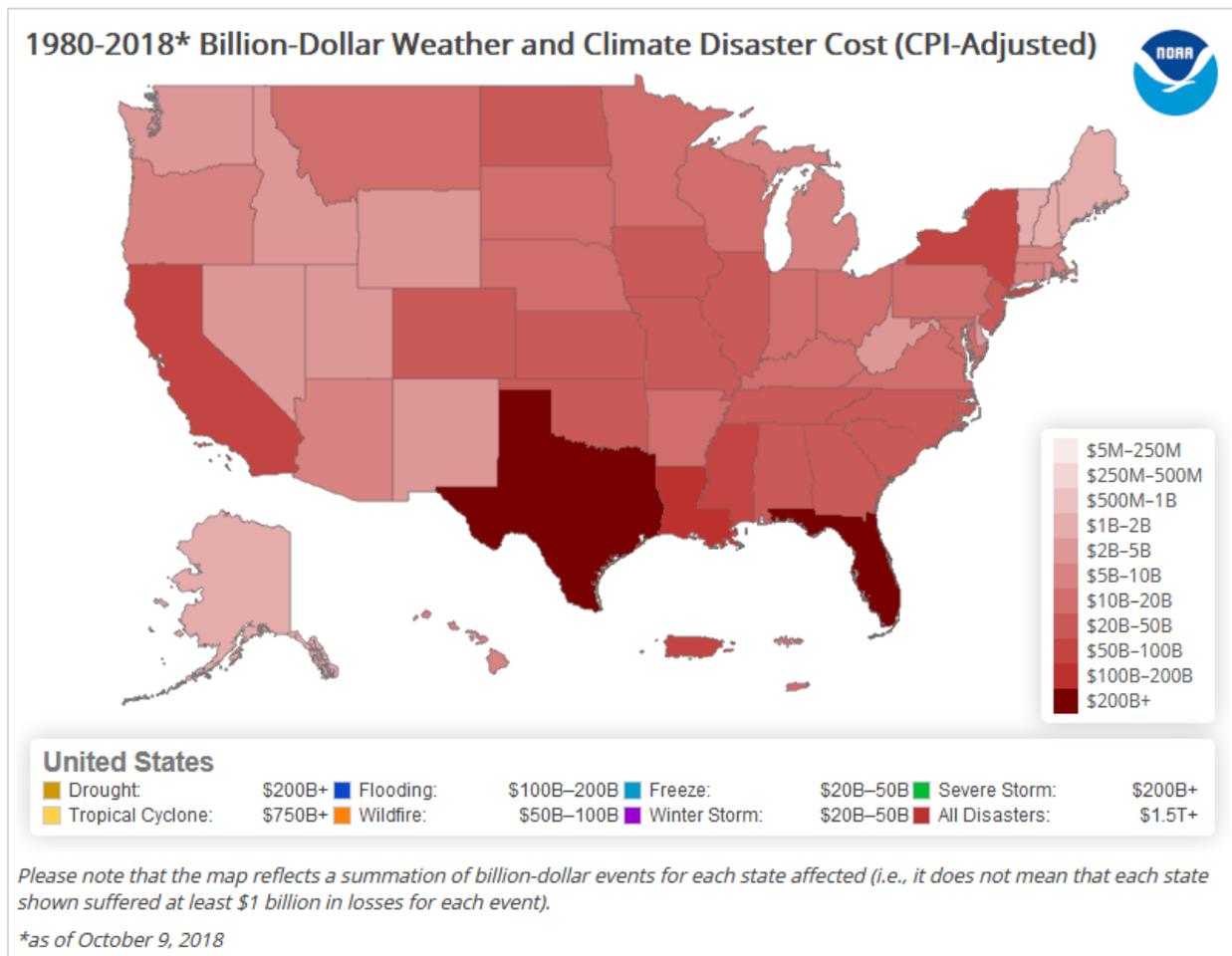


Figure Source: NOAA NCEI.¹⁹

¹⁷ *Climate Change Impacts in the United States*, at 396-417.

¹⁸ *Id.*, at 397.

¹⁹ NOAA Nat'l Ctrs. Env'tl. Info. (NCEI), U.S. Billion-Dollar Weather and Climate Disasters (2018), <https://www.ncdc.noaa.gov/billions/mapping>.

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 are projected to increase even further.²⁰ Heavy precipitation induces more floods, causing deaths, injuries, water-borne diseases, and mental health problems, such as post-traumatic stress disorders.²¹

Higher average temperatures increase the likelihood of extreme heat waves, causing greater numbers of deaths and illnesses.²² These increased temperatures also will adversely affect air quality, raising ground-level ozone concentrations and associated premature deaths, acute cases of bronchitis, heart attacks, asthma attacks, and other respiratory illnesses.²³

In addition, “[l]arge areas of the country are at serious risk of reduced water supplies, increased water pollution, and increased occurrence of extreme events such as floods and droughts.”²⁴ In the Southeast, continued urban development and expansion of irrigated agriculture increase water demand while higher temperatures increase evaporative losses.²⁵ Rising temperatures are expected to escalate harmful blooms of algae and disease-causing agents in inland and coastal waters, including the Gulf of Mexico.²⁶ Coastal areas face rising sea levels and more intense and damaging coastal storms and storm surges.²⁷ Large numbers of Southeastern cities, roads, railways, ports, airports, and water supplies are vulnerable to the impacts of sea level rise.²⁸ In short, “[o]ver the 21st century, climate change will fundamentally rearrange U.S. ecosystems.”²⁹ As with most environmental risks, these harms will disproportionately burden children, the elderly, and the poor.³⁰

More recent research analyzing the distribution of the economic damage associated with climate change throughout the United States confirms that lower-income communities, and particularly communities in the Southeast, will bear the brunt. Nationwide, median climate damages “are systematically larger in low-income counties...,” ranging from 2 to 19.6 percent of county income for in the poorest third of counties, as compared to -1.2 to 6.8 percent of county income for the richest third of counties.³¹ The same study observes that “[b]ecause losses are

²⁰ *Climate Change Impacts in the United States*, at 397.

²¹ U.S. Env'tl. Prot. Agency, Proposed Rule, Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22,393, 22,402 (Apr. 13, 2012) [hereinafter NSPS New Source Proposed Rule].

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Climate Change Impacts in the United States*, at 405.

²⁶ *Id.* at 404.

²⁷ 77 Fed. Reg. at 22,402.

²⁸ *Climate Change Impacts in the United States*, at 400.

²⁹ NSPS New Source Proposed Rule, 77 Fed. Reg. at 22,402.

³⁰ Endangerment Finding, 74 Fed. Reg. at 66,526.

³¹ Hsiang et al., at 1362–1369.

largest in regions that are already poorer on average, climate change tends to increase preexisting inequality in the United States.”³² The map below illustrates the disproportionately high cost of climate damages that is projected to be borne by our Southeastern communities.

What Climate Change Will Cost Every U.S. County, 2080–2099

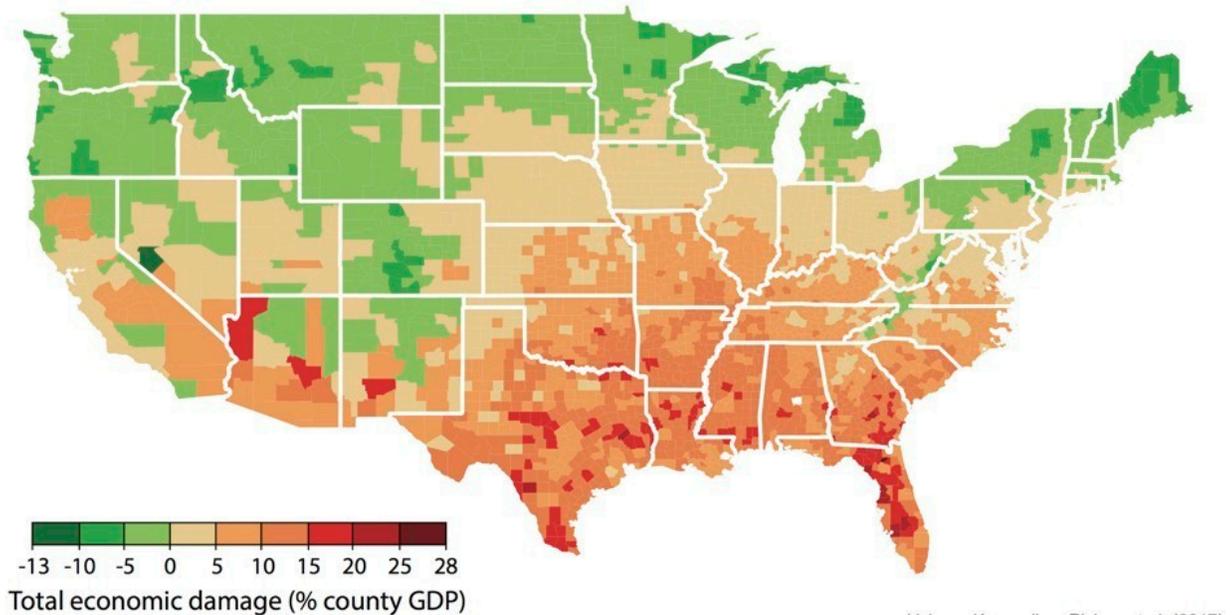


Image: Hsiang, et al, as reproduced in The Atlantic.³³

The Southeast is projected to be particularly hard-hit by increases in deaths attributed to warming, in addition to decreased agricultural yields and lower worker productivity.³⁴ Communities in the Southeast up to and including Charlotte, North Carolina, “could see their mortality rate rise by more than 20 people out of every 100,000.”³⁵ With no efforts to halt climate change, South Carolina, for example, stands to lose 1.3% GDP each year largely due to the state’s coastal vulnerability.³⁶ In economic terms, these devastating circumstances are projected to result in a “net transfer of value” from the Southeast to northern regions of the

³² *Id.*

³³ Robinson Meyer, *The American South Will Bear the Worst of Climate Change’s Costs*, THE ATLANTIC (June 29, 2017), <https://www.theatlantic.com/science/archive/2017/06/global-warming-american-south/532200>.

³⁴ Hsiang et al., at 1362–1369.

³⁵ Meyer 2017.

³⁶ Hsiang et al., 2017.

United States.³⁷ In the plain language of the lead author of the study, “We are really sure the South is going to get hammered [by climate change].”³⁸

B. Sea level rise will be particularly devastating to coastal communities in the Southeast.

Combined, SELC’s coastal states include over 12,500 miles of tidal shoreline, accounting for 23% of the total shoreline in the contiguous U.S. (Table 1).³⁹ This entire area, including both developed and natural habitats, will be affected to some degree by rising seas as a result of tidal influence. In total, 200,000 to 1.3 million people in SELC’s region are expected to be at risk of inundation due to sea level rise, not including those who will be barred from accessing hospitals, schools, grocery stores, and other community hubs as a result of rising water.⁴⁰ This inundated area along our shoreline includes over 94 billion dollars’ worth of existing property that could be underwater as a result of sea level rise.⁴¹

³⁷ Hsiang et al., at 1362–1369.

³⁸ Meyer 2017 (quoting S. Hsiang).

³⁹ Total tidal shoreline for contiguous US calculated as 53,677 miles. Total coastline for the contiguous US calculated as 4,993 miles. SELC’s coastal states account for 15% of the total US coastline. NOAA Office for Coastal Mgmt., *Shoreline Mileage of the United States*, available at <https://coast.noaa.gov/data/docs/states/shorelines.pdf> (last visited Apr. 25, 2018); U.S. Census Bureau, *Statistical Abstract of the United States 2011*, tbls. 359–61 (Oct. 2010), <https://www2.census.gov/library/publications/2010/compendia/statab/130ed/tables/11s0360.pdf>.

⁴⁰ This range incorporates two SLR projections and both current and projected populations. See Mathew E. Hauer et al., *Millions Projected to be at Risk from Sea-Level Rise in the Continental United States*, 6 NATURE CLIMATE CHANGE 691, tbl.A1.

⁴¹ Zillow, *Climate Change and Homes: Who Would Lose the Most to a Rising Tide?* (2017), available at <https://www.zillow.com/research/climate-change-underwater-homes-2-16928>.

Table 1. Tidal shoreline and general coastline in SELC’s coastal states, shown in miles.⁴²

	Tidal Shoreline	Coastline
VA	3,315	112
NC	3,375	301
SC	2,876	187
GA	2,344	100
AL	607	53
TOTAL	12,517	753

Sea level has been recorded at many tide gauge stations in the U.S. since the early twentieth century. In analyzing this data it is evident that sea level has already risen and is continuing to rise, and that this rate varies across SELC’s region (Table 2). On average the pace of rise in our region is faster than the global average of 3 millimeters per year, or 30 millimeters (1.18 inches) per decade.⁴³ In Georgia and South Carolina, the sea has been rising at about 1.3 inches per decade. Tidewater Virginia has been dealing with rise averaging two inches per decade, totaling over two feet of rise in a century in some areas.⁴⁴

⁴² NOAA 2011. The term coastline is used to describe the general outline of the seacoast. Tidal shoreline includes shoreline of the outer coast, offshore islands, sounds, and bays, as well as the tidal portion of rivers and creeks. U.S. Census Bureau, *Statistical Abstract of the United States 2011*, tbls. 359–61 (Oct. 2010), <https://www2.census.gov/library/publications/2010/compendia/statab/130ed/tables/11s0360.pdf>.

⁴³ 3mm represents the 30 year global average since mid-1980s. NOAA 2017.

⁴⁴ NOAA, Tides and Currents (2018), available at <https://tidesandcurrents.noaa.gov/sltrends>.

Table 2. Observed sea level trends along the SELC region through 2017.⁴⁵

	Mean Sea Level Increase Trend (mm/yr.)	95% Confidence Interval (mm/yr.)
Chesapeake Bay Bridge, VA	5.92	±0.72
Norfolk, VA	4.62	±0.22
Duck, NC	4.55	±0.71
Oregon Inlet, NC	4.36	±1.16
Wilmington, NC	2.30	±0.34
Myrtle Beach, SC	3.94	±0.57
Charleston, SC	3.25	±0.19
Savannah/Fort Pulaski, GA	3.24	±0.27
Fernandina Beach, FL	2.11	±0.18
Mobile, AL	3.69	±1.48

These are actual measurements, not predictions or models. And while an increase measured in millimeters or inches over the years may not seem like much, on the low, gently sloping topography along our coastal region, what seems like a little water can go a long way. For example, in some portions of the coastal plain east of Raleigh, NC, the slope is so low that just a one foot (approximately 305 mm) increase in sea levels would push water nearly two miles inland in some areas. A study by the First Street Foundation found that rising seas and flooding have already cost the housing markets in Georgia, South Carolina, North Carolina, and Virginia a combined \$1.9 billion, with over 230,000 properties devalued.⁴⁶ Our region is already experiencing effects associated with sea level rise, and it is expected to get worse.

To date, the most comprehensive global and regional sea level rise projections available are products of the 2017 NOAA Interagency Report.⁴⁷ This report and its projections were created to support the Fourth National Climate Assessment (NCA4).⁴⁸ The 2017 NOAA Interagency Report focuses on fine tuning global effects into regional projections, making the findings more directly relevant to assessing climate-related risks in the Southeast. Based on NOAA’s projections, the coastline of SELC’s region must prepare for 0.65 meters (2.1 feet) of

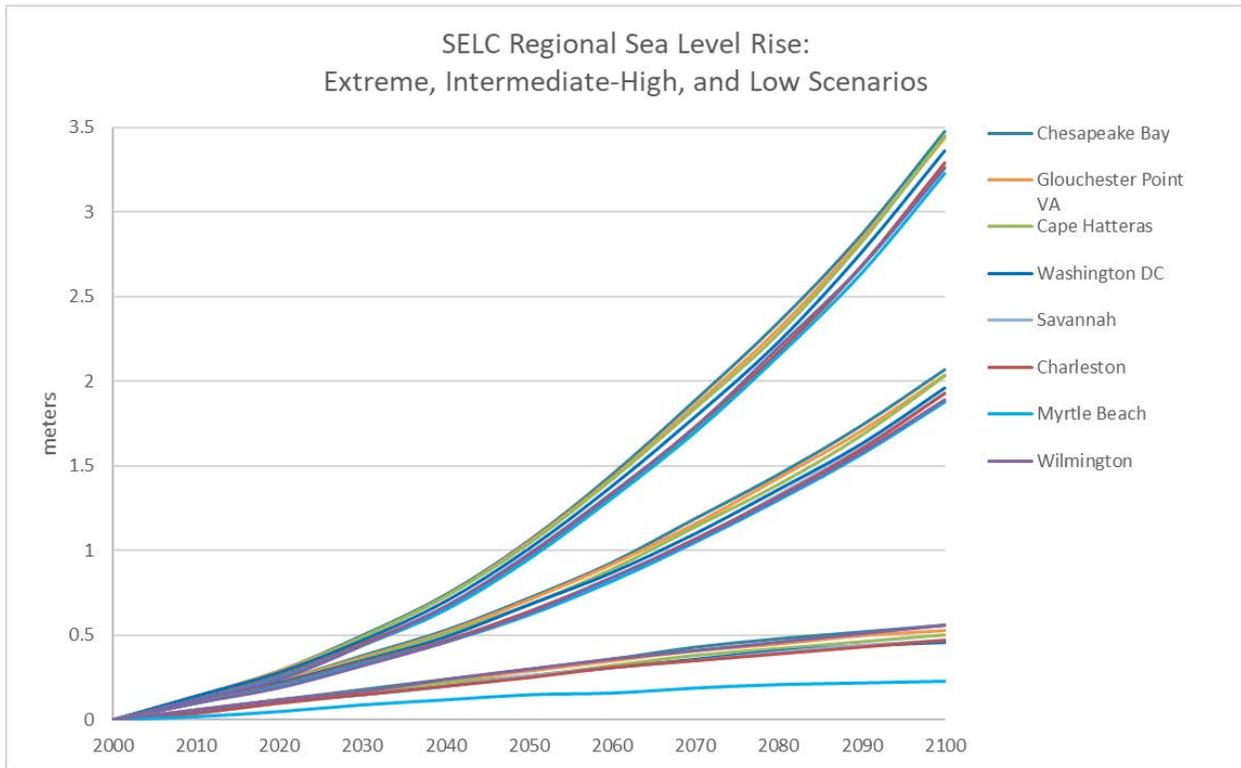
⁴⁵ *Id.*

⁴⁶ First Street Foundation, *As the Seas have been Rising, Home Values have been Sinking* (July 25, 2018), <https://assets.floodiq.com/2018/07/ee94ac7b8efe808e9312fa34048e77f6-First-Street-Foundation-As-the-seas-have-been-rising-home-values-have-been-sinking.pdf>.

⁴⁷ NOAA 2017.

⁴⁸ As noted above, the regional assessments included in Volume II of *The Fourth National Climate Assessment* are scheduled to be finalized in late 2018.

relative sea level rise by 2050, or two meters (6.5 feet) by 2100 under the widely-supported Intermediate-High scenario.⁴⁹



The latest research indicates that Antarctic ice is melting faster than expected, close to the highest predictions considered by the United Nations.⁵⁰ This makes low estimations of future sea levels unrealistic, and will continue to accelerate the rate of sea level rise and change along our Southeastern coastline. Under mid-range estimates, the coast of SELC's region will see two feet of sea level rise over the next 30 years.⁵¹

⁴⁹ NOAA 2017. This does not mean that everything below 2 meters in elevation will be submerged by 2100, as the land response will be dynamic due to accretion and ecosystem adaptation. See E.E Lentz et al., *Evaluation of Dynamic Coastal Response to Sea Level Rise Modifies Inundation Likelihood*, 6 NATURE CLIMATE CHANGE 696 (2016).

⁵⁰ Slater, T. Sheperd, A. 2018. Antarctic ice losses tracking high. NATURE CLIMATE CHANGE. <https://www.nature.com/articles/s41558-018-0284-9>

⁵¹ NOAA 2017.

i. Sea level rise is making storms and storm damage more intense in the Southeast.

It is important to recognize that the projections above indicate only the probable level of high tide in a certain decade and do not account for water added during a storm event. The volume of water from rain or storm surge, in addition to increased sea level, will drastically change the shoreline along our coast. By the end of the century under the Intermediate-High scenario, even a mid-intensity storm with a 5-year recurrence interval, or a 20% chance of occurring each year, along the Southeast coast will increase water level an average of 0.6 meters, or two feet.⁵² Without decreasing greenhouse gas emissions, it is possible by the 2030s that the magnitude of storm that currently has a 20% chance of occurring will be 25 times more likely to occur in a year, from the coast of Georgia and through the Carolinas and Virginia.⁵³ This more extreme precipitation in addition to sea level rise will exacerbate flooding hazards throughout our region.

Factoring in storm events is all the more important because climate change makes it easier for storms to grow more powerful, unleash more rain, create stronger storm surges on top of rising seas, and push more water into areas that never flooded before.⁵⁴ With Hurricane Matthew in 2016 and Hurricane Florence in 2018, the Carolina coast was dealt two so-called 1,000-year storms in only two years.⁵⁵ Scientists found that climate change made Florence able to grow larger and drop 50% more rain compared to a world without high greenhouse gas emissions.⁵⁶ One study found that if there had not been the significant sea level rise seen in the area since 1970, one out of five of the homes impacted by Florence along the Carolina coast would have had far less damage.⁵⁷

⁵² Based on 1991–2009 data. NOAA 2017.

⁵³ *Id.*

⁵⁴ Webster, P.J., Holland, G.J., Curry, J.A., Chang, H.R. 2005. Changes in tropical cyclone number duration and intensity in a warming environment. *SCIENCE* 309, 1844-1846.

⁵⁵ *Exceedance Probability Analysis for Selected Storm Events*, Nat'l Oceanic & Atmospheric Admin.'s Nat'l Weather Serv.'s Hydrometeorological Design Studies Ctr., http://www.nws.noaa.gov/oh/hdsc/aep_storm_analysis (last modified Apr. 21, 2017).

⁵⁶ Kevin A. Reed et al., *The Human Influence on Hurricane Florence*, Stony Brook University (Sept. 12, 2018), https://cpb-us-e1.wpmucdn.com/you.stonybrook.edu/dist/4/945/files/2018/09/climate_change_Florence_0911201800Z_final-262u19i.pdf.

⁵⁷ Andrew Freedman, *Study: Sea Level Rise Boosted Hurricane Florence's Coastal Flooding*, *Axios* (Sept. 24, 2018), <https://www.axios.com/sea-level-rise-hurricane-florence-coastal-flooding-a32d013f-5b66-470a-9536-7a54c3001d64.html>.

ii. Sunny day flooding has become a reality in our Southeastern coastal communities.

Because sea level is rising up to two times faster along the Atlantic seaboard than in other areas of the world, sea level rise is already making sunny day flooding a reality in many Southeastern cities.⁵⁸ Prior to the 1990s, most communities up and down the East coast saw no more than five days of tidal flooding per year.⁵⁹ As sea level increases, the tide level naturally rises closer to the threshold at which water moves into the streets and cities begin to flood more often. Today the Southeastern coast faces an increased magnitude of tidal flooding, as seen by the 2016 records of 50 days of flooding in Charleston, SC and 38 days of flooding in Savannah, GA.⁶⁰

Looking forward, even under low emission scenarios, cities including Charleston, SC and Norfolk, VA may experience over 180 days of tidal flooding a year by 2045, equivalent to a flooding event every other day.⁶¹ This will not only affect residents living in low lying areas, but also anyone trying to drive to work through flooded roads, or ambulances trying to navigate to a flooded hospital district. Some areas along the Chesapeake Bay will experience over 240 events per year by this time due to their exceptionally low topography and rate of land subsidence, completely interrupting day-to-day operations. A recent report found that 40 percent of all East and Gulf Coast oceanfront communities will be chronically inundated by 2100 under a moderate sea level rise scenario, which aligns with the observed trend of sea level so far.⁶² And in SELC's coastal states (Alabama, Georgia, South Carolina, North Carolina, and Virginia), \$18.4 billion worth of residential property—including over 50,000 homes housing nearly 80,000 people—

⁵⁸ Tidal flooding is interchangeably referred to as coastal, nuisance, chronic, recurrent, high tide, or sunny-day flooding. All of these titles describe the flooding that occurs when the tide gauge in an area tops the predetermined height at which parts of the city flood. This abnormally high water can be caused by a rain event, storm surge, tides alone, or a combination. King tides, which occur due to increased pull from full or super-moons, contribute to these numbers. See W.V. Sweet, *2016 State of US High Tide Flooding and a 2017 Outlook*, NOAA Ctr. Operational Oceanographic Products & Servs., available at https://www.ncdc.noaa.gov/monitoring-content/sotc/national/2017/may/2016_StateofHighTideFlooding.pdf.

⁵⁹ W.V. Sweet et al., *Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold*, NOAA Technical Report CO-OPS 086 (2018), available at https://tidesandcurrents.noaa.gov/publications/techrpt86_PaP_of_HTFlooding.pdf.

⁶⁰ Sweet et al. 2016.

⁶¹ Sweet et al. 2018; Union of Concerned Scientists, *National Landmarks at Risk* (2014), available at https://www.ucsusa.org/global_warming/science_and_impacts/impacts/national-landmarks-at-risk-from-climate-change.html#.WuCfq1WnHAU.

⁶² Union of Concerned Scientists, *When Rising Seas Hit Home* (2017), available at <https://www.ucsusa.org/sites/default/files/attach/2017/07/when-rising-seas-hit-home-full-report.pdf>.

could be regularly flooded by just 2045 without climate mitigation.⁶³ These properties contribute \$150 million in annual property taxes.

In short, urgent action is needed to prevent the worst of these impacts from devastating the Southeast's economy and community. Yet, as discussed below, the Replacement Rule proposed by EPA will *at best* do nothing to mitigate CO₂ emissions from power plants, and, coupled with the Agency's proposed changes to NSR, it will instead encourage additional CO₂ and conventional pollution in our region.

II. The Replacement Rule will not even begin to meaningfully address CO₂ pollution from coal-fired power plants, and will increase pollution relative to the CPP.

The Replacement Rule, if adopted to replace the reasonable, if modest, CO₂ emission reductions required by the CPP, could ultimately prove ruinous to our Southeastern communities. CO₂ emissions from the electric sector account for 29% of CO₂ emissions in the United States.⁶⁴ Yet, the Replacement Rule would fail to meaningfully address this harmful pollution, allowing it to remain essentially unchecked and exacerbating climate conditions that are already causing sea level rise and intense weather events in our region, as described above in Section I.

In the Replacement Rule, the Agency proposes to constrict its ability to reduce CO₂ pollution from existing coal-fired power plants using only “emission reduction measures that can be applied to or at an individual stationary source.”⁶⁵ Further, EPA proposes to amend the definition of an “emission guideline” so that the Agency would only be required to provide “information,” not actual emission limits, for power plants.⁶⁶ This change would allow states to make case-by-case determinations with uncertain and varying degrees of emission reductions—if any—achieved as a result.⁶⁷

⁶³ Union of Concerned Scientists, *Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate* (2018), <https://www.ucsusa.org/global-warming/global-warming-impacts/sea-level-rise-chronic-floods-and-us-coastal-real-estate-implications#.W9NuQntKiM9>.

⁶⁴ U.S. Evtl. Prot. Agency, Greenhouse Gas Emissions: Sources of Greenhouse Gas Emissions, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last updated Apr. 11, 2018).

⁶⁵ Replacement Rule, 83 Fed. Reg. at 44,752. The Replacement Rule does not address CO₂ emissions from natural gas-fired stationary combustion turbines. *Id.* at 44,761.

⁶⁶ *Id.* at 44,804 (proposed 40 C.F.R. § 60.21a(e)); *see also id.* at 44,771 (explaining that EPA does not believe the statute requires the agency to provide a presumptive emission standard). This change in interpretation would also apply to other categories of large polluting facilities, not just power plants.

⁶⁷ *Id.* at 44,771 (“information” will “guide states in their establishment of standards of performance”); *see id.* at 44,762-64 (explaining how its proposed approach will work in the context of state plans for existing coal-fired power plants).

EPA's new, cramped interpretation of its authority to establish emissions reductions for CO₂ pollution from existing power plants in the Replacement Rule differs drastically from its previous interpretation of its own authority, as reflected in the CPP. In that final rule, EPA established emission reduction requirements based on its determination of what could be achieved through a combination of (1) heat rate improvements at existing coal plants; (2) substituting generation from existing coal-fired plants with generation from natural gas plants; and (3) substituting generation from all existing fossil fuel-fired plants with generation from renewable sources.⁶⁸ EPA did not require states to rely on this combination of technologies to comply with the CPP; rather, the Agency established emission standards based upon them.

In contrast, under the Replacement Rule, EPA proposes to tie its own hands, arbitrarily and dramatically curtailing its own authority to address CO₂ pollution. As proposed, the Agency would base emission requirements only on the first category of measures considered under the CPP, and not any of the other, far more effective measures that could be taken "outside the fence line" of power plants. According to its own analysis, EPA projects that the Replacement Rule will result in a nationwide CO₂ emissions *increase* of 3 percent by 2030 relative to the CPP, and CO₂ emission *decrease* of 1-2 percent relative to a scenario with no CPP.⁶⁹ But even these numbers falsely puff up the impact of the Replacement Rule because the Agency's projection does not fully account for the unreasonable degree of flexibility that EPA is proposing to provide to states, which may result in states not imposing even the limited heat rate improvements suggested by the Agency.

Potential reliance on biomass as a compliance measure adds to our concerns regarding the Replacement Rule increasing power sector CO₂ emissions.⁷⁰ Although EPA rightly rejects biomass co-firing as a component of its emissions guideline,⁷¹ the Agency seeks comment on whether to allow forest-derived biomass as a compliance option in state plans based on the assumption that its combustion to produce electricity is a carbon-neutral exercise.⁷² As acknowledged by the scientific community, burning wood for electricity is not inherently carbon

⁶⁸ U.S. Env'tl. Prot. Agency, Final Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,707 (Oct. 23, 2015) [hereinafter CPP].

⁶⁹ U.S. Env't Prot. Agency, *Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program*, 3-14 and Tables 3-4 and 3-5 (Aug. 2018), https://www.epa.gov/sites/production/files/2018-08/documents/utilities_ria_proposed_ace_2018-08.pdf. [hereinafter Replacement Rule RIA].

⁷⁰ See Comment Letter from the Southern Environmental Law Center to Administrator McCarthy, Environmental Protection Agency at Section I.C (Jan. 21, 2016) (commenting on EPA's proposal to crediting biomass under the Model Trading Rules), Att. 2.

⁷¹ Replacement Rule, 83 Fed. Reg. at 44,762.

⁷² *Id.* at 44,765-66.

neutral and results in an immediate net increase of atmospheric CO₂ for decades to centuries.⁷³ EPA's April 2018 Policy Statement, referred to in the Replacement Rule,⁷⁴ does not override this science. In fact, as explained by EPA, "This statement of agency policy is *not a scientific determination and does not revise or amend any scientific determinations that EPA has previously made.*"⁷⁵ The Policy Statement goes on to admit that, in fact, EPA's own Science Advisory Board (SAB) has reached the opposite conclusion: "The SAB peer review of the 2011 Draft Framework [on the biogenic CO₂ emissions of biomass] "found that it is *not scientifically valid to assume that all biogenic feedstocks are carbon neutral*, but rather that the net biogenic carbon profile related to the use of biomass feedstocks depends upon factors related to feedstock characteristics, production and consumption, and alternative uses."⁷⁶

In addition failing to reduce CO₂ emissions, EPA also projects that the Replacement Rule will result in higher emissions of conventional air pollutants, including sulfur dioxide (SO₂), nitrogen oxides (NO_x), and mercury, compared to the CPP. By 2035, replacing the CPP with the Replacement Rule would result in SO₂ emissions increases between 3.5-5.3 percent, NO_x emissions increases between 4.4 and 5.2 percent, and mercury emissions increases between 3.0 and 4.3 percent.⁷⁷ Based on these emissions estimates, EPA projects that PM_{2.5}-related deaths would increase in the Southeast under the Replacement Rule relative to the CPP. And compared to a full repeal scenario—a future with no CPP—EPA projects that the Replacement Rule would result in only modest conventional pollutant emissions reductions, ranging from 0.1 percent to 1.8 percent.⁷⁸

The Repeal Proposal itself, the pre-conditions set forth in the ANPRM restricting the scope of comments the Agency would consider, and now the Replacement Rule raise significant concerns about EPA's general approach to implementing the Clean Air Act. The Agency must exercise its authority and fulfill its obligations under the Clean Air Act consistent with Congress' intent that EPA "address and remedy the dangers posed by air pollution to human beings and the

⁷³ See, e.g., Letter from Scientists to the European Parliament Regarding Forest Biomass (updated Jan. 14, 2018), Att. 3; Sterman, et al., *Does Replacing Coal with Wood Lower CO₂ Emissions? Dynamic Lifecycle Analysis of Wood Bioenergy* (2018), <http://iopscience.iop.org/article/10.1088/1748-9326/aaa512/meta>; Mary S. Booth, *Not Carbon Neutral: Assessing the Net Emissions Impact of Residues Burned for Bioenergy* (Feb. 2018), <http://iopscience.iop.org/article/10.1088/1748-9326/aaac88/meta>; Duncan Brack, Chatham House, *Woody Biomass for Power and Heat: Impacts on the Global Climate* (2017), <https://www.chathamhouse.org/publication/woody-biomass-power-and-heat-impacts-global-climate>; European Academies Science Advisory Council, *Multi-Functionality and Sustainability in the European Union's Forest* (2017), https://www.easac.eu/fileadmin/PDF_s/reports_statements/Forests/EASAC_Forests_web_complete.pdf.

⁷⁴ Replacement Rule, 83 Fed. Reg. at 44,766.

⁷⁵ EPA Policy Statement, *Treatment of Biogenic Carbon Dioxide (CO₂) Emissions from Stationary Sources that Use Forest Biomass for Energy Production 2* (Apr. 2018) (emphases added), Att. 4.

⁷⁶ *Id.* at 3 (emphasis added).

⁷⁷ Replacement Rule RIA, 3-16, Table 3-8.

⁷⁸ EPA finds that the CPP would achieve reductions between 4 and 5.5 percent by 2035. See *id.* at 3-17, Table 3-9.

environment.”⁷⁹ Unfortunately, the Replacement Rule, following the lead of the Repeal Proposal and the ANPRM, takes as its starting point a crimped view of EPA’s authority that is far less than what the Agency can and must do to reduce CO₂ pollution from existing power plants.

III. In the Southeast, there are no uncertainties regarding utilities’ long-term plans to shift away from coal and their ability to do so while maintaining a reliable and resilient grid.

In the Replacement Rule, EPA touts its proposed interpretation of its authority under section 111(d) as “reasonable” because, in the Agency’s view, it properly (1) allocates electricity regulation to the Federal Energy Regulatory Commission and the states at a time when reliability and resilience may require coal-fired power; and (2) takes into account potential “uncertainties” regarding future fluctuations in the price of natural gas and renewables by excluding generation-shifting from its approach to establishing emission guidelines.⁸⁰

Contrary to EPA’s claims, however, the CPP does not in any way threaten the economy or the balance of power between state and federal energy regulation in the Southeast or threaten reliability and resilience. Our region is dominated by traditionally regulated, vertically integrated investor-owned utilities. These utilities generally are obligated to develop long-range energy plans based on least-cost planning principles. In most cases, the utilities’ plans are subject to review and approval by state public service commissions. Thus, the utilities’ most recent long-range plans are a reasonable, even conservative, starting point for evaluating EPA’s claims against the reality in our region.

When EPA proposed the draft CPP in 2014, SELC submitted detailed comments showing that the proposed CO₂ emission targets were easily within reach in our states.⁸¹ The final CO₂ emission targets adopted by EPA in 2015 are just as easily within reach in the Southeast today. A forecast based on the Southeastern utility sector’s business-as-usual long-term plans and energy

⁷⁹ Replacement Rule, 83 Fed. Reg. at 44,748.

⁸⁰ *Id.* at 44,753-54.

⁸¹ Comment from Kurt Ebersbach, Southern Environmental Law Center, to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602,” Dec. 1, 2014 (Georgia); Comment from Angela Navarro, Southern Environmental Law Center, et al., to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602,” Dec. 1, 2014 (Virginia); Comment from Keith A. Johnson, Southern Environmental Law Center, et al., to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602,” Dec. 1, 2014 (Alabama); Comment from Frank Rambo and Angela Navarro, Southern Environmental Law Center, to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602,” Dec. 1, 2014 (Tennessee); Comment from Myra Blake et al., Southern Environmental Law Center, to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602,” Dec. 1, 2014 (North Carolina); Comment from Blan Holman, Southern Environmental Law Center, et al., to U.S. Env’tl. Prot. Agency, “Attn: Docket ID No. EPA-HQ-OAR-2013-0602—South Carolina,” Dec. 1, 2014 (South Carolina).

policies projects that our states' power plants will emit CO₂ emissions roughly totaling 244,371,449 short tons by 2030, significantly below our region's baseline of 301,470,616 short tons.⁸²

It is no mystery why. Utilities in our region are already engaging in exactly the kind of “generation-shifting” foreseen by the CPP, and they plan to do more generation-shifting towards lower-carbon resources. As Tennessee Valley Authority CEO Bill Johnson explained in June 2017, “We started down this path before anyone ever heard of the CPP or the Paris climate agreement by looking for the cheapest way to serve customers.”⁸³ Also providing insight on the downward pressure on regional CO₂ emissions is the continuing strong performance of the solar market in the Southeast. When the CPP was proposed in 2014, the six-state SELC region had less than 1 GW of solar installed.⁸⁴ As of June 2017, more than 5 GW of solar are installed in the Southeast.⁸⁵ Based on capacity additions projected in our utilities' existing long-range plans and similar commitments, 11.7 GW of solar is projected to be installed in the Southeast by 2030, solar tariffs notwithstanding.⁸⁶ Thus, the on-the-ground reality in the Southeast is that the

⁸² The CPP's mass-based goal with new source complement allotted 239,255,857 short tons to our six-state region. This projection accounts for reductions in solar deployment based on the tariff on solar panels recently ordered by the Trump Administration. See U.S. Trade Rep., Fact Sheet, Section 201 Cases: Imported Large Residential Washing Machines and Imported Solar Cells and Modules (Jan. 22, 2018).

⁸³ Scott DiSavino, *TVA cuts emissions and costs by shutting coal, adding natgas plants*, Reuters, June 1, 2017, <https://www.reuters.com/article/us-utilities-tva-natgas/tva-cuts-emissions-and-costs-by-shutting-coal-adding-natgas-plants-idUSKBN18T06C>.

⁸⁴ Solar Energy Indus. Assn., Top 10 Solar States 2014, <https://www.seia.org/sites/default/files/2014top10-NC.png> (noting that North Carolina, which had 396.6 MW installed capacity in 2014, had more installed solar than all other Southeastern states combined).

⁸⁵ Solar Energy Indus. Assn., Solar State by State, <https://www.seia.org/states-map>. Six Southeast states tabulated by SELC in June 2017).

⁸⁶ Tabulated by SELC in April 2018, based on capacity additions identified in the following integrated resource plans and data from the following sources: *In re* Alabama Power Company, Order, Ala. Pub. Serv. Comm'n, No. 32382 (2015); *In re* Alabama Power Company, Petition, Ala. Pub. Serv. Comm'n, No. 32382 (2015); Alabama Power, 2016 Integrated Resources Plan Summary Report (2016); Ga. Power Co., 2016 Integrated Resource Plan and Application for Decertification of Plant Branch Units 3 and 4, Plant Mitchell Units 3, 4A and 4B, Plant Kraft Units 1 CT, and Intercession City CT; Docket No. 40161 (Jan. 29, 2016); S.C. Elec. & Gas Co., 2017 Integrated Resources Plan, S.C. Pub. Serv. Comm'n, Docket No. 2017-____-E (Feb. 28, 2017); S.C. Pub. Serv. Auth. (Santee Cooper), Integrated Resources Plan (Nov. 2016); Duke Energy Carolinas, LLC., South Carolina Integrated Resource Plan: Annual Report (Sept. 1, 2017); Duke Energy Progress, South Carolina Integrated Resource Plan: Annual Report (Nov. 1, 2017); Tennessee Valley Authority, Integrated Resource Plan (2015); Appalachian Power, Integrated Resource Planning Report, Va.State Corp.. Comm'n, Case No. PUR-2017-00045 (May 1, 2017); Va. Elec. Power Co., Integrated Resources Plan for 2017, Va. State Corp. Comm'n, No. PUR-2017-00051, Docket No. E-100, Sub 147 (May 1, 2017); Dominion to Put 9 Power-Generating Units on Reserve Status, Jan, 2018, <https://www.usnews.com/news/best-states/virginia/articles/2018-01-17/dominion-to-put-9-power-generating-units-on-reserve-status>; EIA, Annual Electric Power Industry Report: Net Metering, Non Net Metering Distributed (2016), <https://www.eia.gov/electricity/data/eia861> (baseline distributed solar installed capacity); White House, Fact Sheet, Section 201 Cases: Imported Large Residential Washing Machines and Imported Solar Cells and Modules (Jan. 22, 2018) (solar tariff assumption); Methodology developed by The Greenlink Group (projection of future distributed solar installed capacity); SERC VACAR: Virginia, North Carolina, and South Carolina

generation-shifting employed by EPA in 2015 to establish performance standards for existing power plants is consistent with business-as-usual, least-cost utility planning that extends at least as far as the compliance period for the Replacement Rule.

This trajectory toward cleaner energy in the Southeast is consistent with the rationale EPA provided in finalizing the CPP. EPA recognized that utilities across the country were shifting away from coal and toward renewable energy:

The EPA's survey of trends and actions already being taken in the utility power sector indicated that RE generating capacity and generation have grown rapidly in recent years, in part because of the environmental benefits of shifting away from fossil fuel-fired generation and in part because of improved economics of RE generation relative to fossil fuel-fired generation.⁸⁷

For this reason, EPA included increasing renewable energy generation as a “building block” in establishing the performance standards in the CPP.⁸⁸ But EPA did not dictate that our states had to shift generation to renewable energy or natural gas. Rather, the utilities in our states have decided to “generation-shift” based on their own least-cost planning, in most cases with the blessing of state public utility commissions.

In the Replacement Rule, EPA itself acknowledges that trend away from coal has become even more pronounced since the Agency finalized the rule in 2015.⁸⁹ Nevertheless, the Agency tries to justify eliminating renewables and natural gas from its standard-setting exercise by raising the specter of uncertainty regarding future price fluctuations for these resources.⁹⁰ As a preliminary matter, this argument is again belied by Southeastern utilities' own long-term planning exercises, which rely on forecasted prices for coal, natural gas and renewables. But even if natural gas or renewables were to experience unexpected price spikes, no state would be required to rely on a particular resource or range of resources to achieve the emission standard

<https://www.eia.gov/outlooks/aeo/data/browser/#/?id=62-AEO2017®ion=3-16&cases=ref2017&start=2015&end=2050&f=A&linechart=ref2017-d120816a.5-62-AEO2017.3-16&map=&sourcekey=0>; SERC Southeastern: Alabama and Georgia
<https://www.eia.gov/outlooks/aeo/data/browser/#/?id=62-AEO2017®ion=3-14&cases=ref2017&start=2015&end=2050&f=A&linechart=ref2017-d120816a.5-62-AEO2017.3-14&map=&sourcekey=0>; SERC Central: Tennessee <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=62-AEO2017®ion=3-15&cases=ref2017&start=2015&end=2050&f=A&linechart=ref2017-d120816a.5-62-AEO2017.3-15&map=&sourcekey=0>.

⁸⁷ CPP, 80 Fed. Reg. at 64,729 (discussing why renewable energy is part of the best system of emission reduction).

⁸⁸ *Id.*

⁸⁹ Replacement Rule, 83 Fed. Reg. at 44,754.

⁹⁰ *Id.*

established by the CPP or any other plan adopted under section 111(d).⁹¹ Accordingly, the Agency cannot rely on any purported price “uncertainty” as a reasonable basis for excluding these resources from its standard-setting determination.

Finally, EPA’s asserted concern that the shift away from coal is creating “tremendous strain on the power infrastructure even without the added pressures of an EPA mandate to further shift away...” is unsupported.⁹² The U.S. Department of Energy’s national laboratories and other independent entities have exhaustively analyzed the impact of solar and wind power on grid reliability. Here are some of their results:

- A utility-commissioned report conducted by DOE’s Pacific Northwest National Lab (PNNL) in 2014 found that Duke Energy’s Carolinas system could accommodate solar up to 20 percent of peak load, and would see a decrease in its total system production costs (20% was the highest penetration that PNNL investigated).⁹³ At the time that this study was conducted, the Duke Energy Carolinas system had not yet reached even a 2 percent penetration of solar power.
- A 2012 report by the DOE’s National Renewable Energy Lab (NREL) found that renewable energy can reliably meet up to 80 percent of U.S. electric demand in 2050 with modest improvements to the flexibility of the grid.⁹⁴
- An independent study by GE found that the PJM system can operate with up to 30 percent of its energy provided by wind and solar power.⁹⁵ No insurmountable operating issues were uncovered during this exhaustive study, and every scenario resulted in lower energy prices.⁹⁶

Moreover, as we add more renewable energy to the grid, resources that can *increase* system flexibility are what will be needed to ensure reliability, rather than traditional “baseload” coal-fired power plants. NREL notes that “Multiple technology pathways exist to achieve a high renewable electricity future. Assumed constraints that limit power transmission infrastructure,

⁹¹ Indeed, the CPP allows states to engage in emission allowance trading, increasing the flexibility states would have to comply if unexpected price increases were to occur. CPP, 80 Fed. Reg. at 64,665 (“...[T]he final rule greatly facilitates flexibility for EGUs by establishing a basis for states to set trading-based emission standards and compliance strategies.”).

⁹² *Id.*

⁹³ *Duke Energy Photovoltaic Integration Study: Carolinas Service Areas* (Mar. 2014), available at http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-23226.pdf.

⁹⁴ *Renewable Electricity Futures Study* (last accessed October 29, 2018), available at <https://www.nrel.gov/analysis/re-futures.html>.

⁹⁵ *PJM Renewable Integration Study* (Mar. 31, 2014), available at <http://www.pjm.com/~media/committees-groups/subcommittees/irs/postings/pris-executive-summary.ashx>.

⁹⁶ See also Robert Walton, *PJM: FirstEnergy can shut 4 GW of fossil plants without harming reliability* (October 2, 2018), <https://www.utilitydive.com/news/pjm-firstenergy-can-shut-4-gw-of-fossil-plants-without-harming-reliability/538618/>.

grid flexibility, or the use of particular types of resources can be compensated for through the use of other resources, technologies, and approaches.”⁹⁷

IV. The Agency’s proposed changes to NSR would degrade air quality and damage public health in the Southeast.

In addition to erasing any meaningful requirements to reduce CO₂ pollution from existing coal-fired power plants, EPA also proposes to open a loophole that would make it easier for older, dirtier plants to continue to operate and pollute our air with conventional air pollutants like NO_x, SO₂, and particulate matter. The Agency’s proposed changes to NSR requirements would make it exceedingly unlikely that an existing fossil fuel-fired power plant will ever trigger NSR. Moreover, the proposal does not limit the applicability of the new loophole to coal plants complying with Section 111(d); rather, the Agency seeks to extend it to *all* existing fossil fuel-fired power plants under *any* circumstances.

The NSR permitting program is the primary mechanism in the Clean Air Act to require existing sources to update their air pollution controls in the absence of the enactment of new laws or regulations.⁹⁸ For this reason, NSR has been a powerful tool to reduce emissions from existing coal-fired power plants over the past two decades.⁹⁹ When triggered, it imposes an obligation on major stationary sources of air pollution, like fossil fuel-fired power plants, to install modern pollution controls – referred to as the “best available control technology” or BACT– when they make non-routine physical changes or modifications that result in significant emissions increases at the source (i.e., plant).¹⁰⁰ The regulations implementing this statutory requirement currently employ an annual emissions increase test to determine whether a modification requires NSR permitting.¹⁰¹

⁹⁷ *Renewable Electricity Futures Study* (last accessed October 29, 2018), available at <https://www.nrel.gov/analysis/re-futures.html>.

⁹⁸ See *Wisconsin Electric Power Co. v. Reilly*, 893 F.2d 901, 909 (7th Cir. 1990) (describing Congressional intent to require air pollution upgrades during major modifications).

⁹⁹ See Jonathan Remy Nash and Richard L. Revesz, *Grandfathering and Environmental Regulation: The Economics of New Source Review*, 101 NORTHWESTERN UNIV. L. REV. 1677, 1691-96 (2007) (describing EPA enforcement efforts); see also Thomas O. McGarity, *When Strong Enforcement Works Better than Weak Regulation: The EPA/DOJ New Source Review Enforcement Initiative*, 72 Md. L. Rev. 1204, 1208-1274 (2013) (further detailing the history of enforcement and regulatory changes to NSR).

¹⁰⁰ See 42 U.S.C. § 7479(c) (defining “construction” to include “modification”); *id.* § 7475 (requiring permit incorporating best available control technology prior to construction).

¹⁰¹ See 40 C.F.R. § 51.1666(b)(21)(ii) (“In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation.”).

In particular, use of the *annual* emissions increase test to trigger NSR, confirmed as reasonable by the Supreme Court in *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561 (2007), has resulted in significant emissions reductions from coal-fired power plants in the Southeast. Southeastern utilities had for decades evaded NSR by claiming that major life-extending modifications did not trigger permitting requirements because they did not constitute physical changes or did not increase *hourly* rates of emissions at the plant.¹⁰² After *Environmental Defense* clarified that this claim was erroneous, utilities could no longer argue for that loophole, and EPA, states, and environmental organizations were able to settle prominent NSR enforcement actions with some of the major utilities that operate coal-fired power plants in the Southeast, including Duke Energy and Tennessee Valley Authority.¹⁰³ EPA estimated that the TVA settlement, for example, would reduce TVA's NO_x and SO₂ emissions by 69 and 67 percent fleet wide, respectively.¹⁰⁴ EPA estimated that the settlement would have the following health benefits in our region:

EPA estimates that the monetized health benefits of these emission reductions range from \$11 to \$27 billion (in 2010 dollars), per year, including avoiding 1,200 to 3,000 premature deaths, 2,000 non-fatal heart attacks, 800 cases of chronic bronchitis, 960 hospital admissions, 1,200 emergency department visits for asthma, 1,900 cases of acute bronchitis, 21,000 asthma attacks, 39,000 cases of upper or lower respiratory symptoms, 150,000 days when people miss work, and 880,000 days when people must restrict their activities per year.¹⁰⁵

TVA has since made retirement and retrofit decisions pursuant to the settlement, resulting in cleaner air in Tennessee, Alabama, and surrounding states.¹⁰⁶

Notwithstanding its success in using NSR to making our air cleaner, EPA now proposes to introduce the very loophole that was firmly shut by the U.S. Supreme Court in *Environmental Defense* by allowing states (and requiring the Agency's own parallel NSR program) to require NSR for a proposed modification at a plant only if that modification would result in an hourly

¹⁰² See, e.g. *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561, 570-71 (2007) (describing the factual and procedural history of the Duke NSR case, which followed this pattern).

¹⁰³ See, e.g., EPA, Tennessee Valley Authority Clean Air Act Settlement, <https://www.epa.gov/enforcement/tennessee-valley-authority-clean-air-act-settlement> (last visited October 30, 2018).

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Clean Air Act Agreements*, Tenn. Valley Auth. (last visited Oct. 31, 2018), <https://www.tva.gov/Environment/Environmental-Stewardship/Air-Quality/Clean-Air-Act-Agreement>. EPA's efforts to enforce the NSR permitting program extended far beyond TVA to 32 plants across ten states. See *Coal-Fired Power Plant Enforcement*, U.S. Env't Prot. Agency, <https://www.epa.gov/enforcement/coal-fired-power-plant-enforcement> (last updated Sept. 6, 2016).

emissions rate increase.¹⁰⁷ As we explain here, this revision—nothing less than a return to the old excuses offered by utilities, this time endorsed by EPA—will make it nearly impossible for a fossil fuel-fired plant to trigger NSR and its obligation to update pollution controls. As a result, the Southeast will likely see dirtier air for a longer period of time. Moreover, the proposed changes establish a precedent that other significant polluting facilities in our region will seek for their own contributions to air pollution, threatening to further affect the quality of the air we breathe.

A. Under the proposed changes, modifications at existing coal-fired plants would almost never trigger NSR.

EPA’s proposal to significantly alter the current emissions increase calculus methodology for determining whether a modification at an existing coal-fired power plant triggers NSR is shown in Table 5 from the proposed Rule (reproduced below).¹⁰⁸ EPA proposes a new Step 2 in the NSR applicability analysis: an hourly emissions increase test, with three proposed alternatives, any of which a source would be able to use in its discretion.

TABLE 5—PROPOSED MAJOR NSR APPLICABILITY FOR AN EXISTING EGU⁶³

<i>Step 1:</i> Physical Change or Change in the Method of Operation.
<i>Step 2:</i> Hourly Emissions Increase Test.
• Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis.
• Alternative 2—Maximum achieved hourly emissions; one-in-5-year baseline; input basis.
• Alternative 3—Maximum achievable hourly emissions; input basis.
<i>Step 3:</i> Significant Emissions Increase Determined Using the Actual-to-Projected-Actual Emissions Test as in the Current NSR Rules.
<i>Step 4:</i> Significant Net Emissions Increase as in the Current NSR Rules.

Alternative 3 would allow the maximum achievable hourly emission rate as a baseline. Since “achievable” is or can often be the same as the potential emission rate for a unit, in effect, Alternative 3 allows a potential-to-future-projected test on an hourly basis. This baseline would be impossible to exceed under most circumstances, unless the source were to increase its raw operational capacity by a considerable amount. And even under capacity-increase scenarios, a source would likely argue that efficiency improvements will lead to lower future emissions. Thus, if Alternative 3 is employed, as a conceptual matter it will be almost impossible to trigger a unit’s obligation to obtain a NSR permit.

Alternatives 1 and 2 would rely on the maximum hourly emissions achieved (as opposed to achievable, in Alternative 3) as the baseline. Alternative 1 applies a statistical approach to determining the maximum achieved hourly emissions, relying on a relevant CEMS data set for

¹⁰⁷ See Replacement Rule, 83 Fed. Reg. at 44,797-803 (proposed 40 C.F.R. § 51.167 and proposed 40 C.F.R. § 52.25).

¹⁰⁸ Replacement Rule, 83 Fed. Reg. at 44,780.

the plant.¹⁰⁹ Alternative 2 is more straightforward: it asks for the highest emission rate actually achieved for one hour at any time during the five year period immediately preceding construction of the modification.¹¹⁰ These alternatives are not deficient in the same theoretical way as Alternative 3, but historical data show that they, too, would make it exceedingly difficult to trigger NSR in practice.

To evaluate these two “maximum achieved” alternatives, we examined actual hourly emissions as reported to EPA’s Air Markets database in 2017.¹¹¹ Based on this review, Alternatives 1 and 2 will, in many cases, establish baseline hourly emissions so high that NSR will never be triggered. This is because either the statistical maximum in Alternative 1 is higher than even the achieved maximum emission rate (which itself is often far higher than the average or median rate), or the maximum achieved rate in Alternative 2 is magnitudes higher than the median rate. Examples of plants that contribute pollution to our region where this is likely to be the case include, but are not limited to Labadie Units 1, 2, and 3 (Missouri), New Madrid Units 1 and 2 (Missouri), Daniel Units 1 and 2 (Mississippi), Belews Creek (North Carolina), Conesville Units 4, 5, and 6 (Ohio), Clover Units 1 and 2 (Virginia), Barry Unit 4 (Alabama), and many others.

As an example, consider NO_x emissions from the four units at the Scherer plant in Georgia. The Scherer units have selective catalytic reduction (SCR) to reduce NO_x emissions, but only operate SCR during the five-month ozone season. Under current NSR regulations, if any of these units were to undertake non-routine, major modifications, such as implementing life-extension projects, they would be required to achieve the best available control technology (BACT). For NO_x, BACT is, conservatively, emissions of approximately 0.05-0.07 lb/MMBtu—the latter level already being achieved by the Scherer units during the ozone season.¹¹² Thus, BACT would require that Scherer operate its SCRs year round like it is doing for the ozone season – with no additional capital cost and some additional operational cost.

However, as the table below illustrates, a modification at Scherer would likely never trigger NSR, and its BACT requirement, under proposed Alternatives 1 or 2. The table shows the

¹⁰⁹ See Replacement Rule, 83 Fed. Reg. 44,798-99 (proposed 40 C.F.R. § 52.167(f)(1))(describing method to be employed).

¹¹⁰ *Id.* at 44,799-800 (proposed 40 C.F.R. § 52.167(f)(1)).

¹¹¹ Alternatives 1 and 2 are based on monitored and reported CEMS-based data, such as hourly NO_x and SO₂ emissions and the heat input to the unit. These calculations rely on the hourly exhaust flow measurement, which, even with a flow CEMS, can be +/-10% and still pass certification. The manner in which heat inputs and mass emissions are calculated and reported publicly under 40 CFR Part 75, are subject to a fair amount of error (at least +/- 10%).

¹¹² For NO_x, we calculate BACT as 0.05 lb/MMBtu for sources that need to install SCR and 0.07 lb/MMBtu for sources that already have SCR and need to run it more frequently, based on the age of the equipment.

standard statistics for the hourly NO_x emission rates for 2017 for Scherer Units 1 through 4 that would be needed to calculate an emission increase under those approaches.

Hourly Emissions Statistic for 2017	Scherer U1 NO _x (lb/hr)	Scherer U2 NO _x (lb/hr)	Scherer U3 NO _x (lb/hr)	Scherer U4 NO _x (lb/hr)
Alternative 2				
Maximum Achieved	3147.8	2059.4	2604.4	2432
99.9 th Percentile Achieved	2573.6	1897.9	2369.8	2299.8
Median	462.3	677	614.4	770.5
Average	678.0	711.5	826.9	815.9
Standard Deviation	541.3	397.9	525.3	459.2
Alternative 1				
Average for Top 10% heat input	1402.5	994.1	1098.6	1197.9
N=count of top 10% of operating hours	88	88	88	88
Standard Deviation for Top 10% heat input hours	668.5	524.3	693.1	639.0
Z _{1-p} statistic for 99.9	3.09	3.09	3.09	3.09
99.9 UTL	4147.8	3147.2	3944.9	3822.0

With respect to Alternative 2, the table illustrates how even a single, potential highest hourly emissions value can drive the outcome, given that alternative's one-hour-in-five-years approach. For example, at Unit 1, the maximum hourly rate (3147.8 lb/hr) is much larger compared to not only the average (678 lb/hr), but even the 99.9th percentile (2573.6 lb/hr) value.

For simplicity, this example analysis employs only one year of data (i.e., for 2017). Had we used five years of hourly data, as allowed by Alternative 2, the maximum might have been higher still – and therefore unlikely to be exceeded in the future, barring capacity increases.

The table also illustrates the result if the statistical approach proposed as Alternative 1 is implemented. We follow the steps as described in more detail in the 2007 Supplemental Notice of Proposed Rulemaking, which is referenced in the Replacement Rule, with the exception that we use one year of data instead of 5 years as would be allowable under Alternative 1.¹¹³ Alternative 1 requires the computation of the 99.9 Upper Tolerance Limit (UTL) for the hourly rate using emissions data from the top 10 percent of the heat input hours to the unit (that is, the 10% of the hours during which the most coal or coal with the most heating value was burned in the unit). The results are clear. In the Scherer Unit 1 example above, the 99.9 UTL NO_x hourly rate is 4147 lb/hour, which is even higher – significantly higher – than the actual maximum rate of 3147.8 lb/hr reported for 2017 that would be used in Alternative 2. The 99.9UTL value would be next to impossible to overcome for purposes of triggering NSR.¹¹⁴

The results shown above for Scherer Unit 1 are not isolated or unique. The table above show similar results for Scherer Units 2, 3, and 4, and, as discussed above, our review of the 2017 data show the same for many of the coal-fired units in the Southeast or located in states that influence the air sheds in the Southeast.

In sum, our analysis indicates that any of EPA's proposed hourly emission rate alternatives will result in insurmountable barriers to NSR for existing coal units in the future, regardless of how much their life is further extended by making non-routine modifications. The proposed changes to NSR could add decades of life to units that are in many cases already 30-40 years old, if not older. Thus, all existing units in the fleet today will essentially be frozen in time as far as emissions reductions are concerned, contrary to Congressional intent that such units be subject to modern controls (i.e., BACT) when they are modified in the future. Nothing in the Clean Air Act suggests that Congress intended to exempt existing coal plants from NSR permitting obligations. The unreasonableness and arbitrariness of the proposed loophole is only underscored by the fact that despite justifying it as justified relief for sources attempting to comply with 111(d), EPA does not limit this new carve out to modifications undertaken to comply with that provision. Instead, EPA opens the door for states to amend their state

¹¹³ Replacement Rule, 83 Fed. Reg. at 44,780-81.

¹¹⁴ Moreover, because the 99.9UTL depends not just on the average, but also the standard deviation of the hourly emissions in the upper 10% of heat-input hours, it can be inflated by making the standard deviation greater – i.e., making the emissions more variable, such as by running the boiler and/or controls in a more erratic manner. This perverse incentive is built into Alternative 1.

implementation plans to incorporate the new hourly emissions rate test for NSR for power plants generally.¹¹⁵

B. Under the proposed NSR changes, emissions from coal-fired power plants would contribute significant additional pollution to our Southeastern communities.

By establishing a regulatory framework that would almost never require a coal unit to obtain a NSR permit, EPA would leave Southerners without a crucial tool to protect and improve their air quality.

Under the existing NSR rules, when a coal unit makes a non-routine modification which result in a net emissions increase (i.e., over 40 tons per year for NO_x and SO₂), it is required to continuously achieve BACT levels of emissions. For NO_x, BACT for coal units is an emissions level of 0.05 lb/MMBtu or less, achieved using SCR. Use of SCR to significantly reduce NO_x emissions from coal units has been proven for the last three decades. For SO₂, the BACT level of emissions can depend on the sulfur content of the coal, but generally would require the installation of controls, which are some variant of a dry or wet scrubber. Scrubbers have been used to reduce SO₂ emissions from coal units for over four decades. SO₂ BACT levels may be as low as 0.02 lb/MMBtu.

Recognizing that NSR has achieved significant reductions in NO_x and SO₂ emissions from existing coal-fired units in the last two decades, we examined the potential effect of EPA's proposal to make it easier to avoid NSR. Specifically, we evaluated the coal units currently operating in the six states in SELC's region (Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia), as well as adjacent and regional states whose emissions also affect residents in our Southeastern states (Arkansas, Florida, Indiana, Kentucky, Missouri, Mississippi, Ohio, Pennsylvania, and West Virginia). Emissions from coal-fired power plants in these states travel hundreds of miles once emitted into the atmosphere from tall stacks (many as high as 700 feet or more) via atmospheric long-range transport and can affect air sheds across the Southeastern states depending on weather conditions.

For our analysis, we used 2017 actual emissions from coal units, excluding units that burn waste coal, pet coke, and cogeneration units. We eliminated all units that have either discontinued operations in 2018 or have announced retirements in the next few years (i.e., in 2019, 2020, 2021, etc.). And we excluded units that have announced that they may convert to natural gas in the future. For the remaining units, we first identified units that do not have either

¹¹⁵ Replacement Rule, 83 Fed. Reg. at 44,798 (proposed 40 C.F.R. § 51.167(a)).

SCR (for NO_x) or any type of scrubber (for SO₂). We assumed, conservatively, that BACT for NO_x would be 0.05 lb/MMBtu and that BACT for SO₂ would also be 0.05 lb/MMBtu. For units without SCR or FGD, we calculated the annual reductions (in tons/year) in NO_x and SO₂ emissions that would result if they achieved these BACT levels instead of their actual emission rates (in lb/MMBtu), operating at the same heat inputs (i.e., MMBtu/year) in 2017.

Our analysis demonstrates that for coal units without modern pollution controls in the relevant region, requiring NSR (notably, the BACT requirement) would result in reductions totaling 93,840 tons/year for NO_x and 162,840 tons/year for SO₂. These are 22% and 29%, respectively, of the 2017 actual NO_x and SO₂ emissions from coal-fired units in the geography considered in the analysis.

For example, consider the two units of the Independence power plant in Arkansas. The SO₂ emissions rates in 2017 for these units were approximately 0.5-0.52 lb/MMBtu. Using their 2017 heat inputs, the SO₂ emissions reduction from these two units would have been 17,580 tons in 2017 if they were to achieve SO₂ rates of 0.05 lb/MMBtu with a wet or dry scrubber. That is a 90% reduction from the actual 19,487 tons SO₂ emitted by these two units in 2017. For NO_x emissions, consider the Cayuga plant with two units in Indiana. These units do not have SCR and their 2017 NO_x rates were around 0.23-0.24 lb/MMBtu. If they had achieved a NO_x BACT rate of 0.05 lb/MMBtu, the NO_x reductions from these two units would have been 5,440 tons in 2017, using their same heat inputs as in 2017. That is a 77% reduction from the actual 7,061 tons NO_x emitted by these two units in 2017.

For units that already have SCR and/or any type of scrubber, many do not meet the BACT emissions levels on a continuous basis, because they are not required to do so without being subject to NSR. For these units, we computed the levels of NO_x and SO₂ emissions reductions if they achieved BACT level of emissions instead of what they actually achieved in 2017, again assuming that the heat inputs would be the same as in 2017. For this analysis we assumed that the SO₂ BACT would be 0.05 lb/MMBtu and that BACT for NO_x would be 0.07 lb/MMBtu (instead of 0.05 lb/MMBtu for the new SCR analysis discussed above).¹¹⁶

Our analysis demonstrates that for coal units with pollution controls in the relevant region, NSR would achieve NO_x reductions of 111,873 tons/year and SO₂ reductions of 209,490 tons/year – again, from sources that are simply not operating their pollution control equipment at

¹¹⁶ These assumptions are based on the 10th percentile of the emissions rate actually achieved in 2017, or 0.037 lb/MMBtu for SO₂ and 0.067 lb/MMBtu for NO_x. Accordingly our assumptions as to the BACT emissions rates are reasonable and conservative.

BACT levels. These reductions represent 26% and 37% reductions, respectively, from the 2017 actual NO_x and SO₂ emissions from the coal-fired units in the states considered in the analysis.

As an example, consider the D. B. Wilson plant in Kentucky. Although the unit has a scrubber, its SO₂ rate in 2017 was 0.37 lb/MMBtu. If it achieved even an SO₂ rate of 0.05 lb/MMBtu and was operated at the same heat input as 2017, the SO₂ reductions from this plant would be 5,020 tons in 2017, a reduction of 86% from the 5,815 tons of SO₂ actually emitted in 2017. As another example, consider the Scherer power plant with four units located in Georgia, with all units equipped with SCR. These units currently achieve NO_x rates of less than 0.07 lb/MMBtu but only for the 5-month ozone season May – September. If instead they achieved the 0.07 rate all year around, the NO_x reductions from these four units would have been 5,780 tons/year using the same heat inputs as 2017, a reduction of over 53% from the 10,787 tons of NO_x emitted from the Scherer units in 2017.

Our analysis shows that current NSR if left in place would potentially allow existing coal-fired EGUs to achieve substantial additional NO_x and SO₂ reductions, often at little or no additional capital costs (i.e., for the units that already have SCR and scrubbers installed). The substantial additional NO_x and SO₂ reductions noted above, however, would be never realized under EPA's proposed changes to NSR.

C. If EPA adopts its proposed changes to NSR for fossil fuel-fired power plants, it will set a precedent for extending them to other types of pollution sources and foster even dirtier air in our region.

Although EPA has not yet proposed to employ its new hourly emissions rate increase test comparison for other types of polluting facilities, the revisions to NSR will establish a precedent the could be extended to non-power plants in the future. This has happened before. For example, flexibilities to NSR for electric generating units in the so-called WEPCO amendments in 1992 were extended to all sources in the 2002 revisions to NSR. We can reasonably assume that other sources will pressure states and the EPA to extend to them the same methodology that EPA intends to apply to fossil fuel-fired plants.

To examine the potential impact of such an extension of the proposed loophole, we reviewed the universe of significant polluting facilities in six Southeastern states: Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia. Using the 2014 National Emissions Inventory (NEI)¹¹⁷ – the most recent year available, we examined all sources that had

¹¹⁷ <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>.

reported actual NO_x and SO₂ emissions of 40 tons per year or greater – the significant emissions threshold for triggering NSR for these pollutants. We classify these as large non-coal unit sources. There are many such sources in our six Southeastern states, with total actual 2014 emissions for SO₂ and NO_x, as shown in the Table below.

State	2014 NO _x from Large Non-EGU Sources (# of sources)	2014 SO ₂ from Large Non-EGU Sources (# of sources)
Alabama	54,875 (261)	51,387 (104)
Georgia	41,473 (220)	25,189 (75)
North Carolina	28,406 (137)	19,304 (59)
South Carolina	21,710 (870)	19,108 (58)
Tennessee	31,101 (136)	30,337 (39)
Virginia	33,791 (135)	33,805 (55)

The types of facilities covered include chemical plants, pulp and paper mills, cement manufacturing facilities, mineral processing plants, coke ovens/batteries, ferro-alloy plants, and compressor stations. We are particularly concerned that some of these source types, such as natural gas compressor stations, are increasing in number, and that the 2017 inventory, when it is released by EPA, will show significant growth in our region for these types of facilities.

Based on a review of their existing air permits, most of the existing facilities in these categories do not achieve BACT to control their NO_x and SO₂ emissions to the levels they otherwise should – and BACT would apply if these sources are modified and NSR is triggered under the current rule. If, however, the Replacement Rule is adopted and subsequently expanded to these types of facilities, they would no longer be subject to any meaningful regulatory tools to reduce emissions. Thus, we can expect dirtier air long into the future based on EPA's Replacement Rule.

Conclusion

In summary, climate change and the health and economic impacts it will cause pose an imminent risk of irrevocably altering our Southeastern communities. The Replacement Rule will at best do nothing to alleviate this risk, and will likely exacerbate it. The policy considerations EPA identifies in support of its shift in approach to meet its obligations under section 111(d) are not supported by the on-the-ground reality of the electric sector in the Southeast. Further, the Replacement Rule will result in dirtier air in our region, in contravention of EPA's mandate to protect public health. EPA should abandon the Replacement Rule, and work urgently to

meaningfully reduce CO₂ and conventional air pollution in the Southeast and throughout the nation.

Respectfully,



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APPENDIX

About Our Organizations

The Southern Environmental Law Center (SELC) is a non-profit, regional environmental organization dedicated to the protection of natural resources throughout the Southeast. SELC works extensively on issues concerning energy resources and their impact on the people, culture, environment and economy in six Southeastern states—Tennessee, Virginia, North Carolina, South Carolina, Georgia and Alabama.

Conservation Voters of South Carolina protects the South Carolina you love by fighting for our air, water, land, and energy through bipartisan and pragmatic political action.

North Carolina Interfaith Power & Light works with congregations of all faiths to address the causes and consequences of climate change with hope-filled solutions as a moral imperative.

The **North Carolina Council of Churches** is comprised of 26 distinct judicatories from 18 denominations. Across the state, our members have over 6,200 congregations with about 1.5 million congregants.

For the last 85 years, the **South Carolina Wildlife Federation (SCWF)** has served as the voice for outdoor enthusiasts of every stripe. Representing hunter and birdwatcher, teacher and backpacker, boater and farmer, gardener and angler, SCWF builds partnerships to ensure everyone can enjoy South Carolina's natural heritage and recreation opportunities for generations to come.

MountainTrue champions resilient forests, clean waters, and healthy communities across Western North Carolina.

Tennessee Citizens for Wilderness Planning is a 51 year-old environmental advocacy organization with members across Tennessee. TCWP has a special interest in clean air, pure drinking water and adequate habitat for all creatures.

The **Altamaha Riverkeeper** is dedicated to the protection, defense and restoration of Georgia's Altamaha River and its tributaries, the Ocmulgee, the Oconee and the Ohoopsee, and three major lakes, Sinclair, Oconee and Jackson, within the Altamaha Watershed. The Riverkeeper works to fulfill the Clean Water Act's goal of fishable, swimmable, and drinkable waters for the communities and recreational users within this important ecological region. Altamaha

Riverkeeper has more than 1,500 members, from Atlanta and Athens to the Golden Isles, and several thousand followers who support its work.

Energy Alabama is a non-profit organization accelerating the transition to sustainable energy throughout Alabama. Energy Alabama accomplishes our mission by educating at all levels, informing smart energy policy, building the next generation workforce, and providing technical assistance to deploy more sustainable energy.

Tennessee Interfaith Power & Light's mission is to spiritually respond to the challenges of the climate crisis through upholding the sacredness of all life, protecting vulnerable communities, and caring for the Earth. We manifest our spiritual values by reducing our carbon footprint within our daily lives, releasing the spiritual power of our faith communities, and advocating for transformative climate protection and justice policies.

Virginia Conservation Network is the network of 100+ conservation organizations in Virginia committed to building a powerful, diverse, and highly-coordinated conservation movement focused on protecting our Commonwealth's natural resources.

Georgia Interfaith Power & Light engages communities of faith in stewardship of Creation as a direct expression of our faithfulness and as a religious response to global climate change.

Coosa River Basin Initiative represents over 5000 members in Georgia and Alabama and has a mission to protect, preserve, and restore one of North America's most biologically diverse river systems - the upper Coosa River basin.

Upstate Forever is a conservation organization that works to protect the critical lands, waters, and unique character of the ten counties that make up Upstate South Carolina.

The **Tennessee Chapter Sierra Club** has more than 105,000 members and supporters in every county across the state, with the resources to empower people and to influence public policy through community activism, public education, lobbying, and litigation. With the support of our grassroots volunteers and organizers we work to protect our air, water and ecosystems and promote sustainable solutions that ensure safe and healthy communities for today and in the future.

Tennessee Clean Water Network empowers Tennesseans to exercise their right to clean water and healthy communities by fostering civic engagement, building partnerships and advancing water policy for a sustainable future.

Gasp is an Alabama-based health advocacy organization working to reduce air pollution through education and advocacy.

Founded in 1985, the **Southern Alliance for Clean Energy** is a nonprofit organization that promotes responsible energy choices that work to address the impacts of global climate change and ensure clean, safe, and healthy communities throughout the Southeast.

Environment Georgia protects the places we love, advancing the environmental values we share, and winning real results for our environment. Environment Georgia is a citizen-based environmental advocacy project of Environment America. We believe there's something special about Georgia — something worth protecting and preserving for future generations.

Alabama Interfaith Power and Light is committed to the message of faithful stewardship of Creation by responding to climate change and environmental justice through the energy conservation, energy efficiency, renewable energy, and advocacy for environmental justice.

The **Coastal Conservation League** works to protect the natural landscapes, abundant wildlife, clean water, and quality of life in South Carolina.

The **North Carolina Conservation Network** is a state wide network of nearly 100 environmental, community and environmental justice organizations focused on protecting North Carolina's environment and public health.

The **Virginia League of Conservation Voters** serves as the political voice of the state's conservation community, working to make sure Virginia's elected officials recognize that our natural heritage is an environmental and economic treasure for all.

South Carolina Interfaith Power and Light is inspired by diverse faith perspectives to respond to climate change and to care for the Earth and all its inhabitants by engaging people of faith to work together for a just and sustainable future.

For the last 40 years, **Southface** has been a leader in the research, design, and implementation of a regenerative economy for the Southeast. We are a group of change makers with a laser-focus on generating the outcomes that lead to *vibrant, healthy communities for all*. It is this singular vision, this dedication to creating the policies, technologies, buildings, and communities to improve human lives that propels us forward. It is the underpinning of the programs and service we craft, the data we track and the outcomes we share with our peers, our community, and our leaders.

Appalachian Voices is a non-profit environmental organization dedicated to bringing people together to solve the environmental problems having the greatest impact on the central and southern Appalachian Mountains. As part of its mission, Appalachian Voices advocates for investments in cost-effective energy efficiency programs, conservation, and renewable energy resources as alternatives to heavily polluting coal-fired power.

Clean Air Carolina's mission is to ensure cleaner air quality for all North Carolinians through education and advocacy and by working with our partners to reduce sources of pollution.

One Hundred Miles is a coastal advocacy organization dedicated to protecting, preserving and enhancing the 100-mile Georgia coast.

Alabama Rivers Alliance is a statewide network of more than 50 local groups working to protect and restore all of Alabama's water resources through building partnerships, empowering citizens, and advocating for sound water policy and its enforcement.