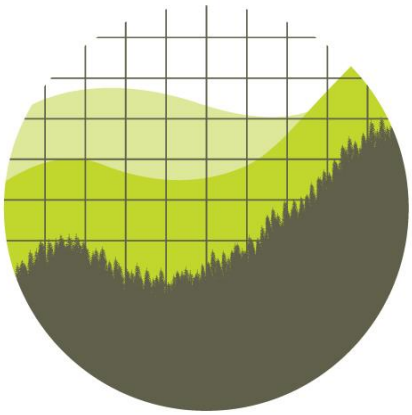

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Toward a More Rational Environmental Policy

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Toward a More Rational Environmental Policy

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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 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 the federal courts, these cases involved seemingly narrow questions of statutory interpretation. What is the meaning of "amount which will … contribute significantly to nonattainment," which was central to *EPA v. EME Homer City Generation*?[1] What is the meaning of "air pollutant," which was central to *Utility Air Regulatory Group v. EPA*?[2] Broader questions of policy were dealt with in passing in the briefs but, with one important exception,[3] were not addressed explicitly by the Court. Nonetheless, in deciding these two cases, the Court significantly shifted environmental policy in a positive direction.

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[1] 134 S. Ct. 1584 (2014).

[2] 134 S. Ct. 2427 (2014).

[3] *See infra* text accompanying notes 63-64.

This Essay claims that in order to achieve rationality U.S. environmental policy must 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 quality is not a cost-free enterprise, and decisionmakers should aim to maximize the net benefits—benefits minus costs-- delivered by 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, can minimize pollution control costs 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 more than four decades after 1970, when sources, some of which were already obsolete, were initially grandfathered.

Fifth, an important feature of our 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 a historical context to better highlight the themes of this Essay. Parts II through IV discuss, respectively, their implications for cost minimization, grandfathering, and the allocation of decisionmaking 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 of rationality is consistent with a rational approach to the remaining two components.

I. Two Cases

A. *Controlling Interstate Pollution*

The most significant challenge for Northeastern states seeking to meet the NAAQS is the pollution that gets transported by prevailing winds from old Midwestern sources, primarily power plants.[4] *EME Homer* is the culmination of an effort, extending back to the Clinton administration, to control excessive Midwestern pollution from reaching the Northeast.

Section 110(a)(2)(D) of the Clean Air Act, also known as the Good Neighbor Provision,[5] prohibits states from "contribut[ing] significantly to nonattainment" of the NAAQS by "other states."[6] The modern-day saga to control regional pollution began in 1998, when the U.S. Environmental Protection Agency (EPA) determined in the NO_x SIP Call Rule that twenty-three Midwestern and Eastern states "contribut[ed] significantly" to the downwind nonattainment of the NAAQS for nitrogen oxides (NO_x). EPA ordered

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[4] See State of Connecticut, et al. *Petition to the United State 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, available at http://perma.cc/8T9M-BX45.

[5] EPA v. EME Homer City Generation, 134 S. Ct. 1584, 1595 (2014).

[6] 42 U.S.C. § 7410(a)(2)(D) (2012).

states to revise their State Implementation Plans (SIPs),[7] which specify how a state will control its sources so that the NAAQS are met.[8] 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. 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 $2000 per ton.[9] Each state was given discretion on how to achieve the required reductions. In particular, it was given the option to use a trading program as an alternative to direct controls.

In *Michigan v. EPA,*[10] the D.C. Circuit upheld EPA's rule against a challenge arguing that section 110(a)(2)(D) precluded the consideration of costs. 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."[11] Judge Sentelle dissented, arguing that "no reasonable reading of the statutory provision in its entirety allows the term significantly to springboard costs alleviation into EPA's statutorily-defined authority."[12]

In 2005, EPA promulgated the Clean Air Interstate Rule (CAIR), to address the nonattainment in downwind states of the NAAQS for fine particulate matter ($PM_{2.5}$) and ozone.[13] The rule required 28 upwind states and the District of Columbia to revise their SIPs with the purpose of reducing their emissions of sulfur dioxide and nitrogen oxides, which are precursors to the formation of $PM_{2.5}$ and ozone.[14] CAIR provided that a state

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[7] 63 Fed Reg. 57,356 (1998).

[8] *See* 42 U.S.C. § 7410(a)(1)(2012).

[9] 63 Fed. Reg. at 57,377-78.

[10] 213 F.3d 663 (D.C. Cir. 2000).

[11] *Id.* at 677.

[12] *Id.* at 696.

[13] 70 Fed. Reg. 25,162 (2005).

[14] *Id.*

was subject to the rule if the state contributed 0.2 mg/m^3 or more of $PM_{2.5}$ to out-of-state downwind areas in nonattainment; or if it contributed more than 2 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.[15] 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. To implement CAIR's emission reductions, the rule also created an interstate trading program for each pollutant.[16] States were given the option to participate in an EPA-managed cap-and-trade program as an alternative to imposing individual controls on their sources.[17]

In *North Carolina v. EPA*,[18] the D.C. Circuit struck down the rule, in an opinion by Chief Judge Sentelle (the dissenter in *Michigan v. EPA*). First, it held that CAIR was invalid because the language of section 110(a)(2)(D) requires EPA to measure each upwind state's contribution to downwind nonattainment. In the absence of such information, EPA had no statutory authority for CAIR.[19] Second, the Court held that section 110(a)(2)(D) 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." The Court held that the cap-and-trade program set out in CAIR did not guarantee such a result. "Theoretically, sources in Alabama could purchase enough allowance[s] to cover all their current emissions, resulting in no change in Alabama's contribution to Davidson County, North Carolina's nonattainment."[20]

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[15] *See id.* at 25,191.

[16] *See id.* at 25,273.

[17] *See id.* at 25,274.

[18] 531 F.3d 896 (D.C. Cir. 2008).

[19] *See id.* at 907.

[20] *Id.*

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 interstate pollution transport.[21] Like CAIR, the Transport Rule is a call for SIP revisions by 27 states in the Midwestern and Eastern United States. Under the Transport Rule, a state is deemed to make a "significant contribution" to downwind pollution if it contributes at least one percent of emissions of a downwind state in nonattainment. The Transport Rule establishes state-specific emission budgets based on EPA's evaluation of each state's "significant contribution" to nonattainment of fine particulate matter ($PM_{2.5}$) and/or ozone NAAQS in downwind states that could be eliminated at a cost of less than $500 per ton.[22] The rule allows for trading of emission allowances among covered states. 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.[23]

In *EME Homer City Generation, L.P. v. EPA*,[24] 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. 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."[25]

In a 6-2 decision (with Justice Alito recused) in *EPA v. EME Homer City Generation, L.P.*,[26] the Supreme Court reversed the D.C. Circuit, finally bringing resolution to the question whether the pollution reduction burden necessary to meet the NAAQS in downwind states could be allocated between upwind and downwind states in

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[21] 76 Fed. Reg. 48,208 (2011).

[22] *Id*. at 48,210.

[23] *See id.* at 48,303.

[24] 696 F.3d 7 (D.C. Cir. 2012).

[25] *See id.* at 27.

[26] 134 S. Ct. 1584 (2014).

the way that minimized the aggregate costs. Writing for the Court, Justice Ginsburg acknowledged that section 110(2)(D) constrains the "amount" of pollution that can contribute to a downwind states' nonattainment problem and that this "amount" is excessive if it "significantly contributes" to this problem. In a straightforward application of the deference principles of *Chevron USA v. NRDC*,[27] the Court deferred to EPA's decision to take costs into account in making this "significance" determination.[28] In a dissent joined by Justice Thomas, Justice Scalia echoed Judge Kavanaugh's opinion below.[29] 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."[30] 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."[31]

B. *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 emissions of automobiles. The Supreme Court held, in *Massachusetts v. EPA*,[32] that greenhouse gases (GHGs) are "air pollutants" for the purposes of section 202 of the Clean Air Act, which deals with the regulation of motor vehicle emissions.[33] The Court ordered EPA to make a determination of whether GHGs "endanger public health or welfare,"[34] which is a necessary condition for regulation.[35] The Obama administration

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[27] 467 U. S. 837 (1984).

[28] EPA v. EME Homer City Generation, 134 S. Ct. 1584, 1589 (2014).

[29] *Id.* at 1610 (Scalia, J., dissenting).

[30] *Id.* (Scalia, J., dissenting) (emphasis in original).

#[31] *Id.* (Scalia, J., dissenting) (emphasis in original).

#[32] 549 U.S. 497 (2007).

#[33] *Id.* at 500.

#[34] *Id.*

#[35] 42 U.S.C. § 7521(a)(1) (2012).

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."[36]

This Endangerment Finding Rule led EPA to promulgate three additional rules. The Tailpipe Rule, promulgated jointly with the Department of Transportation in May 2010,[37] established standards for the greenhouse gas emissions of light-duty vehicles. These standards were set to go into effect in January 2011.[38]

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 Program (PSD),[39] which principally constrains the deterioration of ambient air quality in regions that meet the NAAQS. In April 2010, EPA issued the Timing Rule.[40] Under the PSD program, stationary sources covered by its preconstruction provisions, are subject to the BACT requirement "for each pollutant subject to regulation" under the Clean Air Act.[41] The Timing Rule determined that a pollutant is "subject to regulation" when a regulatory requirement to control emissions of that pollutant "takes effect."[42] As a result, GHGs became subject to regulation under the PSD program in January 2011, when the vehicle standards went into effect.

#[36] Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule, 74 Fed. Reg. 66,496, 66,498 (Dec. 15, 2009).

#[37] Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25,324 (May 7, 2010).

#[38] *Id.* at 25,328. The standards applied to vehicles in model years 2012-2016.

#[39] 42 U.S.C. §§ 7470–7479 (2012).

#[40] Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs; Final Rule, 75 Fed. Reg. 17,004 (Apr. 2, 2010).

#[41] 42 U.S.C. § 7475(a)(4) (2012).

#[42] Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs; Final Rule, 75 Fed. Reg. at 17,004.

Then, in June 2010, EPA promulgated the Tailoring Rule.[43] The preconstruction provisions of the PSD program apply to any "major emitting facility."[44] 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.[45] Few sources emit this quantity of conventional pollutants, such as carbon monoxide or lead. EPA's permitting program for PSD as well as New Source Performance Standards (NSPS) and nonattainment regulations cover fewer than 15,000 sources.[46] 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.[47] 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.[48] The agency left open the possibility that this threshold might be lowered over time.[49]

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.[50] Nine certiorari petitions were filed raising a large number of issues, but the Supreme Court granted review on only one of these

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#[43] Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule, 75 Fed. Reg. 31,514 (June 3, 2010).

#[44] 42 U.S.C. § 7475(a).

#[45] 42 U.S.C. § 7479..

[46] *See* Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule, 75 Fed. Reg. at 31,536, 31,540.

#[47] *See id.* at 31,536.

#[48] *Id.* at 31,568.

#[49] *See id.* at 31,563.

#[50] 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.

issues: whether the regulation of GHGs from motor vehicles triggered permitting requirements for stationary sources.[51]

A fractured Supreme Court divided its analysis of the case into two distinct parts: whether GHGs triggered the preconstruction provisions of section 165(a) and whether the BACT requirement, which must be met by "major emitting 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,[52] but the second in the affirmative.[53] Justice Breyer, in an opinion joined by Justices Ginsburg, Sotomayor, and Kagan, answered both questions in the affirmative, and joined Justice Scalia's opinion on the second question.[54] Justice Alito, in an opinion joined by Justice Thomas, answered both questions in the negative and joined Justice Scalia's opinion on the second question.[55]

In summary, the Court decided 5-4 that GHGs do not trigger the PSD's 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. [56]

In *EME Homer*, the primary outcome was not in the dispute: the NAAQS must be

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[51] *UARG*, 134 S. Ct. at 2438.

[52] *Id.* at 2439–44.

[53] *Id.* at 2447–49.

[54] *Id.* at 2453–55 (Breyer, J., concurring in part and dissenting in part).

[55] *Id.* at 2455–77 (Alito, J., concurring in part and dissenting in part).

[56] *See* U.S. Office of Management & Budget, Circular A-4, at 10–11 (2003).

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 NO_x SIP Call, CAIR, and Transport Rules, EPA sought used a cost-effectiveness approach, imposing the measures that could be implemented at least cost to meet the NAAQS. In each of the three rules, EPA picked the lowest cost for reducing a ton of the relevant pollutant that would accomplish the goal of reducing the contribution of upwind states to nonattainment in downwind states.[57] A condition for cost-minimization is the equalization across sources of the marginal costs of compliance—the cost of an additional unit of emissions reduction.[58]

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 in *Michigan v. EPA* on the one hand, and of *North Carolina v. EPA* and *EME Homer*,[59] on the other. Ultimately, the Supreme Court upheld the use of cost minimization.[60]

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.[61] The principle is intuitive and familiar. If we have only one apple tree and need to pick only a 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

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[57] 63 Fed. Reg. 57,356, 57,377-78 (1998); 70 Fed. Reg. 25,162, 25,162 (2005), 76 Fed. Reg.48,208, 48,210 (2011).

[58] *See* THOMAS STERNER, ECONOMIC POLICIES FOR SUSTAINABLE DEVELOPMENT 27 (2d ed. 1996); Guidelines for Preparing Economic Analyses 4–7 (2010).

[59] *See supra* text accompanying notes 10–25.

[60] *See supra* text accompanying notes 28-31.

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

cost time and money to procure. Controlling pollution has the same characteristics.

Industrial facilities, and particularly power plants in the Northeast had undertaken far more extensive efforts to reduce their pollutions than sources in the Midwest.[62] 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 on those that had not. The overall cost of meeting the underlying goal—attainment of the NAAQS—would therefore be a great deal 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 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. 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 pro-actively 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 some cases, the Supreme Court decides a narrow question of statutory interpretation and the Justices do not focus on the policy consequences, either positive or negative, 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:

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[62] *See* Nathaniel Lord Martin, *The Reform of New Source Review: Toward a More Balanced Approach*, 23 STAN. ENVTL. L. J. 351, 379 (2004).

> "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."[63]

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."[64]

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

[63] EPA v. EME Homer City Generation, 134 S. Ct. 1584, 1590 (2014).

[64] *Id.* at 1607.

prevalent under the Clean Air Act.[65] 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."[66] 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."[67] 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.[68]

The Clean Air Act principal requirements, particularly the NSPS program and the PSD permitting provisions, apply to new sources and exempt existing sources.[69] 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."[70] Under the NSPS program, EPA sets emission standards for categories of stationary sources. 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."[71]

This categorical standard-setting approach is complemented by the PSD

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[65] *See* Jonathan 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).

[66] *See* Nash & Revesz, *supra* note 65, at 1708.

[67] *See* Nash & Revesz, *supra* note 65, at 1708; Revesz & Westfahl Kong, *supra* note 65, at 1616.

[68] *See* Nash & Revesz, *supra* note 65, at 1708-10; Revesz & Westfahl Kong, *supra* note 65, at 1616-17.

[69] *See* Nash & Revesz, *supra* note 65, at 1681-84.

[70] 42 U.S.C. § 7411(a)(4) (2012).

[71] 42 U.S.C. § 7411(a)(2) (2012).

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."[72] Construction, in turn, "includes the modification … of any source or facility."[73] And "modification" for these purposes is defined in the same manner as under section 111(a)(4).[74] The PSD permitting provisions complement the NSPS program in two ways. First, their BACT requirement needs to be at least as stringent as NSPS.[75] Therefore, there are instances in which the case-by-case standard of BACT would lead to more stringent controls than the categorical approach under NSPS.

Second, and more importantly, the BACT requirement applies even before an NSPS has been set. This feature is particularly important in the case of GHGs. EPA has not yet promulgated a NSPS for any category of sources that emit GHGs, though it has proposed standards for power plants.[76] 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 "modifications" 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, 86% of the GHG emissions from new and modified stationary sources would have been covered by the PSD program.[77] By losing on the trigger but winning on BACT, EPA will nonetheless be able to regulate 83% of the GHG

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[72] 42 U.S.C. § 7475(a) (2012).

[73] 42 U.S.C. § 7479(2)(C) (2012).

[74] *Id.*

[75] 42 U.S.C. § 7479(3) (2012).

[76] 79 Fed. Reg. 1430 (2014).

[77] *See* United Air Regulatory Group v. EPA, 134 S. Ct. 2427, 2438 (2014).

emissions from these sources.[78]

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.[79] 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.

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 impose the 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 difficult to accomplish, the amount of pollution crossing state lines will be greater than is optimal.[80]

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. Environmental Protection Agency*,[81]

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[78] *See id*.

[79] *See* Brief for Institute of Policy Integrity at NYU Law School as Amicus Curiae in Support of Respondents 22, United Air Regulatory Group v. EPA, 134 S. Ct. 2427 (2014).

[80] *See* Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341, 2342-44 (1996). I 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. 555, 557 n.3 (2001).

[81] 739 F.2d 1071 (6th Cir. 1984).

concerned a power plant in Indiana, which was uncontrolled and emitted 6.0 pounds of sulfur dioxide per million BTU of heat input (lbs/MBTU). It contributed 47% to the ambient air quality levels in a portion of downwind Jefferson County, Kentucky.[82] 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.[83] The Sixth Circuit nonetheless held that Indiana had not violated the Good Neighbor Provision,[84] placing a significant roadblock on Kentucky's ability to meet the NAAQS.

This pattern of downwind states being unable to meet the ambient standards 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 condones. 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."[85]

It was not until 1998, with the promulgation of the NO_x SIP Call 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 80-85% of ozone pollution that exceeds the NAAQS in New Jersey, New York, Connecticut and Massachusetts --comes from upwind states.[86]

The proportionality approach favored by Justice Scalia, but rejected by Justice Ginsburg, would have made it less likely for the downwind states to 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

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[82] *See id.* at 1085.

[83] *See id.* at 1076.

[84] *See id.* at 1093-94.

[85] New York v. EPA, 852 F.2d 574, 581 (D.C. Cir. 1988) (R. Ginsburg, concurring) (emphasis in original).

[86] 63 Fed. Reg. 57,359, 57,404 (1998).

expensive but also more difficult to attain. The resulting undesirable health effects would have been a direct by-product of an interjurisdictional 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 concerning cost-minimization, grandfathering, and federalism. And each of these principles was supported by comfortable majorities: 6-2 for cost minimization and federalism and 7-2 for placing constraints on grandfathering. Chief Justice Roberts and Justices Kennedy, Ginsburg, Breyer, Sotomayor, and Kagan supported all three; Justice Scalia supported the first and third. Justice Thomas did not support any of these rationality principles and Justice Alito was recused in one case and rejected the more desirable approach to grandfathering in the other.

Moreover, the Supreme Court's decisions in *EME Homer* and *UARG* were largely consistent with the two other principles of rationality that form the focus of this Essay. The Court did not directly deal with cost-benefit analysis. Cost-benefit analysis seeks to maximize the net benefits, which are the benefits minus the costs, of regulatory policies.[87] 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] cost-benefit analysis to fill a gap."[88]

Even though the majority did not address any question concerning cost-benefit

[87] *See* Circular A-4, *supra* note 56, at 2.

[88] EPA v. EME Homer City Generation, 134 S. Ct. 1584, 1613 (2014) (Scalia, J., dissenting).

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, in the two cases discussed in this Essay, the Court did not explicitly deal with the validity of marketable permit schemes. Nonetheless, the majority opinion in *EME Homer* is consistent with the use trading schemes. First, a core characteristic of marketable permit schemes is that they minimize the aggregate cost of meeting a regulatory target.[89] 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.[90]

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

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[89] Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1341-42 (1985).

[90] *See supra* text accompanying note 23.