

# TOWARD A MORE RATIONAL ENVIRONMENTAL POLICY

Richard L. Revesz\*

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## INTRODUCTION

During this past Term, the Supreme Court of the United States decided two significant cases, both interpreting the Clean Air Act, which together should be seen as producing a significant move toward rationality in environmental policy. And it did so with the full support of six members—Chief Justice Roberts and Justices Kennedy, Ginsburg, Breyer, Sotomayor, and Kagan—and the partial support of Justice Scalia.

As is typical when environmental cases get litigated in federal courts, these two cases involved seemingly narrow questions of statutory interpretation. What is the meaning of “amount which will . . . contribute significantly to nonattainment,”<sup>1</sup> which was central to *EPA v. EME Homer City Generation, L.P.* (“*EME Homer*”)?<sup>2</sup> What is the meaning of “air pollutant,”<sup>3</sup> which was central to *Utility Air Regulatory Group v. EPA* (“*UARG*”)?<sup>4</sup> Broader questions of policy were dealt with in passing in the briefs but, with one important exception,<sup>5</sup> were not addressed explicitly by the Court. Nonetheless, in deciding these two cases, the Court significantly shifted environmental policy in a positive direction.

This Essay takes as its starting point the idea that, in order to achieve rationality, U.S. environmental policy should operate in accordance with five major components of rationality. First, *cost-benefit analysis* provides a tractable means of weighing the tradeoffs involved in setting environmental policy between environmental goals and other social values. Improving environmental

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\* Lawrence King Professor of Law and Dean Emeritus, New York University School of Law. The very helpful comments of Denise Grab, Clare Lakewood, Jack Lienke, and Michael Livermore and the generous financial support of the Filomen D’Agostino and Max Greenberg Research Fund at the New York University School of Law are gratefully acknowledged. I served as counsel of record for the Institute for Policy Integrity at NYU Law School on the two cases discussed in this Essay.

<sup>1</sup> 42 U.S.C. § 7410(a)(2)(D)(i) (2012).

<sup>2</sup> 134 S. Ct. 1584 (2014).

<sup>3</sup> *E.g.*, 42 U.S.C. §§ 7475(a)(4), 7479(1), 7602(j).

<sup>4</sup> 134 S. Ct. 2427 (2014).

<sup>5</sup> See *infra* text accompanying notes 84–85.

quality is not a cost-free enterprise, and decisionmakers should aim to maximize the net benefits—benefits minus costs—delivered by a policy.

Second, *cost minimization* requires choosing the cheapest way to attain a given environmental objective. Even if policy goals are not chosen to maximize net benefits, a cost-minimizing approach would nonetheless lead to the cheapest way to meet that goal.

Third, *flexible market-based instruments*, such as marketable permit schemes, are one important mechanism for achieving cost minimization, by providing economic incentives to take advantage of the cheapest cost-abatement opportunities. Such schemes also provide desirable incentives for technological innovation and economic growth.

Fourth, in order to avoid excessively broad exemptions for existing sources from the pollution standards applicable to new sources, as has been common in the history of U.S. environmental regulation, placing appropriate *constraints on grandfathering* should be regarded as an important element of a rational environmental policy. This goal has become particularly pressing since the enactment of the Clean Air Act in 1970, when sources, some of which were already obsolete at the time, were initially grandfathered.

Fifth, an important feature of U.S. environmental policy concerns the allocation of decision-making authority between the federal government and the states. In this context, the *control of interstate externalities* provides the most compelling argument for federal regulation. Providing the right incentives on this issue should be regarded as a critically important design element.

Part I describes the aspects of the two cases that are relevant to the subsequent analysis and places them in historical context to better highlight the themes of this Essay. Parts II through IV discuss, respectively, the cases' implications for three components of rationality—cost minimization, grandfathering, and the allocation of decision-making authority between the federal government and the states—and show how the Court significantly moved the dial in the right direction on these issues. The Conclusion shows that the Court's approach to these three components is consistent with a rational approach to the remaining two components.

## I. A TALE OF TWO CASES

### A. EME Homer: *Controlling Interstate Air Pollution*

The Clean Air Act's centerpiece is the National Ambient Air Quality Standards ("NAAQS"),<sup>6</sup> which establish maximum allowable concentrations of several air pollutants emitted by numerous or diverse sources,<sup>7</sup> at levels that the U.S. Environmental Protection Agency ("EPA") determines are "requisite to protect the public health"<sup>8</sup> and "the public welfare."<sup>9</sup> The most significant

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<sup>6</sup> 42 U.S.C. § 7409.

<sup>7</sup> *Id.* § 7408(a)(1)(B).

<sup>8</sup> *Id.* § 7409(b)(1).

challenge for northeastern states seeking to meet the NAAQS is the air pollution that gets transported by prevailing winds from old midwestern sources, primarily power plants.<sup>10</sup> Section 110(a)(2)(D) of the Clean Air Act, also known as the Good Neighbor Provision,<sup>11</sup> prohibits states from contributing significantly to nonattainment of the NAAQS in other states.<sup>12</sup> *EME Homer* is the culmination of an effort, extending back to the Clinton Administration, to use this provision to control excessive midwestern pollution that reaches the Northeast.

The modern-day saga to control regional pollution began in 1998, when EPA issued the “NO<sub>x</sub> SIP Call,” determining that twenty-three midwestern and eastern states “contribut[ed] significantly” to the downwind nonattainment of the NAAQS for nitrogen oxides (“NO<sub>x</sub>”).<sup>13</sup> EPA ordered these states to revise their State Implementation Plans (“SIPs”),<sup>14</sup> which specify how a state will control its sources so that the NAAQS are met.<sup>15</sup> In doing so, EPA determined what pollution was “significant” in light of the magnitude, frequency, and relative amount of pollution a state contributed to a downwind state’s nonattainment, and of the cost of reducing that pollution.<sup>16</sup> It required each state to reduce its significant emissions by implementing “highly cost-effective controls,” which the Agency defined as controls that could be achieved for less than \$2,000 per ton.<sup>17</sup> Each state was given discretion on how to achieve the required reductions.<sup>18</sup> In particular, the states were given the option of using a trading program as an alternative to direct controls.<sup>19</sup>

In *Michigan v. EPA*,<sup>20</sup> the D.C. Circuit upheld the NO<sub>x</sub> SIP Call against a challenge arguing that the Good Neighbor Provision precluded the consideration of costs.<sup>21</sup> The Court deferred to EPA’s interpretation of this provision, determining that the Agency could consider costs because the “term ‘significant’ does not in itself convey a thought that significance should be measured in only one dimension—here, in the petitioners’ view, health alone.”<sup>22</sup> Judge Sentelle dissented, arguing that “no reasonable reading of the statutory provision in

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<sup>9</sup> *Id.* § 7409(b)(2).

<sup>10</sup> See Petition to the United States Environmental Protection Agency for the Addition of Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee, Virginia, and West Virginia to the Ozone Transport Region Established Pursuant to Section 184 of the Federal Clean Air Act as Permitted by Section 176A of the Federal Clean Air Act (Dec. 10, 2013), <http://perma.cc/8T9M-BX45>.

<sup>11</sup> See *EME Homer*, 134 S. Ct. 1584, 1595 (2014).

<sup>12</sup> 42 U.S.C. § 7410(a)(2)(D).

<sup>13</sup> Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,356 (Oct. 27, 1998) [hereinafter NO<sub>x</sub> SIP Call].

<sup>14</sup> *Id.*

<sup>15</sup> See 42 U.S.C. § 7410(a)(1).

<sup>16</sup> NO<sub>x</sub> SIP Call, 63 Fed. Reg. at 57,377–78.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 57,378.

<sup>19</sup> *Id.*

<sup>20</sup> 213 F.3d 663 (D.C. Cir. 2000).

<sup>21</sup> *Id.* at 669.

<sup>22</sup> *Id.* at 677.

its entirety allows the term significantly to springboard costs of alleviation into EPA's statutorily-defined authority."<sup>23</sup>

In 2005, EPA promulgated the Clean Air Interstate Rule ("CAIR") to address the nonattainment in downwind states of the NAAQS for fine particulate matter ("PM<sub>2.5</sub>") and ozone.<sup>24</sup> The rule required twenty-eight upwind states and the District of Columbia to revise their SIPs with the purpose of reducing their emissions of sulfur dioxide ("SO<sub>2</sub>") and NO<sub>x</sub>, which are precursors to the formation of PM<sub>2.5</sub> and ozone.<sup>25</sup> CAIR thus provided that a state was subject to the rule if it contributed 0.2 mg/m<sup>3</sup> or more of PM<sub>2.5</sub> to out-of-state downwind areas in nonattainment; or if it contributed more than two parts per billion ("ppb") or one percent of ozone concentration to a nonattainment area's ozone concentration level; and if its contributions were significant in magnitude, frequency, or relative to the amount by which an area's ozone contribution was in nonattainment.<sup>26</sup> If a state was deemed a "significant contributor," it would be required to reduce its emissions by the level of reduction that could be achieved by applying "highly cost-effective" emissions controls.<sup>27</sup> To implement CAIR's emission reductions, the rule also created an interstate trading program for each pollutant.<sup>28</sup> States were then given the option to participate in the trading program as an alternative to imposing individual controls on their sources.<sup>29</sup>

In *North Carolina v. EPA*,<sup>30</sup> the D.C. Circuit struck down CAIR, in an opinion by then-Chief Judge Sentelle (the dissenter in *Michigan v. EPA*).<sup>31</sup> First, the court found that CAIR was invalid because the language of the Good Neighbor Provision required EPA to measure each upwind state's contribution to downwind nonattainment.<sup>32</sup> In the absence of such information, EPA had no statutory authority to promulgate CAIR.<sup>33</sup> The court reasoned that the Good Neighbor Provision required that any interstate pollution-reduction program "must do more than achieve something measurable; it must actually require elimination of emissions from sources that contribute significantly and interfere with maintenance in downwind nonattainment areas."<sup>34</sup> The court held that the cap-and-trade program set out in CAIR did not guarantee such a result.<sup>35</sup> "Theoretically, sources in Alabama could purchase enough NO<sub>x</sub> and SO<sub>2</sub> allowances

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<sup>23</sup> *Id.* at 696 (Sentelle, J., dissenting).

<sup>24</sup> Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO<sub>x</sub> SIP Call, 70 Fed. Reg. 25,162, 25,162 (May 12, 2005) [hereinafter Clean Air Interstate Rule].

<sup>25</sup> *Id.*

<sup>26</sup> *See id.* at 25,191.

<sup>27</sup> *See id.* at 25,197.

<sup>28</sup> *See id.* at 25,273.

<sup>29</sup> *See id.* at 25,274.

<sup>30</sup> 531 F.3d 896 (D.C. Cir. 2008).

<sup>31</sup> *Id.* at 901.

<sup>32</sup> *See id.* at 907-08.

<sup>33</sup> *Id.* at 908.

<sup>34</sup> *Id.*

<sup>35</sup> *See id.*

to cover all their current emissions, resulting in no change in Alabama's contribution to Davidson County, North Carolina's nonattainment."<sup>36</sup>

In response to this judicial reversal, EPA promulgated the Transport Rule (also referred to as the Cross-State Air Pollution Rule) to replace CAIR and address the problem of interstate pollution.<sup>37</sup> Like CAIR, the Transport Rule is a call for SIP revisions by twenty-seven states in the midwestern, southern, and eastern United States.<sup>38</sup> Under the Transport Rule, a state is deemed to "contribute significantly" to downwind pollution if it exports at least one percent of a NAAQS limit to a downwind state in nonattainment.<sup>39</sup> The Transport Rule establishes state-specific emission budgets based on EPA's evaluation of each state's significant contribution to nonattainment of PM<sub>2.5</sub> or ozone NAAQS in downwind states that could be eliminated at a cost of less than \$500 per ton.<sup>40</sup> The rule also allows for trading of emission allowances among covered states.<sup>41</sup> Trading is constrained by the requirement that each state limit its emissions to its individual budget, a requirement not present in the prior two rules.<sup>42</sup>

Shortly thereafter, the D.C. Circuit held that the Transport Rule was invalid because the states' emissions budgets were not calculated by reference to the "amounts" of emissions that "contribute significantly to nonattainment," but rather by reference to the cost of emission reductions.<sup>43</sup> Rejecting EPA's cost-based approach, Judge Kavanaugh, the author of the opinion, articulated a fairness-based proportionality requirement, saying that it was impermissible to ask "one upwind State to eliminate *more* than its statutory fair share, [because] that State is necessarily being forced to clean up another upwind State's share of the mess in the downwind State."<sup>44</sup>

In a 6–2 decision (with Justice Alito recused) in *EME Homer*, the Supreme Court reversed the D.C. Circuit, finally bringing resolution to the question of whether the pollution-reduction burden necessary to meet the NAAQS in downwind states could be allocated between upwind and downwind states in a way that minimized aggregate costs.<sup>45</sup> Writing for the Court, Justice Ginsburg acknowledged that the Good Neighbor Provision constrains the "amount" of pollution that can contribute to a downwind state's nonattainment problem and that this "amount" is excessive if it "significantly contributes" to this problem.<sup>46</sup> In a straightforward application of the deference principles of *Chevron*,<sup>47</sup> the Court deferred to EPA's decision to take costs into account in making this "sig-

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<sup>36</sup> *Id.* at 907.

<sup>37</sup> Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48,208, 48,211 (Aug. 8, 2011) [hereinafter Transport Rule].

<sup>38</sup> *Id.*

<sup>39</sup> *See id.* at 48,236–37.

<sup>40</sup> *See id.* at 48,256.

<sup>41</sup> *See id.* at 48,271–72.

<sup>42</sup> *See id.* at 48,303.

<sup>43</sup> *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7, 12 (D.C. Cir. 2012).

<sup>44</sup> *See id.* at 27.

<sup>45</sup> 134 S. Ct. 1584, 1593 (2014).

<sup>46</sup> *See id.* at 1603–04.

<sup>47</sup> *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

nificance” determination.<sup>48</sup> In a dissent joined by Justice Thomas, Justice Scalia echoed Judge Kavanaugh’s opinion below.<sup>49</sup> According to Justice Scalia, the plain meaning of the statute compelled the conclusion that the pollution reduction necessary for the downwind states to meet the NAAQS had to be “in proportion to the *amounts of pollutants* for which each upwind State is responsible.”<sup>50</sup> He chided the majority for instead deferring to EPA’s decision to allocate the burden “on the basis of how *cost-effectively* each can decrease emissions.”<sup>51</sup>

### B. UARG: Regulating Greenhouse Gases from Stationary Sources

UARG is best understood in its historical context. In 2007, a challenge was brought to the denial of a petition requesting that EPA regulate the greenhouse gas (“GHG”) emissions of automobiles.<sup>52</sup> The Supreme Court held, in *Massachusetts v. EPA*,<sup>53</sup> that GHGs are “air pollutants” for the purposes of section 202 of the Clean Air Act, which deals with the regulation of motor vehicle emissions.<sup>54</sup> The Court ordered EPA to make a determination of whether GHGs “endanger public health or welfare,”<sup>55</sup> which is a necessary condition for regulation.<sup>56</sup> The Obama Administration made the Endangerment Finding on December 15, 2009, determining that “six greenhouse gases taken in combination endanger both the public health and the public welfare of current and future generations.”<sup>57</sup>

This Endangerment Finding led EPA to promulgate three additional rules. The Tailpipe Rule, promulgated jointly with the Department of Transportation in May 2010,<sup>58</sup> established standards for the GHG emissions of light-duty vehicles. These standards were set to go into effect in January 2011.<sup>59</sup>

The two remaining rules are the first GHG regulations of stationary sources. Both of them apply to the Clean Air Act’s Prevention of Significant Deterioration (“PSD”) program,<sup>60</sup> which principally constrains the deterioration of ambient air quality in regions that meet the NAAQS. In April 2010, EPA

<sup>48</sup> *EME Homer*, 134 S. Ct. at 1606–07.

<sup>49</sup> *Id.* at 1610 (Scalia, J., dissenting).

<sup>50</sup> *Id.*

<sup>51</sup> *See id.*

<sup>52</sup> For a more detailed description of the case, see Cecilia Segal, *Climate Regulation Under the Clean Air Act in the Wake of Utility Air Regulatory Group v. EPA: Introduction*, 39 HARV. ENVTL. L. REV. 1, 1–2 (2015).

<sup>53</sup> 549 U.S. 497 (2007).

<sup>54</sup> *Id.* at 500.

<sup>55</sup> *Id.*

<sup>56</sup> 42 U.S.C. § 7521(a)(1) (2012).

<sup>57</sup> Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,498 (Dec. 15, 2009).

<sup>58</sup> Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25,324 (May 7, 2010).

<sup>59</sup> *Id.* at 25,328. The standards applied to vehicles in model years 2012–2016.

<sup>60</sup> 42 U.S.C. §§ 7470–7479.

issued the Timing Rule.<sup>61</sup> Under the PSD program, stationary sources covered by its preconstruction provisions are subject to the Best Available Control Technology (“BACT”) requirement “for each pollutant subject to regulation” under the Clean Air Act.<sup>62</sup> The Timing Rule determined that a pollutant is “subject to regulation” when a regulatory requirement to control emissions of that pollutant “takes effect.”<sup>63</sup> As a result, GHGs became subject to regulation under the PSD program in January 2011, when the vehicle standards went into effect.

Then, in June 2010, EPA promulgated the Tailoring Rule.<sup>64</sup> The preconstruction provisions of the PSD program apply to any “major emitting facility.”<sup>65</sup> The PSD program defines a “major emitting facility” as any stationary source that has the potential to emit 250 tons per year of any air pollutant and, for certain enumerated categories, any stationary source that has the potential to emit 100 tons per year of any air pollutant.<sup>66</sup> Few sources emit this quantity of conventional pollutants, such as carbon monoxide or lead. EPA’s permitting programs for PSD as well as New Source Performance Standards (“NSPS”) and nonattainment regulations cover fewer than 16,000 sources.<sup>67</sup> In contrast, the Agency estimated that over six million sources, many of them residential, meet the emission threshold of 100 tons per year for GHGs.<sup>68</sup> As a result, EPA established that only new stationary sources with GHG emissions exceeding 100,000 tons per year and modified existing sources with GHG emissions above 75,000 tons per year would initially be deemed “major” for the purposes of the PSD program’s preconstruction provisions.<sup>69</sup> The Agency left open the possibility that this threshold might be lowered over time.<sup>70</sup>

In perhaps its most important environmental opinion ever, given its impact on the regulation of GHGs under the Clean Air Act, the D.C. Circuit upheld the Endangerment, Tailpipe, Timing, and Tailoring Rules.<sup>71</sup> Nine certiorari petitions were filed raising a large number of issues, but the Supreme Court granted review on only one of these issues: whether the regulation of GHGs from motor vehicles triggered permitting requirements for stationary sources.<sup>72</sup>

A fractured Supreme Court divided its analysis of the case into two distinct parts: whether GHGs trigger the preconstruction provisions of section 165(a) and whether the BACT requirement, which must be met by “major emit-

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<sup>61</sup> Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs, 75 Fed. Reg. 17,004 (Apr. 2, 2010) [hereinafter Timing Rule].

<sup>62</sup> 42 U.S.C. § 7475(a)(4).

<sup>63</sup> Timing Rule, 75 Fed. Reg. at 17,004.

<sup>64</sup> Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514 (June 3, 2010) [hereinafter Tailoring Rule].

<sup>65</sup> 42 U.S.C. § 7475(a).

<sup>66</sup> 42 U.S.C. § 7479.

<sup>67</sup> See Tailoring Rule, 75 Fed. Reg. at 31,536–37, 31,540, 31,557.

<sup>68</sup> See *id.* at 31,536.

<sup>69</sup> *Id.* at 31,568.

<sup>70</sup> See *id.* at 31,563.

<sup>71</sup> *Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 113–14 (D.C. Cir. 2012) (per curiam), *aff’d in part, rev’d in part sub nom. UARG*, 134 S. Ct. 2427 (2014).

<sup>72</sup> *UARG*, 134 S. Ct. 2427, 2438 (2014).

ting facilit[ies]” constructed in PSD areas, applies to GHGs. Justice Scalia, in an opinion joined in full only by Chief Justice Roberts and Justice Kennedy, answered the first question in the negative,<sup>73</sup> but the second in the affirmative.<sup>74</sup> Justice Alito, in an opinion joined by Justice Thomas, answered both questions in the negative and joined Justice Scalia’s opinion on the first question.<sup>75</sup> Justice Breyer, joined by Justices Ginsburg, Sotomayor, and Kagan, answered both questions in the affirmative, and joined Justice Scalia’s opinion on the second question.<sup>76</sup> In summary, the Court decided 5–4 that GHGs do not trigger the PSD program’s preconstruction provisions. But it decided 7–2 that, if these provisions are triggered by other pollutants, GHGs must be controlled through the BACT requirement.

## II. COST MINIMIZATION

Cost-effectiveness analysis is an economic tool used to compare multiple regulatory actions with the same primary outcome. An action is cost-effective if it minimizes the cost of achieving this outcome.<sup>77</sup>

In *EME Homer*, the primary outcome was not in dispute: the NAAQS must be met in both upwind and downwind states. At issue, instead, was how to allocate the pollution control burden between upwind and downwind sources. In the NOx SIP Call, CAIR, and Transport Rules, EPA used a cost-effectiveness approach, imposing the measures that could be implemented at least cost to meet the NAAQS.<sup>78</sup> A condition for cost-minimization is the equalization across sources of the marginal costs of compliance—the cost of an additional unit of emission reduction.<sup>79</sup>

EPA’s cost-minimization approach was in legal limbo for more than a decade as a result of the inconsistent decisions of the D.C. Circuit.<sup>80</sup> In *EME Homer*, the Supreme Court ultimately upheld the use of cost minimization.<sup>81</sup>

In contrast, the proportionality approach advocated by Judge Kavanaugh’s D.C. Circuit opinion, the industry respondents before the Court, and, most importantly, in Justice Scalia’s dissent would have led to a far more costly way of meeting the NAAQS. It is well established that the costs of pollution abatement increase as the percentage of required abatement increases.<sup>82</sup> The principle is intuitive and familiar. If we have only one apple tree and need to pick only a

<sup>73</sup> *Id.* at 2439–44.

<sup>74</sup> *Id.* at 2447–49.

<sup>75</sup> *Id.* at 2455–77 (Alito, J., concurring in part and dissenting in part).

<sup>76</sup> *Id.* at 2453–55 (Breyer, J., concurring in part and dissenting in part).

<sup>77</sup> See U.S. OFFICE OF MGMT. & BUDGET, CIRCULAR A-4, REGULATORY ANALYSIS 10–11 (2003).  
<sup>78</sup> NOx SIP Call, 63 Fed. Reg. at 57,356, 57,377–78; Clean Air Interstate Rule, 70 Fed. Reg. at 25,162, 25,162; Transport Rule, 76 Fed. Reg. at 48,208, 48,210.

<sup>79</sup> See THOMAS STERNER, ECONOMIC POLICIES FOR SUSTAINABLE DEVELOPMENT 27 (2d ed. 1996); EPA, GUIDELINES FOR PREPARING ECONOMIC ANALYSES 4–7 (2014), <http://perma.cc/S83Q-6EF3>.

<sup>80</sup> See *supra* text accompanying notes 21–44.

<sup>81</sup> See *supra* text accompanying notes 45–51.

<sup>82</sup> See SCOTT CALLAN & JANET THOMAS, ENVIRONMENTAL ECONOMICS AND MANAGEMENT: THEORY, POLICY AND APPLICATIONS 82 (2d ed. 2013); Daniel H. Cole & Peter Z. Grossman, *When Is*



few apples, we will take the low-hanging fruit. But if we need many apples, a stool or ladder will also be necessary, and the average time it takes to pick an apple will be longer, the risks will be higher, and the equipment will cost time and money to procure. Controlling pollution has the same characteristics.

Industrial facilities, and particularly power plants in the Northeast, emit lower rates of pollution than sources in the Midwest.<sup>83</sup> As a result, the approach in Justice Scalia's dissent that reductions be proportional in every state would cost a great deal more in states that had already imposed significant controls on their sources than in those that had not. The overall cost of meeting the underlying goal—attainment of the NAAQS—would therefore be much higher than if more stringent controls were imposed on sources that had not yet controlled their emissions, and conversely, less stringent additional controls (or no additional controls) were imposed on sources that had already controlled their emissions. As a result, the approach in Justice Scalia's dissent does not lead to the equalization of the marginal cost of pollution reduction.

The approach in Justice Scalia's dissent has an additional pernicious consequence: it provides incentives for states to delay their efforts to impose pollution-reduction requirements on their sources. Under Justice Scalia's logic, if a state waits until it is compelled to do so by a federal rule, like the ones at issue in the saga leading to *EME Homer*, the reductions count against the proportionality requirement. In contrast, if the state acts unilaterally, before the federal requirement, the reductions would not count when a federal rule imposes a proportionality requirement. The resulting incentive is for states to drag their feet rather than act proactively to reduce their pollution so that the NAAQS can be met. In contrast, the approach in Justice Ginsburg's majority opinion avoids this undesirable result.

In many cases, the Supreme Court decides a narrow question of statutory interpretation and the Justices do not focus on the policy consequences of their decision, and perhaps are even unaware of them. That was not the case in *EME Homer*. Justice Ginsburg's opinion clearly articulated the policy desirability of EPA's approach:

Using costs in the Transport Rule calculus, we agree with EPA, also makes good sense. Eliminating those amounts that can cost-effectively be reduced is an efficient . . . solution to the allocation problem the Good Neighbor Provision requires the Agency to address. Efficient because EPA can achieve the levels of attainment, *i.e.*, of emission reductions, the proportional approach aims to achieve, but at a much lower overall cost.<sup>84</sup>

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*Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection*, 1999 WIS. L. REV. 887, 915 (1999).

<sup>83</sup> See Nathaniel Lord Martin, *The Reform of New Source Review: Toward a More Balanced Approach*, 23 STAN. ENVTL. L. J. 351, 378–79 (2004).

<sup>84</sup> *EME Homer*, 134 S. Ct. 1584, 1607 (2014).

And she also explicitly focused on the precise context in which the relevant issue arose:

Suppose, for example, that the industries of . . . State A have expended considerable resources installing modern pollution-control devices on their plants. Factories in . . . State B, by contrast, continue to run old, dirty plants . . . . If State A and State B are required to eliminate emissions proportionally (*i.e.*, equally), sources in State A will be compelled to spend far more per ton of reductions because they have already utilized lower cost pollution controls. State A's sources will also have to achieve greater reductions than would have been required had they not made the cost-effective reductions in the first place. State A, in other words, will be tolled for having done more to reduce pollution in the past.<sup>85</sup>

Justice Ginsburg thus explicitly acknowledged the virtues of cost minimization and the undesirable incentive effects that would arise if states did not get credit for prior efforts to control their polluters. *EME Homer* significantly promotes this element of rationality in environmental policy.

### III. GRANDFATHERING

A key feature of U.S. environmental law is the extensive grandfathering of existing sources from standards that apply to new sources. This feature is particularly prevalent under the Clean Air Act.<sup>86</sup> Grandfathering of this sort has bad incentive effects because it distorts “the economic analysis that existing plant owners undertake when deciding whether to modernize or replace a plant.”<sup>87</sup> Stricter standards for new sources make building a new plant more expensive than it would otherwise be. As a result, existing sources, often dirty and obsolete ones, remain in operation longer than would otherwise be the case—a phenomenon known as the “old plant effect.”<sup>88</sup> This effect is both economically undesirable and may worsen environmental quality by delaying the replacement of a dirty existing source with a new source, which would be more efficient, and therefore cleaner, even absent a regulatory requirement.<sup>89</sup>

The Clean Air Act's principal requirements for stationary sources, particularly the NSPS program and the PSD permitting provisions, apply to new

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<sup>85</sup> *Id.*

<sup>86</sup> See Jonathan Remy Nash & Richard L. Revesz, *Grandfathering and Environmental Regulation: The Law and Economics of New Source Review*, 101 Nw. U. L. REV. 1677, 1681–1707 (2007); Richard L. Revesz & Allison L. Westfahl Kong, *Regulatory Change and Optimal Transition Relief*, 105 Nw. U. L. REV. 1581, 1582 (2011).

<sup>87</sup> See Nash & Revesz, *supra* note 86, at 1708.

<sup>88</sup> See *id.*; Revesz & Westfahl Kong, *supra* note 86, at 1616.

<sup>89</sup> See Nash & Revesz, *supra* note 86, at 1708–10; Revesz & Westfahl Kong, *supra* note 86, at 1616–17.

sources and generally exempt existing sources.<sup>90</sup> But the grandfathering is, at least in principle, constrained.

An existing source becomes subject to the new source standards if it undertakes a modification, which section 111(a)(4) defines as a “physical change” that “increases the amount of any air pollutant emitted by such source.”<sup>91</sup> Under the NSPS program, EPA sets emission standards for categories of stationary sources.<sup>92</sup> Any source in a category for which such regulations have been set must comply with these standards if its “construction or modification . . . is commenced after the publication of [these] regulations.”<sup>93</sup>

This categorical standard-setting approach is complemented by the PSD program’s case-by-case approach to permitting. The PSD’s permitting provisions apply to any “major emitting facility on which construction is commenced after August 7, 1977.”<sup>94</sup> Construction, in turn, “includes the modification . . . of any source or facility.”<sup>95</sup> And “modification” for these purposes is defined in the same manner as under section 111(a)(4).<sup>96</sup> The PSD permitting provisions complement the NSPS program in two ways. First, their BACT requirement needs to be at least as stringent as NSPS.<sup>97</sup> Therefore, the case-by-case standard of BACT can lead to more stringent controls than the categorical approach under NSPS.

Second, and more importantly, the BACT requirement applies even before a NSPS has been set.<sup>98</sup> This feature is particularly important in the case of GHGs because EPA has not yet promulgated a NSPS for any category of sources that emit GHGs, though it has proposed standards for power plants.<sup>99</sup> It will take a very long time for all categories of sources emitting GHGs to be regulated through the NSPS program. In the meantime, as a result of the Supreme Court’s *UARG* decision, sources that undergo “construction,” including “modification,” will have their GHG emissions limited by the BACT requirement of the PSD program. The *UARG* decision therefore plays an important role in constraining the undesirable, excessive grandfathering of existing sources.

Of course, this effect would have been stronger if the Court had also held that GHG emissions could trigger the PSD permitting requirements. But, as a practical matter, EPA got the vast majority of what it was seeking. If EPA had won on both the trigger and the BACT issues, eighty-six percent of the GHG

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<sup>90</sup> See Nash & Revesz, *supra* note 86, at 1681–84.

<sup>91</sup> 42 U.S.C. § 7411(a)(4) (2012).

<sup>92</sup> *Id.* § 7411(b)(1).

<sup>93</sup> *Id.* § 7411(a)(2).

<sup>94</sup> *Id.* § 7475(a).

<sup>95</sup> *Id.* § 7479(2)(C).

<sup>96</sup> *Id.*

<sup>97</sup> *Id.* § 7479(3).

<sup>98</sup> The promulgation of a NSPS is not a prerequisite for the BACT requirement. See 42 U.S.C. § 7475(a)(4).

<sup>99</sup> Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430 (Jan. 8, 2014).

emissions from new and modified stationary sources would have been covered by the PSD program.<sup>100</sup> By losing on the trigger but winning on BACT, EPA will nonetheless be able to regulate eighty-three percent of the GHG emissions from these sources.<sup>101</sup>

The mechanism by which existing sources become subject to the regulatory regime as they upgrade their equipment or make other modifications is essential to the balance struck by Congress when it bifurcated the treatment of new and existing sources.<sup>102</sup> On this score, the Supreme Court's *UARG* decision goes a long way in the right direction, providing a strong, salutary limit on the excessive grandfathering of existing sources of GHGs.

#### IV. INTERSTATE EXTERNALITIES

Interstate pollution provides the strongest argument for federal environmental regulation. A state externalizing its pollution to other states can capture economic benefits in the form of jobs and tax revenues, but imposes costs in the form of adverse health effects on other states. As a result, the upwind state is not affected by the full costs of its actions. This divergence between private and social costs characterizes a negative externality. In the absence of bargaining among states, which is difficult to accomplish, the amount of pollution crossing state lines will be greater than is optimal.<sup>103</sup>

The regulation of interstate externalities under the Clean Air Act got off to a bad start. The first case to be litigated under the Good Neighbor Provision, *Air Pollution Control District of Jefferson County, Kentucky v. EPA*,<sup>104</sup> concerned a power plant in Indiana, which was uncontrolled and emitted six pounds of SO<sub>2</sub> per million BTU of heat input (lbs/MBTU).<sup>105</sup> It contributed forty-seven of the NAAQS in a portion of downwind Jefferson County, Kentucky.<sup>106</sup> The power plant located in Jefferson County had spent \$138 million in pollution control, more than \$300 million in today's dollars, and emitted only 1.2 lbs/MBTU.<sup>107</sup> The Sixth Circuit nonetheless held that Indiana had not vio-

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<sup>100</sup> See *UARG*, 134 S. Ct. 2427, 2438–39 (2014).

<sup>101</sup> See *id.*

<sup>102</sup> See Brief of the Institute for Policy Integrity at New York University School of Law as Amicus Curiae in Support of Respondents at 22, *UARG*, 134 S. Ct. 2427 (2014) (No. 12-1146), 2014 WL 334438, at \*22.

<sup>103</sup> See Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341, 2342–44 (1996). This author also addressed this issue in Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1222 (1992). See also Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 557 n.3 (2001).

<sup>104</sup> 739 F.2d 1071 (6th Cir. 1984).

<sup>105</sup> *Id.* at 1076–77.

<sup>106</sup> See *id.* at 1085.

<sup>107</sup> See *id.* at 1076–77.

lated the Good Neighbor Provision,<sup>108</sup> placing a significant roadblock on Kentucky's ability to meet the NAAQS.

This pattern of downwind states being unable to meet NAAQS because of uncontrolled pollution from upwind states persisted for a long time, leading Justice Ginsburg, when she was a judge on the D.C. Circuit, to write a concurrence "only to spotlight a reality that the language of the Clean Air Act concedes."<sup>109</sup> She wrote: "As counsel for the EPA acknowledged at oral argument, the EPA has taken *no* action against sources of interstate air pollution . . . in the decade-plus since those provisions were enacted."<sup>110</sup>

It was not until 1998, with the promulgation of the NOx SIP Call,<sup>111</sup> that EPA started taking the problem of interstate pollution seriously. It remains the case, however, that northeastern states are in violation of the NAAQS because the bulk of their pollution—for example eighty to eighty-five percent of ozone pollution that exceeds the NAAQS in New Jersey, New York, Connecticut and Massachusetts—comes from upwind states.<sup>112</sup>

The proportionality approach favored by Justice Scalia, but rejected by Justice Ginsburg, would have made it less likely that the downwind states could meet the NAAQS. It would have imposed more stringent requirements on downwind sources that were already tightly controlled, and for which additional controls would not only be more expensive but also more difficult to attain. The resulting undesirable health effects would have been a direct by-product of an inter-jurisdictional externality imposed by the upwind states. The Court, instead, decided *EME Homer* in a way that promotes an important component of rationality and is consistent with the proper role of the federal government in our federalist system.

## CONCLUSION

The two cases discussed in this Essay advanced three important principles of rationality: cost-minimization, grandfathering, and federalism. And they did so by comfortable majorities: 6–2 for cost minimization and federalism and 7–2 for constraints on grandfathering. Chief Justice Roberts and Justices Kennedy, Ginsburg, Breyer, Sotomayor, and Kagan voted consistently with all three principles; and Justice Scalia voted consistently with the first and third. Justice Thomas rejected the interpretations that would have promoted any of these rationality principles, while Justice Alito was recused in one case and rejected the more desirable approach to grandfathering in the other.

Moreover, the Supreme Court's decision in *EME Homer* was largely consistent with two other principles of rationality. First, while the Court did not directly deal with cost-benefit analysis, its support of cost minimization but-

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<sup>108</sup> *See id.* at 1093–94.

<sup>109</sup> *New York v. EPA*, 852 F.2d 574, 581 (D.C. Cir. 1988) (Ginsburg, J., concurring).

<sup>110</sup> *Id.* (emphasis in original).

<sup>111</sup> NOx SIP Call, 63 Fed. Reg. at 57,356.

<sup>112</sup> *Id.* at 57,404.

resses this crucial component of rational environmental policy. Cost-benefit analysis seeks to maximize the net benefits, which are the benefits minus the costs, of regulatory policies.<sup>113</sup> In *EME Homer*, the goal—meeting the NAAQS—was not at issue. So, the benefit of the regulation was fixed. All that was at stake was whether the costs were higher (under Justice Scalia’s dissent) or lower (under EPA’s cost-minimizing approach upheld in Justice Ginsburg’s majority opinion). Eliding this distinction, Justice Scalia accused the majority of “bring[ing] in cost-benefit analysis to fill a gap.”<sup>114</sup>

Even though the majority did not address any question concerning cost-benefit analysis—because no such question was presented—the decision in *EME Homer* in favor of the cost-minimizing allocation of the pollution control burden between upwind and downwind states is a necessary, though not sufficient, condition for the proper application of cost-benefit analysis. Net benefits simply cannot be maximized if the costs necessary to meet a particular regulatory goal are not minimized.

Similarly, *EME Homer*’s defense of cost minimization is consistent with the use of trading schemes. First, a core characteristic of marketable permit schemes is that they minimize the aggregate cost of meeting a regulatory target.<sup>115</sup> It follows, therefore, that if cost minimization is impermissible, marketable permit schemes will be impermissible as well. Second, the Transport Rule contained a trading provision, which was not separately challenged and therefore remains in place following the Supreme Court’s decision.<sup>116</sup>

In summary, the Court explicitly embraced three rationality principles and acted consistently with the two others. It was a good Term for rationality in environmental law.

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<sup>113</sup> See U.S. OFFICE OF MGMT. & BUDGET, *supra* note 77, at 2.

<sup>114</sup> *EME Homer*, 134 S. Ct. 1584, 1613 (2014) (Scalia, J., dissenting).

<sup>115</sup> Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1341–42 (1985).

<sup>116</sup> See *supra* text accompanying notes 41–42.