QUICKSILVER ALCHEMY: NEW ENGLAND'S MERCURY CONTROL PROGRAMS AND THE CLEAN AIR MERCURY RULE

INTRODUCTION

Humanity's experience with mercury dates back to before 300 B.C.[1] Among the early initiates were the alchemists, who became familiar with mercury, or quicksilver, in their practice of proto-chemistry.[2] In the two millennia since the earliest alchemists' arcane experiments, society's understanding of mercury has become much more sophisticated.[3] Yet modern scientists share a common goal with the alchemists: transmutation.[4] Where alchemists sought to transmute quicksilver into a life-giving elixir, modern science seeks to minimize its toxic effects.[5] New England's robust mercury emissions reduction programs place it at the forefront of state-mandated quicksilver alchemy.

This Note analyzes and critiques the regulatory process that culminated with Environmental Protection Agency's (EPA) promulgation of the Clean Air Mercury Rule (CAMR). Part I begins with the December 1998 Utility Study, which motivated EPA's original decision, in 2000, that it was "appropriate" and "necessary" to regulate mercury from coal-fired power plants as a hazardous air pollutant under section 112 of the Clean Air Act (CAA).[6] Then, this Note will critically evaluate EPA's drastic change in policy that occurred in 2005 when it revised its previous findings regarding mercury. EPA finalized the mercury rulemaking process in the controversial CAMR, authorizing a national trading program for mercury emissions credits.

Part II of this Note highlights the successful state-level control programs in New England. Part III proposes a strategy of New England regional solidarity to promote a mercury policy shift at the national level. Finally, this Note concludes by recommending immediate action on mercury emissions to accelerate the process of transmutation in the interest of the public health.

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1. ENCYCLOPEDIA BRITANNICA ONLINE, ALCHEMY (2006), http:// www.britannica.com /eb/article-9108512/alchemy.

2. *Id.* ("Mercury . . . was crucial to alchemy.").

3. *Id.* (discussing early alchemists' positive goals).

4. *Id.* (defining transmutation as the chemical change transforming elemental metals into substances that promote human good).

5. *See infra* Part II.B. (discussing mercury emissions reduction technology).

6. EPA Notice of Regulatory Finding, 65 Fed. Reg. 79,825, 79,830 (Dec. 20, 2000).

I. REGULATORY HISTORY LEADING UP TO CLEAN AIR MERCURY RULE

This Part follows the winding path of studies and rulemakings that regard mercury emissions from coal- and oil-fired electric utility steam generation units (EGUs). This begins with the 1998 Utility Study (Utility Study) required by the 1990 amendments to the CAA[7] and leads to EPA's determination that regulation of mercury from EGUs was appropriate and necessary under section 112 of the CAA.[8]

A. The Utility Study

In December 2000, EPA concluded it was necessary and appropriate to regulate mercury emissions from EGUs as hazardous air pollutants (HAPs) under section 112(c) of the CAA based on the results of the Utility Study.[9] Prior to listing a new HAP, section 112(n)(1)(A) of the CAA requires the EPA Administrator to "perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions by electric utility steam generating units of pollutants listed under subsection (b) of this section after imposition of the requirements of this chapter."[10] This study guides the Administrator's decision-making process regarding regulating emissions as HAPs.[11]

Considering the results of the study, the Administrator must regulate EGUs if "such regulation is appropriate and necessary."[12] An appropriate and necessary finding triggers regulation of the HAP through the establishment of emissions standards for new and existing sources that satisfy the "maximum degree of reduction in emissions of the hazardous air pollutants . . . [the Administrator] determines is achievable for new or existing sources."[13] In determining the emission standard, the Administrator should also consider the cost, health, and environmental impacts of the reduction, as well as energy requirements.[14]

In December 2000, the Administrator applied the statutory standard to the findings of the Utility Study and concluded that it was both necessary

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7. Clean Air Act § 112(n)(1)(B), 42 U.S.C. § 7412(n)(1)(B) (2000).

8. EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,830.

9. *Id.*; *see generally* § 7412(c) (setting forth criteria for listing HAP emissions source categories).

10. § 7412(n)(1)(A).

11. *See id.* § 7412(n)(1)(A), (B) (directing the Administrator to conduct a study of the health and environmental effects caused by mercury emissions from EGUs for the purpose of deciding whether regulation of the sources is necessary and appropriate).

12. *Id.* § 7412(n)(1)(A).

13. *Id.* § 7412(d)(2).

14. *Id.* § 7412(d)(2).

and appropriate to regulate HAPs from EGUs.[15] The Administrator grounded her decision in the dangers presented by mercury emissions, stating that EGUs were "significant emitters of HAP, including mercury which is emitted from coal-fired units, and which EPA identified as the HAP of greatest concern to the public health from the industry."[16] The Administrator based this assertion on the strength of mercury's potential negative effects on the public health and the environment.[17]

Mercury's threat to the public health contributed to the Administrator's conclusion that regulation was appropriate.[18] The primary source of human exposure to mercury is through the consumption of fish contaminated with methylmercury.[19] Atmospheric mercury emissions eventually settle onto the land or water where they can change into methylmercury, the most dangerous mercury compound for humans.[20] Ingested in sufficient quantities, mercury is a powerful neurotoxin that damages adults' health.[21] Markedly more disturbing is that mercury's youngest victims are its most vulnerable, as it poisons developing fetuses in utero.[22] The Administrator noted, "[t]he EPA estimates that about 7 percent of women of childbearing age . . . are exposed to methylmercury at levels exceeding the RfD," the scientifically-determined level sufficient to protect the public health.[23] The Administrator found that EGUs "are the largest source of mercury emissions in the U.S., estimated to emit about 30 percent of current U.S. anthropogenic emissions" and "[t]here is a plausible link between emissions of mercury . . . and methylmercury in fish."[24] On the basis of these findings, she concluded that EGU mercury emissions are "a threat to public health and the environment."[25]

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15. EPA Notice of Regulatory Finding, 65 Fed. Reg. 79,825, 79,830 (Dec. 20, 2000).
16. *Id.* at 79,826.
17. *Id.*
18. *Id.* at 79,830.
19. *Id.* at 79,827.
20. *Id.* ("[T]he chemical form of mercury can change (through a methylation process) into methylmercury which is a highly toxic, more bioavailable, form that biomagnifies in the aquatic food chain (e.g., fish) . . . .").
21. *See* James D. Stivers, *"The Mercury's Rising!": Can National Health Group Intervention Protect the Public Health from EPA's Clean Air Mercury Rule?*, 27 J. LEGAL MED. 323, 329–330 (2006) ("In adults, the short- and long-term effects of exposure to these toxic compounds include seizures, hepatic enzyme disturbances, respiratory tract irritation, chorea, tremors, cataracts, anorexia, renal dysfunction, and cardiac arrhythmias.") (footnote omitted).
22. *See id.* at 330 ("[R]esearchers have shown that increases in intrauterine mercury concentrations are correlated with IQ deficits, delayed development of motor skills, cerebral palsy, increases in blood pressure, and cardiac arrhythmias in children.") (footnote omitted).
23. EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,829.
24. *Id.* at 79,827.
25. *Id.*

The Administrator further rested her finding on the availability and feasibility of mercury-emission control technologies.[26] The statute directs the Administrator to consider the economic cost and technological feasibility of her emissions standard.[27] The Administrator concluded that EPA could achieve effective mercury emissions reductions with available technologies.[28] The Administrator highlighted the effectiveness of dry scrubbers using a spray-dryer adsorber combined with an electrostatic precipitator and fabric-filter technology.[29] Another available technology the Administrator identified was wet flue gas desulfurization (FGD), which has been shown by the Utility Study to be effective in reducing mercury and non-mercury HAP emissions.[30] Based on the public health risk associated with HAP emissions and the availability of those emission control technologies, the Administrator concluded that regulation of HAPs from EGUs was appropriate.[31]

The Administrator decided that the second condition precedent to regulation was present by concluding that regulation was necessary.[32] This determination was based on the lack of any effective regulation of mercury emissions from EGUs elsewhere in the CAA.[33] The Administrator concluded that while there were uncertainties regarding the magnitude of mercury emission's impact on the public health,[34] the causal link between EGU mercury emissions and methylmercury levels in the environment amounted to a meaningful danger to the public health such that regulation

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26. *See id.* at 79,828–29 (describing available mercury emission control technologies).

27. *See* 42 U.S.C. § 7412(d)(2) (2000) (directing Administrator to consider, inter alia, cost of achieving reduction and the availability of control technology).

28. EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,828–29.

29. *See id.* at 79,829.

> In SDA systems, water containing an acid gas sorbent is sprayed into a reaction vessel where the acid gases and other pollutants are reacted to form solid particles that can be collected in a downstream PM control device. Some coal-fired utilities that use bituminous coal in pulverized coal-fired units have shown mercury capture in excess of 90 percent in SDA/FF systems.

Id.

30. *See id.*

> Wet FGD systems are capable of capturing nearly all HAP other than mercury and more than 90 percent of the divalent and particle bound mercury. Mercury removal in wet FGD systems may range from less than 20 to more than 80 percent, depending on the type of coal and combustion system used.

Id.

31. *See id.* (noting basis for reaching appropriate determination).

32. *Id.*

33. *See id.* at 79,830 (finding regulation necessary because "the implementation of other requirements under the CAA will not adequately address the serious public health and environmental hazards arising from such emissions").

34. *Id.* at 79,827.

was both necessary and appropriate.[35] Therefore, the Administrator listed HAP emissions from EGUs under section 112(c) of the CAA.[36] New and existing sources regulated under section 112 of the CAA must install the maximum achievable control technology (MACT).[37]

EPA's conclusion to regulate mercury emissions from EGUs with MACT allowed states concerned with local mercury emissions to become complacent, relying on EPA nation-wide application of strict emissions standards rather than developing state-level control programs.[38] MACT requirements would have seemed even more certain after an unsuccessful legal challenge to the Administrator's appropriate and necessary finding and subsequent listing of EGUs under section 112(c).[39] EPA's initial conclusions also prevented the development of state-level mercury control programs because MACT standards are issued under section 112 of the CAA. They do not envision a role for state programs or other cooperative federalism arrangements.[40] Instead, concerned states relied on EPA's commitment to apply the highest level of emissions reductions to mercury emissions from EGUs. However, in 2005, EPA retracted its December 2000 regulatory findings and removed EGUs from the HAP source list in section 112 of the CAA, once again leaving mercury emissions from EGUs unregulated.[41]

B. Revision of the December 2000 Regulatory Finding

In 2005, EPA removed EGUs from section 112, concluding it was neither appropriate nor necessary to regulate HAP from those sources.[42]

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35. *Id.*

36. *Id.* at 79,830.

37. *See* 42 U.S.C. § 7412(d)(2) (2000) (requiring application of maximum achievable control technology, determined with consideration of the cost of achieving the emissions reductions and any non-air quality health and environmental impacts).

38. *See* EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,830 (noting that it is "necessary" to regulate HAP emissions from EGUs under section 112 of the CAA).

39. *See* Util. Regulatory Group v. Envtl. Prot. Agency, No. 01-1074, 2001 WL 936363, at *1 (D.C. Cir. July 26, 2001) (per curiam) (granting Respondent's motion to dismiss Petitioners' motion to hold in abeyance for lack of jurisdiction because section 112(e)(4) of the CAA does not allow judicial review of the listing of sources under section 112(c) until emissions standards are issued).

40. *See* § 7412(d)(1) (requiring Administrator to promulgate emission standard without reference to delegated state implementation authority); *cf. id.* § 7410(a)(1) (establishing process for Administrator to delegate implementation and enforcement authority to State through state implementation plan).

41. *See* Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units, 70 Fed. Reg. 15,994 (Mar. 29, 2005) [hereinafter December Revision] (codified at 40 C.F.R. pt. 63).

42. *See id.* at 16,002 ("It Is Not Appropriate and Necessary To Regulate Coal-Fired Units on the Basis of [Mercury] Emissions.").

This controversial and contradictory conclusion seemed odd, given that two years earlier, "mercury . . . [was] the HAP of greatest concern to public health from the industry."[43] EPA achieved this feat of Orwellian doublespeak by severely limiting the scope of the appropriate and necessary inquiry.

In concluding that it was no longer appropriate and necessary to regulate HAP from EGUs under section 112, EPA first focused almost exclusively on danger to the public health.[44] Expressly refusing to consider any environmental impact of EGU mercury emissions, "EPA interprets section 112(n)(1)(A) as not *requiring* the Agency to consider environmental effects of utility HAP emissions that are unrelated to public health."[45] EPA's focus on effects on human health narrowed the appropriate and necessary inquiry such that the agency could avoid regulation of HAP emissions.

The December 2000 regulatory finding, while overwhelmingly grounded in dangers to the public health, was based in part on mercury emissions' environmental damage.[46] In this regard, EPA maintained that as far as the regulatory finding was based on environmental effects of mercury emissions, it lacked foundation.[47] Given that the December 2000 regulatory finding was largely based on mercury's threat to the public health, EPA's decision to place little emphasis on environmental effects would seem a rather minor undermining of the finding's foundation—certainly not enough to justify EPA's complete about-face.

EPA refrained from considering environmental effects in making an appropriate finding, but surprisingly, it also limited its inquiry into mercury's danger to public health. In concluding that it was not appropriate to regulate mercury emissions from EGUs, EPA conducted a very narrow inquiry into potential hazards to public health.[48] EPA maintained that "[s]ection 112(n)(1)(A) requires EPA to analyze only the 'hazards to public health' resulting from utility HAP emissions . . . ."[49] The words "resulting from utility HAP emissions"[50] are of crucial importance in understanding

43. EPA Notice of Regulatory Finding, 65 Fed. Reg. 79,825, 79,826 (Dec. 20, 2000).

44. December Revision, 70 Fed. Reg. at 16,002 (codified at 40 C.F.R. pt. 63).

45. *Id.* (emphasis added).

46. *See* EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,830 (discussing adverse effects of mercury on toxicity levels of wildlife including "kingfisher, river otter, raccoon, loon, as well as some endangered species such as the Florida panther"). It bears mentioning that this was paragraph number seven of nine. The other eight paragraphs related exclusively to the connection between HAPs and dangers to the public health and feasibility of control technologies. *Id.* at 79,829–30.

47. December Revision, 70 Fed. Reg. at 16,002 (codified at 40 C.F.R. pt. 63).

48. *Id.*

49. *Id.* at 16,003.

50. *Id.*

the opposite conclusions of the December 2000 regulatory finding and the 2005 Revision.

In December 2000, the Administrator chose not to distinguish between EGU-attributable methylmercury in fish and that from other sources in determining hazards from mercury emissions.[51] This conclusion is logically unsound. Levels of toxic methylmercury in fish are at unsafe levels that endanger the public health.[52] EGU emissions of mercury are a likely contributor to methylmercury levels in fish.[53] Therefore, EGU emissions of mercury endanger public health. However, EPA's 2005 Revision downplays the impact of EGU emissions on toxic methylmercury levels in fish, thereby limiting the scope of its endangerment inquiry to the public health impacts of mercury that can be *directly* attributed to EGU emissions.[54]

EPA's conclusions regarding risks to the public health from mercury emissions from EGUs were based only on the share of mercury attributable to EGUs rather than on overall levels of mercury contamination attributable to EGUs.[55] EPA acknowledged that a 1997 EPA study "suggests a plausible link between anthropogenic releases of [mercury] from industrial and combustion sources in the U.S. and methylmercury in fish in the U.S."[56] However, EPA noted that other natural sources of mercury, such as volcanoes and foreign anthropogenic emissions, also contribute to methylmercury levels in domestic fish.[57] While one could argue that these non-EGU factors weigh in favor of regulatory reticence, ultimately, the uncertainty regarding the distribution of different sectors' mercury emissions in the environment counsels in favor of regulation.

The tentative ability to quantify the amount of methylmercury in fish that domestic EGUs directly cause, suggests that EPA had a better approach in the December 2000 regulatory finding than in the 2005 Revision. Precise determinations of EGU's relative contribution to the amount of methylmercury in fish ultimately may be less useful when investigating

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51. *See* EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,827 ("The EPA believes that it is not necessary to quantify the amount of mercury in fish due to electric utility steam generating unit emissions relative to other sources for the purposes of this finding.").

52. *Id.*

53. *Id.*

54. *See* December Revision, 70 Fed. Reg. at 16,011–12 (codified at 40 C.F.R. pt. 63) (concluding that, despite recent progress in tracing the presence of methylmercury in fish to EGU emissions, EGU emissions after the implementation of the Clean Air Mercury Rule and CAMR will not result in hazards to public health).

55. *See id.* at 16,021 (stating that while EGU emissions will contribute to toxic methylmercury levels in fish tissue, that contribution will be small).

56. *Id.* at 16,012.

57. *Id.*

their impact on public health, because they skew the inquiry away from broad public health considerations and toward trying to establish exact EGU-attributable methylmercury amounts. When regulating neurotoxin emissions with the goal of protecting the public health, regulating significant contributors to the overall problem should be required even if the precise quantum of their contribution to the threat to the public health is unknown.

Focusing exclusively on methylmercury levels in fish attributable to domestic EGUs, EPA concluded it was not appropriate to regulate HAPs from EGUs because they did not, in and of themselves, represent a threat to the public health.[58] Through its myopic statutory interpretation of section 112 of the CAA, EPA succeeded in ignoring the broadly devastating effects of mercury pollution on the public health and environment:

> For purposes of assessing whether utility [mercury] emissions are reasonably anticipated to result in hazards to public health, we focused on evaluating utility attributable methylmercury exposures for women of childbearing age in the general U.S. population who consume non-commercial (e.g., recreational) freshwater fish in U.S. waterbodies.[59]

Through this interpretive lens, the only women at risk from EGU-attributable methylmercury were essentially female, subsistence, freshwater anglers of childbearing age.[60] It would seem that the vast majority of the seven percent of U.S. women of childbearing age whose daily intake of methylmercury exceeds the EPA's safe reference dose must take up their quarrel with the volcanoes, for the EPA will do nothing for them.[61]

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58. *Id.* at 16,011.

59. *Id.* at 16,021.

60. *See id.* at 16,022.

> Although exposure to [EGU]-attributable methylmercury from freshwater fish tissue is quite low for recreational fishers generally . . . EPA recognizes that certain sub-populations consume higher levels of U.S. freshwater fish. These populations may include a subset of recreational fishers who consume large quantities of fish, individuals who are subsistence fishers, and individuals who are part of certain ethnic groups. EPA is aware that at very high consumption levels, even relatively small concentrations of methylmercury in fish may result in exposures that exceed the RfD.

Id.

61. *See* EPA Notice of Regulatory Finding, 65 Fed. Reg. 79,825, 79,827 (Dec. 20, 2000) ("The EPA estimates that about 7 percent of women of childbearing age (*i.e.*, between the ages of 15 and 44 years) are exposed to methylmercury at levels exceeding its RfD of 0.1 microgram per kilogram body weight per day . . . ."); December Revision, 70 Fed. Reg. 15,994, 16,012 (codified at 40 C.F.R. pt. 63) (listing volcanoes as non-anthropogenic mercury emissions source).

EPA employed their revised appropriate conclusions to reinforce its finding in the 2005 Revision that regulation of EGUs is not necessary.[62] The December 2000 regulatory finding based its necessary determination on the inadequacy of other provisions of the CAA to combat mercury emissions.[63] EPA's 2005 Revision takes the previous Administrator to task for her failure to factor into her calculus the mercury reduction effect of other provisions of the CAA.[64] However, the Administrator only wrote, "implementation of other requirements under the CAA will not *adequately* address" the public health hazards from mercury and HAPs.[65] The Administrator considered mercury pollution to be a paramount public health hazard.[66] Through this lens, minor co-benefit reductions in mercury emissions achieved by the sulfur dioxide (SO_2) and nitrogen oxide (NO_x) programs would not be sufficient. The Administrator's discussion of feasible control technologies gives some evidence of the significant mercury reductions she would have considered adequate—she did not ignore reductions possible from other CAA programs, they were simply inadequate to protect the public health.[67] Only from the warped perspective of EPA's 2005 Revision, which envisioned a nation where EGU mercury emissions are only hazardous to a miniscule fraction of the population, would modest co-benefit reductions from SO_2 and NO_x programs sufficiently protect the public health so as to eliminate the need to regulate EGUs under section 112.[68]

The analysis in EPA's 2005 Revision dovetails neatly with the CAMR. The extremely narrow inquiry into the consequences to the public health allowed EPA to show that the extremely modest mercury reductions achievable through Clean Air Interstate Rule (CAIR) and CAMR would sufficiently protect the public health, thus making regulation of EGUs under section 112 unnecessary and inappropriate.

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62. December Revision, 70 Fed. Reg. at 16,002 (codified at 40 C.F.R. pt. 63).

63. EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,830.

64. *See* December Revision, 70 Fed. Reg. at 15,995 n.5, 16,010 (codified at 40 C.F.R. pt. 63) (noting that the December 2000 Regulatory Finding's foundational Utility Study found that mercury emissions from coal-fired EGUs were of greater concern that those from oil- and gas-fired EGUs and stating that state implementation of CAIR, which targets SO_2 and NO_x, will result in a corresponding decrease in mercury emissions).

65. EPA Notice of Regulatory Finding, 65 Fed. Reg. at 79,830 (emphasis added).

66. *Id.*

67. *See id.* at 79,828–29 (noting technology capable of ninety percent capture of divalent and particle bound mercury, and other technology capable of up to eighty percent capture of mercury).

68. *See* December Revision, 70 Fed. Reg. at 16,022 (codified at 40 C.F.R. pt. 63) (limiting at-risk population to certain subpopulations who are intensive consumers of freshwater fish).

II. CLEAN AIR MERCURY RULE

The CAMR authorizes a cap-and-trade program for mercury emissions from coal- and oil-fired EGUs.[69] Many environmentalists have criticized the CAMR, claiming it was inadequate to protect the public health from the dangers of mercury.[70] EPA dismissed concerns related to the public health by reference to studies that showed no danger to the public from mercury.[71] With meaningful federal regulation foreclosed, state-level control programs were the only tool concerned citizens and legislators possessed to reduce mercury emissions.

A. Statutory Authority

EPA's website proclaims, "[o]n March 15, 2005, EPA issued the Clean Air Mercury Rule to permanently cap and reduce mercury emissions from coal-fired power plants for the first time ever."[72] While it might be possible to forgive the eternally optimistic EPA from trying to put a positive slant on CAMR, its cheerfulness belies CAMR's potential inadequacy to protect the public health. Rather than being a groundbreaking piece of environmental protection,[73] CAMR is a step backward from the direction EPA had taken to apply MACT to mercury emissions from EGUs under section 112 of the CAA. Instead, CAMR does not regulate mercury emissions at all until 2010 when it will begin to phase in a cap-and-trade program to reduce mercury emissions from EGUs.[74] CAMR's inadequacy is particularly evident in that fourteen states petitioned EPA for reconsideration after the rule was promulgated.[75]

CAMR regulates mercury emissions from EGUs under section 111 of

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69. *See id.* at 16,005 ("[C]ontrolling Hg emissions through a cap-and-trade system . . . is an efficient means of regulating [EGUs].").

70. *See, e.g.*, Kim Krisberg, *APHA Survey: Older Americans Face Barriers to Staying Healthy*, NAT. PUB. HEALTH WEEK NEWS, March 21, 2005, *available at* http://www.medscape.com /viewarticle/503122 (noting that EPA failed to take into account all of the science in promulgating the 2005 December Revision).

71. December Revision, 70 Fed. Reg. at 16,021–22 (codified at 40 C.F.R. pt. 63).

72. Envtl. Prot. Agency, Clean Air Mercury Rule, http://www.epa.gov/air/mercuryrule/ (last visited Jan. 22, 2008).

73. *Id.*

74. Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units, 70 Fed. Reg. 28,606, 28,606 (May 18, 2005) [hereinafter Standards of Performance] (codified at 40 C.F.R. pts. 60, 72, 75).

75. *See* ENVTL. PROT. AGENCY, FINAL RULE RECONSIDERING TWO MERCURY ACTIONS: FACT SHEET, (May 31, 2006), http://www.epa.gov/mercuryrule/pdfs/fs2006053/.pdf. Petitioners included New Jersey, California, Connecticut, Delaware, Illinois, Maine, Massachusetts, New Hampshire, New Mexico, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin. *Id.*

the CAA.[76] Section 111(c)(1) covers new stationary sources that emit any air pollutant.[77] The Administrator applies a standard of performance to regulated sources that requires them to achieve emissions reductions "achievable through the application of the best system of emission reduction" that has been adequately demonstrated, while taking into account cost of achieving the reductions, negative environmental impacts of such reductions, and energy requirements.[78] Section 111 allows state governments to play a substantial role in the development, implementation, and enforcement of emissions standards of performance.[79] If the Administrator approves a State's Implementation Plan (SIP), then he delegates his authority under section 111 to the state.[80] States may establish SIPs that achieve greater emissions reductions than the national standard, but they may not establish SIPs that fall below the national standard.[81]

EPA concluded that EGUs are stationary sources as described in the statute: "any building, structure, facility, or installation which emits or may emit any air pollutant."[82] In the final CAMR rulemaking, EPA made sure to reiterate its conclusion that mercury from EGUs does not cause hazards to the public health such that they should be regulated under section 112.[83] However, EPA did concede that "[t]he HAP of greatest concern from coal-fired utilities is [mercury]," which permited it to conclude that regulation was appropriate under section 111 of the CAA.[84] Therefore, mercury emissions are pollutants emitted by new stationary sources and warrant regulation with the "best system of emission reduction" that has been "adequately demonstrated."[85]

B. Best Demonstrated Technology

Section 111 of the CAA requires new stationary sources to achieve an emissions limit equivalent to the degree of the emission level that would be achieved by the installation of the best system of emission reduction that

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76. Standards of Performance, 70 Fed. Reg. at 28,606.

77. 42 U.S.C. § 7411(c)(1) (2000).

78. *Id.* § 7411(a)(1).

79. *See id.* § 7411(c)(1) (empowering States to develop and submit implementation and enforcement procedures for approval from the Administrator).

80. *Id.*

81. *Id.* § 7410(a)(2)(A) (noting that state implementation plans must, at a minimum, "meet the applicable requirements" of the federal CAA program).

82. *Id.* § 7411(a)(3).

83. Standards of Performance, 70 Fed. Reg. 28,606, 28,609 (May 18, 2005) (codified at 40 C.F.R. pts. 60, 72, 75).

84. *Id.*

85. § 7411(a)(1).

has been adequately demonstrated.[86] This standard requires the Administrator to identify specific emission control technologies to determine the appropriate emission level, but does not require new sources to use those technologies.[87] This Part will demonstrate that a maximum achievable control technology standard is preferable to the Administrator's best demonstrated technology standard.

EPA evaluated the available mercury-specific emissions control technology.[88] In determining the appropriate mercury-specific emissions control technology to mandate for new sources under section 111(a)(1), EPA used the best demonstrated technology (BDT) standard: "[T]he best system of emission reduction which the Administrator determines has been adequately demonstrated . . . ."[89] EPA's analysis endorsed several emissions control technologies but added an important caveat:[90] "EPA continues to believe that ACI [Activated Carbon Injection] and enhanced multipollutant controls have been demonstrated to effectively remove [mercury] and will be available after 2010 for commercial application" leading to achievable mercury capture between sixty and ninety percent.[91] The most promising combination of technologies, sorbent injection with enhanced selective catalytic reduction (SCR) and flue gas desulfurization (FGD) could achieve ninety to ninety-five percent mercury capture.[92] Notwithstanding EPA's acknowledgment that current technology is available to achieve significant mercury emissions reductions, it refused to conclude that any such technologies are commercially available.[93] Therefore, CAMR does not require *any* mercury emissions reductions from any source until phase one of the cap-and-trade program begins in 2010.[94] EPA instead concluded that coincidental mercury reductions achieved through CAIR are sufficient to protect the public health.[95]

EPA's reluctance to require implementation of emerging yet proven

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86. *Id.*

87. *See id.* § 7411(b)(5) ("[N]othing in this section shall be construed to require, or to authorize the Administrator to require, any new or modified source to install and operate any particular technological system of continuous emission reduction to comply with any new source standard of performance.").

88. Standards of Performance, 70 Fed. Reg. at 28,614–15.

89. *Id.* at 28,614.

90. *See id.* (noting emission reductions possible with activated carbon injection (ACI), flue gas desulfurization (FGD), and selective catalytic reduction (SCR)).

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.* at 28,606, 28,614 (explaining that phase one of the cap and trade program would place a cap on national annual mercury emissions of thirty-eight tons per year); *see* discussion *infra* Part II.C.

95. *Id.*

technologies ignores one of CAA's underlying goals: forcing technological development through government requirements.[96] Without regulatory intervention, free market actors may be reluctant to purchase expensive emissions-control technology that does not contribute to their profitability. Without a market for this technology, there may be less of an economic incentive for researchers to develop novel ideas. Developers of emission control technology depend on government regulation to create a market for their products and to drive down the technology's cost.[97]

EPA's refusal to implement any emissions controls is a consequence of regulation under section 111 rather than section 112.[98] If MACT were required for mercury emissions, EPA would not have been able to ignore so easily the technological potential of sorbent injection and selective catalytic reduction.[99] Unfortunately, under section 111, EPA has far more latitude to consider economic feasibility and general availability of control technologies in designing its emissions standards. So, rather than setting firm emissions standards based on supposedly unproven technology, EPA takes a cap-and-trade approach concluding that "[t]he economic incentives inherent in the . . . cap-and-trade program finalized today will serve to advance the technologies . . . ."[100] EPA bet on the market's invisible hand to encourage development of mercury emissions reduction technology rather than choosing the certainty of command-and-control regulation.[101]

C. The Cap and Trade Program

The mercury emissions standards for new sources are considered a starting point for more aggressive mercury reductions to be achieved through

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96. *See* 42 U.S.C. § 7411(a)(1) (2000) (requiring the Administrator to identify the best available technology and require commensurate emission reductions at all new sources, with the effect of encouraging otherwise unprofitable emission control technology).

97. *See* Matt Little, *Reducing Mercury Pollution from Electric Power Plants*, ISSUES IN SCIENCE AND TECHNOLOGY 27, 30 (Summer 2002) ("[O]nce regulations are set, control technology costs almost always go down as more entrepreneurs enter the business and more capital is expended in R&D.").

98. *See* December Revision, 70 Fed. Reg. 15,994, 15,994 (Mar. 29, 2002) (codified at 40 C.F.R. pt. 63) (removing EGUs from section 112 list).

99. *See* § 7412(d)(2) (requiring new and existing sources to adopt specific emissions control technologies the Administrator identifies as the maximum achievable control technology).

100. Standards of Performance, 70 Fed. Reg. at 28,615.

101. *See* Stivers, *supra* note 21, at 336–337.

> If Congress, at the time of the drafting of the 1990 Amendments [to the CAA], had intended to regulate mercury emissions under a cap–and–trade regime, then it only seems logical that one would find somewhere in the proximity of section 111 provisions defining "allowances," "caps," and other concepts that are at the heart of market-based regulatory regimes.

Id.

a cap-and-trade program.[102] CAMR sets up a two phase mercury emissions credit-trading program.[103] Phase one begins in 2010 and imposes a cap on national mercury emissions at thirty-eight tons per year, a twenty-four percent reduction from the forty-eight tons emitted in 1999.[104] Phase two begins in 2018 when the emissions cap falls to fifteen tons per year.[105] The delay in establishing phase two's lower emissions ceiling reflects EPA's skepticism regarding the current commercial availability of emissions control technology and its belief that market forces set in motion by the 2010 cap will encourage technological development.[106] EPA modeling predicted mercury emissions of 31.3 tons in 2010 (a thirty-five percent reduction from 1999 levels), 27.9 tons in 2015 (a forty-two percent reduction), and 24.3 tons in 2020 (a fifty percent reduction).[107] Halving mercury emissions may seem like a significant achievement, but compared to the dramatic reductions mandated in many state-level programs, EPA's efforts seem anemic.[108]

CAMR's emissions caps are implemented through state-level programs.[109] EPA determines a mercury budget for each state based on the states' relative share of total coal use.[110] States are not required to participate in the national emissions credit trading market, but they must comply with their state's mercury budget.[111] Section 111 of the CAA allows states to set more stringent local standards than those imposed by the federal government.[112] Proponents of cap-and-trade programs like CAMR argue that the programs provide beneficial flexibility for both states and regulated industry allowing them to achieve the most efficient pollution reduction possible.[113]

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102. *See* Standards of Performance, 70 Fed. Reg. at 28,616 ("[T]he [mercury] cap being finalized today will be a greater long-term factor in constraining Hg from new coal-fired Utility Units than will the new-source emissions limits being issued today [sic].").

103. *Id.* at 28,606.

104. *Id.* at 28,619.

105. *Id.*

106. *See id.* at 28,621 ("[T]he Phase II cap serves as a driver for continued research and development of [mercury]-specific control technologies, while providing a global market for the application of such equipment, which ultimately may serve to significantly reduce the global pool of [mercury] emissions.").

107. *Id.* at 28,619.

108. *See infra* Part III.

109. *See* 42 U.S.C. § 7411(c)(1) (2000) (delegating implementation and enforcement authority under section 111 to state implementation programs).

110. Standards of Performance, 70 Fed. Reg. at 28,621–22.

111. *Id.* at 28,622–24.

112. *See* § 7411(c)(1) (delegating implementation and enforcement authority to states when Administrator judges state procedures to be adequate).

113. *See* Gregory Gotwald, *Cap-and-Trade Systems, With or Without New Source Review? An Analysis of the Proper Statutory Framework for Future Electric Utility Air Pollution Regulation*, 28 VT. L. REV. 423, 441–45 (2004) (explaining the benefits of cap-and-trade programs).

EPA's decision to employ market-based regulation of mercury emissions was motivated by a desire to replicate the success of the SO_2 two-phase trading program of the 1990s.[114] Emission trading programs use market forces to reduce compliance costs for achieving environmental benefits.[115] Employing these market forces created extremely effective economic incentives for EGUs to reduce acid rain emissions. Environmentalists may criticize cap-and-trade programs because such programs permit power plants to pollute more than their share so long as they purchase credits from elsewhere, thereby avoiding compliance with the emissions standards. While this is possible, a properly designed cap-and-trade program could successfully discourage such behavior with strong economic disincentives. The success of the acid rain program is illustrative.

Phase one of the acid rain program achieved one-hundred percent compliance, with EGUs achieving reductions in SO_2 emissions thirty percent below the established cap—this trend continued during phase two.[116] This level of emissions reductions may evidence market forces' power to achieve environmental goals. The acid rain program also reduced administrative costs because EPA "spent less time, money, and energy researching compliance techniques and writing regulations."[117] This level of over-compliance suggests that the reduction goals were not sufficiently ambitious. An aggressive command-and-control approach may have been able to effectively force the implementation of technologies to achieve even greater emissions reductions.

Cap-and-trade programs' greatest contribution to the cause of environmental protection is political, not regulatory. Traditional environmentalists complain that market-based pollution control abdicates the federal government's prerogative to engage in command-and-control regulation of pollution emissions. This is almost certainly the case with CAMR, where EPA initially set out to impose MACT for mercury on all EGUs, only to reverse course and implement CAMR's cap-and-trade program.[118] While there may be broader political support for strong mercury regulation than EPA would admit,[119] market based control regimes may be the only politically viable mechanism to reduce pollution.

In the decade before the acid rain program, environmentalists and

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114. Standards of Performance, 70 Fed. Reg. at 28,624 (arguing that CAMR can "build on the successful Acid Rain Program").

115. Joseph Goffman, *Title IV of the Clean Air Act: Lessons for Success of the Acid Rain Emissions Trading Program*, 14 PENN ST. ENVTL. L. REV. 177, 180 (2006).

116. *Id.* at 179–180.

117. Stivers, *supra* note 21, at 333.

118. Standards of Performance, 70 Fed. Reg. at 28,606.

119. *See infra* Part III (describing more stringent state-level mercury control programs).

sympathetic members of Congress made several unsuccessful attempts to pass command-and-control programs to reduce SO_2 emissions.[120] Ironically, where traditional environmental tactics failed to mitigate acid rain pollution, the first President Bush succeeded by using market-based regulation.[121] The political power of cap-and-trade programs lies in their appeal to the regulated industries, which are extremely resistant to government interference with their businesses. Command-and-control programs may provide the greatest degree of pollution reductions, but not even the most well-crafted regulatory scheme can have any positive environmental effect if it is not politically viable. Market-based regulation, properly designed and enforced, can create political consensus and result in meaningful pollution reduction.

The acid rain cap-and-trade program illustrated that market-based regulatory solutions can achieve significant levels of pollution reduction on the national level. However, regulation of some pollutants under a cap-and-trade program can raise environmental justice concerns because these programs permit individual polluters to emit far more than their proportional share—so long as they purchase additional credits. SO_2 and NO_x, the two pollutants regulated under the acid rain program, lend themselves well to cap-and-trade because they are atmospheric pollutants. Once they are emitted, "[w]ind will transport the chemicals far from the source, and there will be little if any detrimental effect to the immediate region around the highly-polluting plant."[122] Conversely, although some mercury disperses in the atmosphere, most, especially in the ionic state, deposits close to the EGU where it is emitted.[123]

Mercury emissions' local persistence coupled with an EGU that is economically motivated to buy credits rather than reduce emissions could lead to mercury hotspots, where local levels are much higher than the national average. Applying a purely utilitarian calculus may suggest that so long as mercury emissions are reduced in the aggregate, certain local hotspots are an acceptable consequence because they don't prevent achieving the greatest good for the greatest number. However, such a callous view denigrates human dignity and denies the fundamental normative value ascribed to human life and health. Vulnerable and

120. Goffman, *supra* note 115, at 181.

121. *Id.*

122. Michelle Zimmermann, *The Clean Air Mercury Rule: Understanding the Controversy*, 13 MIT UNDERGRADUATE RESEARCH J., 20, 23 (2006), *available at* http://web.mit.edu/murj/www/v13/v13-Features/v13-f3.pdf.

123. David W. Rugh, Note, *Clearer, but Still Toxic Skies: A Comparison of the Clear Skies Act, Congressional Bills, and the Proposed Rule to Control Mercury Emissions from Coal-Fired Power Plants*, 28 VT. L. REV. 201, 206-07 (2003).

voiceless unborn children are at the greatest risk from mercury pollution.[124] If CAMR results in mercury hotspots, children and developing fetuses in those areas will be at an increased risk for brain damage caused by toxic exposure to mercury.[125] EPA concluded that the benefits of CAMR outweigh any risks of hotspots it might create.[126]

In response, the governments of New England states, in their traditional role as protectors of their local residents, stepped forward where the federal government did not and enacted several aggressive mercury reduction standards.[127] New England started a project of quicksilver alchemy in their laboratory of democracy to transmute mercury and protect their most vulnerable residents.

III. NEW ENGLAND'S STATE-LEVEL MERCURY CONTROL PROGRAMS

After EPA finalized CAMR, states were required to develop and submit a state implementation plan to EPA.[128] A majority of states chose to participate in the national emissions trading market, but a significant number of states instead adopted more stringent mercury emissions standards.[129] Notably, none of the EPA Region 1 New England States (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) are participating in the national trading program.[130] New England is pioneering an aggressive mercury reduction campaign that spotlights CAMR's meek requirements of modest emission reductions. EPA modeling predicts CAMR will achieve mercury emissions of 31.3 tons in 2010 (a thirty-five percent reduction from 1999 levels), 27.9 tons in 2015 (a

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124. Stivers, *supra* note 21, at 330.

125. In fairness, similar fears accompanied the Acid Rain Program in 1990. The feared hotspots did not occur, rather, emissions reductions were achieved at the highest-polluting plants. Zimmermann, *supra* note 122, at 23.

126. *See* Standards for Performance, 70 Fed. Reg. 28,606, 28,616 (May 18, 2005) (codified at 40 C.F.R. pts. 60, 72, 75) (noting the benefits of a cap-and-trade program).

127. *See infra* Part III.

128. Standards of Performance, 70 Fed. Reg. at 28,622–24.

129. *See generally* NAT'L ASS'N OF CLEAN AIR AGENCIES, STATE MERCURY PROGRAMS FOR UTILITIES, http://www.4cleanair.org/Documents/StateTable.pdf (last visited, Jan. 22, 2008) [hereinafter STATE MERCURY PROGRAMS] (updated frequently) (listing states participating in National Trading Program: Arkansas, Virginia, West Virginia, Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Indiana, Minnesota, Ohio, Louisiana, Oklahoma, Texas, Iowa, Kansas, Missouri, Nebraska, Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming, Arizona, Hawaii, Nevada, Alaska, Washington; undecided States: Wisconsin, Oregon; and nonparticipating states: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island (no mercury budget under CAMR), Vermont (no mercury budget under CAMR), New Jersey, New York, Delaware, Maryland, Pennsylvania, Illinois, Michigan, New Mexico, California, Idaho (no mercury budget under CAMR)).

130. *Id.*

forty-two percent reduction), and 24.3 tons in 2020 (a fifty percent reduction).[131] The New England region's bold mercury emission standards continue its national leadership in protecting the environment despite federal complacency.

Connecticut's mercury emissions program is the most stringent in New England. The law requires a ninety percent reduction or, in the alternative, compliance with a mercury intensity limit of 0.6 lbs/TBtu (Pounds per Trillion British Thermal Units of heat input) by July 1, 2008.[132]

Massachusetts requires an average total removal efficiency of eighty-five percent or a mercury emissions rate of 0.0075 lbs/GWh (pounds per Gigawatt hour) by January 1, 2008.[133] By October 1, 2012, Massachusetts boldly demands its EGUs comply with a ninety-five percent removal efficiency or an emissions rate of 0.0025 lbs/GWh.[134]

New Hampshire passed legislation requiring emissions reductions of eighty percent from EGUs using scrubber technology by July 1, 2013.[135]

Rhode Island and Vermont do not receive an emissions budget under CAMR and thus are not participating in the national trading program.[136]

Maine's mercury program applies to all facilities, EGU or otherwise, and mandates a state-wide emission limit of fifty pounds per year, then thirty-five pounds per year in 2007, and twenty-five pounds per year in 2010.[137] Maine is currently suing EPA to overturn CAMR; pending the outcome of this litigation, Maine is allowing EPA to administer the program in Maine.[138]

The New England states are not alone in their pursuit of stronger environmental protection as "states [nationally] are taking aggressive stances on environmental protection as the federal government is going in the other direction."[139] New England's state-level mercury regulations are an important step to ensure the health of its citizens, but New England can do more to strengthen its position as a leader in the growing movement to reduce mercury emissions by forming a more cohesive regional regulatory strategy.

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131. Standards of Performance, 70 Fed. Reg. at 28,619.

132. CONN. GEN. STAT. § 22a-199(b)(1) (2003).

133. 310 MASS. CODE REGS. 7.29(5)(a)(3)(e) (2004).

134. *Id.* at 7.29(5)(a)(3)(f) (2004).

135. STATE MERCURY PROGRAMS, *supra* note 129, at 2.

136. *Id.* at 2–3.

137. ME. REV. STAT. ANN. tit. 38 § 585-B(5) (2005).

138. *See* STATE MERCURY PROGRAMS, *supra* note 129, at 2 (noting that Maine only has one EGU, which would be subject to CAMR).

139. Timothy Lesle, *States Take Lead on Mercury, Global Warming*, THE PLANET (Sierra Club, San Francisco, Cal.), July/Aug., 2006, at 1, *available at* http://www.sierraclub.org/planet/200604/states.asp.

IV. REGIONAL SOLIDARITY

New England's regional solidarity and leadership in fighting pollution and environmental degradation began in 1967 when it created the Northeast States for Coordinated Air Use Management (NESCAUM) to combat air pollution from New England's power plants.[140] NESCAUM's board of directors consists of the directors of several states' Air Quality Programs (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, and New York).[141] The board works "to create effective solutions to critical clean air issues that harmonize environmental, public health, economic, and other societal goals through cutting-edge scientific research, policy analysis, and outreach."[142] Now NESCAUM plays an important role in the Regional Greenhouse Gas Initiative (RGGI) by tracking the initiative's progress through the Eastern Climate Registry.[143]

Like the state-level mercury control programs, RGGI was a response to the federal government's complacency in the face of environmental destruction.[144] The goal of RGGI is to develop a cap-and-trade program for greenhouse gas emissions "from power plants in the participating states, while maintaining energy affordability and reliability and accommodating, to the extent feasible, the diversity in policies and programs in individual states."[145] RGGI's goal is to act as a model program for future states or regions to develop their own greenhouse gas trading programs.[146]

While still young, RGGI's strength will come from the collective force of its membership. Uniformity and consistency within the RGGI program are necessary if it hopes to influence broader national policy.[147] For the same reason, New England should harmonize its mercury control programs to present a unified front and an example for a potential nation-wide federal mercury control standard—"[t]he potential for state and local governments

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140. NESCAUM, History, http://www.nescaum.org/about-us/history (last visited Jan. 22, 2008).

141. NESCAUM, Overview, http://www.nescaum.org/about-us/overview (last visited Jan. 22, 2008).

142. NESCAUM, http://www.nescaum.org (last visited Jan. 22, 2008).

143. *See* Eastern Climate Registry, http://www.easternclimateregistry.org (last visited Jan. 22, 2008).

144. *See* Regional Greenhouse Gas Initiative (RGGI), Summary of RGGI Stakeholder Workshop on GHG Offsets, http://www.rggi.org/docs/offsets_workshopsummary.pdf (last visited Jan. 27, 2008) (noting that "one of the most important contributions of the RGGI effort could be the development of a sensible offset program that serves as a model for a future federal policy").

145. RGGI, About RGGI, http://www.rggi.org/about.htm (last visited Jan. 27, 2008).

146. RGGI, Goals & Guiding Principles, http://www.rggi.org/goals.htm (last visited Dec. 5, 2006).

147. *See id.* (stating that the program will focus on uniformity to encourage interstate trading of greenhouse gas emissions).

to serve as 'laboratories' for experimentation with innovative environmental protection policies has perhaps never been as close to realization as it has during the last several years."[148] Where the federal government and EPA are unwilling to act, New England should lead.

An important difference between RGGI and a New England regional mercury policy would lie in the control mechanisms. RGGI is aimed at promoting a national carbon emission trading policy, while New England's goal should be to apply a regional MACT standard to EGUs. This distinction does not undermine the comparison. Rather than seeking uniformity to promote financial investment and reliance upon a carbon trading market, subscribing to a common standard of aggressive mercury emissions control would publicly undercut EPA's position that nationwide mercury reduction standards are not possible. Also, a regional coalition combating mercury emissions may stand a greater chance of having meaningful success. The RGGI coordinators acknowledge the limited impact on climate change that states may have in isolation, "[i]f state actions do not lead to longer-term, comprehensive federal and international action, they will not make a significant impact on climate change."[149] A regional mercury control program would have significant local benefits by preventing potential hotspots and safeguarding fetal brain development even if it fails to inspire broad adoption of its standards. New England's state-level programs are an important step towards safeguarding the region's public health, but to serve as an example for the rest of the country and promote environmental justice, New England should adopt a stringent, common MACT standard for all EGUs in the region.

CONCLUSION

Mercury emissions from EGUs are a serious threat to the public health and must be addressed. CAMR does far too little to address the problem—a fifty percent reduction by 2020, is insufficient to adequately protect the public health. Further, CAMR's cap-and-trade program carries an inordinate risk of creating mercury hotspots. These hotspots ignore principles of environmental justice and are an affront to human dignity. CAMR is unacceptable and the federal government must return to a sane course of mercury policy by regulating the substance for what it is: a hazardous air pollutant.

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148. Robert L. Glicksman, *From Cooperative to Inoperative Federalism: The Perverse Mutation of Environmental Law and Policy*, 41 WAKE FOREST L. REV. 719, 781 (2006).

149. RGGI, Prelude to a National Program?, http://www.rff.org/rff/News/Features/Regional-Greenhouse-Gas-Initiative.cfm (last visited Jan. 22, 2008).

This Note does not recommend supplication to the Federal government; begging for new environmental policies. Rather, it celebrates New England's refusal to allow passive federal regulation to endanger the health and welfare of its citizens. Further it recommends incorporating the individual state-level mercury control programs into a consistent regional standard. New England should serve as the model for a broadly applicable federal standard once the Nation finally realizes the emperor wears no clothes—mercury is deadly. New England must act now. To borrow a metaphor from Justice Scalia, dangers of this magnitude require actions "more reminiscent of Hannibal than of Hamlet."[150]

James Ruhl

150. *See* Vieth v. Jubelirer, 541 U.S. 267, 302 (2004) (describing the court's approach to "determining what areas fall beyond [its] Article III authority to adjudicate").