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EPA's Proposed New Source Performance Standard: A Step in the Right Direction, but is it Enough?

Daniel Edwards[†]

Courts have refused to open their doors to federal common law nuisance claims that allege damages caused by climate change due to greenhouse gas emissions. In refusing to hear such claims on their merits, courts have held that climate change caused by greenhouse gas emissions is a matter best left to the executive and legislative branches.¹

In April 2012, the Environmental Protection Agency (EPA) proposed a new regulation, the New Source Performance Standard, in an effort to manage greenhouse gas emissions (GHG NSPS) under Section 111 of the Clean Air Act (CAA).² This proposed rule will limit carbon dioxide emissions for new fossil fuel-fired electric utility generating units (EGUs). Unfortunately, because the EPA is not proposing performance standards for existing sources, the proposed regulation will not adequately address the public endangerment caused by climate change resulting from greenhouse gas emissions.

In response to the EPA's proposed rule, this paper analyses ways in which the EPA can modify the proposed rule so that it more effectively addresses climate change due to greenhouse gas emissions.

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1. See *Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 857 (9th Cir. 2012); see also *Am. Elec. Power Co., Inc. v. Connecticut*, 131 S. Ct. 2527, 180 L. Ed. 2d 435 (2011).

2. See Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22392 (proposed Apr. 13, 2012) [hereinafter *Electric Utility Generating Units*] (to be codified at 40 C.F.R. pt. 60), available at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0660-0001>.

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I. INTRODUCTION: GREENHOUSE GASES AND CLIMATE CHANGE

Both natural and human factors change Earth's climate.³ Research indicates that it is very likely that human activity is the cause of most of the global warming that has occurred since the mid-20th century.⁴ The human activity that has caused this warming is activity that results in greenhouse gases being emitted.⁵

As a general principle, when the sun's energy is absorbed by the Earth's system, Earth becomes warmer.⁶ Earth avoids warming when the sun's energy is reflected back into space.⁷ Greenhouse gases such as carbon dioxide absorb the sun's energy thus slowing or preventing the release of heat into space.⁸ This process, commonly known as the "greenhouse effect," makes the earth warmer than it would otherwise be.⁹ The primary human activity affecting the amount and rate of climate change is greenhouse gas emissions from the burning of fossil fuels.¹⁰

3. *Causes of Climate Change*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/climatechange/science/causes.html> (last visited Oct. 31, 2012).

4. *Advancing the Science of Climate Change*, NAT'L ACAD. OF SCI., <http://nas-sites.org/americasclimatechoices/sample-page/panel-reports/87-2/> (last visited Nov. 16, 2012).

5. *Id.*

6. *Causes of Climate Change*, *supra* note 3.

7. *Id.*

8. *Id.*

9. *Id.*

10. *Id.*

Since the Industrial Revolution began in the 18th century, human activities have contributed substantially to climate change by adding carbon dioxide and other heat-trapping gases to the atmosphere¹¹. These greenhouse gas emissions have increased the greenhouse effect thereby causing Earth's surface temperature to rise.¹² Unless our annual emissions decrease substantially, greenhouse gas concentrations in the atmosphere will continue to increase.¹³

Increased greenhouse gas concentrations are expected to have numerous effects beyond just warming the earth's surface. These include: changes in the patterns and amounts of precipitation, a reduction in ice and snow cover, rising sea levels, and increased acidity of the oceans.¹⁴ These changes will affect our ecosystems, food supply, water resources, infrastructure, and even our own health.¹⁵ The overall extent of future climate change depends on what is done now to reduce greenhouse gas emissions.¹⁶ The more we continue to emit, the greater future climate change will be.¹⁷

There are numerous effects that could happen later this century if global warming continues. For example, if warming continues at its current rate, the following is expected to happen by the end of this century: sea levels will rise between 7 and 23 inches (resulting in loss of coastal land); floods and droughts will become more common; and hurricanes and other storms will likely become stronger.¹⁸ Climate change will cause hurricanes and tropical storms to last longer, unleash stronger winds, and cause more damage to coastal ecosystems and communities.¹⁹ Because hurricanes and tropical storms get their energy from warm water, scientists point to higher ocean temperatures as the main reason for the increased intensity of such storms.²⁰ Additionally, the damage caused by hurricanes and coastal storms is likely to intensify due to factors such as rising sea levels, disappearing wetlands, and

11. *Id.*

12. *Id.*

13. *Future Climate Change*, U.S. ENVTL. PROT. AGENCY, <http://epa.gov/climatechange/science/future.html> (last visited Oct. 31, 2012).

14. *Id.*

15. *Id.*

16. *Id.*

17. *Id.*

18. *Effects of Global Warming*, NAT'L GEOGRAPHIC, <http://environment.nationalgeographic.com/environment/global-warming/gw-effects/> (last visited Nov. 1, 2012).

19. *Climate Change Impacts: Stronger Storms and Hurricanes*, THE NATURE CONSERVANCY (Feb. 28, 2011), <http://www.nature.org/ourinitiatives/urgentissues/global-warming-climate-change/threats-impacts/stronger-storms.xml>.

20. *Id.*

increased coastal development.²¹ Many other changes are expected to occur as well.²²

Rising sea levels mean loss or destruction of coastal land and property. Moreover, it is possible that we are already witnessing storms such as hurricanes become stronger. Scientists believe climate change may have made Hurricane Sandy stronger and more likely to occur.²³ One recent study suggests that if global warming continues at its current rate, storm surges of a magnitude comparable to Hurricane Sandy could hit the Gulf Coast and East Coast regions as often as every other year before the year 2100.²⁴ Additionally, a separate study led by Reindert Haarsma of the Royal Netherlands Meteorological Institute (RNMI) found that climate change could cause Sandy-like hurricanes to hit Europe by the end of the century.²⁵ This study predicts that the tropical Atlantic region will continue to warm sufficiently to provide the heat and moisture necessary to power such storms.²⁶ The study predicts that the storms that could hit Europe will form in a manner similar to Hurricane Sandy.²⁷ That is the storms will weaken when they leave the tropics, but will power up again when they enter cold and windy areas, becoming a hybrid storm like Sandy, halfway between winter storms and hurricanes.²⁸ The impact of climate change has affected and will continue to affect regions all across the globe, and not just in the form of Sandy-like super-storms.

A significant portion of the great-plains region in western United States is currently enduring its worst drought, in terms of severity and geographic extent, since the 1950's.²⁹ The National Oceanic and

21. *Id.*

22. See *Effects of Global Warming*, *supra* note 18.

23. See Andrew Freedman, *How Global Warming Made Hurricane Sandy Worse*, CLIMATE CENT. (Oct. 31, 2012), <http://www.climatecentral.org/news/how-global-warming-made-hurricane-sandy-worse-15190>.

24. Becky Oskin, *Katrina-Like Storm Surges Could Become Norm*, LIVE SCI. (Mar. 18, 2013), <http://www.livescience.com/27981-storm-surge-threat-rises-tenfold.html>.

25. John Parnell, *Climate change could mean Sandy-style hurricanes for Europe*, RESPONDING TO CLIMATE CHANGE (Apr. 4, 2013), <http://www.rtcc.org/climate-change-could-mean-sandy-style-hurricanes-for-europe/>.

26. *Europe to be battered by Sandy-style superstorms*, NEW SCIENTIST (Mar. 29, 2013), <http://www.newscientist.com/article/mg21729105.300-europe-to-be-battered-by-sandystyle-superstorms.html>.

27. *Id.*

28. *Id.*

29. Joseph Romm, *Climate Change: Historic Drought Projected to Persist, Worsened by Thin Western Snowpack*, THE ENERGY COLLECTIVE (Feb. 24, 2013), <http://theenergycollective.com/josephromm/190406/dust-bowl-days-historic-us-drought-projected-persist-months-worsened-thin-western->

Atmospheric Administration (NOAA) and other forecasters predict that the drought will persist or intensify in the Rocky Mountains and Plains states, and will expand to California and Texas.³⁰ Some scientists suggest that manmade global warming may have amplified this already devastating drought, particularly by triggering more intense heat during the spring and summer of 2012.³¹ According to a recently released draft of a new federal climate change assessment, as the climate continues to warm in the next few decades, droughts will likely become more frequent and severe, leading to more significant impacts on water supply and agriculture.³² The impacts of climate change are just about endless. And, as seen by some of the examples and studies discussed above, many of those impacts have the potential to be devastating in many aspects.

This article addresses what is currently being done, as well as what more can be done, to remedy the growing problems resulting from climate change caused by greenhouse gas emissions. Part II discusses recent efforts to litigate for damages caused by climate change due to greenhouse gas emissions. Part III provides an overview of the Clean Air Act and discusses the EPA's relevant authority under the Act. Part IV analyzes the EPA's proposed regulation for greenhouse gas emissions from fossil fuel-fired EGUs. Lastly, Part V of this paper suggests changes that should be made to the EPA's proposed rule in order to more adequately address the public endangerment caused by climate change due to greenhouse gas emissions. Specifically, Part V will recommend that the EPA modify its proposed rule so that it either includes limits on existing sources, or phases in limits on existing sources over time.

II. RECENT EFFORTS TO LITIGATE

There have been a number of high profile cases in recent years surrounding the issue of greenhouse gas emissions. Prior to the EPA's promulgation of the New Source Performance Standard for fossil fuel-fired EGUs, parties ranging from land trusts to cities to states have brought suit against major power companies alleging damages caused by climate change due to greenhouse gas emissions. For reasons that will be further discussed later in this section, courts have refused to open their doors to these cases; however, the closure has provided some clarity regarding regulatory authority.

30. *Id.*

31. *Id.*

32. *Id.*

In 2007, the Supreme Court of the United States decided *Massachusetts v. EPA*. This was a particularly noteworthy decision as the Court held that the EPA does have authority to regulate greenhouse gas emissions, an authority that the EPA had previously denied.

A. Massachusetts v. EPA

In *Massachusetts v. EPA*, the EPA had previously denied a rulemaking petition that sought to regulate greenhouse gas emissions from new motor vehicles.³³ A group of states (including Massachusetts), local governments, and private organizations, brought suit against the EPA (defendant) seeking declaratory relief on the issue of whether the EPA had the statutory authority to regulate greenhouse gas emissions under the Clean Air Act; and if so, whether its stated reasons for refusing to do so were consistent with the Clean Air Act.³⁴ The state of Massachusetts alleged that the EPA's failure to regulate these emissions would ultimately result in loss of its coastal lands due to increased global warming from the emissions.³⁵

The Supreme Court determined that the Clean Air Act authorizes federal regulation of greenhouse gas emissions.³⁶ The court concluded that the EPA had misread the Clean Air Act when it denied the rulemaking petition, and determined that greenhouse gases qualify as "air pollutants" within the meaning of the governing provision of the Act and are therefore within EPA's regulatory ken.³⁷ After determining that the EPA had authority to regulate greenhouse gas emissions, the court held that Massachusetts had standing (injury, causation, redressability), and that because EPA had offered no "reasoned explanation" for failing to regulate greenhouse gas emissions, the agency did not act in accordance with law when it denied the requested rulemaking.³⁸ The Supreme Court's opinion in *Massachusetts v. EPA* has had, and will continue to have, serious implications, as it has cleared up much of the confusion and disagreement over who had what authority with regard to regulating greenhouse gas emissions.

The next cases that are discussed in this section are particularly relevant because they involve litigation resulting from greenhouse gas

33. *Massachusetts v. EPA*, 549 U.S. 497, 511-512 (2007).

34. *Id.* at 497-98.

35. *Id.*

36. *Id.* at 534-35.

37. *Id.* at 533.

38. *Id.* at 534-35.

emissions from fossil fuel-fired power plants, which are the sources that are to be regulated under the EPA's recently proposed rule.

B. American Electric Power Company, Inc. v. Connecticut

In 2004, two groups of plaintiffs, one consisting of eight states and NY City, and the other consisting of three land trusts (collectively "plaintiffs"), separately sued the same six power corporations (collectively "defendants") that own and operate fossil fuel fired power plants, seeking abatement for defendants' ongoing contribution to the public nuisance of global warming.³⁹ The six power corporations that were sued are among the largest GHG emitters in the world.⁴⁰ The court consolidated these cases in *AEP v. Connecticut*. The plaintiffs claim that global warming, to which defendants contribute, is causing and will continue to cause serious harms affecting human health and natural resources. Pointing to a "clear and scientific consensus" that global warming has already begun to alter the natural world, plaintiffs predict that it "will accelerate over the coming decades unless action is taken to reduce emissions of carbon dioxide."⁴¹ Plaintiffs brought these actions under federal common law of nuisance in an effort to force defendants to cap and then reduce their GHG emissions.⁴²

The Supreme Court held that the Clean Air Act and the EPA actions it authorizes displace any federal common law right to seek abatement of GHG emissions from fossil-fuel fired power plants.⁴³ The court stated that "[t]he field had been occupied . . . ,"⁴⁴ and that "[t]he critical point is that Congress delegated to EPA the decision whether and how to regulate GHG emissions from power plants; the delegation is what displaces federal common law."⁴⁵ The court further supported its decision by noting that the expert agency (EPA) is much better equipped to address this issue than an individual judge.⁴⁶ While this case appeared to have slammed the door shut on common law nuisance claims against greenhouse gas emitters, the question of whether such a claim is justiciable was addressed again in *Kivalina v. ExxonMobil*. This time, the plaintiffs were seeking money damages rather than an injunction.

39. *Am. Elec. Power Co., Inc. v. Connecticut*, 131 S. Ct. 2527, 2533-2534, 180 L.Ed.2d 435 (2011).

40. *Id.* at 2534.

41. *Id.*

42. *Id.*

43. *Id.* at 2537.

44. *Id.* at 2538.

45. *Id.*

46. *Id.* at 2539-2540.

C. Kivalina v. ExxonMobil

Before diving into the court's opinion, it is important to provide a background on the native village of Kivalina in order to highlight the potentially devastating effects caused by climate change. The city of Kivalina sits on the tip of a six-mile long barrier reef on the northwest coast of Alaska, approximately seventy miles north of the Arctic Circle.⁴⁷ The city has a current population of approximately 400 (97% of which are native Alaskans), and has long been home to members of the self-governing tribe of Inupiat Native Alaskans.⁴⁸



The image above shows an aerial view of Kivalina.

Kivalina's survival has been threatened for several decades due to increasing erosion resulting from waves and sea storms.⁴⁹ The villagers of Kivalina depend on sea ice that forms along the coast line to shield them from waves and powerful coastal storms.⁵⁰ However, in recent years, the protective sea ice has formed later than usual, broken up earlier than expected, and has been thinner and less extensive in nature.⁵¹ As a result, storm waves and surges, which previously would have been guarded by sea ice, are destroying the land where Kivalina sits.⁵²

47. *Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 853 (9th Cir. 2012).

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

Massive erosion and possible future storms threaten the city with imminent destruction. If the village is not relocated, it will likely soon cease to exist.⁵³ Kivalina attributes the impending destruction of its land to climate change caused by emissions of large quantities of GHGs by energy producers.⁵⁴ The native village of Kivalina brought suit for damages against multiple oil, energy, and utility companies.⁵⁵



The image above shows the devastating erosion caused by storm waves and surges.

The district court dismissed the case for lack of standing because Kivalina could not demonstrate that defendant's conduct caused their injury, or that their injury could be traced to defendants' conduct.⁵⁶ The district court also held that the political question doctrine precluded judicial consideration of their claim.⁵⁷ Kivalina appealed to the Ninth Circuit.⁵⁸

53. *Id.* In order to clear up confusion, I should note that Kivalina is, in fact, an incorporated city in the State of Alaska. However, it is commonly referred to as a village, perhaps due to its size and location.

54. *Id.* at 853-854

55. *Id.* at 854

56. *Id.*

57. *Id.*

58. *See id.* at 855.

On September 21, 2012, the Ninth Circuit affirmed the District Court's holding and dismissed the case. The Ninth Circuit relied on the Supreme Court's holding in *AEP* and held that because Congress has directly addressed the issue of domestic GHG emissions from stationary sources (via CAA/EPA), common law is displaced.⁵⁹ Even though this case presents the question in a slightly different context, because plaintiffs are seeking damages rather than abatement of emissions, the Supreme Court has instructed that displacement extends to all remedies.⁶⁰

D. Implications of these Decisions

Because the courts have held that the EPA has sole authority to address the issue of greenhouse gas emissions, it is crucial that its proposed regulation adequately abates greenhouse gas emissions from fossil fuel-fired power plants, the country's largest stationary source emitters of greenhouse gases. If the EPA's pending regulation fails to adequately abate greenhouse gas emissions from fossil-fuel fired power plants, there may be more cities and regions finding themselves in Kivalina's position (needing to relocate). An emergency relocation of a major city would, in all likelihood, have major social, economic, and environmental consequences. The impact would be far reaching and long lasting.

There are many coastal regions in the continental United States that are already losing coastal land and otherwise feeling the adverse effects of climate change. Louisiana's coast is home to over 2 million people in addition to one of the world's most diverse ecosystems.⁶¹ Unfortunately, however, Louisiana is losing coastal wetlands at a rate of a football field per hour.⁶² Louisiana has reportedly lost an average of 16.6 square miles of coastal land per year since 1985.⁶³ Scientists attribute the loss of coastal land in Louisiana to rising sea levels due to climate change, which they believe is chiefly caused by "human expansion of the 'greenhouse effect.'"⁶⁴

59. *Id.* at 869.

60. *Id.* at 866.

61. *What's At Stake*, COASTAL PROTECTION AND RESTORATION AUTHORITY, <http://coastal.la.gov/whats-at-stake/> (last visited Nov. 10, 2013).

62. Susan Buchanan, *Louisiana Forced to Start Adapting to Climate Change*, HUFFINGTON POST (Nov. 11, 2011), http://www.huffingtonpost.com/susan-buchanan/louisiana-forced-to-start_b_1078767.html.

63. *Id.*

64. *Id.*

Moving North, in Massachusetts, the coastline is also threatened by rising sea levels, erosion, and increased storm activity, all of which can be linked to climate change.⁶⁵ Climate change threatens more than just Massachusetts' land and environment. It also seriously threatens the state's economy. The total output of Massachusetts' coastal economy is approximately \$117 billion, or 37 percent of the state's annual gross product.⁶⁶ In addition, Massachusetts' coastal zone economy directly employs over 1 million people, which represents approximately 37 percent of the state's employment.⁶⁷

Kivalina, Louisiana and Massachusetts are just a few examples of areas threatened by climate change. Coastal erosion is a common problem around the United States.⁶⁸ The effects of coastal erosion, and climate change in general, will continue to be magnified by the fact that over half the United States population lives on land that is considered coastal.⁶⁹ To make matters worse, population in these coastal areas is continuing to grow rapidly, "by far surpassing the national population increase over the last 40 years."⁷⁰ It is also important to reiterate that loss of coastal land is just one of many consequences of climate change.

The recent Supreme Court decisions, holding that the EPA has sole authority to address the issue of greenhouse gas emissions, have placed added pressure on the agency to adopt regulation that adequately limits greenhouse gas emissions from fossil fuel-fired power plants. Doing so will represent a major step toward reducing the greenhouse effect and climate change.

III. THE CLEAN AIR ACT

As held in *Massachusetts v. EPA*, the EPA has authority under the Clean Air Act to regulate greenhouse gas emissions.⁷¹ This was because the Supreme Court determined that greenhouse gases qualify as "air pollutants" within the meaning of the governing provision of the Act and

65. Office of Coastal Zone Management, MASSACHUSETTS CLIMATE CHANGE ADAPTATION REPORT 108 (2011), <http://www.mass.gov/eea/docs/eea/energy/ccca/eea-climate-adaptation-report.pdf>.

66. *Id.*

67. *Id.*

68. Cheryl J. Hapke and E. Robert Thieler, *USGS Science for the Nation's Changing Coasts: Shoreline Change Research*, U.S GEOLOGICAL SURVEY (July 2011), <http://pubs.usgs.gov/fs/2011/3073/fs2011-3073.pdf>.

69. National Coastal Assessment Group, *The Potential of Climate Variability and Change on Coastal Areas and Marine Resources*, NOAA COASTAL OCEAN PROGRAM DECISION ANALYSIS SERIES NO. 21 6 (October 2000), <http://www.cop.noaa.gov/pubs/das/das21.pdf>.

70. *Id.*

71. *Massachusetts v. EPA*, 549 U.S. 497, 511-512 (2007).

are therefore within the EPA's regulatory ken.⁷² This section will provide a brief overview of the Clean Air Act, and will discuss the EPA's relevant authority under the Clean Air Act.

A. Overview of the Clean Air Act

"The Clean Air Act, implemented in 1970 and amended in 1990, is the comprehensive federal law that regulates air emissions from mobile and stationary sources."⁷³ This law authorizes the EPA to establish National Ambient Air Quality Standards (NAAQS) in order to protect public health and welfare and to regulate emissions of hazardous air pollutants.⁷⁴ The Clean Air Act is a health based statute that authorizes the EPA to establish standards which yield an "ample margin for safety."⁷⁵ This means that the EPA is not required to consider economic and technological feasibility in setting air quality standards under the Clean Air Act.⁷⁶ Congress deliberately chose to subordinate such concerns to "the achievement of health goals."⁷⁷ The health-based nature of the Clean Air Act results in stringent standards that force the development of improved technology.⁷⁸

B. EPA's Relevant Authority Under the Clean Air Act

Under Section 111(b)(1)(A) of the Clean Air Act, the EPA is directed to "establish emission standards for categories of stationary sources that, 'in [the Administrator's] judgment,' 'caus[e], or contribut[e] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.'"⁷⁹ When the EPA sets a "standard of performance" under section 111, the agency is required to set an emission standard "which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy

72. *Id.* at 533.

73. *Summary of the Clean Air Act*, U.S. ENVTL. PROTECTION AGENCY, <http://www2.epa.gov/laws-regulations/summary-clean-air-act> (last visited Nov. 2, 2012).

74. *Id.*

75. March Sadowitz, *Tailoring Cost-Benefit Analysis to Environmental Policy Goals: Technology- and Health-Based Environmental Standards in the Age of Cost-Benefit Analysis*, 2 B.U. J. SCI. & TECH. L. 11, 33-38 (1996).

76. *Id.* at 35

77. *Id.*

78. *Sierra Club v. Costle*, 657 F. 2d 298, 325 (D.C. Cir. 1981).

79. *Am. Elec. Power Co., Inc. v. Connecticut*, 131 S. Ct. 2527, 2539, 180 L.Ed.2d 435 (2011) (citing 42 U.S.C. § 7411(b)(1)(A)).

requirements) the Administrator determines has been adequately demonstrated.”⁸⁰ Courts have interpreted this to mean that the system of emission reduction required under section 111 must be one which can reasonably be expected to serve the interests of pollution control without becoming exorbitantly costly in economic or environmental way.⁸¹ Courts have also noted that an “achievable standard” does not necessarily need to be “routinely achieved within industry prior to its adoption.”⁸² This interpretation reinforces the notion that the Clean Air Act is a technology-forcing statute.⁸³

Section 111(d)(1) of the Clean Air Act requires the Administrator to issue performance standards for existing sources whenever “a standard of performance under this section would apply if such existing source were a new source. . . .”⁸⁴ Specifically, once the EPA develops emission guidelines, section 111(d)(1) requires the states to develop implementation plans that demonstrate how they will impose the emission guidelines on their existing sources.⁸⁵

As previously mentioned, the Supreme Court held in *EPA v. Massachusetts* that greenhouse gases qualify as “air pollutants” within the meaning of the governing CAA provision (section 112(a)(6)), thus giving the EPA authority to regulate it.⁸⁶ For major sources, which include the sources that are to be regulated under EPA’s proposed regulation, Section 112(a)(1) requires that EPA establish emission standards that require the *maximum* degree of reduction in emissions of hazardous air pollutants.⁸⁷ These emission standards are commonly referred to as “maximum achievable control technology” or “MACT” standards. Eight years after the technology-based MACT standards are issued for a source category, EPA is required to review those standards to determine whether any residual risk exists for that source category

80. 42 U.S.C. § 7411(a)(1) (2006).

81. *Nat’l Asphalt Pavement Ass’n v. Train*, 539 F.2d 775, 786 (D.C. Cir. 1976).

82. *Essex Chemical Corp. v. Ruckelshaus*, 486 F.2d 427, 433-434 (D.C. Cir. 1973).

83. Technology-forcing statute is a term of art that refers to a type of environmental legislation that requires innovation of new, more environmentally friendly, technology in order to comply with the regulations that the legislation implements.

84. 42 U.S.C. § 7411(d)(1) (2006); Arnold W. Reitze Jr., *EPA’s Proposed New Source Performance Standards to Control Greenhouse Gas Emissions From Electric Utility-Generating Units*, 42 ENVTL. L. REP. NEWS & ANALYSIS 10606, 10608 (2012); Alice Kaswan, *Waiting for the GHG New Source Performance Standards: A Good Start, But Will EPA’s Power Plant Controls Make a Difference?*, CPRBLOG (Jan. 19, 2012), <http://www.progressivereform.org/CPRBlog.cfm?idBlog=F6D6344D-DC21-4E76-3129DF8D6591EBC1>.

85. 42 U.S.C. § 7411(d)(1) (2006); Kaswan, *supra* note 84.

86. *Massachusetts v. EPA*, 549 U.S. 497, 533 (2007); 42 U.S.C. § 7412(a)(6) (2006).

87. 42 U.S.C. § 7412(d)(1) (2006).

and, if necessary, revise the standards to address such risk.⁸⁸ In determining the achievability of emission standards, section 112(d)(2) lists some of the methods available to achieve such standards. This list includes, but is not limited to, measures which:

- (A) reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications,
- (B) enclose systems or processes to eliminate emissions,
- (C) collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point,
- (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in subsection (h) of this section, or
- (E) are a combination of the above.⁸⁹

The EPA's proposed performance standard for new sources was promulgated under section 111 of the Clean Air Act.

IV. EPA'S PROPOSED NEW SOURCE PERFORMANCE STANDARD

In April 2012, EPA proposed a new rule under Section 111 of the Clean Air Act that will limit carbon dioxide emissions for new and modified fossil fuel-fired electric utility generating units (EGUs).⁹⁰ The EPA exempts existing sources as well as transitional sources (sources with complete construction permits at the time of proposal if construction is commenced within 12 months of the proposal).⁹¹ The proposed rule limits the CO₂ emissions from new fossil-fuel fired EGUs to 1,000 pounds of CO₂ per megawatt hour (MWh) of electricity output.⁹²

The proposed rule combines gas-fired EGUs and coal-fired fired EGUs (two very different kinds of sources) into one source category.⁹³ It also issues a standard that is based on widely used natural gas combined

88. 42 U.S.C. § 7412(d)(2) (2006); *Summary of the Clean Air Act*, *supra* note 73.

89. 42 U.S.C. § 7412(d)(2) (2006).

90. Electric Generating Units, *supra* note 2.

91. *Id.*; Arnold W. Reitze Jr., *EPA's Proposed New Source Performance Standards to Control Greenhouse Gas Emissions From Electric Utility-Generating Units*, 42 ENVTL. L. REP. NEWS & ANALYSIS 10606, 10608 (2012); Patricia T. Barmeyer, *EPA's rules affecting the U.S. power sector; taking on EPA's rules effectively banning new coal-fired generation*, LEXOLOGY (Sept. 1, 2012), <http://www.lexology.com/library/detail.aspx?g=62260224-65ee-4a7e-8fb4-93b1deb21ee1>.

92. Electric Generating Units, *supra* note 2.

93. *Id.*; Barmeyer, *supra* note 91.

cycle (NGCCC) technology.⁹⁴ The EPA does not expect coal-fired EGUs, using present day technology, to meet the standard it is proposing; rather, it expects gas-fired EGUs to be the predominant choice for energy companies moving forward.⁹⁵ Coal-fired EGUs, under present-day technology will likely only be able to meet the proposed standard through the use of carbon-capture storage, which is the process that includes the capture and compression of carbon dioxide produced by an EGU before it is released into the atmosphere.⁹⁶

As a result of the EPA's proposed regulation, along with the decreasing cost of natural gas, among other factors, many coal-fired power plants have retired, or plan to retire in the near future.⁹⁷ If the EPA's proposed regulation ends up being a death knell for coal-fired power, then this regulation would eliminate a large sector of the power generating industry in this country. According to data provided by the Energy Information Administration in April of 2012, Coal-fired power accounts for 32 percent of the total power generated in the United States.⁹⁸ That percentage has been declining in recent years as well.⁹⁹ This trend is a positive sign. When coal is burned, carbon dioxide, sulfur dioxide, nitrogen oxides, and mercury compounds are released.¹⁰⁰ All in all, coal use accounts for 20 percent of global greenhouse gas emissions according to a recent study.¹⁰¹

Eliminating the use of coal-fired power from this country's power generating industry would certainly be a step in the right direction. However, the EPA, in analyzing the impacts of its proposed regulation, surprisingly indicated that it does not expect significant changes in industry practices because of the proposed regulation.¹⁰² The EPA also believes that the proposed rule is not expected to have a notable effect on

94. Electric Generating Units, *supra* note 2.

95. *Id.*

96. *Id.*

97. *Modified Coal-Fired Power Plants Under GHG Proposal*, ENVIRO.BLR.COM (Jun. 1, 2012), <http://enviro.blr.com/environmental-news/air/NSPS-new-source-performance-standards/Modified-Coal-Fired-Power-Plants-Under-GHG-Proposal/>; *Projected retirements of coal-fired power plants*, U.S. ENERGY INFO. ADMIN. (July 31, 2012), <http://www.eia.gov/todayinenergy/detail.cfm?id=7330>.

98. *Monthly coal- and natural gas-fired generation equal for first time in April 2012*, U.S. ENERGY INFO. ADMIN. (January 4, 2013), <http://www.eia.gov/todayinenergy/detail.cfm?id=9450>.

99. *Id.*

100. *Clean Energy*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/cleanenergy/energy-and-you/affect/coal.html> (last visited Feb. 2, 2013).

101. *Coal*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS, <http://www.c2es.org/energy/source/coal> (last visited Feb. 2, 2013).

102. Reitze Jr., *supra* note 84 at 10613

the supply, distribution, or use of energy.¹⁰³ Furthermore, the EPA “does not anticipate this proposed rule will result in notable [carbon dioxide] emission changes, energy impacts, monetized benefits, costs, or economic impacts by 2020.”¹⁰⁴ The fact that the EPA itself does not expect the proposed rule to result in significant changes is a red flag. Especially in light of the fact that the EPA has *sole* authority to regulate some of the world’s largest greenhouse gas emitters (*emphasis added*). Ultimately, the regulation proposed by the EPA is unlikely to adequately address the issue of climate change caused by greenhouse gas emissions. Therefore, the proposed regulation should be modified.

V. RECOMMENDED CHANGES TO THE EPA’S PROPOSAL

In order to carry out objectives of the Clean Air Act and force innovation of improved technology, existing sources must, in some way, be included in the EPA’s regulation of fossil fuel-fired EGUs.

A. Modify Proposal to Include Existing Sources

One possible modification would be to include existing sources in its regulation. As mentioned above, section 112 requires that EPA establish emission standards for major sources that require the *maximum* degree of reduction in emissions of hazardous air pollutants.¹⁰⁵ While Section 111 requires the EPA to “take into account” costs and other impacts, the MACT requirement (from section 112) for major sources clearly suggests that the EPA is not authorized to use a cost-benefit analysis to determine the outcome of its rulemaking. Rather it is authorized to merely consider cost and technological feasibility when setting the “maximum achievable control technology.”¹⁰⁶ As mentioned previously, this consideration of cost is merely intended to avoid emission standards that would impose exorbitant costs.¹⁰⁷

There are likely a number of reasons why Congress did not authorize the EPA to employ a cost-benefit analysis under the Clean Air Act. Cost-benefit analysis has proven “anti-environmental” in practice.¹⁰⁸ Costs are typically over estimated, while many benefits cannot be

103. *Id.*

104. *Id.*

105. 42 U.S.C. § 7412(a)(1) (2006).

106. 42 U.S.C. § 7411(a)(1) (2006); 42 U.S.C. § 7412(d)(2) (2006); *Summary of Clean Air Act*, *supra* note 73; Sadowitz, *supra* note 75, at 35.

107. *Nat’l Asphalt Pavement Ass’n v. Train*, 539 F.2d 775, 786 (D.C. Cir. 1976).

108. David M. Driesen, *Is Cost-Benefit Analysis Neutral?*, 77 U. COLO. L. REV. 335, 385 (2006).

monetized and are therefore not taken into account.¹⁰⁹ There are several reasons why costs of environmental regulation are typically overstated. First, cost estimates are typically provided by the regulated industry itself, which has the obvious incentive to provide costly estimates in order to make regulatory action less appealing.¹¹⁰ Second, cost estimates typically fail to take into account future technological innovation which reduces the cost of compliance.¹¹¹ These negative aspects of cost-benefit analysis combined with the fact that the Clean Air Act is a health-based statute suggest that the EPA needs to do more to regulate existing sources under its new regulation.

If the EPA does not include existing sources, power companies will lack the incentive to shut down operation of older, less-efficient, and more hazardous facilities because shutting down facilities would force those companies to comply with the newly imposed standards. If the EPA modified their proposal to include existing sources, those same power companies would have strong incentives to invest in newer and cleaner technology. They would not have a choice.¹¹²

Moreover, the EPA's failure to include existing sources in its proposed rule appears to be in violation of section 111(d)(1) which requires the Administrator to issue performance standards for existing sources whenever "a standard of performance under this section would apply if such existing source were a new source. . . ."¹¹³ It is not clear how courts have interpreted this provision, but the plain language of this provision arguably suggests that the EPA's proposed rule is a violation of section 111(d)(1).

If the EPA included existing sources in its regulatory scheme, facilities using coal-fired EGUs would likely have to switch to using natural gas-fired EGUs or they would have to add carbon-capture storage in order to comply with the new limits on carbon dioxide emissions. While the economic feasibility of requiring existing sources to comply with the new standards would be a concern, history suggests that technological innovations will likely make the cost of compliance less than what the industry estimates¹¹⁴. The EPA should not withhold

109. See Ackerman & Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553 (2002); see also Ackerman, Heinzerling, & Massey, *Applying Cost-Benefit Analysis to Past Decisions: Was Environmental Protection Ever a Good Idea?*, 57 ADMIN. L. REV. 155 (2005).

110. Ackerman & Heinzerling, *supra* note 109, at 1580.

111. *Id.*

112. Kaswan, *supra* note 84.

113. 42 U.S.C. § 7411(d)(1) (2006); Reitze Jr., *supra* note 84.

114. Ackerman & Heinzerling, *supra* note 109, at 1580.

regulation of existing sources merely because the estimated cost of complying is substantial. However, if the EPA finds that the estimated costs of immediate regulation upon existing sources to be too exorbitant, then it should consider another alternative.

B. Modify Proposal to Phase-In Performance Standards Over Time For Existing Sources

Perhaps a more viable and realistic approach would be to phase-in performance standards over time for existing sources. While this option would not provide the same level of protection as would immediate performance standards for existing sources, it would provide the same technology forcing incentives and would be more economically feasible, as it would mitigate the cost of complying with the performance standards.

The EPA has a history of promulgating phased regulations in order to protect public health and the environment.¹¹⁵ One example of successful phased regulation occurred in 1973, when the EPA required a phase-out of lead in all gasoline grades.¹¹⁶ The 1973 phase-out of lead was, at the time, very controversial as the gasoline industry fought against the regulation in court for nearly half a decade.¹¹⁷ By 1991, however, the benefits of the phased regulation were undeniable. Blood lead levels in the U.S. decreased by 77 percent.¹¹⁸ Additionally, the United States saved more than \$10 for every \$1 invested in the phase-out, thanks to both reduced health costs, and better, more efficient fuel.

Another example of this occurred in 2001 when the EPA issued a phased regulation for power plant cooling water intake structures.¹¹⁹ These structures were suctioning and killing many aquatic organisms. In short, phase I of the regulation, which was issued in 2001, set standards

115. See, e.g., *EPA Requires Phase-Out of Lead in All Grades of Gasoline*, EPA PRESS RELEASE (Nov. 28, 1973), <http://www2.epa.gov/aboutepa/epa-requires-phase-out-lead-all-grades-gasoline>; see also John H. Minan, *The Clean Water Act and Power Plant Cooling Water Intake Structures*, 1 SAN DIEGO J. CLIMATE & ENERGY L. 163 (2009); see also Singarella & Campopiano, *The Role of Economics in Environmental, Health, and Safety Regulation After Entergy*, 35 ENVTL. L. & POL'Y J. 101 (2011).

116. *EPA Requires Phase-Out of Lead in All Grades of Gasoline*, *supra* note 115.

117. Peter Lehner, *Global Phase-out of Lead in Gasoline Succeeds: Major Victory for Kids Health*, NATURAL RESOURCE DEFENSE COUNCIL STAFF BLOG (Oct. 27, 2011), http://switchboard.nrdc.org/blogs/plehner/global_phase-out_of_lead_in_ga.html.

118. *Id.*

119. See John H. Minan, *The Clean Water Act and Power Plant Cooling Water Intake Structures*, 1 SAN DIEGO J. CLIMATE & ENERGY L. 163 (2009); see also Singarella & Campopiano, *The Role of Economics in Environmental, Health, and Safety Regulation After Entergy*, 35 ENVTL. L. & POL'Y J. 101 (2011).

for new facilities built after 2002.¹²⁰ And phase II, which was issued in 2004, set standards for all existing structures.¹²¹

In this case, the EPA could implement a phased regulation that very much resembles the 2001 regulation of power plant cooling water intake structures. The EPA could set multiple phases in its regulation that would set new standards for existing sources over 5 year increments until the standard equaled that required for new sources. This would force the industry to innovate technology that would create more efficient carbon-capture storage; or, in the alternative, prepare for a switch to gas-fired EGUs.

VI. CONCLUSION

The worsening effects of climate change have created dire situation that must be addressed with urgency. The EPA has sole authority within the United States to address the issue of climate change caused by greenhouse gas emissions, and therefore, the agency must take proper action that will not compromise our future generations. In order to accomplish this, the EPA must, in some way, include existing fossil fuel-fired EGUs within its regulatory scheme, even if doing so would impose substantial costs on the industry. Spending more now to properly abate the problem will help prevent many regions across the globe from incurring future catastrophic money loss as well as catastrophic damage to human health and infrastructure.

120. Minan, *supra* note 119, at 179.

121. *Id.*