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UNPACKING *EME HOMER*: COST, PROPORTIONALITY, AND EMISSIONS REDUCTIONS

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Interstate air pollution can prevent even the most diligent downwind state from attaining the air quality levels required by federal law. Allocating responsibility for emissions cuts when multiple upwind states contribute to downwind air quality violations presents a particularly difficult problem. Justice Ginsburg's opinion for the Court in EPA v. EME Homer City Generator, L.P.*, gives EPA broad discretion to craft regulatory solutions for this problem. Although the specific statutory provision at issue was deceptively simple, the underlying problem was especially complex because of the large number of states involved. Indeed, neither the majority opinion nor the dissent seems to have fully grasped how allocation would work even in some of the simplified numerical examples discussed by the justices.*

Although the specific question before the Court is now settled, the Court's holding has continuing ramifications. It will shape further development of EPA's ongoing efforts to deal with interstate pollution, but it also has broader implications for the role of cost under federal pollution laws. In addition, the decision may have significant implications regarding EPA's flexibility in mandating state plans to reduce carbon emissions under sections 111(d) and 115 of the Clean Air Act.

* Sho Sato Professor of Law, University of California Berkeley School of Law. Thanks are due to participants in a Berkeley School of Law workshop for helpful discussion at a much earlier stage of the project.

INTRODUCTION

EPA v. EME Homer City Generator, L.P.,[1] involved the complex issue of interstate air pollution, which can make it impossible for even the most diligent downwind state to attain the air quality levels required by federal law. The U.S. Environmental Protection Agency (EPA) and the D.C. Circuit had wrestled with this problem for more than a decade before the issue reached the Supreme Court. In the end, they had reached a stalemate, with the D.C. Circuit insisting on an allocation scheme that EPA insisted was unworkable. Justice Ginsburg's opinion for the Court gives EPA broad discretion to craft regulatory solutions for this problem. Despite a vigorous dissent from Justice Scalia, the Court found ample room in the statutory language for EPA's flexible, cost-based approach to the problem.

Quite apart from its doctrinal significance, the Court's decision also had large practical effects. EPA estimated that the rule would save between 13,000 and 34,000 lives per year and have other health benefits like preventing 15,000 non-fatal heart attacks.[2] The cost-benefit analysis for the rule was strongly positive, with benefits outweighing costs by somewhere between a ratio of 50:1 and 117:1.[3] EPA projects that the rule "will reduce

1. EPA v. EME Homer City Generator, L.P., 134 S. Ct. 1584 (2014). The EME Homer facility was a major source of interstate air pollution in its own right:

> For more than 40 years, Homer City has spewed sulfur dioxide from two of its three units completely unchecked, and still does because it is largely exempt from federal air pollution laws passed years after it was built in 1969. Last year, the facility released 114,245 tons of sulfur dioxide, more than all of the power plants in neighboring New York combined. 'It is an emblem, a poster child of the challenge of interstate air pollution,' said Lem Srolovic, the head of the environmental protection bureau for the New York Attorney General's office, in an interview with The Associated Press.

Dina Cappielo & Kevin Befos, *After Decades, Dirty Power Plant to Get Clean*, ASSOCIATED PRESS (May 27, 2014 4:38 PM), http://bigstory.ap.org/article/after-decades-dirty-power-plant-get-clean. As the title of that article indicates, the plant was finally planning to install scrubbers, one of the last plants in the country to do so. *Id.*

2. ENV'T PROT. AGENCY, *Cross-State Air Pollution Rule (CSAPR)*, http://www.epa.gov/airtransport/CSAPR/ (last updated Nov. 21, 2014).

3. *Id.*

power plant SO_2 emissions by seventy-three percent and NO_X emissions by fifty-four percent from 2005 levels" in the affected area.[4]

The key problem confronting EPA was how to allocate the burden of emissions reduction among upstream states. To make a rough analogy, requiring the states to contribute to making the necessary pollution reductions is like requiring families to contribute to the cost of a picnic. Should the families divide the cost evenly, or should we take into account their ability to pay? Should the division be in proportion to the relative sizes of the families? Should we take into account that one family has small children who will eat less? The problem of dividing emission cuts between two states poses a similar problem. EPA decided that the states' emission budgets should be based on economic feasibility, whereas the challengers of the regulations argued that only the physical aspects of the situation could be considered.

The *EME Homer* case presented the Court with considerable difficulties. The Clean Air Act requires that states prevent sources from contributing significantly to downwind air quality violations,[5] but the statute does not specifically address how the responsibility to reduce emissions should be allocated when multiple states are contributing to downwind air quality violations. The Court had a good deal of difficulty in analyzing the allocation problem. Indeed, as we will see, neither the majority nor the dissent seems to have fully grasped how allocation would work even in stylized numerical examples. This Article will use a series of diagrams that provides much greater clarity and reveals some problematic assertions in the opinions.

Emissions sources will change over time and air quality standards themselves are not static. The Supreme Court's holding will continue to shape these continuing efforts. However, the Court's opinion also has broader implications. A key question before the Court was whether EPA could consider the cost of cutting emissions in determining the responsibilities of upwind states. The general question of when EPA can consider cost has reached the Supreme Court on several occasions, and *EME Homer* may help clarify the doctrine in this area. The Court's opinion may also have significant implications regarding EPA's efforts to address climate change. It provides some indications of how the Court is likely to view EPA's flexibility in mandating state plans to reduce carbon emissions under the Clean Air Act.

In addition to exploring these broader implications of the opinion, this Article seeks to sort out the confusing issues surrounding interstate allocation and to assess the Court's analysis of the problem. Part I of the Article

4. *Id.*
5. Clean Air Act of 1963 (CAA) § 110(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i).

fills in the background to the Court's decision. It explains the statutory framework, the problem of allocating emissions cuts among polluters, and the D.C. Circuit's somewhat tortuous efforts to interpret the relevant statute. In the end, the D.C. Circuit had rejected root and branch the efforts of both the Bush Administration and the Obama Administration to address regulatory pollution. Instead, the court held, EPA was required to ignore cost considerations completely and to allocate emission cuts among upwind states almost entirely on the basis of their physical contributions to downwind violations.

Part II considers one of the key issues in *EME Homer*: whether the statute mandates that cuts be distributed in proportion to the downwind pollution attributable to a state. The D.C. Circuit believed that the plain language of the statute mandated a proportionality standard, and Justice Scalia excoriated the majority for reading the statute otherwise. Part II concludes that the Court was correct to reject that view, although some of the dissent's arguments were stronger than the majority may have realized. The workability of a proportionality approach was vigorously contested on both sides, but the justices took very different views of how the approach would apply in concrete situations. The diagrammatic method adopted in this Article greatly clarifies this problem and shows that both sides were to some extent confused in their analysis.

Part III examines whether EPA could consider the cost of pollution reductions in the allocation process, even though the relevant provision does not allude to costs. The Supreme Court has confronted the role of cost in environmental statutes on several occasions, with conflicting conclusions about whether EPA had discretion to consider costs. The majority agreed with EPA that it was reasonable to consider cost in the context of interstate air pollution. Once again, the Article sides with the majority, although neither the majority nor the dissent provided a satisfactory analysis of prior precedent. Indeed, neither side mentioned the most recent opinion to address the issue.

The Article then offers some concluding thoughts. If this Article does nothing else, it should persuade readers of the complexity of the problem facing EPA in implementing the statute and the difficulty that the judges have faced in assessing these efforts. It is commonplace to refer airily to agency expertise as a reason for deference, but *EME Homer* brings home in a concrete way the agency's comparative advantage in addressing complex issues of statutory implementation. Justice Ginsburg was entirely right to emphasize this point in her majority opinion. Her opinion for the Court also has broader implications regarding the general role of cost in implementing environmental statutes. In particular, it has much to offer as a

source of guidance regarding EPA's discretion to devise sensible approaches to the biggest environmental problem of our era, global climate change. Although the necessarily technical aspects of the opinion may be off-putting to readers, it deserves recognition as a landmark decision in environmental law and administrative law more broadly.

I. Cross-Boundary Pollution, the Allocation Problem, and the D.C. Circuit

This Part provides some of the background needed to understand the issues before the Court in *EME Homer*, beginning with a description of the relevant statutory provisions and a brief explanation of how similar issues are handled in other legal settings. The problem of allocating responsibility for harmful effects among multiple actors is not unique to interstate air pollution, and a consideration of how the law has addressed similar issues helps provide perspective. This Part then introduces a graphical presentation of the emissions allocation problem before turning to a discussion of earlier D.C. Circuit decisions that set the stage for the Court's ruling. The earlier interactions between the court of appeals and EPA help explain the shape of the regulation before the Court as well as the reasons why implementing the statute had proved so difficult.

A. *Cross-Boundary Pollution and the Clean Air Act*

Understanding *EME Homer* requires, first of all, grasping the basic framework of the Clean Air Act's regulation of stationary sources (*i.e.*, not cars, planes, or trains). Section 109 of the Clean Air Act directs EPA to establish national ambient air quality standards (NAAQSs) for pollutants that endanger public health or welfare.[6] Each pollutant is subject to two types of air quality standards: primary standards that, "allowing an adequate margin of safety, are requisite to protect the public health";[7] and secondary standards "to protect the public welfare from any known or anticipated adverse effects . . . ."[8] Each state is required by section 110(a)(1)[9] to submit to EPA a plan to implement that standard within its boundaries.[10] EPA, in turn, is required to approve a state implementation plan (SIP) if it had been adopted after public hearings and satisfied the conditions specified in sec-

6. CAA § 109, 42 U.S.C. § 7409.
7. CAA § 109(b)(1), 42 U.S.C. § 7409(b)(1).
8. CAA § 109(b)(2), 42 U.S.C. § 7409(b)(2).
9. CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1).
10. Section 110(a) provides that each state shall adopt "a plan which provides for implementation, maintenance, and enforcement" of the primary (health-based) and of the secondary (welfare based) air quality standards. CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1).

tion 110(a)(2).[11] A SIP must include "emission limitations, schedules, and timetables for compliance with such limitations,"[12] as well as assurances of appropriate resources to enforce the plan.[13] If EPA determines that the state's plan is not sufficient to attain primary air standards on schedule or to attain secondary NAAQSs within a reasonable time, it must issue a federal implementation plan that will assure timely attainment.[14] Once EPA approves a state plan, it is enforceable not only as state law but also as federal law under section 113.[15]

Thus, the core of the statute is the issuance of state-by-state plans to achieve attainment of national air quality standards within each state.[16] This core mechanism, however, makes no provision for the all-too-real possibility that emissions in one state will have a significant impact on air quality in another state. The statute provides three ancillary mechanisms for dealing with such cross-boundary emissions.

The most important mechanism is the "good neighbor" provision found in section 110(a)(2)(D)(i). The good neighbor provision requires each SIP to do as follows:

> (D) contain adequate provisions (i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard.[17]

In other words, each state has to prevent any source within its borders from "contributing significantly" to nonattainment in any other state.

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11. CAA § 110(a)(2), 42 U.S.C. § 7410(a)(2); Train v. NRDC, 421 U.S. 60 (1975) (making it clear that these are the sole requirements for approval).

12. CAA § 110(a)(2)(A), 42 U.S.C. § 7410(a)(2)(A).

13. CAA § 110(a)(2)(E), 42 U.S.C. § 7410(a)(2)(E).

14. CAA § 110(c), 42 U.S.C. § 7410(c).

15. CAA § 113, 42 U.S.C. § 7413.

16. Although this is the core of the statute, the Clean Air Act is replete with other provisions governing a variety of issues ranging from smokestack heights (CAA § 123) to non-attainment (CAA §§ 201-214a) to acid rain (§§ 351-351o), and a host of others. *See* 42 U.S.C. §§ 7423, 7501-7514a, 7651-7651o; for an overview of the statute and its history, see Daniel A. Farber & Ann Carlson, Environmental Law: Cases and Materials 420-32 (9th ed. 2014).

17. CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i). The provision also applies to emissions that interfere with maintenance of air quality standards once the standards have been attained, as opposed to preventing attainment of the standards in the first place. The only difference is that the word "significantly" is omitted in the case of maintaining existing standards. For simplicity, this Article will focus exclusively on potential interference with maintenance as opposed to attainment, but the same arguments apply to both.

The good neighbor provision interlocks with section 126, which empowers states to petition EPA for a finding that stationary sources in other states are violating the good neighbor provision.[18] Once EPA has made such a finding, it becomes unlawful for sources to violate the good neighbor provision even if they are not violating their own permits.[19] Each state's implementation plan must ensure compliance with the requirements of section 126.[20]

In implementing these rules, EPA can establish an air transport region of states receiving or emitting significant pollutants.[21] Representatives of these states form a transport commission, which has the responsibility of assessing possible mitigation strategies and making recommendations to EPA on how to implement the good neighbor provision.[22] Moreover, the commission can request that EPA issue a finding that states are violating the good neighbor provision, and EPA must make a finding about the existence of such violations within eighteen months; the finding is then subject to judicial review as a final agency action.[23]

These provisions cohere around a key mandate: sources in one state may not "contribute significantly to nonattainment" in another state. However, the situation becomes more complicated if more than one upwind source is involved (and even more so if more than one downwind state is impacted). For example, suppose that State 1 is out of attainment. Neither upwind State A nor upwind State B is adding enough pollution independently to cause the nonattainment, but their joint pollution does so. Thus, neither state is the "but for" cause of the nonattainment. State 1 could attain the air quality standards if either one of the upwind states stopped polluting its air, if they both cut their pollution proportionately, or if they adopted

18. CAA § 126(b), 42 U.S.C. § 7426(b). Sections 126(b) provides: "Any State or political subdivision may petition the Administrator for a finding that any major source or group of stationary sources emits or would emit any air pollutant in violation of the [good neighbor provision]." The relationship between § 126 and § 110 gave rise to some perplexities, in part because of a typographical error in § 126, as discussed in *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1041 (2001). EPA's initial reluctance to implement § 126 is illustrated by State of Connecticut v. U.S. EPA, 656 F.2d 902 (1981).

19. CAA § 126(c), 42 U.S.C. § 7426(c). Subsection (c) makes it a violation of § 126 and of the state implementation plan for any major source to continue to operate in violation of the good neighbor provision after a finding has been made. Thus, unlike the good neighbor provision of § 110, § 126 operates directly against major sources rather than mandating that states amend their implementation plans to deal with the problem.

20. CAA § 110(a)(2)(D)(ii), 42 U.S.C. § 7410(a)(2)(D)(ii).

21. CAA § 176a(a), 42 U.S.C. § 7506a(a).

22. CAA § 176a(b), 42 U.S.C. § 7506a(b); for a discussion of how EPA has helped catalyze regional efforts to deal with interstate pollution, see Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 Nw. U. L. Rev. 1097, 1144-50 (2009).

23. CAA § 176a(c), 42 U.S.C. § 7506a(c).

other cuts equaling the needed joint reduction. In principle, any one of these measures would eliminate any violation of the good neighbor provision or section 126.

The good neighbor provision of the Clean Air Act is by no means the only situation in which it is necessary to allocate responsibility among multiple contributors for a harmful outcome. Rather, allocation of responsibility for harm among multiple parties is a recurring legal problem. To put the problem in context, it is helpful to consider how the law addresses such situations in other areas.

An analogous situation is presented by ordinary tort law. Suppose a downwind state managed to establish tort liability for several upwind states for harming it. How would damages be allocated among the upwind states? The Restatement (Third) of Torts specifies two key factors: "the nature of the person's risk-creating conduct" and the "strength of the causal connection between the person's risk-creating conduct and the harm."[24] The causal-connection factor seems analogous to the proportion of emissions from various upwind states. The other factor is assessed on the basis of "how unreasonable the conduct was under the circumstances, the extent to which the conduct failed to meet the applicable legal standard, the circumstances surrounding the conduct, each person's abilities and disabilities, and each person's awareness, intent, or indifference with respect to the risks."[25] In allowing EPA to consider how easily an upwind state could have reduced its emissions, *EME Homer* seems consistent with the Restatement's focus on the reasonableness of the harm-causing conduct.

An even closer analogy is presented by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).[26] At issue is how to allocate clean-up costs for hazardous waste among the responsible parties, such as the generator(s) of the waste and the owner(s) of the site. Section 113(f)(1) of CERCLA provides that "[i]n resolving contribution claims, the court may allocate response costs among liable parties using such equitable factors as the court determines are appropriate."[27] As the Second Circuit explained in an early case involving municipal waste:

> An array of equitable factors may be considered in this allocation process, including the relative volume and toxicity of the substances. . . , the relative cleanup costs incurred as a result of these wastes, the degree of care exercised by each party with respect to

24. Restatement (Third) of Torts: Apportionment of Liab. § 8 (2000).

25. *Id.* at cmt. c.

26. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675 (2006).

27. CERCLA 113(f)(1), 42 U.S.C. § 9613(f)(1).

> the hazardous substances, and the financial resources of the parties involved.[28]

The court added that,

> Consequently, the amount of liability imposed will not necessarily be a function solely of the total volume of municipal waste disposed of in the landfills, but rather will be a function of the extent to which municipal dumping of hazardous substances both engendered the necessity and contributed to the costs, of cleanup.[29]

Courts often rely on the so-called Gore factors, which include the defendant's degree of care during disposal and cooperation with authorities during the cleanup.[30]

As another court pointed out just three years after CERCLA's enactment (and before section 113(f) was added to the statute),[31] the statute "on its face, gives no guidance on how to solve the problem of comingling, or whether liability should be apportioned based on the volume or toxicity of the waste, or how liability is to be apportioned between owners, operators, transporters and generators;" the statute's "silence in light of these extremely complex issues persuades the Court that Congress intended the courts to enforce CERCLA by applying evolving principles of common law on a case by case basis."[32] The addition of section 113(f) validated the approach taken by the courts, but its vague reference to equitable factors provided little additional guidance.

As the torts and CERCLA approaches indicate, determining how to allocate responsibility is far from a straightforward problem. Any reader of *EME Homer* is likely to agree after reviewing some of the numerical examples provided in the majority opinion and dissent.[33] Indeed, the courts themselves sometimes seem to find their own numerical examples confusing.[34] In the next Section, we will use some simple diagrams to show that more complicated issues arise when there are multiple upwind and down-

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28. B.F. Goodrich Co. v. Murtha, 958 F.2d 1192, 1206 (2nd Cir. 1992).

29. *Id.*

30. Farber & Carlson, *supra* note 16, at 852-53. For a case relying on the Gore Factors in applying § 113(f), *see, e.g.*, Control Data Corp. v. S.C.S.C. Corp., 53 F.3d 930 (8th Cir. 1995).

31. The contribution provision was added in 1986. *See* Farber & Carlson, *supra* note 16, at 856.

32. United States v. A & F Materials Co., 578 F. Supp. 1249, 1255 (S.D. Ill. 1984).

33. EPA v. EME Homer City Generator, L.P., 134 S. Ct. 1584 (2014).

34. For discussion of instances where the judges seem to have been confused in their analysis of numerical examples, see text accompanying notes 84-86 and 88-92, *infra*.

wind states.[35] Diagrams of this kind will greatly clarify our later analysis of the issues before the Court.

B. *The Nature of the Allocation Problem*

We will focus in this section on a simple situation: two downwind states (State 1 and State 2) are impacted by pollution from two upwind states (State A and State B). We will analyze what combinations of cuts from the upwind states will suffice to bring the downwind states into attainment. In the simplest scenario, the downwind states would be just barely complying were it not for the upwind states. Under those circumstances, the only solution is for each upwind state to reduce its pollution to the level that assures that no significant amount of pollution is reaching the downwind states.

In another scenario, the downwind states might be contributing relatively little to their own pollution problems, leaving headroom between their self-generated pollution and the amount needed to attain the national air quality standards. We might assume in this example that, without outside pollution, State 1's air would have three units of pollution, the air quality standard would be five units, and the current level due to "imported" pollution is seven units. Thus, States A and B are jointly contributing four units, but we need to cut only two units. The question then is how to divide the two units of cuts between States A and B.

To complicate matters, assume a similar situation is present in downwind State 2, but the proportions of pollution the upwind state contributes to each downwind State vary. For instance, upwind State A may be very close to State 1, whereas upwind State B is far away, so changes in emissions in State A may have a higher impact on air quality in State 1. On the other hand, despite being farther away, State B may produce much greater emissions, outweighing the proximity factor in terms of impacts on downwind State 1.

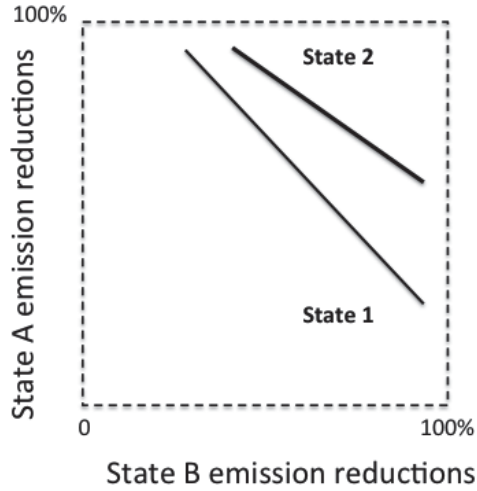
This already confusing situation is highly oversimplified. It ignores the difficult modeling problems involved in determining how emission changes in upwind states affect air quality in downwind states. Moreover, transboundary air pollution can involve far more than two upwind states and two downwind states. However, the two-on-two situation provides clear insights

35. Another complication we will ignore is that many states are downwind from some states and upwind from others. *See* Reply Brief for the Federal Petitioners at 18, U.S. EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584 (2014) (Nos. 12-1182 and 12-1183). This can cause serious complications. If such a state is required to reduce its emissions to assist attainment in a state downwind from it, it will have less of a nonattainment problem itself. As a result, states that are upwind of the state in question could adjust their emissions upward. But that change in turn might affect air quality levels in the state furthest downwind, requiring the "middle" state to cut its own emissions further.

into the nature of the more complex real-world problems and can be graphically portrayed in two-dimensional diagrams.

Figures 1 and 2 show two variations on this scenario. The lines labeled State 1 and State 2 show the mix of controls needed to bring both downwind states into attainment by reducing emissions in upwind States A and B. The axes measure emissions reductions from the status quo by figures between zero and one hundred percent. If one state does less, the other state must do more to achieve attainment in the downwind state.[36] The tilt between the two lines depends on the total amount of pollution emitted in each state and the proportion of that pollution reaching each of the two downwind states. A nearly horizontal line would mean that emissions reductions in State B (the x-axis) have relatively little effect on pollution levels downwind compared with reductions in State A (the y-axis). Note that pollution levels in downwind states are lowest at the origin—where all emissions are eliminated—and highest in the upper right corner of the graph, which represents the status quo.[37]

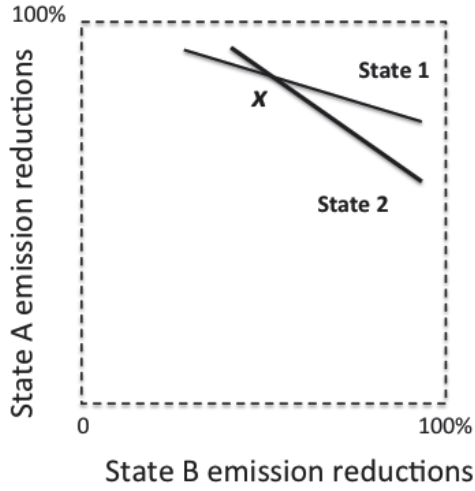
FIGURE 1. STATES WITH NON-INTERSECTING COMPLIANCE CURVES



36. Note that the compliance lines do not hit either axis; this is because the statute prohibits only "significant" impacts on downwind states, so states escape regulation when their emissions fall to a sufficiently low level. *See* CAA § 110(a)(2)(D)(i)(I), 42 U.S.C. 7410(a)(2)((d)(i)(I) (states must ensure that no source significantly contributes to downwind nonattainment).

37. For simplicity, we will assume throughout that completely eliminating upwind emissions would bring the downwind states into compliance. This assumes that the downwind states are making whatever cuts in their own emissions are appropriate, and that emissions from natural sources or from outside the United States are not themselves sufficient to cause nonattainment.

FIGURE 2. STATES WITH UNIQUE COMPLIANCE MIX



The difference between Figures 1 and 2 results from varying relative contributions of the two upwind sources as compared to the two downwind sources. As we will see, it matters whether the relative impacts of the two upwind sources are similar for both downwind states, or whether the share of relative responsibility between upwind states shifts substantially in one downwind state versus the other. One thing to note about these diagrams is that they say nothing about cost. We can assume that greater emissions cuts in any one state cost more than smaller ones, but we do not know how much more, nor do we know how costs might compare between the two states. Cutting emissions may also have benefits in the upwind states, and we are ignoring those as well.

In Figure 1, the relative impacts of the two upwind states are roughly similar with regard to both downwind states, but one of the downwind states (State 2) requires more extensive pollution reductions by the upwind states to bring it into compliance. Essentially, greater combined emissions cuts are required from States A and B for State 2 to reach compliance than for State 1. As the diagram shows, it is possible to achieve attainment in State 2 only by "over-controlling" and cutting pollution in State 1 below the level required to meet the air quality standards there. There is simply no way to satisfy the precise statutory standard for air quality in both states; in order to hit the target for State 2, over-control in State 1 is necessary. Thus, in order to bring State 2 into compliance, air pollution in State 1 must be cut more than is otherwise necessary to achieve the required air quality there.

Under some circumstances, however, it may be possible to bring two states precisely into attainment, without over-controlling. This situation is illustrated in Figure 2. In contrast to Figure 1, the two attainment lines cross in Figure 2, meaning there is a unique set of upwind pollution reductions that will precisely bring the two downwind states into compliance. That combination of pollution reductions is represented by Point X. State B would be required to cut its emissions by about one-half, while State A would have to cut its emissions by about eighty percent. However, this is not the only way to ensure that air quality standards are met in both states. Any point on the upper line to the right of the crossover point will also create attainment in both downwind states (though State 2 will have even better air quality than required by the air quality standards).

C. *Initial Regulatory Efforts and the D.C. Circuit*

With this understanding of the problem of interstate pollution in mind, we turn to the regulatory effort to deal with cross-state pollution. Implementation of the good neighbor provision proved challenging both for EPA and the courts. As we will see, the D.C. Circuit was initially supportive of EPA's efforts, but then became increasingly convinced that the statute provided a clear roadmap that left EPA little discretion.

Michigan v. EPA[38] was the first of the three key opinions in the D.C. Circuit dealing with the good neighbor provision. In 1990, Congress put the good neighbor provision into its final form, changing it from a prohibition on emissions that "prevent" attainment to a prohibition on emissions that significantly contribute to nonattainment.[39] EPA issued a regulation in 1998 mandating that twenty-two states and Washington, D.C. revise their SIPs to comply with the good neighbor provision in order to limit ozone pollution in downwind states.[40] The regulation required that each jurisdiction reduce nitric oxides (NO_x) using "highly cost-effective controls" (i.e., controls costing $2000/ton or less).[41]

The most important issue before the court involved EPA's use of cost as a factor in calculating reductions. EPA had first made an initial determination of significance based on "magnitude, frequency, and relative amount" of a state's contribution to ozone pollution in each downwind state.[42] Then, EPA ruled that a state's contribution would no longer be considered signifi-

38. 213 F.3d 663 (D.C. Cir. 2000).
39. *Id.* at 674.
40. *Id.* at 669.
41. *Id.* at 675.
42. *Id.*

cant if it implemented certain highly cost-effective controls.[43] EPA's goal, in the court's view, was to "have a lot of states make what it considered modest NO_x reductions, uniformly limited to ones that could be achieved (in EPA's estimate) for less than $2000 a ton."[44] Consequently, the amount that counted as significant would "vary from state to state depending on variations in cutback costs."[45] After some initial waffling on their position, the states challenging the rule argued that the statute barred EPA from any consideration of costs; indeed, they argued that "if faced with two states, one of which could eliminate all relevant emissions at a trivial cost, while the other could eliminate none at a cost of less than $5000 a ton, EPA must mandate the same cutback for each."[46]

The majority rejected this argument. It observed that "significant" is often a multidimensional concept, as in the phrase "significant other."[47] Relying on circuit precedent establishing a presumption in favor of EPA's ability to consider costs in implementing the statute,[48] the court concluded that the states had not identified the required clear evidence of congressional intent.[49]

In dissent, Judge Sentelle sided with the challengers.[50] Focusing on the statutory language requiring adequate measures to eliminate "any air pollutant in *amounts* that will . . . *contribute significantly* to nonattainment," he argued that the significance determination had to be made purely on the basis of physical characteristics—the amount of emissions or the significance of the source's contribution to downwind pollution.[51] While Congress did not define the meaning of "significant contribution," he said, "neither EPA nor the majority have offered any reasonable interpretation of those words

43. *Id.*

44. *Id.* Downwind states were making substantially greater investments to control their own emissions. Reply Brief for the Federal Petitioners, *supra* note 35, at 21.

45. *Michigan* at 675.

46. *Id.* at 676.

47. *Id.* at 677. The regulation seems to have been quite successful:

> To date, the NOx Budget Trading Program appears to have been extremely successful. For the 2007 ozone season, NOx emissions were five percent below the emission cap and overall, ground level ozone has fallen ten percent between 2002 and 2007. Ozone NOx emissions have declined in every participating state. This decline has occurred despite an increase in overall heat input, which tracks total power generation.

Carlson, *supra* note 22, at 1150.

48. That circuit precedent seems at odds with the later decision in Whitman v. American Trucking Ass'n, 531 U.S. 457 (2011) (rejecting the use of use of such a presumption in determining the relevance of cost to determining air quality standards).

49. *Michigan* at 677-79.

50. *Id.* at 695 (Sentelle, J., dissenting).

51. *Id.*

which makes them depend upon or even relate to the cost effectiveness of alleviation."[52] As we will see below, Judge Sentelle's proportionality concept resurfaced in the *EME Homer* litigation, gaining the support of a majority on the D.C. Circuit and two dissenters at the Supreme Court.

The EPA regulation at issue in *Michigan v. EPA* also contained an emissions trading option that states could adopt voluntarily.[53] The court did not rule on the legality of this option since none of the parties challenged it.[54] It would be only a few years, however, before the court found the opportunity to rule on the compatibility of emissions trading with the good neighbor provision in *North Carolina v. EPA*.[55]

EPA's next effort to implement the good neighbor provision, the Bush Administration's Clean Air Interstate Rule (CAIR), directly involved fine particulates ($PM_{2.5}$) and ozone, but imposed limits on SO_2 and NO_x as precursors of these pollutants.[56] This time, EPA's net swept in twenty-eight states and the District of Columbia.[57] EPA used a two-fold test of significance, which was based purely on the amount of emissions for $PM_{2.5}$ violations; for ozone, the test was based on the magnitude and frequency of the contribution to violations and the size of the contribution relative to the amount of excess ozone.[58] States were again given the option of participating in a trading program or of facing fixed caps if they chose not to.[59] The caps were determined first by setting regional budgets, and then allocating the budgets among states "according to each state's proportion of oil-, gas-, and coal-fired facilities."[60] Another complicated set of provisions not relevant to our discussion attempted to coordinate SO_2 controls with the separate SO_2 trading system meant to address acid rain.[61]

The D.C. Circuit struck down the rule. Regarding the trading system, the court faulted EPA for addressing the cumulative effect of upwind emissions, rather than matching emissions between emitting and receiving states.[62] The court pointed out that the "EPA's apportionment decisions have nothing to do with each state's 'significant contribution' because under EPA's method of analysis, state budgets do not matter for significant contri-

52. *Id.* at 697.
53. *Id.* at 676.
54. *Id.*
55. North Carolina v. EPA, 531 F.3d 896 (D.C. Cir. 2008).
56. *Id.* at 903.
57. *Id.*
58. *Id.* at 904.
59. *Id.*
60. *Id.*
61. *Id.* at 903.
62. *Id.* at 908.

bution purposes."[63] The trading system was invalid because it did not "achieve[ ] something measurable toward" ensuring that no individual state's pollution significantly contributed to downwind non-attainment in any individual state.[64] Thus, in the court's view, EPA failed to consider the state-by-state linkages and ensure that each upwind state would take at least a "measurable" step toward reducing its downwind pollution.[65] Indeed, "[b]ecause CAIR is designed as a complete remedy" under the good neighbor provision, "it must actually require elimination of emissions from sources that contribute significantly and interfere with maintenance in downwind nonattainment areas."[66]

The court also rejected EPA's method for setting NO_x budgets, which were designed to produce an "equitable balance of controls."[67] Combined with the trading scheme, the net effect of EPA's allocation was that coal-reliant states would get excess allowances, which they could then sell to firms in other states in order to fund their own emissions reductions.[68] In the court's view, this contravened the statutory mandate to reduce emissions "within the State" contributing to downwind pollution.[69]

After its loss in *North Carolina*, EPA went back to the drawing board and tried again under a new presidential administration. The result was the 2011 Transport Rule (also called the Cross-State Air Pollution Rule, or CSAPR), which came before the D.C. Circuit in *EME Homer City Generation L.P. v. EPA*.[70] The court had left the CAIR rule in place pending replacement by EPA,[71] so, presumably, EPA was under less time pressure than it would have been if interstate pollution had been left completely unregulated.

This time, EPA used a two-stage process to set each state's obligations. First, it determined whether a state significantly contributed to a specific downwind state's nonattainment, with significance defined as being any-

63. *Id.* at 907.

64. *Id.*

65. *Id.*

66. *Id.* at 908. The word "maintenance" appears to be an error, because the court only later discusses the "good neighbor" clause dealing with *maintaining* of attainment in the next subsection of the opinion. Doubtless the court meant "attainment."

67. *Id.* at 919.

68. *Id.* at 920-21.

69. *Id.* at 921.

70. EME Homer City Generation L.P. v. EPA, 696 F.3d 7 (D.C. Cir. 2012); for discussion of the Court of Appeals opinion, see Jeremy Feigenbaum, *Becoming Good Neighbors After* EME Homer City Generation, L.P. v. EPA, 38 Harv. Envtl. L. Rev. 259 (2014). I consider the Supreme Court phase of the litigation in the next subsection.

71. *EME Homer*, 696 F.3d at 15.

thing over one percent of the relevant air quality standard.[72] Then, at the second stage, EPA used a cost-based standard to determine how much each state could reduce its emissions at a given cost. After weighing both air pollution impacts and economic impacts, the regulation set a $500/ton threshold for ozone and NO_x.[73] As a result of this cost threshold, Florida, for example, was required to make a disproportionate share of NO_x cuts, accounting for over 15,000 tons of the 19,000 "ozone-season" NO_x emissions in states under the $500/ton cap.[74] Presumably, this was because Florida had previously done little to control emissions compared to other states. For SO_2, EPA used the $500 cost cap for one group of states, but found that applying that standard to another group of states would not result in sufficient reductions to bring the downwind states into compliance.[75] States in the second group were therefore subject to a $2,300/ton cost cap instead.[76] EPA then issued federal implementation plans based on these determinations, which included an interstate trading provision.[77]

The Transport Rule was challenged in the D.C. Circuit, which struck down the rule in a sweeping opinion by Judge Kavanaugh. His analysis began by identifying two "red flags" that he distilled from prior opinions. First, the statutory text limits EPA's powers to the elimination of all but an insignificant part of emissions that "travel beyond an upwind State's borders and end up in a downwind State's nonattainment area."[78] Second, the significance of the State's contribution "depends on the relative contributions of that upwind State, of other upwind State contributors, and of the downwind State."[79] Judge Kavanaugh drew the conclusion that "the collective burden must be allocated among the upwind States in proportion to the size of their contributions to the downwind State's nonattainment."[80]

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72. *Id.*

73. *Id.* at 17.

74. Brief of Industry and Labor Respondents at 30 n.15, U.S. EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584 (2014) (Nos. 12-1182 and 12-1183).

75. EME Homer, 696 F.3d at 17-18.

76. *Id.* at 18.

77. *Id.*

78. *Id.* at 20.

79. *Id.*

80. *Id.* at 21. Judge Kavanagh provided an example to show precisely how EPA was to apply this rule:

> Suppose the NAAQS is 100 units, but the downwind State's nonattainment area contains 150 units. Suppose further that the downwind State contributes 90 units, and three upwind States contribute 20 units each. Because the upwind States are responsible for the downwind State's exceeding the NAAQS by 50 units, the downwind State is entitled to at most 50 units of relief from the upwind States so that the downwind State can achieve attainment of the NAAQS. Distributing those obligations in a manner proportional to their contributions, each of the three

This analysis seems in somewhat obvious tension with the holding in *Michigan v. EPA* that cost can be a factor in determining the "significance" of a state's contribution. Judge Kavanaugh attempted to square the two opinions by reading *Michigan* as allowing EPA to use cost only to lower a state's initial assignment of responsibility, but not to increase it.[81]

Judge Kavanaugh then added that "EPA must also ensure that the combined obligations of the various upwind States, as aggregated, do not produce more than necessary 'over-control' in the downwind States—that is, that the obligations do not go beyond what is necessary" to achieve downwind air quality standards.[82] Judge Kavanaugh conceded, however, that over-control sometimes may be required to ensure that the reductions bring every downwind state into compliance. As Figure 1 demonstrates, Judge Kavanaugh was correct on this score.

Judge Kavanaugh then held that the Transport Rule was flawed in three respects. First, the obligations were not based on the "amount" of the state's contribution to downwind noncompliance, and if the state's emissions reductions were cheap, it could actually be required to reduce below the zone of "insignificance" defined in the first step of EPA's analysis.[83] Second, EPA failed to calculate reductions based on the proportion of each upwind state's contribution to nonattainment downwind.[84] Third, EPA "failed to ensure that the collective obligations of the various upwind States, when aggregated, did not produce unnecessary over-control in the downwind States."[85] Judge Rogers wrote a vigorous dissent, largely on the grounds that these claims were not properly before the court.[86]

A consistent thread runs through the D.C. Circuit cases, despite some of their internal tensions. Rather than seeing the statute as creating an obligation on upwind states collectively to limit their combined downwind pollution loads, the court emphasized that each upwind state had an individual responsibility to do so. That duty was expressed in various terms as requiring at least a cost-effective (*Michigan*), "measurable" (*North Carolina*), or

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upwind States' significant contribution would be, at most, 16⅔ units. Or suppose instead that the three upwind States contribute 10, 20, and 30 units respectively. Distributing those obligations in a manner proportional to their contributions, those three States' significant contributions would be at most 8⅓, 16⅔, and 25 units, respectively, leading to the combined reduction of 50 units needed for the downwind State to reach attainment.

Id.

81. *Id.* at 21-22.
82. *Id.* at 22.
83. *Id.* at 23-24.
84. *Id.* at 26-27.
85. *Id.* at 27.
86. *Id.* at 38.

"proportional" reduction in downwind pollution (*EME Homer*). But the statute can also be read differently, as allowing any set of upwind emission cuts that will bring the downwind state into attainment.

As Judge Kavanaugh read the statute, it essentially calls for a two-step process. First, EPA has to determine the quantity that counts as a "significant" addition to a downwind state's pollution. EPA apparently did that acceptably. Second, EPA must determine the total reduction required for each downwind state and allocate that total among upwind states in proportion to their share of the excess pollutants, minus the "insignificant" quantity they are allowed to continue emitting. The statute does not explicitly call for proportionality. As we will see in Part II, the Supreme Court devoted considerable attention to the question of whether the D.C. Circuit was right in discerning a proportionality mandate. Part III will discuss the Court's analysis of whether cost was an allowable consideration assuming that EPA had discretion to depart from proportionality.

II. Is Proportionality Required by the Good Neighbor Principle?

Judge Kavanaugh's proportionality requirement would have sharply constricted EPA's efforts to implement the good neighbor provision. The question of whether proportionality would be a workable approach was complex, however, and required the Court to delve into the allocation problem in some depth. We begin by showing how the concept of proportional reductions in excess pollution in a downwind state can be translated into proportional cuts in upwind emissions. This shift makes application of the proportionality concept much easier. We then examine how proportionality differs in effect from the approach taken by EPA. With this background, we turn to the conflicting views about this issue discussed in the Supreme Court's majority and dissenting opinions.

A. *Implications of Proportionality*

There are two ways of thinking about proportionality, and it may not be immediately obvious that they are identical.[87] We could think of proportionality on the downwind side as maintaining the proportions by which the upwind states contribute to nonattainment. Or, we could think of proportionality on the upwind side as involving proportional emission cuts (or,

87. Note, however, that this conclusion requires that downwind contributions be proportional to upwind emissions, which may not always hold in practice. To the extent that the relationship between upwind emissions and downwind contributions is nonlinear, the problem becomes more complex, and that complexity would make the argument for deference to EPA's approach even stronger.

equivalently, as maintaining the proportions between the total volumes of emissions). Shifting the focus from proportional contributions to proportional emissions makes the analysis much simpler, because it shifts the focus from effects (i.e., changes in downwind contributions) to causes (i.e., cuts in upwind emissions). A good deal of confusion in the opinions from both the D.C. Circuit and the Supreme Court stems from viewing proportionality through the contribution lens, rather than the emissions lens.

To see that these two perspectives are equivalent, consider a hypothetical involving two upwind states—A and B—and a single downwind state. Assume that total pollution coming into the downwind state needs to be cut from twelve units to eight units to bring State 1 into attainment:

TABLE 1. ALTERNATIVE FORMULATIONS OF PROPORTIONALITY

	Initial Total Emissions	Dilution Factor*	Pollution Initially Exported to Downwind State	Required Reduction in Pollution Contribution	Reduction in Total Emissions of Upwind State
State A	12	4	3	2	66% [(2x4)/12]
State B	18	2	9	6	66% [(6x2)/18]

* A small technical point: State 1 may well attain the air quality standards during some time periods and fail to do so during others. The meteorological conditions may vary between those two categories of times. The dilution factor is the average dilution limited to the time periods of nonattainment in State 1.

To unpack Table 1 a bit, the first column measures the total emissions from the upwind state. The second column (the dilution factor) reflects the proportion of an upwind state's emissions that actually reach the downwind state. Thus, if State A emits twelve units, we have to divide by the dilution factor of four, so that only three of those units reach the downwind state. Combining this data results in the third column. Similarly, for State B, half of the total emissions (twelve) reach the downwind state, leaving us with nine units in the third column. Adding up the figures in column three, we see that twelve units are reaching the downwind states; to reach attainment, we need to get this down to four units, requiring a cut of eight units. Currently, State A's contribution is one-third of State B's, so we need to distribute the cuts by the same one to three ratio, with two units cut from State A and six from State B.

Now we work backwards from contribution cuts to emission cuts. In order to cut State A's downwind contribution by two units, we need to cut emissions by eight units, given the dilution factor of four. Similarly, State B

will need to cut emissions by twelve units in order to cut its downwind contribution by six units, given the dilution factor of two. This gives us the last column. The key point is that, although the amount to be cut differs in the two upwind states, the percentage of emissions that need to be cut is the same.

The point can be made more general, however: if amounts of pollution reaching downwind states are proportional to amounts of pollution emitted, then proportionate reductions in excess pollution downwind require proportionate reductions in pollution emitted upwind. It would be too generous to call this observation a theorem, but some simple algebra suffices to establish the following result:

Proportionality Equivalence. Let X be the amount of emissions in State A, and let Y be the amount of emissions in State B. Let A_1 be State A's contribution to pollutant concentrations in State 1, and A_2 be the pollutant contributions to concentrations in State 2. Similarly, let State B's emissions be Y, and let B_1 be State B's contribution to pollution in State 1 and B_2 be State B's contribution to pollution in State 2. Also assume that the contributions are linear functions of emissions, so that: $A_1 = a_1X$, $B_1 = b_2Y$, $A_2 = a_2X$, and $B_2 = b_2Y$. Then, achieving attainment in both states through a proportional reduction in state contributions to downwind pollution is equivalent to reducing emissions proportionately.[88]

The key point is that the percentage reductions in pollution end up being the same for both states. This is, in some ways, a fairly intuitive result. Imagine having a stereo where the two speakers have individual volume control. If the music is too loud but the listener wants to maintain the existing balance between the speakers, obviously the volumes of both speakers have to be turned down proportionately. The air pollution situation is similar.

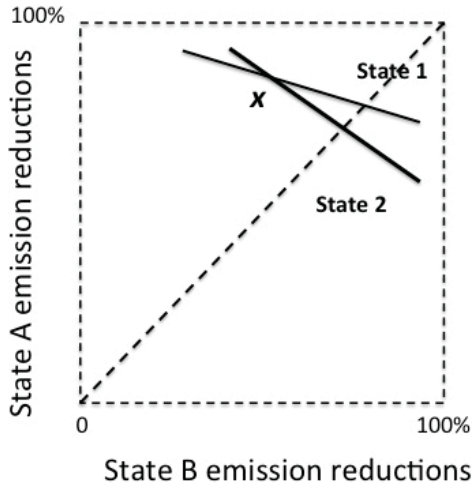
Thus, if we want to make reductions of upwind states' contribution to nonattainment proportional to their current contributions, they will need to cut their emissions by equal percentages. The equivalence between these two ways of looking at proportionality (proportional contributions or equal

88. *Proof*. Suppose that the proportionate reduction required for attainment in State 1 is m_1 and the proportionate reduction required for State 2 is m_2. Thus, the new contribution of State A to State 1 pollution is $m_1A_1 = m_1a_1X = a_1(m_1X)$, and similarly the new contribution of State B to State 1 is $m_2B_1=m_1a_1Y=a_1(m_1Y)$. Thus, to reduce their pollution contributions to State 1 by a factor of m_1, both upwind states need to reduce emissions by a factor of m_1. Similarly, to reduce their pollution contributions in State 2 by a factor of m_2, both upwind states need to reduce emissions by a factor of m_2. To achieve attainment in both states will require emissions reductions by whichever of these factors is larger, say m_2, resulting in proportionate reductions in pollution contributions in both downwind states by a factor of m_2.

emission reductions) makes it possible to use the second way for diagramming, which turns out to be much simpler.[89] It also allows us to think in terms of the percentage of emissions reductions at the upwind source, rather than the amount of pollution reduction in the multiple downwind states linked with the upwind state, and to thereby avoid a great deal of confusion.

We can get an idea of what proportionality looks like in practice from two additional diagrams. The proportionality approach requires both states to make the same percentage decreases, so the outcome must lie on the dotted diagonal line in the document. In Figure 3, we see that when a "sweet spot" exists where both downwind states are perfectly in attainment, the proportionality approach will result in unnecessary over-control in one of the states. The only exception is where the "sweet spot" (Point X) happens to be located on the diagonal.

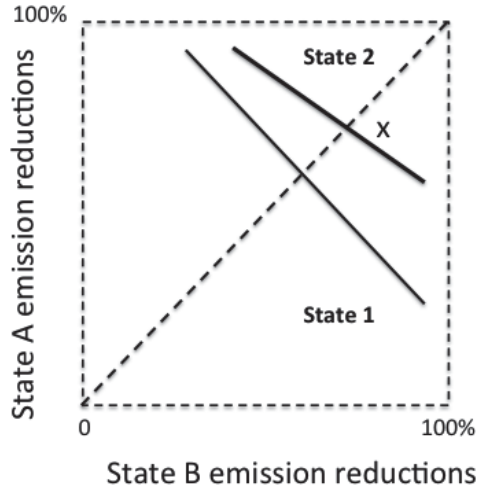
FIGURE 3. PROPORTIONALITY WITH INTERSECTING COMPLIANCE CURVES



On the other hand, if there is no cross-over, the situation will look like the one depicted by Figure 4. The mix of controls is dictated by the point labeled X, where the State 2 line crosses the dotted diagonal. In this scenario, over-control in State 1 is inevitable, but insistence on proportionality increases the amount of over-control, which could be reduced by moving upward and left from Point X on the State 2 line.

89. *See supra* Figures 1 and 2.

FIGURE 4. PROPORTIONALITY ABSENT A UNIQUE COMPLIANCE POINT

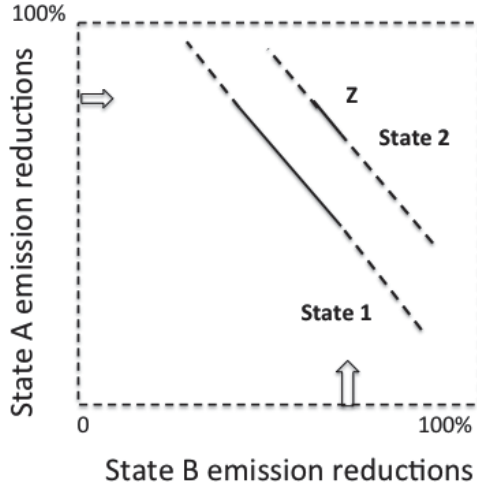


As these examples make clear, there is a tension between the D.C. Circuit's insistence on proportionality and its direction that EPA limit pollution cuts to the amount needed to bring each downwind state into attainment.

B. *The Stakes in* EME Homer

To see clearly what was at stake in *EME Homer*, it is helpful to use two additional diagrams. EPA essentially cut off the ends from each of the compliance lines where compliance costs exceeded the ceiling or where the state's contribution was no longer significant. In addition, it basically required each state to comply to the point where its compliance costs hit the ceiling. Thus, EPA mandated pollution controls at a specific percentage level for each state, a position it continued to defend in the Supreme Court.

FIGURE 5. EPA COST APPROACH (NON-INTERSECTING CASE)

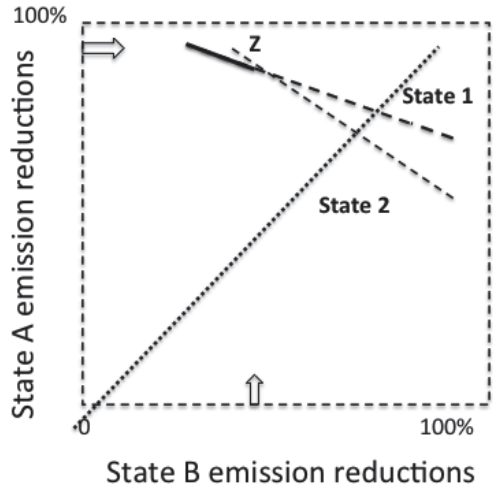


In Figure 5, the arrows on the axes represent the mandated level of control for each state. Point Z corresponds to the mix of controls from the two states resulting from the EPA cost requirement. We see that the result of EPA's action is the setting of the mixture of controls to a point that is near but not on the compliance line for State 2, while somewhat increasing the amount of over-control for State 1. Also, the mandated mix of controls (Point Z) is near the diagonal of proportional reductions. The first observation is no coincidence: EPA picked the compliance ceilings with the statutory attainment requirements in mind (here indicated by the line for State 2). The second observation, however, *is* a coincidence, resulting from the fact that incremental control costs are not that different between the states. If one state already had so many controls that further reductions exceeded the ceiling, while the other state had many options for cheap reduction, Point Z would have been near the top or the right side of the diagram, not near the diagonal. Figure 6 shows a variation, involving a situation in which it would be possible to avoid over-control. In this scenario, the cost ceilings result in a level of control—Point Z—near the cross-over point, where both downwind states are precisely in compliance. But, again, this is something of a coincidence.

The more notable point illustrated by Figure 6 is how far away Point Z is from the diagonal of the square, which would represent proportional controls. The reason for this is that State A has limited ability to cut emissions in a cost effective manner, whereas State B has the ability to reduce cut to the point where they cease to be significant for the downwind states. Thus,

almost all of the compliance responsibility falls on State B, driving the required mix of controls—again, Point Z—far from the diagonal.

FIGURE 6. EPA COST APPROACH (INTERSECTING CASE)



The respondents in *EME Homer* sought to defend the D.C. Circuit's interpretation of the law. In effect, the court of appeals required that, instead of Point Z, EPA pick the point where the State 1 line crossed the diagonal. That would nearly double State B's emissions reduction over EPA's approach (as represented by Point Z). Given that Point Z represents the limits of what EPA would consider economically feasible for State B, there would clearly be a major economic burden on that state, while State A would bear a relatively smaller cost because its own emissions reductions would be even lower than EPA's cap.

Thus, the stakes in *EME Homer* were significant, having the potential for substantial impacts regarding the issues of which states would have to reduce emissions and at what cost. The D.C. Circuit's insistence that EPA stick to the diagonal regardless of cost would have had major repercussions for many states, with a particular heavy burden on states that could only make further reductions of emissions at great expense. It is also clear that, under many circumstances, insisting on proportionality increases the amount of control in all but the most polluted downwind state.

C. *The Supreme Court and the Proportionality Requirement*

Justice Ginsburg's majority opinion poses a numerical hypothetical[90] that is somewhat difficult to grasp in narrative form, but can be presented more simply in tabular form (Table 2). Suppose we have two downwind states and two upwind states, with pollution linkages, as shown in Table 2.

TABLE 2. GINSBURG HYPOTHETICAL

	Upwind State 1	**Upwind State 2**	**Total Pollution Received by Downwind State**
Downwind State A	1	5	6
Downwind State B	7	1	8
Upwind State's Total Emissions	8	6	

The Court's conclusion is that "[p]roportionality as to one down-wind State will not achieve proportionality as to others" since in State A, State 2 will have to reduce its contribution by five times as much as State 1, whereas in State B, State A will have to reduce its contribution by seven times more than State B.[91] But this is a confused way to consider proportionality, as Justice Scalia points out in his dissent. It is true that State 1's pollution contribution to State A will have to be a larger amount than State 2's in absolute terms (by a factor of five), but both can still reduce their emissions by identical percentages. For instance, if we need to cut total incoming pollution in State B by three units, we can cut emissions in State 1

90.

> To illustrate, consider a variation on the example set out above. Imagine that States X and Y now contribute air pollution to State A in a ratio of one to five, i.e., State Y contributes five times the amount of pollution to State A than does State X. If State A were the only downwind State to which the two upwind States contributed, the D.C. Circuit's proportionality requirement would be easy to meet: EPA could require State Y to reduce its emissions by five times the amount demanded of State X. The realities of interstate air pollution, however, are not so simple. Most upwind States contribute pollution to multiple downwind States in varying amounts. Suppose then that States X and Y also contribute pollutants to a second downwind State (State B), this time in a ratio of seven to one. Though State Y contributed a relatively larger share of pollution to State A, with respect to State B, State X is the greater offender. Following the proportionality approach with respect to State B would demand that State X reduce its emissions by seven times as much as State Y. Recall, however, that State Y, as just hypothesized, had to effect five times as large a reduction with respect to State A.

EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584, 1605.

91. *Id.*

in half and emissions in State 2 in half. Then, State 1's contribution will be 0.5 units in State A, and State 2's contribution will be 2.5 units in State A.

The same percentage will also bring State B exactly into attainment, if State B happens to be four units out of attainment. In that case, proportional reductions will produce exact attainment in both states. So, the Court is not quite correct to think that compliance with proportionality in both states is impossible, even if this will occur only in limited circumstances. What is true, however, is that unless the required percentage reductions happen to be the same, it is normally not possible both to maintain proportionality and eliminate over-control in one of the states.[92]

This conclusion is an example of something we have already seen in diagrammatic terms in Figure 3. It simply illustrates the more general proposition that, except in the case where the attainment lines for the downwind states cross and where the crossing-point happens to lie on the diagonal, it is impossible to bring both states precisely into attainment through proportional reductions.[93] However, proportional cuts will always work to bring one state precisely into attainment while bringing the other at least to attainment (and in fact beyond).

The Court makes a more significant slip in a footnote accompanying this discussion where, in response to Justice Scalia's dissent, it argues that proportionality could result in a situation where both states must over-control their pollution.[94] This is incorrect. If it is possible to bring each state

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92. Judge Kavanagh had a suggestion about how to address the problem of over-control:

> For example, suppose that under the proportional approach explained above, State A would have to cut 5,000 tons of NOx to achieve its largest downwind obligation, while State B would have to cut 2,000 tons to achieve its largest downwind obligation. If EPA modeling showed that all downwind nonattainment would be resolved if those two upwind States' combined reduction obligations were, say, 10% lower, EPA would have to ratchet back the upwind States' reduction obligations by a total of 10%. That would ensure that upwind States were only forced to prohibit those emissions that "contribute significantly to nonattainment.

Id. at 7, 22 n. 16 (D.C. Cir. 2012). Unfortunately, this example is difficult to parse. If all the states contribute to nonattainment in all downwind states, then cutting emissions from the proportional allocation will necessarily throw one of the downwind states out of attainment.

93. *See supra* note 89 and accompanying text.

94.

> Assume the world is made up of only four States—two upwind (States X and Y), and two downwind (States A and B). Suppose also, as the dissent allows, that the reductions State X must make to eliminate its share of the amount by which State A is in nonattainment are more than necessary for State X to eliminate its share of State B's nonattainment. As later explained, this kind of "over-control," we agree with the dissent, is acceptable under the statute. Suppose, however, that State Y also contributes to pollution in both State A and State B such that the reductions it must make to eliminate its proportion of State B's overage exceed the reductions

separately into attainment by some level of proportional reductions in that state, then both attainment lines will cross the diagonal.[95] One of the crossing points must be northeast of the other (that is, requiring greater emissions reductions from both upwind states). That point brings one of the states—the one whose attainment line crosses the diagonal—into exact compliance, while creating attainment in the other state, though at the expense of requiring that air quality in that state be reduced substantially beyond the level needed for compliance.[96]

A graphical presentation may again be helpful. The Court seems to have in mind a situation in which each state's contributions make little difference in one state but are critical in the other. This situation is shown in Figure 7 below. Note that to keep State 1 in attainment, a very large increase in emissions control from State B allows only a small relaxation of controls from State A as we move from the left side of the State 1 attainment line down toward the right. The slopes of the lines reflect the relative influence of emissions changes in the two upwind states on attainment in each downwind state. It is clear that Point Y, where the State 1 attainment line crosses the diagonal, brings both downwind states into compliance, in-

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> it must make to bring State A into attainment. In this case, the dissent would have State X reduce by just enough to eliminate its share of State A's nonattainment and more than enough to eliminate its share of State B's overage. The converse will be true as to State Y: Under the dissent's approach, State Y would have to reduce by the "minimum" necessary to eliminate its proportional share of State B's nonattainment and more than enough to eliminate its proportion of State A's overage. The result is that the total amount by which both States X and Y are required to reduce will exceed what is necessary for attainment *in all downwind States involved* (*i.e.*, in both State A and State B). Over-control thus unnecessary to achieving attainment in all involved States is impermissible under the Good Neighbor Provision. (citation omitted) The problem would worsen were the hypothetical altered to include more than two downwind States and two upwind States, the very real circumstances EPA must address.

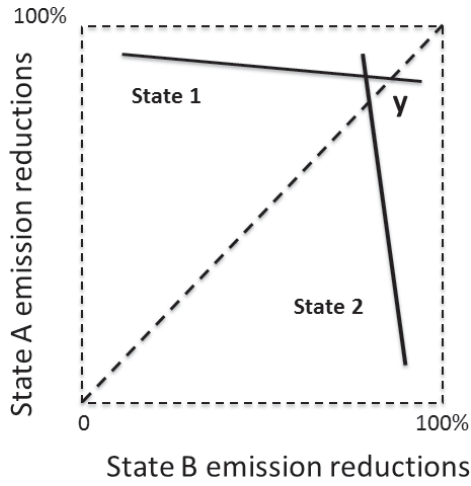
EME Homer, 134 S.Ct. at 1609 n.19.

95. This will always be true, at least if eliminating all upwind emissions (perhaps combined with downwind reductions) would bring the downwind state into attainment. That would mean that the upper right corner of the diagram would be in attainment. On the other hand, the lower left corner must not be in attainment because it represents the statute quo. (If the downwind state were already in attainment, the good neighbor provision would not apply in the first place.) If the upper right corner would achieve precise attainment, we are done. If not, then the pollution amount in the upper right corner of the diagram is below the attainment level. In that case, since the down-state's pollution is above the air quality standard at one corner and below it in the other, and the function is continuous, there must be some point in between where the two are exactly equal. That point is on the attainment curve.

96. This conclusion does not require linearity, but merely that whatever the shape of the attainment curves, they cross the diagonal somewhere.

volving no over-control in one state but unavoidable over-control in the other. Thus, it is possible to bring both states into attainment with proportional reductions, contrary to the Court's assumption that the asymmetry in the situations of the various states would mean that proportional reductions would cause over-control in both downwind states.

FIGURE 7. EXISTENCE OF COMPLIANCE POINT UNDER PROPORTIONALITY



For those who are not graphically inclined, the point can be put more simply. There is a basic recipe that can be used to ensure that all states are in attainment, reductions are proportional, and at least one state avoids over-control. Step one is to adopt provisional proportional controls keyed to each downwind state, which may well involve different percentage reductions for different downwind states. Step two is to identify the downwind state for which the required percentage is the highest. Step three is to require all the upwind states to reduce emissions by that percentage, whether or not they significantly contribute to nonattainment in that specific downwind state. This may result in massive over-control in other states in some cases. But it does meet the requirements that no state will be out of attainment, and all reductions will be proportional.

The upshot is that Justice Scalia's dissent is correct, in that it is always possible to bring both states into attainment through proportional reductions and to have exact attainment in one of them.[97] But he is wrong when he argues that "it is easy to imagine precluding unnecessary over-control by

97. *EME Homer*, 134 S.Ct. at 1614 (Scalia, J., dissenting). This again assumes a linear relationship between emissions and downstate pollution.

reducing in a percent-based manner the burdens of each upwind State linked to a given downwind area."[98] Doing so would require that the attainment lines for both states cross the diagonal at the same point, which generally will not occur. So long as the attainment lines cross the diagonal at different points, achieving attainment in one will entail over-control in the other.

The majority's error on this point is not critical to its overall argument. The fundamental dispute between the majority and the dissent can be seen clearly in terms of a much simpler hypothetical posed by the majority involving three states, each of them contributing equally to a thirty parts per billion (ppb) overage in the same downwind state's pollution level.[99] The majority's analysis of this simple situation really goes to the heart of its reasoning:

> How is EPA to divide responsibility among the three States? Should the Agency allocate reductions proportionally (10 ppb each), on a per capita basis, on the basis of the cost of abatement, or by some other metric? The Good Neighbor Provision does not answer that question for EPA. Under *Chevron*, we read Congress' silence as a delegation of authority to EPA to select from among reasonable options.[100]

In other words, the majority sees any point on the attainment line as satisfying the statute. Justice Scalia's view was sharply different. He could scarcely contain his outrage and incredulity at this analysis, saying the question of how to allocate the emission cuts was "a hard one—almost of the equivalent of asking who is buried in Grant's Tomb."[101] Tracking the D.C. Circuit's approach,[102] he explains his answer simply: "If the criterion of responsibility is *amounts of pollutants*, then surely shared responsibility must be based upon *relative amounts of pollutants*."[103]

Justice Scalia seems to have been guilty of something of a non sequitur here. A requirement to cut "amounts" of various kinds does not necessarily mean cutting them in proportion to the current excess. For instance, suppose that a household is spending more than its income and is required to cut the amounts of expenditure in all categories to eliminate the deficit. It would make no sense to reach this target by cutting food, health, and en-

98. *Id.* at 1615 n.2.
99. *Id.* at 1604 (majority opinion).
100. *Id.*
101. *Id.* at 1613 (Scalia, J., dissenting).
102. *See* text accompanying *supra* notes 70 to 86.
103. *EME Homer*, 134 S. Ct. at 1613.

tertainment expenses in equal proportion, without taking into account the needs in each category. A decision to cut "amounts" is not a decision to cut all amounts in equal ratios.

The two sides seem to have been talking past each other since they apparently understand the language of the statute in deeply inconsistent ways. Unfortunately, neither side seems to understand the other's perception. One side sees the language as imposing a collective duty, while the other sees it as imposing multiple individual duties.

The majority views the statute as mandating the following outcome: at the end of the day, no state can be contributing significantly to nonattainment. That outcome could be achieved in many ways. Unless a state opts out by simply reducing its downwind contribution below the level of significance, it becomes part of a collective process of improving downwind pollution. From that perspective, the good neighbor provision is analogous to the process of designing a state implementation plan to address a state's own pollution and the flexibility involved therein. So long as the end result is attainment (and the other provisions of the Act are complied with), any allocation of emission cuts is acceptable. The difference is only that the good neighbor provision involves a collective effort to achieve attainment involving multiple states, rather than just one.

But Justice Scalia reads the statute as imposing an individualized duty on each upwind state: once a finding is made that downwind states are out of compliance because of upwind emissions, that finding triggers equal, independent duties on downwind states to reduce their own emissions. No state's duty can depend on another's performance of its obligation, so the duty must be based solely on the level of prior emission contributions by that state. Given Scalia's assumption about the nature of the statute, it is not surprising that he finds the majority opinion incomprehensible except as an exercise in raw policymaking. If the statute mandates a process of proportional reductions, obviously EPA has little discretion to redirect emissions cuts between states. (Indeed, the states themselves would have little discretion to reallocate cuts internally to achieve the same end result, given that the statute requires that no *source* contribute amounts that significantly contribute to nonattainment.[104]) Thus, if several upwind states are contributing to downwind attainment, they must share equally in taking action to reduce emissions.

104. The good neighbor provision requires states to ensure that "any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will" contribute to downwind nonattainment. CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i).

It may be helpful to consider a similar difference in interpretation in a much simpler context. Suppose that a beach has multiple lifeguards on duty. One of the rules of the beach is that "a lifeguard must swim to the rescue of a swimmer in distress." Two different lifeguards see a swimmer who is floundering. (This is analogous to a situation where two states are contributing to downwind attainment, but either one separately could make enough cuts to bring the downwind state into attainment.) Does the lifeguard rule require only that at least one of them swim to the rescue, making this a collective duty? Or do they each have a duty to swim to the rescue, making it an individual duty? The *EME Homer* majority would, by analogy, say that it was enough if one lifeguard swam to the rescue, whereas Justice Scalia would say that both must make equal efforts.[105]

This difference in perspectives on the statute is reflected in a dispute about an important procedural aspect of the good neighbor provision. In another portion of his opinion, Justice Scalia argues that EPA could not immediately issue federal implementation plans to implement its rule, because states could not be fairly accused of violating their individual duties under the statute until they had been told the amount of their individual contributions to downwind nonattainment.[106] This is quite consistent with his view that the statute creates a mandate for individual upwind states to adjust emissions downward once they are given a goal. The majority, in contrast, held that the implementation plans of the upwind states were out of compliance because of their collective impact on downwind states. Hence, in the majority's view, EPA was entitled to issue federal implementation plans on that basis without giving them further time to revise their own plan.[107] That position was consistent with its view that only the result of the collective effort mattered; since the states had failed to achieve the end result, it was time for EPA to step in.

The logic of the statute plainly supports the majority's view that any duty involved is collective, rather than going to individual states. The statute simply requires that a valid SIP must "contain adequate provisions prohibiting, . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will contribute significantly to nonattainment in . . . any other State."[108] Note that this applies only if the downwind state is out of attainment, which may depend on

105. Even in the lifeguard situation, that might not be an unreasonable view: although it would involve some duplication of efforts, it would also increase the chances of success. *See generally EME Homer*, 134 S. Ct. at 1584.

106. *Id.* at 1616-21 (Scalia, J., dissenting).

107. *Id.* at 1600-02 (majority opinion).

108. CAA § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i).

emissions from *other* upwind states. If an upwind state is making no significant contribution to downwind non-attainment, or if the downwind state is in attainment, then the implementation plan of the upwind state is valid; otherwise it is not. Thus, one upwind state would no longer be violating the good neighbor provision if other upwind states cut their emissions enough to bring the downwind state into compliance. The statute says nothing about how the downwind state gets to be in attainment, nor does it require any findings by EPA to trigger a SIP's invalidity. It simply says when implementation plans are valid and when they are not, which depends on the collective impact of upwind emissions on the downwind states.

Indeed, it is difficult to see how the statute could be viewed as creating a truly individual duty for downwind states to make proportional reductions. Even if all downwind states knew the extent of their contributions to downwind nonattainment, unless they all agreed to comply voluntarily and in exact unison, their reductions would constantly shift the relative proportions of their contributions to downwind nonattainment, requiring in turn that they constantly revise their compliance efforts to keep pace.

For instance, suppose that two states each contribute twelve units to downwind pollution, that the total upwind contribution must be cut by twelve units in order to achieve compliance (requiring each to cut six under the Scalia approach), and that both states are determined to voluntarily comply with the statute. Assume one state was able to cut the entire six units allocated to it before the other was able to make any cuts. Since six of the required dozen units have now been cut, there are now six left to go. The first state is now contributing six units while the second is still at twelve. Under Scalia's interpretation, the statute now requires proportionate cuts of the remaining six units. Thus, further cuts must now be distributed in a two to one proportion, with the first state contributing another two units while the second state must now cut only four (instead of the six originally assigned it). After these cuts are made, the states are now both in compliance, but the path to compliance makes little sense. The net result is that, although the principle of proportionality has been applied strictly at each step, the end result is anything but proportional, with the first state cutting a total of eight units and the second state cutting only four.

The reality is that even under the proportionality approach, the reductions required of one upwind state depend on what all the other upwind states are doing, so it is impossible to imagine anything other than a coordinated effort. It makes little sense to see the statute as imposing an individualized responsibility on each state to reduce its downwind contributions to nonattainment proportionately. Once we recognize that a coordinated, col-

lective effort is needed, it is hard to resist the majority's argument that this collective obligation can be satisfied in more than one way.

The majority's reading of the statute is strengthened by consideration of the over-control problem.[109] The Court's approach gives EPA discretion to choose a level of control for each state necessary for downwind compliance. That seems consistent with the statute's goal of imposing only the controls that are necessary to bring downwind states into compliance (rather than maximizing air quality in downwind states).

Although the majority got some of the details wrong, it grasped the more important point that there are many ways of meeting the downwind attainment goal of the good neighbor provision. Imposing a rigid requirement that upwind states cut emissions by equal percentages is not only somewhat arbitrary, but it is almost sure to undermine other statutory goals, such as making states do no more than necessary to meet statutory targets. The statutory language simply did not require putting EPA in such a straightjacket.

That the justices had difficulties in grasping some important details of the problem, even in the highly simplified examples used in the opinions, is also noteworthy. It is important to realize just how simplified those examples (and the ones in this Article) really were. They involve very small numbers of upwind and downwind states, nonattainment of only a single pollutant, no states that are both upwind and downwind, and no modeling uncertainties. Yet, even with these simplifications, it is not necessarily easy to understand the ramifications of a proportionality requirement; it is even more difficult to do so in the much more complex situation that EPA faced.

In the face of this complexity, it seems a stretch to assume that Congress had a clear-cut solution in mind. If there is ever a time for delegation

109. This is a problem that could lead to bizarre consequences under a strict proportionality requirement. Recall the Court's hypothetical where three upwind states are contributing ten ppb to a thirty ppb excess over the air quality standard in one downwind state. Now consider a situation involving three upwind states and two downwind states. The three upwind states are responsible for only small contributions to nonattainment in the downwind state and could solve that problem with small emissions reductions. However, two of those upwind states are also upwind of another state where their emissions are causing severe problems, hence, they must make major pollution cuts. Those severe cuts are actually enough to bring the first downwind state into compliance, but proportionality would require equally severe cuts from the third upwind state so that they would all be contributing equal shares. The result is that the third upwind state is forced to make major pollution cuts that do nothing to serve the purpose of the statute just because the other two upwind states have to make major cuts anyway. Note that proportionality is still possible in this situation; it is just irrationally wasteful. Proponents of proportionality might conceivably be willing to make an exception in this situation and require lesser emissions reductions from the third state than the other two states.

to an agency, dealing with an issue of this kind seems to be the appropriate occasion. To the extent that Congress was concerned with achieving downwind attainment efficiently, the statute gives no clue on how to do so. To the extent that Congress might instead have been concerned about equity, multiple standards of fairness could apply here (including both proportional cuts and cost equality). And, to the extent that Congress might have had political concerns about which specific upwind states would bear the heaviest burden, it really had no way of anticipating the answer without the technical modeling that EPA later performed. It is unreasonable to think that by referring to the "amount" of emissions, the statute created an algorithm for allocating cuts.

The complexity of the problem also has commonsense implications for judicial review. The issue is not the intellectual capacity of the justices (or their law clerks) to grasp the basic issues (as opposed to the modeling problems, for which they lacked the necessary expertise). But Supreme Court litigation does not provide an ideal learning situation for judges to master unfamiliar technical material.[110] The limitations on the ability of appellate judges to pursue technical issues in great depth are substantial. Sometimes, judicial deference to an expert agency is not just a matter of respecting the separation of powers—it is also common sense.

III. Could EPA Consider Cost in Implementing the Good Neighbor Principle?

Although the D.C. Circuit devoted most of its attention to defending the proportional reductions rule, it clearly had concerns about the use of cost as an alternative. Observing that "[t]he good neighbor provision is one of more than 20 SIP requirements in Section 110(a)(2)," that court viewed it as "inconceivable that Congress buried in Section 110(a)(2)(D)(i)(I)—the good neighbor provision—an open-ended authorization for EPA to effectively force every power plant in the upwind States to install every emissions control technology EPA deems 'cost-effective.'"[111] As this passage indicates, the court was particularly concerned that EPA could require

110. Imagine a class in which the students are expected to learn difficult material outside of their previous area of knowledge. In class, they hear conflicting explanations from two teachers who disagree about the material, delivered during a one-hour session partly devoted to other matters and frequently interrupted by questions from other students. Then imagine there are few if any visual aids, little opportunity for questions, no opportunity at all for out-of-class follow up with the instructors or to contact other experts for information, no feedback in the form of homework, and a busy annual schedule in which the student group has to produce over seventy other "term papers." One would not expect that the students in such a class, however talented, would be in a good position to master the material.

111. EME Homer City Generation, L.P. v. EPA, 696 F.3d 7, 28 (D.C. Cir. 2012).

states to reduce emissions below the point that was originally judged too insignificant to justify including a state in the regulation.[112]

Once the Supreme Court majority had disposed of the D.C. Circuit's proportionality requirement, EPA clearly had some discretion in setting standards. That discretion could have been exercised in various ways, such as allocating emission responsibilities most heavily to states where the reductions would help them achieve attainment themselves. Alternatively, EPA might have tried to maximize the public health benefits of the emission reductions by focusing the collateral benefits of any over-control on areas with high populations. Instead, it chose cost as the basis.

As we will see below, the Court had previously struggled with the role of cost in regulations under federal pollution law. *EME Homer* provided an opportunity for it to return to that issue.

A. *The Precedents*

Prior to *EME Homer*, the Court had decided three cases relating to EPA's consideration of costs under federal pollution statutes.[113] *Union Electric v. EPA*[114] was the first case in this series. The issue was whether EPA was required to consider the economic or technological feasibility of a SIP prior to approving it. In an opinion by Justice Marshall, the Court had little difficulty in upholding EPA's refusal to do so.

Justice Marshall relied both on the general purposes of the Act and on the language of section 110. Regarding the statute's purposes, he said:

> As we have previously recognized, the 1970 Amendments to the Clean Air Act were a drastic remedy to what was perceived as a serious and otherwise uncheckable problem of air pollution. The Amendments place the primary responsibility for formulating pollution control strategies on the States, but nonetheless subject the States to strict minimum compliance requirements. These requirements are of a "technology-forcing character" and are expressly designed to force regulated sources to develop pollution control devices that might at the time appear to be economically or technologically infeasible.[115]

112. *Id.* at 23-24.

113. In addition, it considered a somewhat similar issue in another statutory setting in American Textile Manufacturers Institute, Inc. v. Donovan, 452 U.S. 490 (1981), also known as the "cotton dust" case. The Court rejected agency use of cost-benefit analysis in establishing workplace regulation of toxic chemicals. *Id.* at 512.

114. *Union Electric Co. v. EPA*, 427 U.S. 246 (1976).

115. *Id.* at 256-57 (citation omitted).

Justice Marshall found this approach to be "apparent" in section 110. Section 110 sets out a list of provisions and "provides that if these criteria are met and if the plan was adopted after reasonable notice and hearing, the Administrator [of the EPA] 'shall approve' the proposed state plan."[116] He added that the "mandatory 'shall' makes it quite clear that the Administrator is not to be concerned with factors other than those specified, and none of the eight factors appears to permit consideration of technological or economic infeasibility."[117]

The next case was nearly twenty-five years later. *Whitman v. American Trucking* involved the question of whether EPA could consider cost at an earlier stage of the process—in setting national air quality standards under the Clean Air Act, as opposed to the formulation of the subsequent SIPs.[118] In an opinion by Justice Scalia, the Court upheld EPA's view that consideration of costs was precluded. At heart, Justice Scalia found the issue straightforward:

> Section 109(b)(1) instructs EPA to set primary ambient air quality standards "the attainment and maintenance of which . . . are requisite to protect the public health" with "an adequate margin of safety." Were it not for the hundreds of pages of briefing respondents have submitted on the issue, one would have thought it fairly clear that this text does not permit EPA to consider costs in setting the standards. The language, as one scholar has noted, "is absolute." EPA, "based on" the information about health effects contained in the technical "criteria" documents compiled under section 108(a)(2), is to identify the maximum airborne concentration of a pollutant that the public health can tolerate, decrease the concentration to provide an "adequate" margin of safety, and set the standard at that level. Nowhere are the costs of achieving such a standard made part of that initial calculation.[119]

Justice Scalia also invoked some general principles in reading the Clean Air Act. Because the statute provides many explicit references to cost, "[w]e have therefore refused to find implicit in ambiguous sections of the CAA an authorization to consider costs that has elsewhere, and so often, been expressly granted."[120] Because section 109 is the "engine" that drives so much of the statute, he added, the textual references to cost must be clear in this

116. *Id.* at 257.
117. *Id.* (citation omitted).
118. Whitman v. American Trucking Ass'n, 531 U.S. 457 (2001).
119. *Id.* at 465 (citations omitted).
120. *Id.* at 467.

setting.[121] Scalia rebuffed industry efforts to extract some contrary implications about costs from the statutory language, tartly remarking that "Congress . . . does not hide elephants in mouseholes."[122] He argued that consideration of cost "is *both* so indirectly related to public health *and* so full of potential for canceling the conclusions drawn from direct health effects that it would surely have been expressly mentioned in [the text] had Congress meant it to be considered."[123]

The third case in the series, *Entergy Corp. v. Riverkeeper*,[124] involved the Clean Water Act rather than the Clean Air Act. Section 316(b) of the Clean Water Act requires that the "location, design, construction, and capacity of water intake structures reflect the best technology available for minimizing adverse environmental impact."[125] EPA had declined to require closed-system cooling for power plants, which would have minimized the need for plants to draw from water bodies and thereby would have minimized the damage caused to aquatic life by the intake systems. EPA's rationale was that closed systems were extremely expensive and that other forms of control "could approach" their environmental benefits.[126]

In an opinion by Justice Scalia, the *Entergy* Court upheld EPA's interpretation of the statute to permit such tradeoffs between costs and benefits. He found the phrase "best technology to minimize environmental impacts" ambiguous, since "best" is a somewhat flexible term. Moreover, the statute used more emphatic language elsewhere (such as "drastically minimize") when Congress wanted to ensure attainment of an absolute minimum.[127] Justice Scalia also rejected efforts to analogize to other provisions of the statute mandating various levels of pollution control technologies, since they each provided more guidance than the simple reference to "best technology" and had a more drastic goal of eventually eliminating all pollution.[128]

Although Justice Stevens argued in dissent that *American Trucking* was controlling,[129] Justice Scalia found it readily distinguishable:

> In *American Trucking*, we held that the text of § 109 of the Clean Air Act, "interpreted in its statutory and historical context . . .

121. *Id.* at 468.
122. *Id.*
123. *Id*. at 469.
124. Entergy Corp. v. Riverkeeper, 556 U.S. 208 (2009).
125. Clean Water Act § 316(b), 33 U.S.C. § 1326(b).
126. *Id.* at 208.
127. *Id.* at 218-20.
128. *Id.* at 221-22.
129. *Id.* at 239-40 (Stevens, J., dissenting).

> unambiguously bars cost considerations" in setting air quality standards under that provision. The relevant "statutory context" included other provisions in the Clean Air Act that expressly authorized consideration of costs, whereas § 109 did not. *American Trucking* thus stands for the rather unremarkable proposition that sometimes statutory silence, when viewed in context, is best interpreted as limiting agency discretion. For the reasons discussed earlier, [§ 316's] silence cannot bear that interpretation.[130]

The upshot was that, while *American Trucking* seemingly embraced a presumption that ambiguous provisions of the Clean Air Act should be read to preclude consideration of cost, *Entergy* allowed EPA to interpret an ambiguous provision of the Clean Water Act to preclude imposing disproportionate costs on industry.

Although the language of these decisions is not always easy to square, they do have some common threads. First, the Court has been concerned in all three cases about whether cost considerations would compromise the overall purpose of the statute. *Union Electric* and *American Trucking* involved the central regulatory mechanism of the Clean Air Act, and cost considerations would have interfered with the public health imperatives underlying the statute. *Entergy*, however, involved a peripheral provision that was not clearly related to the central goal of water pollution prevention. Second, in each of these cases, EPA's view of the role of cost in the statutory provision in question prevailed. That was obviously no guarantee of future success, but it may have been a source of encouragement for the agency in *EME Homer*.

B. *The Court's Ruling on the Permissibility of Considering Cost*

As it turned out, the agency had little to worry about on this score. Having disposed of proportionality, the *EME Homer* court found it relatively easy to accept cost as a replacement criterion for allocating emissions cuts: "Lacking a dispositive statutory instruction to guide it, EPA's decision, we conclude, is a 'reasonable' way of filling the 'gap left open by Congress.'"[131]

The Court said EPA's choice "makes good sense," providing "an efficient and equitable solution to the allocation problem the Good Neighbor

130. *Id.* at 223.

131. EPA v. EME Homer City Generator, L.P., 134 S. Ct. 1584, 1607 (2014) (quoting Chevron, USA v. NRDC, 467 U.S. 837, 866 (S. Ct. 1984)).

Provision requires the Agency to address."[132] This approach was "[e]fficient 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."[133] The Court added that EPA's approach was also fair:

> [B]y imposing uniform cost thresholds on regulated States, EPA's rule subjects to stricter regulation those States that have done relatively less in the past to control their pollution. Upwind States that have not yet implemented pollution controls of the same stringency as their neighbors will be stopped from free riding on their neighbors' efforts to reduce pollution. They will have to bring down their emissions by installing devices of the kind in which neighboring States have already invested.[134]

In dissent, Justice Scalia sharply rejected the relevance of cost under the statute. "It would be extraordinary," he wrote, "for Congress, by use of the single word 'significantly,' to transmogrify a statute that assigns responsibility on the basis of amounts of pollutants emitted into a statute authorizing EPA to reduce interstate pollution in the manner that it believes most efficient."[135] He also argued that the majority was in effect overruling *American Trucking*:

> There are, indeed, numerous Clean Air Act provisions explicitly permitting costs to be taken into account. *American Trucking* thus demanded "a textual commitment of authority to the EPA to consider costs"—a hurdle that the Good Neighbor Provision comes nowhere close to clearing. Today's opinion turns its back upon that case and is incompatible with that opinion.[136]

The majority responded that *American Trucking* was distinguishable because the statute there provided an "absolute" mandate based on public health and precluded any other factor, whereas the good neighbor provision "grants EPA discretion to eliminating 'amounts [of pollution that] . . . contribute significantly to nonattainment' downwind," but "fails to provide *any* metric by which EPA can differentiate among the contributions of multiple upwind States."[137] Scalia rejected this effort to distinguish *American*

132. EME Homer, 134 S. Ct. 1584, 1607.
133. *Id.*
134. *Id.*
135. *Id.* at 1612 (Scalia, J., dissenting).
136. *Id.* at 1616 (citations omitted).
137. *Id.* at 1607 n.21 (majority opinion).

Trucking, arguing that the good neighbor provision was just as "absolute" as the provision at issue in the earlier case.[138]

The majority did, however, concede a limited amount of ground to the D.C. Circuit's analysis. It agreed with the lower court that cost considerations cannot be used to lower a state's downwind pollution below the level that EPA had set as significant, nor can it be required to reduce its emissions below the level where every downwind state is in attainment.[139] Despite the possibility of minor instances of overreach along these lines, the Court concluded that "EPA's cost-effective allocation of emission reductions among upwind States. . .is a permissible, workable, and equitable interpretation of the Good Neighbor Provision."[140]

Oddly, although it was discussed in the briefs,[141] neither the majority nor the dissent mentions the *Entergy* case, in which the Court (in an opinion by Scalia himself) had declined to read *American Trucking* broadly. This might have been due to the prior stances of the authors: Ginsburg dissented in *Entergy* and may have preferred not to rely on it, while Scalia might have found his previous majority opinion an awkward fit with his later dissent. Or, perhaps, the case was not discussed because it involved the Clean Water Act and seemed less relevant than *American Trucking*.

Where does *EME Homer* leave the issue of cost under federal pollutions statutes? Along with *Entergy*, it seems to leave little force to the presumption against consideration of cost articulated in *American Trucking*. On the other hand, neither of the later decisions questions the holding in *American Trucking*. The effort to distinguish *American Trucking* in *EME Homer* is not satisfying. The opinion essentially distinguishes the two cases by saying that EPA was limited to considering a single factor (which was not cost) in one case, but was allowed to consider multiple factors (including cost) in the other. The problem is that it can only make that distinction after interpreting both statutes, so the Court's explanation sheds no light on why the two statutes are being interpreted differently.

The Court's reference to the lack of a "metric" in *EME Homer* does suggest another way of articulating the principle at work that is consistent

138. *Id.* at 1616 n.3 (Scalia, J., dissenting).

139. *Id.* at 1608 (majority opinion). In the latter regard, however, the Court also observed that "a degree of imprecision is inevitable in tackling the problem of interstate air pollution," apparently allowing EPA to include a margin of error due to modeling difficulties. *Id.* at 1609.

140. *Id.* at 1610.

141. *See, e.g.*, Brief for the Federal Petitioners at 44, EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584 (2014) (Nos. 12-1182 and 12-1183); Reply Brief of Respondents Calpine Corporation and Exelon Corporation in Support of Petitioners at 10, EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584 (2014) (Nos. 12-1182 and 12-1183).

with all three cases. Simply put, when a provision in a federal environmental statute explicitly provides one or more factors as the basis for EPA's decision, the presumption is that cost is not relevant unless it was one of the listed factors. That accounts for *American Trucking*, where the statute clearly flagged pollution impacts as the basis for regulation. On the other hand, in *Entergy*, the statute did not provide a metric for determining the "best" technology. Similarly, in *EME Homer*, the Court interpreted the statute as providing no standard for allocating the cuts among upwind states.

Thus, the message is that a court should not begin by asking whether cost is a permissible consideration. Instead, it should ask whether Congress has flagged non-cost factors but left cost unmentioned. Of course, the *EME Homer* Court disagreed with the dissent about that prior question, but, given that disagreement, its refusal to follow *American Trucking* was justified. If this reading of *EME Homer* is correct, then cost should not be relevant to environmental provisions that do provide a metric. For instance, such statutes could be keyed to a different explicit standard such as the level of risk, or a described type of emissions controls, or preservation of natural areas.

The implications of *EME Homer* extend beyond the specific issues of proportionality and cost. As we will see below, other provisions of the Clean Air Act allow EPA to require state plans to meet certain requirements. In the past, these provisions have been relatively obscure, but, as it turns out, they offer potential methods of dealing with the looming issue of climate change.

C. *Implications of* EME Homer *for EPA Carbon Regulations*

Although the Clean Air Act's core mechanism focuses on state efforts to reduce local pollution,[142] it extends more broadly, as shown by the good neighbor provision. Yet, as *EME Homer* illustrates, implementing the statute in these broader contexts may be complicated. Perhaps it is not surprising that implementation problems have also been present in the case of climate change, which involves a kind of planet-wide concept of good neighbors.

Despite potential implementation difficulties, in *Massachusetts v. EPA*,[143] the Supreme Court held that greenhouse gases are air pollutants under the Clean Air Act and that EPA's determination of whether they presented a sufficient risk to trigger regulation under the statute must be based solely on scientific evidence rather than policy determinations. EPA

142. *See supra* text accompanying notes 6 to 15.
143. Massachusetts v. EPA, 549 U.S. 497, 532 (2007).

then made a formal finding that greenhouse gases endanger human health and safety.[144] With this finding as a foundation, EPA has developed regulations to reduce greenhouse gases.[145] According to independent experts, EPA regulation of power plants could "capture a potential reduction of five to ten percent in GHG emissions from coal—as much as about three percent of total U.S. emissions. . . ."[146] In general, "it appears a regulatory approach could achieve emissions reductions through mitigation in the domestic economy of up to ten percent, relative to 2005 levels," which "would be comparable to domestic reductions that would have been achieved under the legislative cap-and-trade proposal."[147]

Along these lines, EPA has proposed regulations for new power plants under section 111(b) of the Clean Air Act.[148] Section 111(b)(1)(A) provides for standards of performance for new stationary sources that cause or contribute significantly to air pollution "which may reasonably be anticipated to endanger public health or welfare."[149]

EPA has also proposed standards of performance for existing plants under § 111(d),[150] a previously obscure provision. Once section 111(b) standards are in place for a category of new sources, section 111(d) authorizes EPA to require states to produce plans setting standards of performance for existing sources in that category.[151] These state plans are analogous to SIPs

144. *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,497 (Dec. 15, 2009).

145. The regulations are described on EPA's website. *See* EPA, Regulatory Initiatives, http://www.epa.gov/climatechange/initiatives/index.html (last updated Aug. 8, 2014). The endangerment finding and the regulations were upheld in Coalition for Responsible Regulation, Inc. v EPA, 684 F.3d 102 (D.C. Cir. 2012).

146. Dallas Burtraw, Arthur G. Fraas, & Nathan D. Richardson, *Greenhouse Gas Regulation Under the Clean Air Act: A Guide for Economists*, 5 Rev. of Envtl. Econ. & Poly 293, 304 (2011).

147. *Id.* at 306.

148. CAA § 111(b), 42 U.S.C. § 7411(b); EPA, Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 10750 (proposed Feb. 26, 2014). It should be noted that EPA also adopted a regulation addressing new source emissions under another provision of the Act, which were upheld in large part in Utility Air Regulatory Group v. EPA, 134 S. Ct. 2427 (2014).

149. CAA § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A).

150. CAA § 111(d), 42 U.S.C. § 7411(d); EPA, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34829 (proposed June 18, 2014). *See* M. Rhead Enion, *Using Section 111 of the Clean Air Act for Cap-and-Trade of Greenhouse Gas Emissions: Obstacles and Solutions*, 30 UCLA J. Envtl. L. & Poly 1 (2012) (discussing § 111(d) and its application to carbon emissions); Robert R. Nordhaus & Ilan W. Gutherz, *Regulation of CO_2 Emissions from Existing Power Plants Under §111(d) of the Clean Air Act: Program Design and Statutory Authority*, 44 Envtl. L. Rep. News & Analysis 10366 (2014).

151. CAA § 111(d)(1), 42 U.S.C. § 7411(d)(1).

both in the procedures for their adoption[152] and in EPA's power to enforce the requirements.[153]

Some key questions will be about the scope of state plans in allocation emissions reductions within the state, the permissibility of in-state or interstate trading, and the method used by EPA to set emissions reductions for states. The statute's definition of standard of performance is central to answering these questions: "[t]he term 'standard of performance' means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emissions reduction which . . . the Administrator determines has been adequately demonstrated."[154] The term "system of emissions reduction" could be read very narrowly, simply to mean technology installed at the facility, or broadly, to include any policies regulating generators and the electrical grid in order to reduce carbon emissions.

Obviously, *EME Homer* does not speak directly to this situation since it involved a different provision of the statute. However, there are some significant parallels. Like the good neighbor provision, section 111(d) calls for state plans to control emissions. The plans in question seem similar to the SIPs involved in *EME Homer*. In the case of climate change, the emissions in question (like those in *EME Homer*) cause harm to jurisdictions other than the emitting state. Both cases involve similar issues regarding how the total level of emissions cuts should be set by EPA and how EPA can allocate them among the states.

To the extent that courts accept the analogy between the handling of cross-border pollution under section 110 plans and carbon emissions under section 111(d) plans, *EME Homer* could turn out to be a very helpful precedent for EPA. It stresses EPA's flexibility and the need for efficient and equitable regulatory solutions so long as the statutory text can be read to allow them. It also contains an important affirmation of the Court's understanding of the complexity and difficulty of designing those solutions, and of its willingness to give EPA flexibility in doing so. The Court also stressed the need to avoid punishing states that were ahead of the curve and rewarding laggard states with lower responsibilities, a concern that is relevant in the context of climate change.

EME Homer might also be relevant under another provision calling for state plans to reduce emissions. Section 115 of the Act[155] is triggered by a

152. *Id.*

153. CAA § 111(d)(2), 42 U.S.C. § 7411(d)(2).

154. CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1).

155. CAA § 115, 42 U.S.C. § 7415; for discussion of this potential method for addressing carbon emissions, see David R. Baake, *International Climate Action Without Congress: Does*

finding that United States emissions endanger human health and welfare in other nations, and that the other nations give this country reciprocal rights to complain about harm from their pollution.[156] Once such a finding is made, it is deemed to be a finding that the SIPs of the states in question are inadequate under section 110.[157] But this provision is only applicable if the pollution impacts "a foreign country which the Administrator determines has given the United States essentially the same rights with respect to the prevention or control of air pollution occurring in that country as is given that country by this section."[158]

It should be easy to satisfy the endangerment portion of the triggering conditions in the case of climate change. The exact meaning of the reciprocity requirement is less clear, but assuming it is satisfied, the statute seems to require plan amendments to "prevent or eliminate the endangerment" referred to in the triggering requirement.[159] Note, however, that the triggering requirement covers pollution that "causes or contributes" to the endangerment, much like the good neighbor provision. Because it invokes the same concept of contribution and requires revision of SIPs, section 115 seems particularly analogous to the good neighbor provision. The implication of *EME Homer* seems to be that EPA has broad discretion to set state reduction budgets, including consideration of costs.

Notably, the Court in *EME Homer* spoke approvingly of emissions trading[160] as part of EPA's regulatory approach:

> These FIPs [the federal implementation plans issued by EPA] specified the maximum amount of pollution each in-state pollution

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§115 of the Clean Air Act Provide Sufficient Authority?, 44 ENVTL. L. REP. NEWS & ANALYSIS 10562 (2014).

156. CAA § 115(a), (c), 42 U.S.C. § 7415(a), (c).

157. CAA § 115(b), 42 U.S.C. § 114(b). The specific cross-reference is to CAA § 110(a)(2)(H)(ii), 42 U.S.C. § 7410(a)(2)(H)(ii), which provides that EPA can provide for revision of state plans under these circumstances:

> [E]xcept as provided in paragraph (3)(C) [which deals with certain specific types of facilities], whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this chapter.

CAA § 110(a)(2)(H)(ii), 42 U.S.C. § 7410(a)(2)(H)(ii).

158. CAA § 115(c), 42 U.S.C. § 7415(c).

159. CAA § 115(b), 42 U.S.C. § 7415(b).

160. In order to deal with the D.C. Circuit's objections to the CAIR trading system in the North Carolina case, EPA had incorporated "assurance" requirements to guarantee that every upwind state would have to make some significant contribution to downwind attainment. See Seth Jaffe & Adam Kahn, EPA Proposes Rule to Address Interstate Pollution (Jul. 13, 2010), http://www.foleyhoag.com/publications/alerts-and-updates/2010/july/epa-proposes-transport-rule-to-address-interstate-air-pollution, for an explanation of this requirement.

> source could emit. Sources below this ceiling could sell unused "allocations" to sources that could not reduce emissions to the necessary level as cheaply. This type of "cap and trade" system cuts costs while still reducing pollution to target levels.[161]

Although this was dictum, since the legality of the emissions trading system was not directly before the Court, it augurs well for EPA's use of carbon trading under sections 111(d) and 115.[162]

As important as the problem of interstate pollution may be, it pales in comparison with the problem of global climate change. In the absence of congressional action on the subject, EPA's authority under the Clean Air Act will remain a key part of any national strategy to address climate change. To the extent that *EME Homer* gives EPA discretion to adopt sensible, cost-efficient measures to address the problem, it will have made a major contribution to national policy on this pressing global issue.

Conclusion

We have come to the end of a somewhat convoluted journey. To recap briefly, we have concluded that the Court came to the right answer regarding the two substantive issues in the case: whether the statute required EPA to make cuts as proportionally as possible between upwind states, and whether EPA could consider costs in allocating emission cuts. The Court's analysis was not entirely satisfactory as to either issue, however. Its discussion of proportionality was a bit off-kilter at times, allowing the dissent to score some valid points.[163] Its analysis of the cost issue inexplicably avoided mention of an important Supreme Court precedent, which was also (equally inexplicably) missing from the dissent.[164] Nevertheless, the core of the analysis of both issues was correct.

The key holdings in *EME Homer* were that strict proportionality was not required in allocation responsibility for emissions reductions and that EPA could consider cost in doing so. If there were glitches in the analysis, this is understandable given the complexity of the issues involved. It is greatly to the credit of the majority opinion that the Court recognized EPA's comparative advantage in dealing with this complexity. By comparison, the dissent and the majority in the lower court seemingly failed to appreciate the difficulty of the problem that Congress had given EPA, mak-

161. EPA v. EME Homer City Generator, L.P., 134 S. Ct. 1584, 1598 n. 10 (2014) (citations omitted).

162. For general discussion of market mechanisms such as emissions trading and their use under the Clean Air Act, see Farber & Carlson, *supra* note 16, at 559-76.

163. *See* text accompanying *supra* notes 84 to 102.

164. *See* text accompanying *supra* notes 124 to 134.

ing them all too willing to leap to a seemingly simple answer. Rather than assuming that agency was off on some tangent of its own, these judges might have given more thought to the possibility that the agency was doing the best it could to accomplish a difficult task.

EME Homer is notable for reasons that go beyond its specific holding. It emphasizes EPA's discretion in implementing statutes in recondite factual settings. That should be a useful reminder to lower courts of the need for a certain degree of judicial modesty in reviewing such complex issues. The Court's decision also sheds light on the general issue of EPA's authority to consider costs in implementing federal environmental laws, though the Court could have done more to articulate the applicable standard. Still, the emerging rule seems to be that EPA can consider costs in the absence of a specific statutory metric. However, when the Clean Air Act does provide a non-cost metric, there is a presumption against reading in the use of cost as an additional factor.

Finally, *EME Homer* also has significant implications for EPA's ability to use other provisions in the Clean Air Act to deal with climate change. Like the good neighbor provision involved in *EME Homer*, those other provisions involve an EPA-guided planning process for states, and *EME Homer* suggests that EPA should have discretion to craft cost-effective, equitable standards for those plans.

These are undoubtedly significant legal implications. Yet, in our fascination with the legal issues before the Court, it is important not to lose track of the immediate practical significance of the ruling. Because of the Court's decision, EPA will be able to move forward on measures that will save thousands of lives and also prevent many other thousands of cases of serious illnesses.[165] To put it most simply: we can all breathe easier as a result of the Court's ruling.

165. *See* text accompanying *supra* notes 2 to 4.