Chapter 13
CLIMATE CHANGE REGULATION UNDER THE CLEAN AIR ACT

SYNOPSIS

I. INTRODUCTION

On its face, the Clean Air Act is the most relevant federal environmental statute for addressing climate change. Emissions of carbon dioxide and other greenhouse gases would seem to be exactly the type of activity that would be covered under the Clean Air Act. Indeed, the Act has regulated some greenhouse gases for years, although they were regulated either for ground-level environmental impacts or to prevent stratospheric ozone depletion, not because of their role in global warming. Despite the breadth of the Clean Air Act's regulatory scope, however, regulation of greenhouse gases became, and to some extent remains, an issue of significant

disagreement and uncertainty. Indeed, at the end of 2012, more than four years after the Supreme Court ruled that the Clean Air Act regulates greenhouse gases as "air pollutants," a federal Court of Appeals judge urged the Court to reconsider and revoke its decision. Thus, while the Clean Air Act may be the most relevant regulatory scheme to reduce greenhouse gas emissions from various sources, the appropriateness of using the Clean Air Act to address climate change remains an issue of vigorous debate and contention.

It is hard to understand the current relationship of the Clean Air Act with climate change without recognizing the intensely political nature of the issue. In the late 1990s, as climate change began to emerge as a major domestic issue in the United States, Congress began to hold hearings addressing whether the Clean Air Act might regulate greenhouse gas emissions. At the time, officials within the Clinton Administration asserted that the Clean Air Act gave them authority to regulate carbon dioxide or other greenhouse gas emissions, but assured Congress they had no intention of doing so under the Act. When the Bush Administration took office, the Environmental Protection Agency (EPA) and other Administration officials reversed position, claiming they had no authority under the Clean Air Act to regulate greenhouse gas emissions. Not surprisingly, this shift in position launched a firestorm of protest and litigation, which resulted in the Supreme Court's decision in *Massachusetts v. EPA*, in which the Court decided that the Clean Air Act does indeed give EPA the authority to regulate greenhouse gases. 549 U.S. 497 (2007). This decision, however, did not lead immediately to the development of regulations to reduce greenhouse gases. Instead, the Bush Administration issued various decisions finding regulation unwarranted or unauthorized under certain parts of the Clean Air Act. Thus, throughout the 2000s, Clean Air Act activity frequently involved refusals to regulate greenhouse gases and litigation challenging these refusals. When the presidency again changed hands, from George W. Bush to Barack Obama, the approach to regulation also changed, but the controversy certainly did not abate.

When President Obama took office, a series of regulatory actions under the Clean Air Act followed. Some of these reversed final decisions of the former administration, and others proposed new regulatory regimes under both the Clean Air Act's mobile source program, which regulates emissions of pollutants from vehicles, airplanes, vessels, and other mobile sources, and the Act's stationary source programs, which regulate emissions from power plants, oil refineries, industrial sources, and the like. Nearly every action EPA has taken has generated further litigation. EPA's regulatory actions have also drawn the attention – and ire – of some members of Congress, who have proposed bills to strip EPA of its regulatory authority. Finally, as noted above, some judges have asked the Supreme Court to reconsider its landmark ruling in *Massachusetts*, suggesting that the Court must not have understood what its decision would mean once regulations took effect. Thus, while the regulatory landscape has developed considerably since the Supreme Court issued *Massachusetts*, the politics underlying the application of the Clean Air Act to greenhouse gases continue to inject uncertainty into all aspects of the Act's implementation.

Part II of this chapter provides an overview of the Clean Air Act's most significant regulatory programs. Part III then explores the Supreme Court's decision in *Massachusetts* and the legal consequences of that decision. Next, Part IV reviews Clean Air Act regulation of greenhouse gases from mobile sources, an area that has quickly advanced and, at least to some

degree, moved away from some of the political disputes affecting other aspects of the Clean Air Act. Part V then explores the statute's regulation of greenhouse gases from stationary sources, an area in which nearly every regulation has faced litigation and opposition. Finally, Part VI concludes by considering what the future of Clean Air Act regulation of greenhouse gases might involve.

II. OVERVIEW OF THE CAA

The CAA has been described as "without a doubt the most complex environmental regulatory scheme," one "that is bewildering at times to even the most experienced environmental lawyers." SUSAN MANDIBERG & SUSAN SMITH, CRIMES AGAINST THE ENVIRONMENT § 4-2(a) (1997). That said, a basic discussion of the main provisions of the CAA will help you navigate your way through the materials.

Generally speaking, the CAA regulates emissions of "air pollutants" from stationary sources and mobile sources. Air pollutant is broadly defined to mean "any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters the atmosphere." CAA § 302(g), 42 U.S.C. § 7602(g). While the definition of "air pollutant" is expansive, substances that qualify as air pollutants will not necessarily be regulated under the Clean Air Act. Instead, each Clean Air Act program requires further EPA action before an air pollutant will come within its regulatory reach. For example, some programs require EPA to determine that an air pollutant "may reasonably be anticipated to endanger public health or welfare." *See* CAA § 108(a)(1), 42 U.S.C. § 7408(a)(1) (criteria pollutants); CAA § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A), (New Source Performance Standards); CAA § 202(a), 42 U.S.C. § 7521(a) (mobile source emissions limitations). Some programs also apply only to "major" sources that emit threshold amounts of air pollutants. *See* CAA § 165, 42 U.S.C. § 7475 (Prevention of Significant Deterioration); CAA § 172(b)(5), 42 U.S.C. § 7502(b)(5) (Nonattainment New Source Review). Thus, a substance's status as an "air pollutant" is only a preliminary step toward a substance facing Clean Air Act regulation.

The CAA uses several mechanisms to control emissions of regulated air pollutants. These include the establishment of ambient air quality standards, emissions limitations for stationary sources, emissions limitations for mobile sources, and other regulatory programs designed to address specific environmental problems, including acid rain and ozone depletion. This section will introduce those programs that have the greatest relevance to climate change, even though they may not directly regulate greenhouse gases. It starts with a discussion of the National Ambient Air Quality Standards (NAAQS) and criteria pollutants. It then introduces State Implementation Plans (SIPs), the states' blueprints for administering the Clean Air Act within their borders and achieving the NAAQS. Next, it briefly describes the major stationary source programs — New Source Performance Standards (NSPS), New Source Review (NSR), the National Emissions Standards for Hazardous Air Pollutants (NESHAPs), and Title V. Finally, it provides an overview of the mobile source program. As this paragraph itself suggests, the Clean Air Act can read like an alphabet soup of acronyms, which contributes to its confusing nature. While we have kept the acronyms in place (they are impossible to escape, and those interested in

the Clean Air Act must learn them), we have repeated the full names and their associated acronyms to help readers keep the terms straight.

A. National Ambient Air Quality Standards

National Ambient Air Quality Standards (NAAQS) are nationwide air quality goals that are meant to protect public health and public welfare. Richard E. Ayres & Mary Rose Kornreich, *Setting National Ambient Air Quality Standards,* in THE CLEAN AIR ACT HANDBOOK, 13 (2004). NAAQS reflect the maximum concentrations of pollutants in the ambient (i.e., outdoor) air that will still protect health and welfare. *Id.* at 15. NAAQS only apply to "criteria pollutants," so the first step in developing NAAQS is actually to list an air pollutant as a criteria pollutant. Once a pollutant is placed on the list, EPA must establish NAAQS for the pollutant.

The CAA directs EPA to establish a list of air pollutants "the emissions of which . . . cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare," and "the presence of which in the ambient air results from numerous or diverse mobile or stationary sources." CAA § 108(a)(1), 42 U.S.C. § 7408(a)(1). Public health, while not statutorily defined, means human health. Welfare is defined broadly and "includes, but is not limited to, effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate . . ." CAA § 302(h), 42 U.S.C. § 7602(h). Pollutants that fit on this list are called "criteria pollutants." To date, EPA has established NAAQS for six "criteria pollutants" that are widespread and considered a significant threat to public health and welfare:

(1) Sulfur dioxide (SO_2);
(2) Particulate matter (PM);
(3) Nitrogen oxide (NO_x);
(4) Carbon monoxide (CO);
(5) Ozone (at the ground level, caused primarily by volatile organic compounds); and
(6) Lead.

40 C.F.R. Part 50. Although the Act contemplates that EPA would add new criteria pollutants, EPA has added only one pollutant — lead — to the list of criteria pollutants during the life of the Clean Air Act (the other five criteria pollutants were identified by Congress in the original statute). The 1990 Amendments to the Clean Air Act removed most of the incentive for the agency to list other criteria pollutants because Congress created a separate regulatory program for Hazardous Air Pollutants (HAPs), many of which would otherwise have likely required designation as criteria pollutants. In 2009, some environmental organizations petitioned EPA to list carbon dioxide as a criteria pollutant. To date, EPA has not acted on the petition.

Once EPA identifies a pollutant as a criteria pollutant, EPA must set both a primary and secondary ambient air quality standard. CAA § 109(a)(1), 42 U.S.C. § 7409(a). These are known as National Ambient Air Quality Standards (NAAQS). The primary NAAQS is intended to protect public health, and the secondary standard is intended to protect public welfare more generally. Once EPA has established NAAQS for a given air pollutant, air quality may not exceed the applicable NAAQS. All areas throughout the country are labeled either as being in attainment with each standard (i.e., their air quality is at least as good as that required by the

NAAQS), not in attainment with the standard (air quality is worse than the NAAQS require), or in maintenance with the NAAQS (maintenance areas are those that have moved from nonattainment to attainment). NAAQS compliance is assessed on a pollutant-by-pollutant basis; thus, a particular air quality region may be in attainment with the primary NAAQS for particulate matter but in nonattainment for NO_x. Depending on whether a state is in compliance or non-compliance with the NAAQS for a particular pollutant partly determines how stringent the permitting regulations on air pollution sources have to be. Achieving and maintaining these ambient standards is left largely up to the states, which must submit State Implementation Plans to the EPA on how they intend to achieve or maintain air pollution levels below the NAAQS.

B. State Implementation Plans

State Implementation Plans (SIPs) serve as the tool by which states implement and administer the Clean Air Act. CAA § 110, 42 U.S.C. § 7410. The primary purpose of a SIP is to ensure compliance with primary and secondary NAAQS. However, as the statute has developed, SIPs now provide states with broader authority to regulate sources and pollutants for which no NAAQS exist.

States develop SIPs based on guidance prepared by EPA, and must receive EPA approval for a SIP to have the force of federal law. Once EPA approves a SIP, the state acts as the primary administrator of the Clean Air Act pursuant to the SIP. The state, however, must revise its SIP where necessary to either accommodate revisions to the NAAQS or where the EPA determines the SIP is "substantially inadequate to attain the [NAAQS] . . . or to otherwise comply with any additional requirements." CAA § 110(a)(2)(H), 42 U.S.C. § 7410(a)(2)(H). If a state fails to make a required submission or revision or if the SIP submitted by the state does not meet the requirements of the Clean Air Act, EPA must promulgate a Federal Implementation Plan (FIP) to take the place of the SIP until the state revises its SIP consistent with the statute. CAA § 110(c), 42 U.S.C. § 7410(c). In some cases, states have chosen to not administer certain parts of the Clean Air Act (like the New Source Review program discussed below). In those cases, EPA administers the program through a FIP. Thus, sources in those states will generally go to the state for some CAA permits, but will need to go to the EPA for New Source Review permits.

The role of states in administering the Clean Air Act has become very interesting in the climate change context, as environmental groups have attempted to compel states to comply with greenhouse gas emissions reductions targets through SIP enforcement. It has also become an issue in the courts, particularly since EPA recently promulgated a FIP designed to take over New Source Review permitting in some states, including Texas, whose SIPs failed to regulate greenhouse gases. Later parts of this chapter explore these issues in greater detail.

C. Stationary Source Emissions Standards or Limitations

The Clean Air Act contains four main schemes for regulating emissions of air pollutants from stationary sources: (1) New Source Performance Standards (NSPS), (2) New Source Review/Prevention of Significant Deterioration (NSR/PSD), (3) National Emissions Standards

for Hazardous Air Pollutants (NESHAPs), and (4) Title V. In addition, some stationary sources must comply with Title IV's Acid Rain program. Stationary sources include "any source of any pollutant except those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine or nonroad vehicle." CAA § 302(z), 42 U.S.C. § 7602(z). In other words, stationary sources include factories, power plants, and other stationary (i.e. immovable) facilities. Although the term stationary source has expansive meaning, the programs that regulate these sources greatly narrow the scope of covered facilities.

1. *New Source Performance Standards*

The NSPS program requires certain categories and classes of stationary sources to comply with specified "standards of performance," which are emissions standards that "reflect[] the degree of emission limitation achievable through the application of the best system of emission reduction which . . . the Administrator [of the EPA] determines has been adequately demonstrated." CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1). NSPS apply to new sources, modified sources, and, at times, existing sources. CAA § 111(a)(2) & (d), 42 U.S.C. § 7411(a)(2) & (d). For NSPS to apply to a particular facility, the facility must fall within a category of sources which, in the EPA Administrator's judgment "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare," CAA § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A), and for which EPA has established standards of performance. CAA § 111(b)(4), 42 U.S.C. § 7411(b)(4). In other words, NSPS apply to facilities only after EPA has set national standards of performance; if no such standards exist, NSPS do not apply. Moreover, NSPS usually apply prospectively, so a facility built before EPA establishes an applicable standard of performance will remain exempt from the NSPS until the facility undergoes a modification or unless EPA chooses to establish NSPS for existing sources (a practice that EPA rarely performs, but which may become more common in the climate change context).

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2. *New Source Review*

Some of the Clean Air Act's most important stationary source controls are found in the Act's new source review (NSR) programs. [This chapter collectively refers to PSD and non-attainment new source review as the NSR program.] One primary purpose of NSR is to ensure that emissions of air pollutants will not lower ambient air quality. If a stationary source proposes to operate in an area that is in compliance with the NAAQS, or to emit a pollutant not subject to the NAAQS, that source will be subject to the prevention of significant deterioration (PSD) program. CAA §§ 165-169, 42 U.S.C. §§ 7475-7479. If a stationary source proposes to operate in an area that has not attained any of the NAAQS (i.e., if actual air pollution concentrations exceed the applicable air quality standards), that source will be subject to non-attainment new source review. CAA §§ 172-173, 42 U.S.C. §§ 7502-7503. Since EPA has not listed carbon dioxide or other greenhouse gases as criteria pollutants, it also has not developed NAAQS for these substances. Accordingly, the only relevant program for climate change purposes is the PSD program. These materials therefore only discuss the requirements under the Clean Air Act for the PSD program.

The PSD program has several basic requirements. At the outset, the program applies to "major emitting facilities." CAA § 165(a), 42 U.S.C. § 7475(a). A source is "major" if it will emit more than a threshold level of pollutants. Under the PSD program, the statutory threshold level is 100 tons per year for specifically listed facilities and 250 tons per year for all other facilities. CAA § 169(1); 42 U.S.C. § 7479(1). As discussed later, EPA altered these thresholds for greenhouse gases. Second, the program applies only to new or modified sources. CAA § 165(a), 42 U.S.C. §§ 7475(a). Thus, a company must ensure that it complies with the NSR requirements before it constructs a new or modified facility. Existing facilities are "grandfathered in;" that is, they are exempt from the PSD requirements unless and until they make a modification triggering the PSD program.

A facility subject to PSD must typically install pollution control technology prior to operation. For the PSD program, the facility must meet emissions limitations based on what the use of the "Best Available Control Technology" (BACT) would achieve. Unlike NSPS, which EPA establishes on a national basis, permitting agencies establish BACT requirements on a case-by-case basis. They set BACT limitations by looking at what other facilities have achieved in practice or at what other agencies have mandated in other permits. The benefit of this system is that, in theory at least, it would result in ever-increasing technology improvements, since each technology upgrade would serve as the achievable technology for new facilities. The downside, however, is that case-by-case permitting creates uncertainty and may require significant resource expenditures as agencies struggle to figure out the appropriate technology standards. BACT limitations have become increasingly contentious as they apply to greenhouse gases.

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3. *National Emissions Standards for Hazardous Air Pollutants*

The Clean Air Act's NESHAPs program establishes a separate regulatory program for hazardous air pollutants (HAPs). Congress has included 188 HAPs in the Clean Air Act, but EPA also has authority to list new HAPs or remove existing ones based on whether they may cause adverse effects to human health or the environment. CAA § 112(b), 42 U.S.C. § 7412(b). NESHAPs apply to both new and existing "major" sources that emit 10 or more tons per year of any single HAP or 25 or more tons per year of any combined amount of HAPs. Facilities that trigger NESHAPs must achieve emissions standards reflecting the maximum achievable control technology (MACT), which requires

> the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing sources in the category or subcategory to which such emissions applies.

CAA § 112(d)(2) 42 U.S.C. § 7412(d)(2). To implement this standard, EPA sets emission limits that are "no higher than the average emission standards achieved by the best performing 12 percent of sources in each category specified in Section 112 (or the top 5 facilities if the category contains less than 30 sources)." *See* EPA, Module 7: Regulatory Requirements — Title III:

Hazardous Air Pollutants, *at*: http://www.epa.gov/apti/bces/module7/title3/title3.htm. As with the NSPS, EPA sets MACT standards on a national basis; states do not set the standards but must ensure that new or existing facilities comply with the standards when they seek permits to build or construct facilities.

When the idea of using the Clean Air Act to regulate greenhouse gases first emerged, some scholars thought the NESHAPs program could be the best regulatory tool. But the NESHAPs have not played a regulatory role in climate change mitigation and seem unlikely to do so.

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4. *Title IV Acid Rain Program*

Unlike the other stationary source requirements under the Clean Air Act, Title IV does not establish technology-based emission standards. Instead, Title IV uses a cap-and-trade program to limit and then lower the total amount of sulfur dioxide emissions from power plants. Sulfur dioxide is a primary contributor to acid rain deposition, which became a major environmental concern in the mid-to-late 1980s. At that time, however, politicians had become critical of the "command and control" type of regulation embodied in the emissions standards of the Clean Air Act. While many politicians believed they needed to enact legislation to reduce sulfur dioxide emissions, they also recognized that they would need to employ a different regulatory approach. Cap-and-trade, or emissions trading, legislation represented a new model of environmental regulation because it promised environmental benefits in the form of firm emissions reductions through a market-based program that allowed covered facilities to buy and sell emissions allowances rather than to meet specific, inflexible emissions standards. The acid rain program thus contained three main elements. First, it established an overall limit on the total amount of sulfur dioxide that all covered sources could emit and then lowered the aggregate allowable emissions over time.[1] Second, it allocated to each covered source a presumptive maximum amount of permitted emissions. Third, it then authorized covered sources to trade emissions allowances, so that those sources able to easily and cheaply reduce their emissions can sell unneeded allowances to other sources that would otherwise spend much more on emissions reductions.

The acid rain program has become a template for other cap-and-trade programs. As mentioned in Chapter 2, it influenced the development of the UNFCCC and the Kyoto Protocol. It also served as a template for regional and state emissions trading programs, discussed in Chapter 18.

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5. *Title V Permits*

[1] The program actually had two phases with different caps and covered sources. Under the first phase, covered sources included large power plants. In the second phase, covered sources expanded to include smaller power plants and some other smaller sources. When the number of covered sources expanded, so did the total allowable emissions. Thus, the emissions cap declined during the first phase, and then increased at the beginning of the second phase (to account for the additional sources) before declining again.

Title V of the Clean Air Act is the final major stationary source control program. Unlike the other parts of the Act, however, Title V does not establish unique emission standards. Instead, Title V attempts to consolidate all of the other stationary source requirements into a single permitting scheme that incorporates the substantive requirements of NSPS, NSR, NESHAPs and Title IV and ensures that facilities adhere to various monitoring and reporting requirements. State agencies administer Title V, subject to EPA oversight. Title V permits — which many people initially considered to have limited procedural value and no substantive value — have become increasingly important in litigation and administrative practices.

D. Mobile Source Emissions Standards

The Clean Air Act also establishes various requirements for mobile sources, including automobiles, trucks, and airplanes. Mobile source emissions standards represent one of the few areas in which Congress expressly preempted states from enacting more stringent requirements. However, Congress exempted California from the preemption provision where California could demonstrate a need for more stringent standards than those established by the EPA.

The Clean Air Act directs the EPA to establish motor vehicle emissions standards for those pollutants which "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." CAA § 202(a)(1); 42 U.S.C. § 7521(a)(1). Unless certain exceptions apply, the emissions standards shall reflect "the greatest degree of emission reduction [technologically and economically] achievable." CAA § 202(a)(3), 42 U.S.C. § 7521(a)(1). In 2010, EPA established vehicle emissions standards for greenhouse gases. In 2012, EPA established a new set of vehicle emissions standards for greenhouse gases that will apply to vehicles manufactured through the year 2025.

The Clean Air Act expressly prohibits states from adopting their own motor vehicle emissions standards, with two important exceptions. CAA § 209(a)&(b), 42 U.S.C. § 7543(a)&(b). First, California is entitled to adopt its own emissions standards for new motor vehicles and engines if EPA grants California a waiver from the prohibition against state-adopted standards. CAA § 209(b)(1), 42 U.S.C. § 7543(b)(1). (The statute does not reference California by name, but allows EPA to waive the prohibition against state-adopted vehicle emission standards for any state which had adopted its own vehicle emissions standards prior to March 30, 1966. CAA § 209(b)(1). California was the only state that had such standards, and thus the only state entitled to the waiver.) EPA "shall" grant the waiver if it determines that, among other requirements, California's standards are at least as protective as the federal standards and California can demonstrate that state standards fulfill "compelling and extraordinary conditions." *Id.* Second, once California adopts its own standards, other states may adopt and enforce the California standards, rather than the federal standards. CAA § 177; 42 U.S.C. § 7507. The scope of preemption and California's right to a waiver became major issues in litigation challenging vehicle emissions standards for greenhouse gases.

QUESTION AND DISCUSSION

1. ***Mandatory Greenhouse Gas Reporting*****.** As a Party to the UNFCCC, the United States is obligated to prepare and maintain an inventory of "anthropogenic emissions by sources and removals by sinks of all [Greenhouse gases] not controlled by the Montreal Protocol." The Energy Policy Act of 1992 was passed to meet this obligation and directs the Energy Information Agency to "develop [and update annually] . . . an inventory of the national aggregate emissions of each [greenhouse gas] for each calendar year of the baseline period of 1987 through 1990." Under the Act, the United States also established a voluntary greenhouse gas Registry where private industry and others could report the results of voluntary efforts to reduce, avoid, or sequester greenhouse gas emissions. For the year 2004, 226 companies reported that they had undertaken 2,154 projects to reduce or sequester approximately 480 million metric tons of carbon dioxide equivalent (million $MTCO_2e$) greenhouse gases in 2004**.**

In 2007, as part of a massive budget bill, Congress required EPA to establish by June 2009, a mandatory program requiring companies to report their greenhouse gas emissions by mid-2009. Congress left all of the details up to EPA's discretion, including which industries will have to report, what threshold levels of emissions will trigger reporting, or how often reporting will be required. See H.R. 2764 (Public Law No. 110-161). EPA's rules governing mandatory greenhouse gas reporting obligations are found at 40 C.F.R. Part 98.

II. *MASSACHUSETTS V. EPA*: THE AUTHORITY TO REGULATE

Substantial controversy has surrounded the issue of whether and to what extent the Clean Air Act empowers the Administration to regulate greenhouse gases for purposes of addressing climate change. Frustrated with the slow pace of federal climate policy, nineteen environmental organizations petitioned the EPA in 1999 to regulate greenhouse gas emissions from new motor vehicles under Section 202 of the Clean Air Act. EPA denied the petition in 2003, arguing that the Act "does not authorize EPA to issue mandatory regulations to address global climate change . . . and (2) that even if the agency had the authority to set greenhouse gas emission standards, it would be unwise to do so." EPA argued that greenhouse gases were not "air pollutants" as defined by the Clean Air Act and, alternatively, that climate change was so important that Congress would have addressed it explicitly if it intended for the Act to cover the issue. The environmental groups, joined by several states and localities, sued the EPA claiming that it had misinterpreted the Clean Air Act. The case eventually reached the Supreme Court.

In the resulting *Massachusetts v. EPA*, the Supreme Court addressed climate change for the first time. Over a spirited dissent, the Court found (5 to 4) that the Clean Air Act had a sufficiently broad definition of "air pollutant" to cover carbon dioxide and the other greenhouse gases at issue. Although Congress in passing the Clean Air Act did not explicitly address climate change, the Court found that it had deliberately provided EPA with sufficient flexibility to address new air pollution threats that might arise over time. Having found that EPA had the regulatory authority to address greenhouse gases, the Court then turned to EPA's argument that, in its discretion, now was not the time to regulate greenhouse gases. There the Court found that EPA had not properly evaluated whether greenhouse gases endangered public welfare. As you read the following excerpt, consider what exactly the Court is saying EPA must do:

MASSACHUSETTS V. ENVIRONMENTAL PROTECTION AGENCY

549 U.S. 497 (2007)

JUSTICE STEVENS * * * Calling global warming "the most pressing environmental challenge of our time," a group of States, local governments, and private organizations, alleged in a petition for certiorari that the Environmental Protection Agency (EPA) has abdicated its responsibility under the Clean Air Act to regulate the emissions of four greenhouse gases, including carbon dioxide. Specifically, petitioners asked us to answer two questions concerning the meaning of § 202(a)(1) of the Act: whether EPA has the statutory authority to regulate greenhouse gas emissions from new motor vehicles; and if so, whether its stated reasons for refusing to do so are consistent with the statute. * * *

Section 202(a)(1) of the Clean Air Act . . . provides:

> "The [EPA] Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare . . . ."

The Act defines "air pollutant" to include "any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air." § 7602(g). "Welfare" is also defined broadly: among other things, it includes "effects on . . . weather . . . and climate." § 7602(h). * * *

II

On October 20, 1999, a group of 19 private organizations filed a rulemaking petition asking EPA to regulate "greenhouse gas emissions from new motor vehicles under § 202 of the Clean Air Act." * * *

On September 8, 2003, EPA entered an order denying the rulemaking petition. The agency gave two reasons for its decision: (1) that contrary to the opinions of its former general counsels, the Clean Air Act does not authorize EPA to issue mandatory regulations to address global climate change; and (2) that even if the agency had the authority to set greenhouse gas emission standards, it would be unwise to do so at this time.

In concluding that it lacked statutory authority over greenhouse gases, EPA observed that Congress "was well aware of the global climate change issue when it last comprehensively amended the [Clean Air Act] in 1990," yet it declined to adopt a proposed amendment establishing binding emissions limitations. Congress instead chose to authorize further investigation into climate change. EPA further reasoned that Congress' "specially tailored solutions to global atmospheric issues," — in particular, its 1990 enactment of a comprehensive scheme to regulate pollutants that depleted the ozone layer, see Title VI, 104 Stat. 2649, 42 U.S.C. §§ 7671-7671q — counseled against reading the general authorization of § 202(a)(1) to

confer regulatory authority over greenhouse gases.

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EPA reasoned that climate change had its own "political history": Congress designed the original Clean Air Act to address *local* air pollutants rather than a substance that "is fairly consistent in its concentration throughout the *world's* atmosphere"; declined in 1990 to enact proposed amendments to force EPA to set carbon dioxide emission standards for motor vehicles; and addressed global climate change in other legislation. Because of this political history, and because imposing emission limitations on greenhouse gases would have [great] economic and political repercussions . . . , EPA was persuaded that it lacked the power to do so. In essence, EPA concluded that climate change was so important that unless Congress spoke with exacting specificity, it could not have meant the agency to address it.

Having reached that conclusion, EPA believed it followed that greenhouse gases cannot be "air pollutants" within the meaning of the Act. The agency bolstered this conclusion by explaining that if carbon dioxide were an air pollutant, the only feasible method of reducing tailpipe emissions would be to improve fuel economy. But because Congress has already created detailed mandatory fuel economy standards subject to Department of Transportation (DOT) administration, the agency concluded that EPA regulation would either conflict with those standards or be superfluous.

Even assuming that it had authority over greenhouse gases, EPA explained in detail why it would refuse to exercise that authority. The agency began by recognizing that the concentration of greenhouse gases has dramatically increased as a result of human activities, and acknowledged the attendant increase in global surface air temperatures. EPA nevertheless gave controlling importance to the NRC Report's statement that a causal link between the two "'cannot be unequivocally established.'" Given that residual uncertainty, EPA concluded that regulating greenhouse gas emissions would be unwise.

The agency furthermore characterized any EPA regulation of motor-vehicle emissions as a "piecemeal approach" to climate change and stated that such regulation would conflict with the President's "comprehensive approach" to the problem. That approach involves additional support for technological innovation, the creation of nonregulatory programs to encourage voluntary private-sector reductions in greenhouse gas emissions, and further research on climate change — not actual regulation. According to EPA, unilateral EPA regulation of motor-vehicle greenhouse gas emissions might also hamper the President's ability to persuade key developing countries to reduce greenhouse gas emissions.

III

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The scope of our review of the merits of the statutory issues is narrow. As we have repeated time and again, an agency has broad discretion to choose how best to marshal its limited resources and personnel to carry out its delegated responsibilities. See *Chevron U.S.A. Inc. v.*

Natural Resources Defense Council, Inc., 467 U.S. 837, 842-845, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). That discretion is at its height when the agency decides not to bring an enforcement action. Therefore, in *Heckler v. Chaney,* 470 U.S. 821, 105 S.Ct. 1649, 84 L.Ed.2d 714 (1985), we held that an agency's refusal to initiate enforcement proceedings is not ordinarily subject to judicial review. Some debate remains, however, as to the rigor with which we review an agency's denial of a petition for rulemaking.

There are key differences between a denial of a petition for rulemaking and an agency's decision not to initiate an enforcement action. See *American Horse Protection Assn., Inc. v. Lyng,* 812 F.2d 1, 3-4 (C.A.D.C.1987). In contrast to nonenforcement decisions, agency refusals to initiate rulemaking "are less frequent, more apt to involve legal as opposed to factual analysis, and subject to special formalities, including a public explanation." *Id.,* at 4; see also 5 U.S.C. § 555(e). They moreover arise out of denials of petitions for rulemaking which (at least in the circumstances here) the affected party had an undoubted procedural right to file in the first instance. Refusals to promulgate rules are thus susceptible to judicial review, though such review is "extremely limited" and "highly deferential." *National Customs Brokers & Forwarders Assn. of America, Inc. v. United States,* 883 F.2d 93, 96 (C.A.D.C.1989). * * *

VI

On the merits, the first question is whether § 202(a)(1) of the Clean Air Act authorizes EPA to regulate greenhouse gas emissions from new motor vehicles in the event that it forms a "judgment" that such emissions contribute to climate change. We have little trouble concluding that it does. In relevant part, § 202(a)(1) provides that EPA "shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in [the Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). Because EPA believes that Congress did not intend it to regulate substances that contribute to climate change, the agency maintains that carbon dioxide is not an "air pollutant" within the meaning of the provision.

The statutory text forecloses EPA's reading. The Clean Air Act's sweeping definition of "air pollutant" includes "*any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . ." § 7602(g) (emphasis added). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word "any." Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt "physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air." The statute is unambiguous. * * *

EPA finally argues that it cannot regulate carbon dioxide emissions from motor vehicles because doing so would require it to tighten mileage standards, a job (according to EPA) that Congress has assigned to [the Department of Transportation (DOT)]. . . . But that DOT sets mileage standards in no way licenses EPA to shirk its environmental responsibilities. EPA has been charged with protecting the public's "health" and "welfare," 42 U.S.C. § 7521(a)(1), a statutory obligation wholly independent of DOT's mandate to promote energy efficiency. See

Energy Policy and Conservation Act, § 2(5), 89 Stat. 874, 42 U.S.C. § 6201(5). The two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency.

While the Congresses that drafted § 202(a)(1) might not have appreciated the possibility that burning fossil fuels could lead to global warming, they did understand that without regulatory flexibility, changing circumstances and scientific developments would soon render the Clean Air Act obsolete. The broad language of § 202(a)(1) reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence. . . . Because greenhouse gases fit well within the Clean Air Act's capacious definition of "air pollutant," we hold that EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

VII

The alternative basis for EPA's decision — that even if it does have statutory authority to regulate greenhouse gases, it would be unwise to do so at this time — rests on reasoning divorced from the statutory text. While the statute does condition the exercise of EPA's authority on its formation of a "judgment," 42 U.S.C. § 7521(a)(1), that judgment must relate to whether an air pollutant "cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare," *ibid.* Put another way, the use of the word "judgment" is not a roving license to ignore the statutory text. It is but a direction to exercise discretion within defined statutory limits.

If EPA makes a finding of endangerment, the Clean Air Act requires the agency to regulate emissions of the deleterious pollutant from new motor vehicles. *Ibid.* (stating that "[EPA] shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class of new motor vehicles"). EPA no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies. But once EPA has responded to a petition for rulemaking, its reasons for action or inaction must conform to the authorizing statute. Under the clear terms of the Clean Air Act, EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do. *Ibid.* To the extent that this constrains agency discretion to pursue other priorities of the Administrator or the President, this is the congressional design.

EPA has refused to comply with this clear statutory command. Instead, it has offered a laundry list of reasons not to regulate. For example, EPA said that a number of voluntary executive branch programs already provide an effective response to the threat of global warming, that regulating greenhouse gases might impair the President's ability to negotiate with "key developing nations" to reduce emissions, and that curtailing motor-vehicle emissions would reflect "an inefficient, piecemeal approach to address the climate change issue".

Although we have neither the expertise nor the authority to evaluate these policy judgments, it is evident they have nothing to do with whether greenhouse gas emissions contribute to climate change. Still less do they amount to a reasoned justification for declining to form a scientific judgment. In particular, while the President has broad authority in foreign affairs, that authority

does not extend to the refusal to execute domestic laws. In the Global Climate Protection Act of 1987, Congress authorized the State Department — not EPA — to formulate United States foreign policy with reference to environmental matters relating to climate. See § 1103(c), 101 Stat. 1409. EPA has made no showing that it issued the ruling in question here after consultation with the State Department. Congress did direct EPA to consult with other agencies in the formulation of its policies and rules, but the State Department is absent from that list. § 1103(b).

Nor can EPA avoid its statutory obligation by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time. If the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming, EPA must say so. That EPA would prefer not to regulate greenhouse gases because of some residual uncertainty . . . is irrelevant. The statutory question is whether sufficient information exists to make an endangerment finding.

In short, EPA has offered no reasoned explanation for its refusal to decide whether greenhouse gases cause or contribute to climate change. Its action was therefore "arbitrary, capricious, . . . or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A). We need not and do not reach the question whether on remand EPA must make an endangerment finding, or whether policy concerns can inform EPA's actions in the event that it makes such a finding. Cf. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837, 843-844 (1984). We hold only that EPA must ground its reasons for action or inaction in the statute.

VIII

The judgment of the Court of Appeals is reversed, and the case is remanded for further proceedings consistent with this opinion.

[CHIEF JUSTICE ROBERTS, with whom JUSTICE SCALIA, JUSTICE THOMAS, and JUSTICE ALITO joined, issued an opinion dissenting from the finding that the State of Massachusetts had standing].

JUSTICE SCALIA, with whom THE CHIEF JUSTICE, JUSTICE THOMAS, and JUSTICE ALITO join, dissenting.

I

A

The provision of law at the heart of this case is § 202(a)(1) of the Clean Air Act (CAA), which provides that the Administrator of the Environmental Protection Agency (EPA) "shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which *in his judgment* cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1) (emphasis added). As the Court recognizes, the statute "condition[s] the exercise of EPA's authority on its formation of a 'judgment.'" . . . There is no

dispute that the Administrator has made no such judgment in this case. * * *

The question thus arises: Does anything *require* the Administrator to make a "judgment" whenever a petition for rulemaking is filed? Without citation of the statute or any other authority, the Court says yes. Why is that so? . . . Where does the CAA say that the EPA Administrator is required to come to a decision on this question whenever a rulemaking petition is filed? The Court points to no such provision because none exists.

Instead, the Court invents a multiple-choice question that the EPA Administrator must answer when a petition for rulemaking is filed. The Administrator must exercise his judgment in one of three ways: (a) by concluding that the pollutant *does* cause, or contribute to, air pollution that endangers public welfare (in which case EPA is required to regulate); (b) by concluding that the pollutant *does not* cause, or contribute to, air pollution that endangers public welfare (in which case EPA is *not* required to regulate); or (c) by "provid[ing] some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether" greenhouse gases endanger public welfare (in which case EPA is *not* required to regulate).

I am willing to assume, for the sake of argument, that the Administrator's discretion in this regard is not entirely unbounded — that if he has no reasonable basis for deferring judgment he must grasp the nettle at once. The Court, however, with no basis in text or precedent, rejects all of EPA's stated "policy judgments" as not "amount[ing] to a reasoned justification," effectively narrowing the universe of potential reasonable bases to a single one: Judgment can be delayed *only* if the Administrator concludes that "the scientific uncertainty is [too] profound." The Administrator is precluded from concluding *for other reasons* "that it would . . . be better not to regulate at this time." Such other reasons — perfectly valid reasons — were set forth in the agency's statement. * * *

The Court dismisses EPA's analysis as "rest[ing] on reasoning divorced from the statutory text." "While the statute does condition the exercise of EPA's authority on its formation of a 'judgment,' . . . that judgment must relate to whether an air pollutant 'cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare.'" *Ibid*. True, but irrelevant. When the Administrator *makes* a judgment whether to regulate greenhouse gases, that judgment must relate to whether they are air pollutants that "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). But the statute says *nothing at all* about the reasons for which the Administrator may *defer* making a judgment — the permissible reasons for deciding not to grapple with the issue at the present time. Thus, the various "policy" rationales that the Court criticizes are not "divorced from the statutory text" except in the sense that the statutory text is silent, as texts are often silent about permissible reasons for the exercise of agency discretion. The reasons the EPA gave are surely considerations executive agencies *regularly* take into account (and *ought* to take into account) when deciding whether to consider entering a new field: the impact such entry would have on other Executive Branch programs and on foreign policy. There is no basis in law for the Court's imposed limitation.

EPA's interpretation of the discretion conferred by the statutory reference to "its judgment" is not only reasonable, it is the most natural reading of the text. The Court nowhere explains why

this interpretation is incorrect, let alone why it is not entitled to deference under *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). As the Administrator acted within the law in declining to make a "judgment" for the policy reasons above set forth, I would uphold the decision to deny the rulemaking petition on that ground alone. * * *

II

A

Even before reaching its discussion of the word "judgment," the Court makes another significant error when it concludes that "§ 202(a)(1) of the Clean Air Act *authorizes* EPA to regulate greenhouse gas emissions from new motor vehicles in the event that it forms a 'judgment' that such emissions contribute to climate change." For such authorization, the Court relies on what it calls "the Clean Air Act's capacious definition of 'air pollutant.'"

"Air pollutant" is defined by the Act as "any air pollution agent or combination of such agents, including any physical, chemical, . . . substance or matter which is emitted into or otherwise enters the ambient air." 42 U.S.C. § 7602(g). The Court is correct that "[c]arbon dioxide, methane, nitrous oxide, and hydrofluorocarbons" fit within the second half of that definition: They are "physical, chemical, . . . substance[s] or matter which [are] emitted into or otherwise ente[r] the ambient air." But the Court mistakenly believes this to be the end of the analysis. In order to be an "air pollutant" under the Act's definition, the "substance or matter [being] emitted into . . . the ambient air" must also meet the *first* half of the definition — namely, it must be an "air pollution agent or combination of such agents." The Court simply pretends this half of the definition does not exist. * * *

It is perfectly reasonable to view the definition of "air pollutant" in its entirety: An air pollutant *can* be "any physical, chemical, . . . substance or matter which is emitted into or otherwise enters the ambient air," but only if it retains the general characteristic of being an "air pollution agent or combination of such agents." This is precisely the conclusion EPA reached: "[A] substance does not meet the CAA definition of 'air pollutant' simply because it is a 'physical, chemical, . . . substance or matter which is emitted into or otherwise enters the ambient air.' It must also be an 'air pollution agent.'" 68 Fed. Reg. 52929, n. 3. See also *id.*, at 52928 ("The root of the definition indicates that for a substance to be an 'air pollutant,' it must be an 'agent' of 'air pollution'"). Once again, in the face of textual ambiguity, the Court's application of *Chevron* deference to EPA's interpretation of the word "including" is nowhere to be found. Evidently, the Court defers only to those reasonable interpretations that it favors.

B

Using (as we ought to) EPA's interpretation of the definition of "air pollutant," we must next determine whether greenhouse gases are "agent[s]" of "air pollution." If so, the statute would authorize regulation; if not, EPA would lack authority.

Unlike "air pollutants," the term "air pollution" is not itself defined by the CAA; thus, once again we must accept EPA's interpretation of that ambiguous term, provided its interpretation is

a "permissible construction of the statute." *Chevron*, 467 U.S. at 843. In this case, the petition for rulemaking asked EPA for "regulation of [greenhouse gas] emissions from motor vehicles to reduce the risk of global climate change." Thus, in deciding whether it had authority to regulate, EPA had to determine whether the concentration of greenhouse gases assertedly responsible for "global climate change" qualifies as "air pollution." EPA began with the commonsense observation that the "[p]roblems associated with atmospheric concentrations of CO_2" bear little resemblance to what would naturally be termed "air pollution":

> "EPA's prior use of the CAA's general regulatory provisions provides an important context. Since the inception of the Act, EPA has used these provisions to address air pollution problems that occur primarily at ground level or near the surface of the earth. For example, national ambient air quality standards (NAAQS) established under CAA section 109 address concentrations of substances in the ambient air and the related public health and welfare problems. This has meant setting NAAQS for concentrations of ozone, carbon monoxide, particulate matter and other substances in the air near the surface of the earth, not higher in the atmosphere. . . . CO_2, by contrast, is fairly consistent in concentration throughout the world's atmosphere up to approximately the lower stratosphere."

In other words, regulating the buildup of CO_2 and other greenhouse gases in the upper reaches of the atmosphere, which is alleged to be causing global climate change, is not akin to regulating the concentration of some substance that is *polluting* the *air*.

We need look no further than the dictionary for confirmation that this interpretation of "air pollution" is eminently reasonable. The definition of "pollute," of course, is "[t]o make or render impure or unclean." Webster's New International Dictionary 1910 (2d ed. 1949). And the first three definitions of "air" are as follows: (1) "[t]he invisible, odorless, and tasteless mixture of gases which surrounds the earth"; (2) "[t]he body of the earth's atmosphere; esp., the part of it near the earth, as distinguished from the upper rarefied part"; (3) "[a] portion of air or of the air considered with respect to physical characteristics or as affecting the senses." *Id.*, at 54. EPA's conception of "air pollution" — focusing on impurities in the "ambient air" "at ground level or near the surface of the earth" — is perfectly consistent with the natural meaning of that term.

In the end, EPA concluded that since "CAA authorization to regulate is generally based on a finding that an air pollutant causes or contributes to air pollution" the concentrations of CO_2 and other greenhouse gases allegedly affecting the global climate are beyond the scope of CAA's authorization to regulate. "[T]he term 'air pollution' as used in the regulatory provisions cannot be interpreted to encompass global climate change." *Ibid.* Once again, the Court utterly fails to explain why this interpretation is incorrect, let alone so unreasonable as to be unworthy of *Chevron* deference. * * *

The Court's alarm over global warming may or may not be justified, but it ought not distort the outcome of this litigation. This is a straightforward administrative-law case, in which Congress has passed a malleable statute giving broad discretion, not to us but to an executive agency. No matter how important the underlying policy issues at stake, this Court has no

business substituting its own desired outcome for the reasoned judgment of the responsible agency.

QUESTIONS AND DISCUSSION

1. The Court focused on the requirement that EPA must come to a judgment on whether greenhouse gases endanger public health or welfare. Did the Court order EPA to regulate greenhouse gases? If not, what options are left to EPA? In this regard, consider the Court's statement that "EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." What rationales — other than the ones the majority rejected — could EPA invoke to refuse to make a judgment? Part III of this chapter explores the path EPA did take.

2. What do you think of Justice Scalia's effort to distinguish greenhouse gases from the statute's definition of air pollution? Prior to reading this case would you have doubted that greenhouse gas emissions are air pollution? The majority opinion responded to Scalia in a footnote:

> In dissent, Justice SCALIA maintains that because greenhouse gases permeate the world's atmosphere rather than a limited area near the earth's surface, EPA's exclusion of greenhouse gases from the category of air pollution "agent[s]" is entitled to deference under *Chevron*. EPA's distinction, however, finds no support in the text of the statute, which uses the phrase "the ambient air" without distinguishing between atmospheric layers. Moreover, it is a plainly unreasonable reading of a sweeping statutory provision designed to capture "*any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air." 42 U.S.C. § 7602(g). Justice SCALIA does not (and cannot) explain why Congress would define "air pollutant" so carefully and so broadly, yet confer on EPA the authority to narrow that definition whenever expedient by asserting that a particular substance is not an "agent." At any rate, no party to this dispute contests that greenhouse gases both "ente[r] the ambient air" and tend to warm the atmosphere. They are therefore unquestionably "agent[s]" of air pollution.

An underlying issue related to this discussion is the Clean Air Act's regulation of stratospheric ozone depleting substances (ODSs) under Title VI. In 1990, Congress amended the Clean Air Act to add Title VI to implement the Montreal Protocol on Ozone-Depleting Substances without revising the statutory definition of "air pollutant," even though ODSs, like greenhouse gases, cause indirect local harm by altering conditions in the stratosphere. In fact, ODSs deplete the ozone layer in the upper stratosphere, while greenhouse gases concentrate and trap heat in the lower part of the stratosphere. If Congress thought the Clean Air Act's definition of "air pollutant" was broad enough to cover ODSs, should that indicate the term is also broad enough to cover greenhouse gases?

3. Justice Scalia's well known rhetorical flare was evident in the following footnote:

> Not only is EPA's interpretation reasonable, it is far more plausible than the Court's alternative. As the Court correctly points out, "all airborne compounds of whatever stripe" would qualify as "physical, chemical, . . . substance[s] or matter which [are] emitted into or otherwise ente[r] the ambient air," 42 U.S.C. § 7602(g). It follows that *everything* airborne, from Frisbees to flatulence, qualifies as an "air pollutant." This reading of the statute defies common sense.

While Justice Scalia may have been correct that nearly every airborne substance could qualify as an "air pollutant" under the CAA, that does not mean the Act's regulatory requirements would apply. Indeed, all sections of the CAA restrict the potential regulatory scope of the statute, either by limiting regulation to substances that present an endangerment to public health or welfare, establishing emissions thresholds (such as requirements that sources be "major"), grandfathering existing sources from regulatory requirements, or targeting specific pollutants. Thus, despite the potential breadth of the term "air pollutant," the Clean Air Act most certainly would not regulate Frisbees. (It might regulate "flatulence," however, if one of the Act's programs applies to methane emissions from concentrated animal feeding operations.)

4. As Justice Scalia indicates, *Massachusetts* is at root an administrative law case. Indeed, two administrative law concepts are at issue in the case.

The first administrative law concept is the *Chevron* doctrine governing statutory interpretation. In a challenge to an agency's implementation of a statute, the court must decide whether the agency has acted consistently with the statute. To do this, the court must first decide what the statute means. Under *Chevron's* first step, the court decides whether the meaning of the statute is clear. If so, "that is the end of the matter," and an agency's conduct will be judged based on whether it complies with the unambiguous statute. If, however, the court decides a statute is ambiguous, the court moves to *Chevron* step two. Under this second step, the court decides whether an agency has provided a reasonable interpretation of the ambiguous statutory term. So long as the agency's interpretation is reasonable (i.e., generally consistent with the statute's structure and purpose), courts will defer to the agency's understanding of what a statute means.

In *Massachusetts*, the majority found the Clean Air Act's definition of air pollutant clearly encompassed greenhouse gases. Thus, it refused to defer to EPA's alternative interpretation that would have used a narrower definition. The dissent, in contrast, either seems to have found the statute ambiguous — in which case, it would defer to EPA's interpretation excluding greenhouse gases from being air pollutants — or clearly not capable of including greenhouse gases. Either way, under the dissent's reading, EPAs interpretation that air pollutants do not include greenhouse gases should have won the day.

The second administrative law issue in *Massachusetts* involves judicial review of agency responses to administrative petitions. Under the Administrative Procedure Act, any person is allowed to petition a federal agency for action, and agencies must respond to any such petitions. If an agency refuses to respond to a submitted petition, the petitioner may seek a judicial order

compelling the agency's response. This dynamic ensures that interested parties will receive some response from agencies regarding matters of interest. However, the dynamic could also threaten to derail agencies' implementation of their own priorities or congressional directives. Recognizing this risk, the federal appellate courts (most notably the D.C. Circuit) have developed a doctrine in which agency responses to petitions typically receive significant deference. In particular, if an agency bases a petition denial on a lack of resources or justifies its denial on having other, more pressing obligations, courts will usually defer to the agency, so long as the agency has not shirked a statutory duty to act within a specified timeframe. But if an agency offers a substantive reason for denying a petition, courts will usually scrutinize the agency's response and give the agency much less deference.

In *Massachusetts*, EPA's petition denial offered two rationales: 1) the Clean Air Act did not authorize regulation of greenhouse gases; and 2) regulation would not be a good idea. One must wonder if the case would have turned out differently if EPA had simply stated it lacked the resources to respond to the petition or had other, more pressing needs.

5. The Court first had to address whether the parties even had standing to litigate a case involving injury from climate change. The Court found (5 votes to 4) that at least the State of Massachusetts in its quasi-sovereign status had alleged a potential threat to its coastline and other interests, and thus had standing to bring a climate change-related action. The standing part of the Supreme Court decision is discussed in Chapter 17.

III. REGULATION OF VEHICLE EMISSIONS

Regulation of greenhouse gas emissions from vehicles may proceed through two different avenues. First, section 202 of the Clean Air Act requires EPA to regulate emissions of air pollutants from new motor vehicles that "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). Second, states may regulate emissions pursuant to sections 209 and 177 of the Clean Air Act. Although the Clean Air Act generally preempts states from adopting vehicle emissions standards, EPA may waive the preemption for California under section 209. Once California receives a waiver from EPA, other states may, under section 177, choose to adopt either the California standards or the federal standards. By March 2010, EPA had issued a positive endangerment finding under section 202 and granted California's waiver request. The D.C. Circuit upheld both of these actions.

A. The Endangerment Finding and the Tailpipe Rule

As a result of the Supreme Court's decision in *Massachusetts*, EPA had an obligation to respond to the petition to regulate greenhouse gas emissions from motor vehicles. The Court's decision noted that EPA could avoid taking further action "only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." Although this language seems to give EPA broad discretion, the Court then noted that EPA could not base its decision on reasons outside the statute, and thus could not rely on concerns regarding

international climate treaty negotiations, executive branch voluntary programs, or piecemeal approaches to climate change mitigation. It seemed likely that EPA would need to consider the science of climate change when it responded to the petition. EPA did just that in the final "endangerment finding" it released in late 2009.

The EPA's endangerment finding contained EPA's first official determination that greenhouse gases cause or contribute to an endangerment of public health and welfare. Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009). It also established the framework for further regulatory action by EPA, including the establishment of vehicle emissions standards (called the "Tailpipe Standards" or "Tailpipe Rule"), and led to regulatory controls over power plants and other stationary sources. Several states and industry organizations filed petitions for review challenging EPA's endangerment finding and the subsequent Tailpipe Standards, both on their own merits but mostly because they would lead to regulation of stationary sources.

After consolidating the petitions (and several other challenges to other EPA rules), the D.C. Circuit issued the following decision.

COALITION FOR RESPONSIBLE REGULATION V. EPA

684 F.3d 102 (D.C. Cir. 2012)

Before: SENTELLE, Chief Judge; ROGERS and TATEL, Circuit Judges.

PER CURIAM:

Following the Supreme Court's decision in *Massachusetts v. EPA*, 549 U.S. 497, 127 S.Ct. 1438, 167 L.Ed.2d 248 (2007) — which clarified that greenhouse gases are an "air pollutant" subject to regulation under the Clean Air Act (CAA) — the Environmental Protection Agency promulgated a series of greenhouse gas-related rules. First, EPA issued an Endangerment Finding, in which it determined that greenhouse gases may "reasonably be anticipated to endanger public health or welfare." *See* 42 U.S.C. § 7521(a)(1). Next, it issued the Tailpipe Rule, which set emission standards for cars and light trucks. Finally, EPA determined that the CAA requires major stationary sources of greenhouse gases to obtain construction and operating permits. But because immediate regulation of all such sources would result in overwhelming permitting burdens on permitting authorities and sources, EPA issued the Timing and Tailoring Rules, in which it determined that only the largest stationary sources would initially be subject to permitting requirements.

Petitioners, various states and industry groups, challenge all these rules, arguing that they are based on improper constructions of the CAA and are otherwise arbitrary and capricious. But for the reasons set forth below, we conclude: 1) the Endangerment Finding and Tailpipe Rule are neither arbitrary nor capricious * * *

II.

We turn first to State and Industry Petitioners' challenges to the Endangerment Finding, the

first of the series of rules EPA issued after the Supreme Court remanded *Massachusetts v. EPA* . . . On remand, EPA compiled a substantial scientific record, which is before us in the present review, and determined that "greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare." EPA went on to find that motor-vehicle emissions of greenhouse gases "contribute to the total greenhouse gas air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare."

State and Industry Petitioners challenge several aspects of EPA's decision, including (1) EPA's interpretation of CAA § 202(a)(1), which sets out the endangerment-finding standard; (2) the adequacy of the scientific record supporting the Endangerment Finding; (3) EPA's decision not to "quantify" the risk of endangerment to public health or welfare created by climate change; (4) EPA's choice to define the "air pollutant" at issue as an aggregate of six greenhouse gases; (5) EPA's failure to consult its Science Advisory Board before issuing the Endangerment Finding; and (6) EPA's denial of all petitions for reconsideration of the Endangerment Finding. We ultimately conclude that the Endangerment Finding is consistent with *Massachusetts v. EPA* and the text and structure of the CAA, and is adequately supported by the administrative record.

A.

Industry Petitioners contend that EPA improperly interpreted CAA § 202(a)(1) as restricting the Endangerment Finding to a science-based judgment devoid of considerations of policy concerns and regulatory consequences. They assert that CAA § 202(a)(1) requires EPA to consider, *e.g.*, the benefits of activities that require greenhouse gas emissions, the effectiveness of emissions regulation triggered by the Endangerment Finding, and the potential for societal adaptation to or mitigation of climate change. They maintain that eschewing those considerations also made the Endangerment Finding arbitrary and capricious.

The contentions are foreclosed by the language of the statute and the Supreme Court's decision in *Massachusetts v. EPA.* Section 202(a) of the CAA states in relevant part that EPA's Administrator

> shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

42 U.S.C. § 7521(a)(1). This language requires that the endangerment evaluation "relate to whether an air pollutant 'cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare.'" *Massachusetts v. EPA*, 549 U.S. at 532–33. At bottom, § 202(a)(1) requires EPA to answer only two questions: whether particular "air pollution" — here, greenhouse gases — "may reasonably be anticipated to endanger public health or welfare," and whether motor-vehicle emissions "cause, or contribute to" that endangerment.

These questions require a "scientific judgment" about the potential risks greenhouse gas emissions pose to public health or welfare — not policy discussions. *Massachusetts v. EPA*, 549 U.S. at 534. In *Massachusetts v. EPA*, the Supreme Court rebuffed an attempt by EPA itself to inject considerations of policy into its decision. * * *

As in *Massachusetts v. EPA*, a "laundry list of reasons not to regulate" simply has "nothing to do with whether greenhouse gas emissions contribute to climate change." *Id.* at 533–34. The additional exercises State and Industry Petitioners would have EPA undertake — *e.g.*, performing a cost-benefit analysis for greenhouse gases, gauging the effectiveness of whatever emission standards EPA would enact to limit greenhouse gases, and predicting society's adaptive response to the dangers or harms caused by climate change — do not inform the "scientific judgment" that § 202(a)(1) requires of EPA. * * *

B.

State and Industry Petitioners next challenge the adequacy of the scientific record underlying the Endangerment Finding, objecting to both the type of evidence upon which EPA relied and EPA's decision to make an Endangerment Finding in light of what Industry Petitioners view as significant scientific uncertainty. Neither objection has merit.

1.

As an initial matter, State and Industry Petitioners question EPA's reliance on "major assessments" addressing greenhouse gases and climate change issued by the Intergovernmental Panel on Climate Change (IPCC), the U.S. Global Climate Research Program (USGCRP), and the National Research Council (NRC). These peer-reviewed assessments synthesized thousands of individual studies on various aspects of greenhouse gases and climate change and drew "overarching conclusions" about the state of the science in this field. * * *

EPA simply did here what it and other decision-makers often must do to make a science-based judgment: it sought out and reviewed existing scientific evidence to determine whether a particular finding was warranted. It makes no difference that much of the scientific evidence in large part consisted of "syntheses" of individual studies and research. Even individual studies and research papers often synthesize past work in an area and then build upon it. This is how science works. EPA is not required to re-prove the existence of the atom every time it approaches a scientific question.

Moreover, it appears from the record that EPA used the assessment reports not as substitutes for its own judgment but as evidence upon which it relied to make that judgment. * * *

2.

Industry Petitioners also assert that the scientific evidence does not adequately support the Endangerment Finding. As we have stated before in reviewing the science-based decisions of agencies such as EPA, "[a]lthough we perform a searching and careful inquiry into the facts underlying the agency's decisions, we will presume the validity of agency action as long as a

rational basis for it is presented." *Am. Farm Bureau Fed'n v. EPA,* 559 F.3d 512, 519 (D.C.Cir. 2009) (internal quotation marks omitted). In so doing, "we give an extreme degree of deference to the agency when it is evaluating scientific data within its technical expertise." *Id.* (internal quotation marks omitted).

The body of scientific evidence marshaled by EPA in support of the Endangerment Finding is substantial. EPA's scientific evidence of record included support for the proposition that greenhouse gases trap heat on earth that would otherwise dissipate into space; that this "greenhouse effect" warms the climate; that human activity is contributing to increased atmospheric levels of greenhouse gases; and that the climate system is warming.

Based on this scientific record, EPA made the linchpin finding: in its judgment, the "root cause" of the recently observed climate change is "very likely" the observed increase in anthropogenic greenhouse gas emissions. EPA found support for this finding in three lines of evidence. First, it drew upon our "basic physical understanding" of the impacts of various natural and manmade changes on the climate system. * * *

EPA further relied upon evidence of historical estimates of past climate change, supporting EPA's conclusion that global temperatures over the last half-century are unusual. * * *

For its third line of evidence that anthropogenic emissions of greenhouse gases spurred the perceived warming trend, EPA turned to computer-based climate-model simulations. Scientists have used global climate models built on basic principles of physics and scientific knowledge about the climate to try to simulate the recent climate change. These models have only been able to replicate the observed warming by including anthropogenic emissions of greenhouse gases in the simulations. * * *

Industry Petitioners do not find fault with much of the substantial record EPA amassed in support of the Endangerment Finding. Rather, they contend that the record evidences too much uncertainty to support that judgment. But the existence of some uncertainty does not, without more, warrant invalidation of an endangerment finding. If a statute is "precautionary in nature" and "designed to protect the public health," and the relevant evidence is "difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge," EPA need not provide "rigorous step-by-step proof of cause and effect" to support an endangerment finding. As we have stated before, "Awaiting certainty will often allow for only reactive, not preventive, regulation." * * *

In the end, Petitioners are asking us to re-weigh the scientific evidence before EPA and reach our own conclusion. This is not our role. . . . When EPA evaluates scientific evidence in its bailiwick, we ask only that it take the scientific record into account "in a rational manner." Industry Petitioners have not shown that EPA failed to do so here.

C.

State Petitioners, here led by Texas, contend that the Endangerment Finding is arbitrary and capricious because EPA did not "define," "measure," or "quantify" either the atmospheric

concentration at which greenhouse gases endanger public health or welfare, the rate or type of climate change that it anticipates will endanger public health or welfare, or the risks or impacts of climate change. According to Texas, without defining these thresholds and distinguishing "safe" climate change from climate change that endangers, EPA's Endangerment Finding is just a "subjective conviction."

It is true that EPA did not provide a quantitative threshold at which greenhouse gases or climate change will endanger or cause certain impacts to public health or welfare. The text of CAA § 202(a)(1) does not require that EPA set a precise numerical value as part of an endangerment finding. Quite the opposite; the § 202(a)(1) inquiry necessarily entails a case-by-case, sliding-scale approach to endangerment because "[d]anger . . . is not set by a fixed probability of harm, but rather is composed of reciprocal elements of risk and harm, or probability and severity." EPA need not establish a minimum threshold of risk or harm before determining whether an air pollutant endangers. It may base an endangerment finding on "a lesser risk of greater harm . . . or a greater risk of lesser harm" or any combination in between. * * *

D.

EPA defined both the "air pollution" and the "air pollutant" that are the subject of the Endangerment Finding as an aggregate of six greenhouse gases, which EPA called "well mixed greenhouse gases": carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Industry Petitioners argue that EPA's decision to include PFCs and SF_6 in this group of greenhouse gases was arbitrary and capricious primarily because motor vehicles generally do not emit these two gases.

No petitioner for review of the Endangerment Finding has established standing to make this argument. Industry Petitioners concede that EPA's decision to regulate PFCs and SF_6 along with the other four greenhouse gases does not injure any motor-vehicle-related petitioner. Nor has any non-motor-vehicle-related petitioner shown an injury-in-fact resulting from EPA's inclusion of these two gases in the six-gas amalgam of "well-mixed greenhouse gases." * * *

F.

Lastly, State Petitioners maintain that EPA erred by denying all ten petitions for reconsideration of the Endangerment Finding. Those petitions asserted that internal e-mails and documents released from the University of East Anglia's Climate Research Unit (CRU) — a contributor to one of the global temperature records and to the IPCC's assessment report — undermined the scientific evidence supporting the Endangerment Finding by calling into question whether the IPCC scientists adhered to "best science practices." * * *

On August 13, 2010, EPA issued a denial of the petitions for reconsideration accompanied by a 360–page response to petitions (RTP). It determined that the petitions did not provide substantial support for the argument that the Endangerment Finding should be revised. According to EPA, the petitioners' claims based on the CRU documents were exaggerated,

contradicted by other evidence, and not a material or reliable basis for questioning the credibility of the body of science at issue; two of the factual inaccuracies alleged in the petitions were in fact mistakes, but both were "tangential and minor" and did not change the key IPCC conclusions; and the new scientific studies raised by some petitions were either already considered by EPA, misinterpreted or misrepresented by petitioners, or put forth without acknowledging other new studies. * * *

III.

State and Industry Petitioners contend that in promulgating the Tailpipe Rule, EPA relied on an improper interpretation of CAA § 202(a)(1), and was arbitrary and capricious in failing to justify and consider the cost impacts of its conclusion that the Rule triggers stationary-source regulation under the PSD and Title V provisions. They do not challenge the substantive standards of the Rule and focus principally on EPA's failure to consider the cost of stationary-source permitting requirements triggered by the Rule. Positing an absurd-consequences scenario, Petitioners maintain that if EPA had considered these costs it "would have been forced" to exclude carbon dioxide from the scope of the emission standards, to decline to issue greenhouse gas emission standards at all, or "to interpret the statute so as not to automatically trigger stationary source regulation." Both the plain text of Section 202(a) and precedent refute Petitioners' contentions.

A.

Section 202(a)(1) provides:

> The Administrator shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

42 U.S.C. § 7521(a)(1). By employing the verb "shall," Congress vested a non-discretionary duty in EPA. The plain text of Section 202(a)(1) thus refutes Industry Petitioners' contention that EPA had discretion to defer issuance of motor-vehicle emission standards on the basis of stationary-source costs. Neither the adjacent text nor the statutory context otherwise condition this clear "language of command." Having made the Endangerment Finding pursuant to CAA § 202(a), 42 U.S.C. § 7521(a), EPA lacked discretion to defer promulgation of the Tailpipe Rule on the basis of its trigger of stationary-source permitting requirements under the PSD program and Title V.

The Supreme Court's decision in *Massachusetts v. EPA* compels this interpretation of Section 202(a)(1). "If EPA makes a finding of endangerment, the Clean Air Act requires the [a]gency to regulate emissions of the deleterious pollutant from new motor vehicles." 549 U.S. at 533. * * *

B.

Turning to the APA, Industry Petitioners contend that EPA failed both to justify the Tailpipe Rule in terms of the risk identified in the Endangerment Finding and to show that the proposed standards "would meaningfully mitigate the alleged endangerment," Industry Tailpipe Br. 35. Instead, they maintain that EPA "separated these two integral steps," and "concluded that it had no obligation to show . . . 'the resulting emissions control strategy or strategies will have some significant degree of harm reduction or effectiveness in addressing the endangerment.'" These contentions fail.

* * * Nothing in [our prior case law] implied that EPA's authority to regulate was conditioned on evidence of a particular level of mitigation; only a showing of significant *contribution* was required. EPA made such a determination in the Endangerment Finding, concluding that vehicle emissions are a significant contributor to domestic greenhouse gas emissions. Further, in the preamble to the Tailpipe Rule itself, EPA found that the emission standards would result in meaningful mitigation of greenhouse gas emissions. For example, EPA estimated that the Rule would result in a reduction of about 960 million metric tons of CO_2e emissions over the lifetime of the model year 2012–2016 vehicles affected by the new standards. * * *

C.

Petitioners also invoke Section 202(a)(2) as support for their contention that EPA must consider stationary-source costs in the Tailpipe Rule. Section 202(a)(2) provides:

> Any regulation prescribed under paragraph (1) of this subsection . . . shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.

42 U.S.C. § 7521(a)(2). State Petitioners maintain the reference to compliance costs encompasses those experienced by stationary sources under the PSD program, while Industry Petitioners maintain stationary-source costs are a relevant factor in EPA's Section 202(a)(1) rulemaking. This court, however, has held that the Section 202(a)(2) reference to compliance costs encompasses only the cost to the motor-vehicle industry to come into compliance with the new emission standards, and does not mandate consideration of costs to other entities not directly subject to the proposed standards. * * *

QUESTIONS AND DISCUSSION

1. Most observers expected the petitioners to lose their challenge to EPA's endangerment finding because courts consistently defer to the scientific judgments of expert agencies. Yet, due to the political nature of climate change — and particularly the ClimateGate scandal that gained significant media attention — some people wondered if the D.C. Circuit might question EPA's scientific findings. The discussion in Part II.F about the University of East Anglia's Climate Research Unit (CRU) is a discussion of the ClimateGate scandal, in which someone hacked into the emails of several climate scientists at the CRU and other institutions and released emails in

which the scientists referred to a "trick" they had used in graphing data and disparaged other scientists who do not believe in climate change and/or its human causes. The emails triggered accusations that the climate scientists had committed fraud, falsified data, and otherwise misled the public and scientific community about the reality of climate change. Several investigations of the CRU and other scientists followed, all of which exonerated the climate scientists. Nonetheless, it was a huge political scandal that fueled the debate about whether climate change exists or is human-caused. By placing climate change science within the same category as other types of scientific findings subject to deferential review, the court may have finally resolved — for legal purposes, at least — debates regarding the legitimacy of climate science.

2. ***EPA's 2010 Vehicle Emissions Standards: Integration with CAFE Standards.*** EPA released its vehicle emission standards in April 2010. The standards (called the "Tailpipe Rule" or "Tailpipe Standards") are actually combined vehicle emissions and fuel economy standards under the Corporate Average Fuel Economy (CAFE) program administered by the National Highway Transportation and Safety Administration (NHTSA). In other words, they limit the maximum amount of greenhouse gases the vehicles may emit per mile and establish the average fuel economy vehicles must achieve. The following table summarizes the new standards.

Projected Fleet-Wide Emissions Compliance Levels under the Footprint-Based CO_2 Standards (g/mi) and Corresponding Fuel Economy (mpg)					
	2012	**2013**	**2014**	**2015**	**2016**
Passenger Cars (g/mi)	263	256	247	236	225
Light Trucks (g/mi)	346	337	326	312	298
Combined Cars & Trucks (g/mi)	295	286	276	263	250
Passenger Cars (mpg)	33.8	34.7	36.0	37.7	39.5
Light Trucks (mpg)	25.7	26.4	27.3	28.5	29.8
Combined Cars & Trucks (mpg)	30.1	31.1	32.2	33.8	35.5

On August 28, 2012, the EPA and NHTSA issued another joint rule establishing joint tailpipe standards and fuel economy standards for passenger cars and light trucks. Under this rule, vehicle fleets will need to achieve an average fuel economy of 54.5 miles per gallon by 2025. The standards establish "footprint-based" requirements for emissions and fuel economy. Chapter 16 provides more information about these standards.

3. Although *Massachusetts* and the endangerment finding applied only to vehicle emissions, the implications extend to other provisions of the Clean Air Act. Nine states, New York City, the District of Columbia, and three environmental groups sued EPA for failing to include carbon dioxide in revisions to its new source performance standard (NSPS) for electric-generating power plants. States and environmental groups filed other petitions asking EPA to also establish NSPS for other source categories, including Portland cement facilities, oil refineries, and other industrial operations. Under language very similar to the vehicle emissions language, Section 111(b)(1)(A) of the Clean Air Act requires EPA to include in its categories of stationary sources any category "if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." Once a category of sources is listed, EPA has one year in which to publish new source performance standards for that category of sources. EPA must also review and, if appropriate, revise existing NSPS every 8 years. In

revising its new source performance standards for power plants, EPA had not included any measures to curb greenhouse gas emissions, arguing as in *Massachusetts* that it did not have the authority. Given the Supreme Court's ruling on the public endangerment language of Section 202, EPA accepted a remand in this case to develop a more comprehensive response under the Clean Air Act. *See* New York v. EPA, No. 06-1322 (D.C. Cir.) *remanded* to EPA (Sept. 24, 2007). Ultimately, EPA negotiated settlement agreements under which EPA plans to propose NSPS for several source categories over a number of years.

4. EPA's endangerment finding focused only on the endangerment to which motor vehicles cause or contribute. Other parts of the Clean Air Act — namely the NSPS program under section 111 — require EPA to make an endangerment finding prior to regulation. Most observers think that EPA's positive endangerment finding under section 202 will make it impossible for EPA to avoid an endangerment finding under section 111. However, the "cause or contribute" finding may not be the same. Recall that under section 111, EPA sets NSPS for categories and classes of industrial sources. Thus, EPA will not set NSPS for all stationary sources at once; it will group them according to industrial categories. Will this make it harder for EPA to make the "cause and contribute" finding for certain industrial sources, or do you think any contribution of greenhouse gases should suffice? What does the last paragraph of EPA's vehicle emissions endangerment finding suggest?

5. *Massachusetts* and the endangerment finding also triggered a flurry of action under the New Source Review/Prevention of Significant Deterioration (PSD) program. The PSD program applies only to "regulated" air pollutants. Under EPA's interpretation, a pollutant is "regulated" once it becomes subject to emissions standards under any other part of the Clean Air Act. As the Supreme Court held in *Massachusetts*, a positive endangerment finding under the vehicle emissions program would require EPA to establish vehicle emissions standards for greenhouse gases. Once those standards took effect, this would make greenhouse gases "regulated" for purposes of the PSD program. As explored below, EPA sought to mitigate the potential scope of regulation under the PSD program by delaying the date on which greenhouse gases would be considered "regulated" and by altering the emissions levels that would require a source to comply with PSD.

B. California's Waiver under the Clean Air Act for Vehicle Emissions Standards

Under Section 209(a) of the Clean Air Act, states are preempted from adopting any measures that regulate air emissions from new vehicles. This provision was included in the Clean Air Act to protect automobile companies from a hodgepodge of different state regulations, thus ensuring that they would be able to produce uniform automobiles for a national market. If states were allowed to develop their own environmental standards, the argument went, then the automobile companies (and the consumer) could not benefit from the economies of large-scale production.

California, however, was given an exemption. Section 209(b)(1) of the Clean Air Act requires the EPA Administrator to waive the preemption bar for California "if the State

determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards." However, no such waiver shall be granted if the Administrator finds that: (A) the protectiveness determination of the State is arbitrary and capricious; (B) the State does not need such State standards to meet "compelling and extraordinary conditions"; or (C) such State standards and accompanying enforcement procedures are not consistent with section 202(a) of the Clean Air Act.

Congress granted California this exemption primarily because California had a particularly problematic air pollution problem in the Los Angeles area and had already adopted a robust air quality program prior to the adoption of the vehicle emissions provisions of the Clean Air Act. Moreover, the reason for the preemption provision did not readily apply to California. Its market was so big that automobile companies could still make a sizable profit while producing cars to meet California's idiosyncratic environmental requirements. Initially, California was the only state allowed to adopt separate vehicle emissions standards. In 1977, however, Congress amended the Clean Air Act to allow other states some leeway; under section 177, once California has passed state-wide standards, other states could choose to use the same California standards, piggy-backing on any waiver granted California.

In 2002, the State of California passed legislation directing the California Air Resources Board (CARB) to "develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles" not later than January 1, 2005. In 2004, CARB adopted limits for four greenhouse gases — carbon dioxide, methane, nitrous oxide and hydrofluorocarbons — that are stricter than federal standards. Based on the new standards, emissions of these greenhouse gases would drop by 30 percent from 2002 levels by 2016. In response, sixteen other states eventually agreed to follow California's vehicle emission standards. All of these regulations were voided (at least temporarily), however, when EPA denied California's petition for a waiver on March 6, 2008. *See* 73 Fed. Reg. 12156 (Mar. 6, 2008). EPA argued that the Clean Air Act waiver provision was intended to protect California's right to address unique regional and local air pollution problems. Because climate change was a global issue, EPA argued, California was not uniquely impacted as compared to the rest of the country. Thus, the state did not have "extraordinary and compelling" reasons to regulate. Shortly after taking office, on January 26, 2009, President Obama ordered EPA to reconsider its denial. In July 2009, EPA reversed its decision and granted California's waiver request. As you read EPA's decision, consider whether you agree with the conclusion that California's standards are necessary to meet "compelling and extraordinary conditions."

CALIFORNIA STATE MOTOR VEHICLE POLLUTION CONTROL STANDARDS; NOTICE OF DECISION GRANTING A WAIVER OF CLEAN AIR ACT PREEMPTION FOR CALIFORNIA'S 2009 AND SUBSEQUENT MODEL YEAR GREENHOUSE GAS EMISSION STANDARDS FOR NEW MOTOR VEHICLES,

74 Fed. Reg. 32744 (July 8, 2009)

I. Executive Summary

The legal framework for this decision stems from the waiver provision first adopted by Congress in 1967, and later modified in 1977. Congress established that there would be only two programs for control of emissions from new motor vehicles — EPA emission standards adopted under the Clean Air Act and California emission standards adopted under its state law. Congress accomplished this by preempting all state and local governments from adopting or enforcing emission standards for new motor vehicles, while at the same time providing that California could receive a waiver of preemption for its emission standards and enforcement procedures. This struck an important balance that protected manufacturers from multiple and different state emission standards, and preserved a pivotal role for California in the control of emissions from new motor vehicles. Congress recognized that California could serve as a pioneer and a laboratory for the nation in setting new motor vehicle emission standards. Congress intentionally structured this waiver provision to restrict and limit EPA's ability to deny a waiver, and did this to ensure that California had broad discretion in selecting the means it determined best to protect the health and welfare of its citizens. . . . Therefore, EPA's role upon receiving a request for waiver of preemption from California is to determine whether it is appropriate to make any of the three findings specified by the Clean Air Act and if the Agency cannot make at least one of the three findings then the waiver must be granted. . . . This is different from most waiver situations before the Agency, where EPA typically determines whether it is appropriate to make certain findings necessary for granting a waiver, and if the findings are not made then a waiver is denied. * * *

EPA has granted over 50 waivers of preemption and has only fully denied one waiver request, the decision under reconsideration here. * * *

III. Analysis of Preemption Under Section 209(a) of the Clean Air Act

A. Clean Air Act Preemption Provisions

Section 209(a) of the Act provides:

> No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part. No State shall require certification, inspection or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial retail sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.

Section 209(b)(1) of the Act requires the Administrator, after an opportunity for public hearing, to waive application of the prohibitions of section 209(a) for any State that has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor engines prior to March 30, 1966, if the State determines that its State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards. However, no such waiver shall be granted by the Administrator if she finds that: (A) The protectiveness determination of the State is arbitrary and capricious; (B)

the State does not need such State standards to meet compelling and extraordinary conditions; or (C) such State standards and accompanying enforcement procedures are not consistent with section 202(a) of the Act. In previous waiver decisions, EPA has stated that Congress intended EPA's review of California's decision-making be narrow. . . .

The law makes it clear that the waiver requests cannot be denied unless the specific findings designated in the statute can properly be made. The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209 . . .

B. Deference to California

In previous waiver decisions, EPA has recognized that the intent of Congress in creating a limited review based on the section 209(b)(1) criteria was to ensure that the federal government did not second-guess the wisdom of state policy. . . .

* * * I would feel constrained to approve a California approach to the problem which I might also feel unable to adopt at the federal level in my own capacity as a regulator. The whole approach of the Clean Air Act is to force the development of new types of emission control technology where that is needed by compelling the industry to "catch up" to some degree with newly promulgated standards. Such an approach . . . may be attended with costs, in the shape[] of reduced product offering, or price or fuel economy penalties, and by risks that a wider number of vehicle classes may not be able to complete their development work in time. Since a balancing of these risks and costs against the potential benefits from reduced emissions is a central policy decision for any regulatory agency under the statutory scheme outlined above, I believe I am required to give very substantial deference to California's judgments on this score.

EPA has stated that the text, structure, and history of the California waiver provision clearly indicate both a congressional intent and appropriate EPA practice of leaving the decision on "ambiguous and controversial matters of public policy" to California's judgment. * * *

C. Burden of Proof

In Motor and Equip. Mfrs Assoc. v. EPA, 627 F.2d 1095 (DC Cir. 1979) (MEMA I), the U.S. Court of Appeals stated that the Administrator's role in a section 209 proceeding is to:

> consider all evidence that passes the threshold test of materiality and . . . thereafter assess such material evidence against a standard of proof to determine whether the parties favoring a denial of the waiver have shown that the factual circumstances exist in which Congress intended a denial of the waiver.

. . . The court upheld the Administrator's position that, to deny a waiver, there must be 'clear and compelling evidence' to show that proposed procedures undermine the protectiveness of California's standards. The court noted that this standard of proof also accords with the congressional intent to provide California with the broadest possible discretion in setting

regulations it finds protective of the public health and welfare. * * *

IV. California's Protectiveness Determination

Section 209(b)(1)(A) of the Act requires EPA to deny a waiver if the Administrator finds that California was arbitrary and capricious in its determination that its State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards. EPA recognizes that the phrase "State[] standards" means the entire California new motor vehicle emissions program. Therefore, as explained below, when evaluating California's protectiveness determination, EPA compares the California-to-Federal standards. That comparison is undertaken within the broader context of the previously waived California program, which relies upon protectiveness determinations that EPA ha[d] previously found were not arbitrary and capricious. * * *

To review California's protectiveness determination in light of section 209(b)(2), EPA conducts its own analysis of the newly adopted California standards to comparable applicable Federal standards. Reviewing that comparison quantitatively answers whether the new standards are more or less protective than the Federal standards. * * *

California made a protectiveness determination with regard to its greenhouse gas regulations . . . Most generally, CARB made a broad finding that observed and projected changes in California's climate are likely to have a significant adverse impact on public health and welfare in California, and that California is attempting to address those impacts by regulating in a field for which there are no comparable federal regulations. CARB also found that its greenhouse gas standards will increase the health and welfare benefits from its broader motor vehicle emissions program by directly reducing upstream emissions of criteria pollutants from decreased fuel consumption. Beyond that analysis of the new regulations' impact on its broader program, CARB projected consumer response to the greenhouse gas regulations. With respect to consumer shifts due to a potential "scrappage effect" (the impact of increased vehicle price on fleet age) and "rebound effect" (the impact of lower operating costs on vehicle miles travelled), CARB found minor impacts — but net reductions — on criteria pollutant emissions. Further, even assuming larger shifts in consumer demand attributable to the greenhouse gas emission standards, CARB found that the result remains a net reduction in both greenhouse gas emissions and criteria pollutant emissions. * * *

C. Is California's Protectiveness Determination Arbitrary and Capricious?

1. Based on EPA's Traditional Analysis, Is California's Protectiveness Determination Arbitrary and Capricious?

As described above, EPA's traditional analysis has been to evaluate California's protectiveness determination by comparing the new California standards to applicable EPA emission standards for the same pollutants. In the context of greenhouse gas emissions this analysis is simple. * * *

. . . [S]ince there are no applicable federal greenhouse gas emission standards, the point of

comparison, here, is between California's greenhouse gas standards and an absence of EPA greenhouse gas emission standards. Comparing an absence of EPA greenhouse gas emission standards to the enacted set of California greenhouse gas emission standards provides a clearly rational basis for California's determination that the California greenhouse gas emission program will be more protective of human health and welfare than non-existent applicable federal standards. * * *

2. Is California's Protectiveness Determination Arbitrary and Capricious Based on the Real-World In-Use Effects of California's Greenhouse Gas Standards? * * *

a. Fleet Turnover/Delayed Scrappage

The Alliance argues that California's greenhouse gas standards will cause delayed fleet turnover and, thus, increase criteria air pollutant emissions. Delayed fleet turnover results when the prices of new vehicles increase, causing prices of existing vehicles to increase as well. A consumer's decision to scrap an existing vehicle depends upon the trade-off between the value of existing vehicle in its working condition and its scrappage value. Rising prices of existing vehicles lead some consumers to decide to delay scrapping their vehicles. An older vehicle stock on the road results in an increase in criteria air pollution. [EPA found California's standards would have a negligible impact on fleet turnover.] * * *

b. The "Rebound Effect"

The Alliance contends that criteria air pollutant emissions will increase due to the so-called vehicle "rebound effect." The rebound effect for vehicle fuel economy is defined as the increase in vehicle travel resulting from a decrease in the fuel cost per vehicle miles as a consequence of an increase in fuel economy. It is projected that increasing fuel efficiency lowers the effective cost of driving to the consumer, which results in an increase in vehicle usage (holding all other factors constant). . . . Based on the vehicle classes affected by the proposed GHG regulation, the results . . . indicate an elasticity of VMT to fuel cost (i.e., a rebound effect) of roughly 4 percent in 2020. [EPA concluded this rebound effect would not offset the benefits of California's standards.] * * *

V. Does California Need Its Standards To Meet Compelling and Extraordinary Conditions?

Under section 209(b)(1)(B) of the Act, I cannot grant a waiver if I find that California "does not need such State standards to meet compelling and extraordinary conditions." * * *

A. Basis of March 6, 2008 Denial

In the March 6, 2008 Denial, EPA provided its reasoning for changing its long-standing interpretation of this provision, as it pertains to California standards designed to address global air pollution. EPA described its long-standing interpretation in some detail, stating that:

> Under this approach EPA does not look at whether the specific standards at

> issue are needed to meet compelling and extraordinary conditions related to that air pollutant. For example, EPA reviewed this issue in detail with regard to particulate matter in a 1984 waiver decision. In that waiver proceeding, California argued that EPA is restricted to considering whether California needs its own motor vehicle program to meet compelling and extraordinary conditions, and not whether any given standard is necessary to meet such conditions. . . .
>
> The Administrator agreed with California that it was appropriate to look at the program as a whole in determining compliance with section 209(b)(1)(B). One justification of the Administrator was that many of the concerns with regard to having separate state standards were based on the manufacturers' worries about having to meet more than one motor vehicle program in the country, but that once a separate California program was permitted, it should not be a greater administrative hindrance to have to meet further standards in California. The Administrator also justified this decision by noting that the language of the statute referred to "such state standards," which referred back to the use of the same phrase in the criterion looking at the protectiveness of the standards in the aggregate. He also noted that the phrase referred to standards in the plural, not individual standards. He considered this interpretation to be consistent with the ability of California to have some standards that are less stringent than the federal standards, as long as, per section 209(b)(1)(A), in the aggregate its standards were at least as protective as the federal standards.
>
> The Administrator further stated that in the legislative history of section 209, the phrase "compelling and extraordinary circumstances" refers to "certain general circumstances, unique to California, primarily responsible for causing its air pollution problem," like the numerous thermal inversions caused by its local geography and wind patterns. The Administrator also noted that Congress recognized "the presence and growth of California's vehicle population, whose emissions were thought to be responsible for ninety percent of the air pollution in certain parts of California." EPA reasoned that the term compelling and extraordinary conditions "do not refer to the levels of pollution directly." Instead, the term refers primarily to the factors that tend to produce higher levels of pollution — "geographical and climatic conditions (like thermal inversions) that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems."

[73 FR 12156, 12159-60 (March 6, 2008)] . . .

However in the March 6, 2008 Denial, EPA limited this interpretation to California's motor vehicle standards that are designed to address local or regional air pollution problems. EPA determined that the traditional interpretation was not appropriate for standards designed to address a global air pollution problem and its effects.

With respect to a global air pollution problem like elevated concentrations of greenhouse gases, EPA's March 6, 2008 Denial found that the text of section 209(b)(1)(B) was ambiguous

and does not limit EPA to this prior interpretation. In addition, EPA noted that the legislative history supported a decision to "examine the second criterion specifically in the context of global climate change." The legislative history:

> [I]ndicates that Congress was moved to allow waivers of preemption for California motor vehicle standards based on the particular effects of local conditions in California on the air pollution problems in California. Congress discussed "the unique problems faced in California as a result of its climate and topography." Congress also noted the large effect of local vehicle pollution on such local problems. In particular, Congress focused on California's smog problem, which is especially affected by local conditions and local pollution. Congress did not justify this provision based on pollution problems of a more national or global nature in justifying this provision.

Relying on this, and without any further significant discussion of either congressional intent or how this new approach properly furthered the goals of section 209(b), EPA determined that it was appropriate to:

> [R]eview California's GHG standards separately from the remainder of its motor vehicle emission control program for purposes of section 209(b)(1)(B). In this context it is appropriate to give meaning to this criterion by looking at whether the emissions from California motor vehicles, as well as the local climate and topography in California, are the fundamental causal factors for the air pollution problem—elevated concentrations of greenhouse gases . . .

EPA then proceeded to apply this interpretation to the GHG standards at issue in this waiver proceeding, and found that California did not need the GHG standards under this interpretation. Having limited the meaning of this provision to situations where the air pollution problem was local or regional in nature, EPA found that California's greenhouse gas standards do not meet this criterion. EPA found that the elevated concentrations of greenhouse gases in California are similar to concentrations elsewhere in the world, and that local conditions in California such as the local topography and climate and the number of motor vehicles in California are not the determinant factors causing the elevated GHG concentrations found in California and elsewhere. Thus, the March 6, 2008 Denial found that California did not need its GHG standards to meet compelling and extraordinary conditions, and the waiver was denied.

EPA also considered an alternative interpretation, where EPA would consider "the effects in California of this global air pollution problem in California in comparison to the rest of the country . . . Under this alternative interpretation, EPA considered whether the impacts of global climate change in California were significant enough and different enough from the rest of the country such that California could be considered to need its greenhouse gas standards to meet compelling and extraordinary conditions. EPA determined that the waiver should be denied under this alternative interpretation as well.

*B. Should EPA Review This Criterion Based on the Need for California's Motor Vehicle Program or the Need for the GHG Standards? * * **

3. Decision

. . . I believe the better approach is to review California's need for its new motor vehicle emissions program as a whole to meet compelling and extraordinary conditions, and not to apply this criterion to specific standards, or to limit it to standards designed to address only local or regional air pollution problems. The traditional approach to interpreting this provision is the best approach for considering a waiver for greenhouse standards, as well as a waiver for standards designed to address local or regional air pollution problems.

This traditional interpretation is the most straightforward reading of the text and legislative history of section 209(b). Congress decided in 1977 to allow California to promulgate individual standards that are not as stringent as comparable federal standards, as long as the standards are "in the aggregate, at least as protective of public health and welfare as applicable federal standards." This decision by Congress requires EPA to allow California to promulgate individual standards that, in and of themselves, might not be considered needed to meet compelling and extraordinary circumstances, but are part of California's overall approach to reducing vehicle emissions to address air pollution problems.

EPA is to determine whether California's determination is arbitrary and capricious under section 209(b)(1)(A), and is to determine whether California does not need "such State standards" to meet compelling and extraordinary conditions. The natural reading of these provisions leads EPA to consider the same group of standards that California considered in making its protectiveness determination. While the words "in the aggregate" are not specifically applicable to section 209(b)(1)(B), it does refer to the need for "such State standards," rather than "each State standard" or otherwise indicate a standard-by-standard analysis.

In addition, EPA's March 6, 2008 Denial determined that this provision was appropriately interpreted to consider California's standards as a group for standards designed to address local or regional air pollution problems, but should be interpreted in the opposite fashion for standards designed to address global air pollution problems. The text of the provision, however, draws no such distinction, and provides no indication other than Congress intended a single interpretation for this provision, not one that varied based on the kind of air pollution problem at issue. * * *

This approach does not make section 209(b)(1)(B) a nullity, as some have suggested. EPA must still determine whether California does not need its motor vehicle program to meet the compelling and extraordinary conditions discussed in the legislative history. If that is the case, then a waiver would be denied on those grounds. As discussed below, that is not the case at this point, even though conditions in California may one day improve such that it no longer has the need for a separate motor vehicle program. The statute contemplates that such improvement is possible. * * *

CARB has repeatedly demonstrated the need for its motor vehicle program to address compelling and extraordinary conditions in California. In its Waiver Request letter, CARB stated:

> California — the South Coast and San Joaquin Air basins in particular — continues to experience some of the worst air quality in the nation. California's ongoing need for dramatic emission reductions generally and from passenger vehicles specifically is abundantly clear . . . The unique geographical and climatic conditions, and the tremendous growth in the vehicle population and use which moved Congress to authorize California to establish separate vehicle standards in 1967, still exist today. * * *

QUESTIONS AND DISCUSSION

1. Once EPA determined that it would consider California's overall need for separate vehicle standards, rather than whether it had a unique need for vehicle emissions standards for greenhouse gases, EPA readily concluded that California had an ongoing need for its own vehicle standards program. Doesn't EPA's interpretation mean that, whenever California seeks a waiver, EPA must assess whether California's geography has changed? Is this a sensible interpretation of the statute?

2. Although EPA concluded that it could assess California's need for a vehicle emissions program — rather than specific standards — in analyzing the "compelling and extraordinary conditions" prong of the waiver analysis, EPA did also assess whether California had demonstrated a need for the specific greenhouse gas emissions standards. EPA concluded that California's longstanding problem with smog – which will worsen due to climate change – and other local impacts such as diminished water supplies, increased wildfire risks, agricultural losses, and potential harm to human health also justified the waiver.

3. The U.S. Chamber of Commerce and the National Automobile Dealers Association (NADA) challenged EPA's decision to grant California's waiver request. In April 2011, the D.C. Circuit dismissed their petition, finding that the organizations lacked standing and that their challenge was moot. Chamber of Commerce v. EPA, 642 F.3d 192 (D.C. Cir. 2011). To understand the court's rationale, it helps to keep the timing of the waiver decision, California's own vehicle emissions standards, and EPA's vehicle emissions standards in mind. When California adopted its own state standards, it designed them to apply to vehicles built for model years 2009 and later. Since EPA did not grant the waiver request until 2009, the standards would not apply until model year 2010 or 2011. In April 2010, EPA issued federal vehicle emissions standards for model years 2012–2016, as described above. The national standards were developed in collaboration with the auto manufacturers and the State of California. As part of the negotiations leading up to the new federal standards, California agreed to amend its own regulations, deeming compliance with the new national standards compliance with California's own standards for model years 2012-2016. As a result, California's state-specific standards would have practical effect only during the one or two years between the grant of the waiver request and the beginning of the national standards.

With these developments in mind, the D.C. Circuit first found that the Chamber of Commerce and NADA had failed to demonstrate any injury in fact during this limited time. The petitioners based their standing on the argument that dealers would suffer economic losses if they

were forced to sell cars subject to the new California standards because compliance with the state standards would make vehicles more expensive. The dealers argued that their customers would either buy cars in states that had not adopted the state standards or buy fewer cars because of the increased prices. The court, however, held that the dealers had failed to demonstrate with "substantial probability" that they would likely suffer the anticipated losses. It did not help the dealers that they could not show any losses even though their briefs were filed well after the California standards went into effect.

The D.C. Circuit also found the challenge to the California standards for model years 2012-2016 moot. Once California had amended its regulations to deem compliance with the federal standards compliance with the state standards, it had effectively made the federal standards the only operative standards during model years 2012-2016. Any challenge to national standards would need to occur through a separate petition (which, in fact, the petitioners had already filed). Since the California standards were not operative after model year 2011, the court found that aspect of the challenge moot.

4. California has reportedly begun the process of developing vehicle emissions standards for future model years, while EPA issued federal standards through the year 2025. If California ultimately finalizes more stringent state standards and seeks another waiver from EPA, a court may yet rule on the legality of the waiver.

IV. REGULATION OF GREENHOUSE GAS EMISSIONS FROM STATIONARY SOURCES

Since the Supreme Court's decision in *Massachusetts*, EPA has taken several actions to regulate greenhouse gases from stationary sources. Most of these actions have focused on the Prevention of Significant Deterioration (PSD) program, although New Source Performance Standards (NSPS) for several categories will soon begin to limit greenhouse gas emissions as well. Under both of these programs, mandatory regulations apply to new and modified sources, even though existing sources are the major emitters of greenhouse gases. Thus, environmental groups have sought to force regulation of existing sources through NSPS and, at least in one case, State Implementation Plan (SIPs). This chapter focuses on the PSD program in Section A, but it briefly discusses NSPS and efforts to regulate existing sources in Section B.

A. Regulation of Greenhouse Gases under the PSD Program

Even before the Supreme Court issued its decision in *Massachusetts*, litigation related to coal-fired power plants had begun to raise the specter of Clean Air Act regulation of greenhouse gas emissions from stationary sources. In the late 1990s and throughout the first part of this century, many utilities and independent power companies began efforts to construct new coal-fired power plants across the country. Several factors motivated the construction boom. First, energy consumption forecasts predicted substantial increases in electricity consumption. Second, several states had opened up electricity generation and sales to competition for the first time and thereby created new opportunities for profits in the electricity sector. Third, many people expected Congress to pass federal cap-and-trade legislation that would freely allocate emissions

credits to existing sources. In response, many companies tried to build plants before the enactment of legislation, in an effort to secure the anticipated free credits. These reasons, and many others, motivated a boom in proposals to build coal-fired power plants, or what some have called a "coal rush."

In response to the "coal rush," several environmental organizations, and most notably the Sierra Club, launched comprehensive campaigns to defeat new coal-fired power plant proposals. Litigation at the state and federal level served as a key strategy in their campaigns. In several cases, the groups challenged Clean Air Act permits on the basis that the permitting agencies had failed to comply with the Prevention of Significant Deterioration (PSD) requirements. Their arguments essentially proceeded as follows:

(1) the proposed coal-fired power plant is a major emitting facility that will emit more than 100 or 250 tons per year (tpy) of greenhouse gases;

(2) greenhouse gases are "regulated air pollutants" under the Clean Air Act and thus subject to PSD;

(3) PSD requires the regulatory agency to use a permitting process that will ensure compliance with the Best Available Control Technology (BACT) and meet other procedural and substantive requirements; but

(4) the regulatory agency failed to apply the PSD requirements to the plant's proposed emissions of greenhouse gases. As expected, the utilities — and often the permitting agencies — opposed applying the PSD program to greenhouse gases.

In several instances, courts and permitting agencies rejected these arguments. In a few cases, however, permitting agencies or federal courts ruled that the PSD program did apply to greenhouse gases. EPA then stepped in, first with guidance documents and then with final regulations, to limit the PSD program's applicability to greenhouse gases.

To understand the implications of the various rules EPA issued to resolve (at least in part) these disputes, it helps to have an understanding of the PSD program's requirements. The EPA summed them up recently:

ENVIRONMENTAL PROTECTION AGENCY, PREVENTION OF SIGNIFICANT DETERIORATION AND TITLE V GREENHOUSE GAS TAILORING RULE

75 Fed. Reg. 31514 (June 3, 2010)

C. What are the general requirements of the PSD program?

1. Overview of the PSD Program

The PSD program is a preconstruction review and permitting program applicable to new major stationary sources and major modifications at existing major stationary sources. The PSD

program applies in areas that are designated "attainment" or "unclassifiable" for a National Ambient Air Quality Standard (NAAQS). . . . The "nonattainment new source review (NSR)" program applies in areas not in attainment of a NAAQS . . . There is no NAAQS for CO_2 or any of the other well-mixed GHGs, nor has EPA proposed any such NAAQS; therefore, unless and until we take further such action, we do not anticipate that the nonattainment NSR program will apply to GHGs.

The applicability of PSD to a particular source must be determined in advance of construction or modification and is pollutant-specific. The primary criterion in determining PSD applicability for a proposed source is whether the source is a "major emitting facility," based on its predicted potential emissions of regulated pollutants, within the meaning of CAA section 169(1) and either constructs or undertakes a modification. EPA has implemented these requirements in its regulations, which use somewhat different terminology for determining PSD applicability, which is whether the source is a "major stationary source" or whether the proposed project is a "major modification."

a. Major Stationary Source

Under PSD, a "major stationary source" is any source belonging to a specified list of 28 source categories which emits or has the potential to emit 100 tpy or more of any pollutant subject to regulation under the CAA, or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. We refer to these levels as the 100/250-tpy thresholds. A new source with a potential to emit (PTE) at or above the applicable "major stationary source threshold" is subject to major source NSR. These limits originate from section 169 of the CAA, which applies PSD to any "major emitting facility" and defines the term to include any source that emits or has a PTE of 100 or 250 tpy, depending on the source category. Note that the major source definition incorporates the phrase "subject to regulation," which, as described later, will begin to include GHGs on January 2, 2011 . . .

b. Major Modifications

PSD also applies to existing sources that undertake a "major modification," which occurs: (1) When there is a physical change in, or change in the method of operation of, a "major stationary source;" (2) the change results in a "significant" emission increase of a pollutant subject to regulation (equal to or above the significance level that EPA has set for the pollutant in 40 CFR 52.21(b)(23)); and (3) there is a "significant net emissions increase" of a pollutant subject to regulation that is equal to or above the significance level. Significance levels, which EPA has promulgated for criteria pollutants and certain other pollutants, represent a de minimis contribution to air quality problems. When EPA has not set a significance level for a regulated NSR pollutant, PSD applies to an increase of the pollutant in any amount (that is, in effect, the significance level is treated as zero).

2. General Requirements for PSD

This section provides a very brief summary of the main requirements of the PSD program. One principal requirement is that a new major source or major modification must apply BACT,

which is determined on a case-by-case basis taking into account, among other factors, the cost effectiveness of the control and energy and environmental impacts. EPA has developed a "top-down" approach for BACT review, which involves a decision process that includes identification of all available control technologies, elimination of technically infeasible options, ranking of remaining options by control and cost effectiveness, and then selection of BACT. Under PSD, once a source is determined to be major for any regulated NSR pollutant, a BACT review is performed for each attainment pollutant that exceeds its PSD significance level as part of new construction or for modification projects at the source, where there is a significant increase and a significant net emissions increase of such pollutant.

In addition to performing BACT, the source must analyze impacts on ambient air quality . . .

The permitting authority must provide notice of its preliminary decision on a source's application for a PSD permit, and must provide an opportunity for comment by the public, industry, and other interested persons. After considering and responding to comments, the permitting authority must issue a final determination on the construction permit. Usually NSR permits are issued by state or local air pollution control agencies, which have their own permit programs approved by EPA in their State Implementation Plans (SIPs). In some cases, EPA has delegated its authority to issue PSD permits to the state or local agency. In other areas, EPA issues the permits under its own authority. * * *

QUESTIONS AND DISCUSSION

1. ***PSD Major Emitting Facilities.*** Note that under the PSD program, facilities in 28 specified categories are considered major if they emit at least 100 tpy of any regulated air pollutant. All other facilities must emit at least 250 tpy to qualify as major. Keep in mind that EPA typically conducts PSD review on a pollutant-by-pollutant basis. Thus, if a source fits within one of the 28 listed categories and emits 50 tpy of NO_X and 60 tpy of SO_2, it will not be considered a "major emitting facility," because it does not emit at least 100 tpy of either pollutant. However (and as explained a bit more in the next note), a source that is major for any single pollutant is considered major for all. Thus, if the same source emits 100 tpy of NO_X and 60 tpy of SO_2, it is now considered a "major emitting facility" because of its NO_X emissions. As the next note explains, this means that significant increases in both NO_X and SO_2 will trigger the BACT requirement for both pollutants, even though the facility's emissions are only "major" for NO_X.

2. ***Significance Levels.*** To understand EPA's greenhouse gas rules, it helps to understand a bit more about the dynamic behind "major modifications" and the significance levels. As EPA explains, existing facilities do not need to comply with PSD unless and until they make a modification. The Clean Air Act defines a modification to include "any physical change . . . which increases the amount of any air pollutant." CAA § 111(4), 42 U.S.C. § 7411(4). These terms are so broad they could conceivably trigger PSD if a facility were to change a single screw that allowed for more consistent operation and thus increased emissions by any amount. To avoid that outcome, EPA has narrowed the types of physical or operational changes that trigger PSD. It also requires that changes to major emitting facilities result in a "significant emissions

increase" and established "significant emissions rates" (or SERs) for some pollutants. By way of example, the SER for NO_X is 40 tons per year. If a major emitting facility (e.g., a facility within one of the 28 listed categories that emits at least 100 tons per year) makes a regulated physical change, and that change will increase the facility's emissions by only 39 tpy, the change will not count as a "major modification" and thus will not trigger PSD. Even if the source itself emits thousands of tons per year, the relevant inquiry is whether its change will result in emissions above the SER for each pollutant. If EPA has not established a specific SER for a pollutant, the SER is zero and any regulated physical change that will increase emissions at all will qualify as a "major modification."

It is equally important that the source itself be "major." If a source emits only NO_X and, as a result of a regulated physical change, increases its emissions from 40 tpy to 85 tpy, it will have made a "major modification," because its physical change will have increased emissions above the SER of 40 tpy. However, the source itself is too small to qualify as a major emitting facility because its total emissions are below 100 tpy (and, of course, below 250 tpy). If, however, a source that emits 40 tpy of NO_x and 1,500 tpy of SO_2 makes a regulated physical change that increases NO_X emissions by 45 tpy, this will trigger PSD for NO_X. The source qualifies as a "major emitting facility" because of the SO_2 emissions and the "major for one is major for all" rule described in note 1 above. The change qualifies as a "major modification" because it increases NO_X emissions above the SER. Now, because the facility is major due to the SO_2 emissions, it does not matter that the source emits less than 100 tpy of NO_X. However, the facility will trigger PSD for SO_2 only if the change increases emissions of SO_2 above its SER. This is because the "major for one is major for all" rule only affects whether the facility qualifies as a major emitting facility. To have a regulated modification, EPA uses a pollutant-by-pollutant inquiry to assess whether a regulated change has increased emissions about each pollutant's SER.

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1. *PSD Regulation of Greenhouse Gases: Regulated Air Pollutants*

Before *Massachusetts*, the best argument contesting the PSD program's applicability was that greenhouse gases were not "air pollutants" at all. However, once the Supreme Court ruled that they were, permitting agencies (including EPA) began arguing that greenhouse gases are not "regulated air pollutants." The PSD program states that "[n]o major emitting facility . . . may be constructed . . . unless . . . the proposed facility is subject to the best available control technology for *each pollutant subject to regulation* under this chapter." CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4) (emphasis added). Regulations implementing the statute define "regulated [PSD] pollutant" to mean any pollutant subject to regulation under specific parts of the Clean Air Act and "[a]ny pollutant that otherwise is subject to regulation under the Act." 40 C.F.R. § 52.21(b)(50). Environmental groups argued that, because the Clean Air Act establishes monitoring and reporting requirements for carbon dioxide, carbon dioxide "otherwise is subject to regulation" and thus a regulated PSD pollutant. Permitting agencies, including EPA, argued in litigation that regulated PSD pollutants needed to be subject to "actual controls or limits," not simply monitoring and reporting requirements. Courts sometimes agreed with the agencies, but sometimes did not. When EPA's litigation strategy failed in a permit appeal before the Environmental Appeals Board, EPA issued a memorandum that interpreted the term "subject to

regulation" to mean subject to control. Memorandum from Stephen L. Johnson, EPA Administrator, to Regional Administrators, re: EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program (Dec. 18, 2008). EPA later codified that interpretation in what became known as the Timing Rule. 75 Fed. Reg. 17,004 (Apr. 2, 2010).

The Timing Rule made clear that any emissions standards promulgated for greenhouse gases under any of the Clean Air Act's federal programs, including the federal mobile source program, make greenhouse gases regulated PSD pollutants. In the spring of 2010, EPA finalized vehicle emissions standards for greenhouse gases. Thus, according to the EPA, greenhouse gases became regulated PSD pollutants once the vehicle emissions standards became effective on January 2, 2011.

The Timing Rule benefitted potential stationary sources by delaying the date on which they would be subject to PSD if they made any major modifications. However, it also clarified that the establishment of vehicle emissions standards (the Tailpipe Rule) would make greenhouse gases "subject to regulation" under the PSD program. Various states and industry groups challenged this interpretation of the Clean Air Act and EPA's regulations. The following decision, in which the D.C. Circuit considered in a single case multiple challenges to EPA's suite of greenhouse gas regulations, resulted.

COALITION FOR RESPONSIBLE REGULATION V. EPA

684 F.3d 102, 115, 133-38 (D.C. Cir. 2012)

Before: SENTELLE, Chief Judge; ROGERS and TATEL, Circuit Judges.

PER CURIAM:

Under EPA's longstanding interpretation of the CAA, the Tailpipe Rule automatically triggered regulation of stationary greenhouse gas emitters under two separate sections of the Act. The first, the Prevention of Significant Deterioration of Air Quality (PSD) program, requires state-issued construction permits for certain types of stationary sources . . . if they have the potential to emit over 100 tons per year (tpy) of "any air pollutant." *See* 42 U.S.C. §§ 7475; 7479(1). All other stationary sources are subject to PSD permitting if they have the potential to emit over 250 tpy of "any air pollutant." *Id.* § 7479(1). . . . EPA has long interpreted the phrase "any air pollutant" in both these provisions to mean any air pollutant that is regulated under the CAA. And once the Tailpipe Rule set motor-vehicle emission standards for greenhouse gases, they became a regulated pollutant under the Act, requiring PSD and Title V greenhouse permitting.

Acting pursuant to this longstanding interpretation of the PSD and Title V programs, EPA issued two rules phasing in stationary source greenhouse gas regulation. First, in the Timing Rule, EPA concluded that an air pollutant becomes "subject to regulation" under the Clean Air Act — and thus subject to PSD and Title V permitting — only once a regulation requiring control of that pollutant takes effect. *Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs* ("Timing Rule"), 75 Fed.

Reg. 17,004 (Apr. 2, 2010). Therefore, EPA concluded, major stationary emitters of greenhouse gases would be subject to PSD and Title V permitting regulations on January 2, 2011 — the date on which the Tailpipe Rule became effective, and thus, the date when greenhouse gases first became regulated under the CAA. * * *

V.A.

The dispute in this case centers largely on the scope of the PSD program — specifically, which stationary sources count as "major emitting facilities" subject to regulation. * * *

As mentioned above, since 1978 EPA has interpreted the phrase "any air pollutant" in the definition of "major emitting facility" as "any air pollutant regulated under the CAA." Thus, because the PSD program covers "major emitting facilities" in "any area to which this part applies," 42 U.S.C. § 7475, EPA requires PSD permits for stationary sources that 1) are located in an area designated as attainment or unclassifiable for any NAAQS pollutant, and 2) emit 100/250 tpy of any regulated air pollutant, regardless of whether that pollutant is itself a NAAQS pollutant. Consequently, once the Tailpipe Rule took effect and made greenhouse gases a regulated pollutant under Title II of the Act, the PSD program automatically applied to facilities emitting over 100/250 tpy of greenhouse gases. . . .

According to EPA, its longstanding interpretation of the phrase "any air pollutant" — "any air pollutant regulated under the CAA"— is compelled by the statute. * * *

We begin our analysis, as we must, with the statute's plain language. CAA Section 169(1) requires PSD permits for stationary sources emitting major amounts of "*any* air pollutant." 42 U.S.C. § 7479(1) (emphasis added). On its face, "the word 'any' has an expansive meaning, that is, 'one or some indiscriminately of whatever kind,'" Greenhouse gases are indisputably an "air pollutant." Congress's use of the broad, indiscriminate modifier "any" thus strongly suggests that the phrase "any air pollutant" encompasses greenhouse gases.

This plain-language reading of the statute is buttressed by the Supreme Court's decision in *Massachusetts v. EPA.* There the Court determined that CAA's overarching definition of "air pollutant" in Section 302(g) — which applies to all provisions of the Act, including the PSD program — unambiguously includes greenhouse gases. Noting that "[t]he Clean Air Act's sweeping definition of 'air pollutant' includes '*any* air pollution agent or combination of such agents. . . . which is emitted into or otherwise enters the ambient air," the Court held that "the definition embraces *all* airborne compounds of whatever stripe, *and underscores that intent through repeated use of the word 'any.'*" *Id.* at 529 (quoting 42 U.S.C. § 7602(g)) (second and third emphases added). Crucially for purposes of the issue before us, the Court concluded that "[t]he statute is unambiguous." *Id.*

Thus, we are faced with a statutory term — "air pollutant" — that the Supreme Court has determined unambiguously encompasses greenhouse gases. This phrase is preceded by the expansive term "any," a word the Court held "underscores" Congress's intent to include "all" air pollutants "of whatever stripe." *See id.* Absent some compelling reason to think otherwise, "'any' . . . means any," and Petitioners have given us no reason to construe that word narrowly

here. To the contrary: given both the statute's plain language and the Supreme Court's decision in *Massachusetts v. EPA*, we have little trouble concluding that the phrase "any air pollutant" includes *all* regulated air pollutants, including greenhouse gases.

In reaching this conclusion, we recognize that EPA's definition of "any air pollutant" slightly narrows the literal statutory definition, which nowhere requires that "any air pollutant" be a *regulated* pollutant. *See* 42 U.S.C. § 7479(1). But this does not make the statutory language ambiguous. Indeed, "any regulated air pollutant" is the only logical reading of the statute. The CAA's universal definition of "air pollutant" — the one at issue in *Massachusetts v. EPA* — provides that the term includes "any physical, chemical, biological [or] radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air." *Id.* § 7602(g). Of course, nothing in the CAA requires regulation of a substance simply because it qualifies as an "air pollutant" under this broad definition. As discussed *supra* in Parts II and III, for example, the Act requires EPA to prescribe motor vehicle "standards applicable to the emission of any air pollutant" only if that pollutant "cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare." *Id.* § 7521(a)(1). But if "any air pollutant" in the definition of "major emitting facility" was read to encompass both regulated and nonregulated air pollutants, sources could qualify as major emitting facilities — and thus be subjected to PSD permitting requirements — if they emitted 100/250 tpy of a "physical, chemical, [or] biological" substance EPA had determined was harmless. It is absurd to think that Congress intended to subject stationary sources to the PSD permitting requirements due to emissions of substances that do not "endanger public health or welfare." *Id.* § 7521(a)(1). Thus, "any regulated air pollutant" is, in this context, the only plausible reading of "any air pollutant." * * *

Finally, Congress made perfectly clear that the PSD program was meant to protect against precisely the types of harms caused by greenhouse gases. The PSD provision contains a section entitled "Congressional declaration of purpose," which provides, in relevant part, that "[t]he purposes of this part are . . . to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipated to occur from air pollution." 42 U.S.C. § 7470(1). The CAA further provides that "[a]ll language referring to effects on welfare includes, but is not limited to, effects on . . . weather . . . and climate." *Id.* § 7602(h). * * * Thus, one express purpose of the program is to protect against the harms caused by greenhouse gases.

In sum, we are faced with a statutory term — "any air pollutant" — that the Supreme Court has determined is "expansive," and "unambiguous[ly]" includes greenhouse gases. *Massachusetts v. EPA*, 549 U.S. at 529. Moreover, the PSD program requires covered sources to install control technology for "each pollutant" regulated under the CAA, 42 U.S.C. § 7475(a)(4), and to establish that they "will not cause, or contribute to, air pollution in excess of *any* . . . emission standard . . . under [the CAA]." *Id.* § 7475(a)(3) (emphasis added). These provisions demonstrate that the PSD program was intended to control pollutants regulated under every section of the Act. Finally, Congress's "Declaration of Purpose" expressly states that the PSD program was meant, in part, to protect against adverse effects on "weather" and "climate" — precisely the types of harm caused by greenhouse gases. *See id.* § 7470(1). Given all this, we have little trouble concluding that "any air pollutant" in the definition of "major emitting

facility" unambiguously means "any air pollutant regulated under the CAA." * * *

Industry Petitioners contend that the term "pollutant" in the PSD statute encompasses only air pollutants that, unlike greenhouse gases, "pollute locally." Industry Petitioners would thus apply a greenhouse gas-exclusive interpretation of "pollutant" throughout the statute's PSD provision. . . . We can easily dispose of Industry Petitioners' argument that the PSD program's "concerns with local emissions" . . . somehow limit the BACT provision. The statutory text provides, without qualification, that covered sources must install the "best available control technology for *each pollutant subject to regulation* under [the CAA]." 42 U.S.C. § 7475(a)(4) (emphasis added). Because greenhouse gases are indisputably a pollutant subject to regulation under the Act, it is crystal clear that PSD permittees must install BACT for greenhouse gases. * * *

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2. *PSD Regulation of Greenhouse Gases: The Tailoring Rule*

Once EPA realized that greenhouse gases would be subject to PSD permitting requirements in 2011, it decided that it would need to somehow limit, or in EPA's wording, "tailor," the PSD program.

ENVIRONMENTAL PROTECTION AGENCY, PREVENTION OF SIGNIFICANT DETERIORATION AND TITLE V GREENHOUSE GAS TAILORING RULE

75 Fed. Reg. 31514 (June 3, 2010)

II. Overview of the Final Rule

EPA is relieving overwhelming permitting burdens that would, in the absence of this rule, fall on permitting authorities and sources. We accomplish this by tailoring the applicability criteria that determine which GHG emission sources become subject to the PSD . . . programs of the CAA. In particular, EPA is establishing with this rulemaking a phase-in approach for PSD . . . applicability, and is establishing the first two steps of the phase-in for the largest emitters of GHGs. We also commit to certain follow-up actions regarding future steps beyond the first two, discussed in more detail later. Our legal basis for this rule is our interpretation of the PSD . . . provisions under the familiar *Chevron* [Chevron U.S.A. Inc. v. NRDC, 467 U.S. 837 (1984)] two-step framework for interpreting administrative statutes, taking account of three legal doctrines, both separately and interdependently: They are what we will call (1) The "absurd results" doctrine, which authorizes agencies to apply statutory requirements differently than a literal reading would indicate, as necessary to effectuate congressional intent and avoid absurd results, (2) the "administrative necessity" doctrine, which authorizes agencies to apply statutory requirements in a way that avoids impossible administrative burdens; and (3) the "one-step-at-a-time" doctrine, which authorizes agencies to implement statutory requirements a step at a time. . . . EPA also has authority for this Tailoring Rule under CAA section 301(a)(1), which authorizes the Administrator "to prescribe such regulations as are necessary to carry out his functions under [the CAA]."

For the first step of this Tailoring Rule, which will begin on January 2, 2011, PSD . . . requirements will apply to sources' GHG emissions only if the sources are subject to PSD . . . anyway due to their non-GHG pollutants. Therefore, EPA will not require sources or modifications to evaluate whether they are subject to PSD . . . requirements solely on account of their GHG emissions. * * *

The second step of the Tailoring Rule, beginning on July 1, 2011, will phase in additional large sources of GHG emissions. New sources as well as existing sources not already subject to title V that emit, or have the potential to emit, at least 100,000 tpy CO_2e will become subject to the PSD . . . requirements. In addition, sources that emit or have the potential to emit at least 100,000 tpy CO_2e and that undertake a modification that increases net emissions of GHGs by at least 75,000 tpy CO_2e will also be subject to PSD requirements. For both steps, we also note that if sources or modifications exceed these CO_2 e-adjusted GHG triggers, they are not covered by permitting requirements unless their GHG emissions also exceed the corresponding mass-based triggers (i.e., unadjusted for CO_2 e). * * *

We are also including in this action a rule that no source with emissions below 50,000 tpy CO_2e, and no modification resulting in net GHG increases of less than 50,000 tpy CO_2e, will be subject to PSD . . . permitting before at least 6 years from now, April 30, 2016. This is because we are able to conclude at the present time that the administrative burdens that would accompany permitting sources below this level will be so great that even the streamlining actions that EPA may be able to develop and implement in the next several years, and even with the increases in permitting resources that we can reasonably expect the permitting authorities to acquire, it will be impossible to administer the permit programs for these sources until at least 2016.

Further, we are establishing an enforceable commitment that we will (1) complete a study by April 30, 2015, to evaluate the status of PSD . . . permitting for GHG-emitting sources, including progress in developing streamlining techniques; and (2) complete further rulemaking based on that study by April 30, 2016, to address the permitting of smaller sources. That rulemaking may also consider additional permanent exclusions based on the "absurd results" doctrine, where applicable.

This Tailoring Rulemaking is necessary because without it, PSD . . . would apply to all stationary sources that emit or have the potential to emit more than 100 or 250 tons of GHGs per year beginning on January 2, 2011. This is the date when EPA's recently promulgated Light-Duty Vehicle Rule (LDVR) takes effect, imposing control requirements for the first time on carbon dioxide (CO_2) and other GHGs. If this January 2, 2011 date were to pass without this Tailoring Rule being in effect, PSD . . . requirements would apply at the 100/250 tpy applicability levels provided under a literal reading of the CAA as of that date. * * *

Under these circumstances, many small sources would be burdened by the costs of the individualized PSD control technology requirements and permit applications that the PSD provisions, absent streamlining, require. Additionally, state and local permitting authorities would be burdened by the extraordinary number of these permit applications, which are orders of magnitude greater than the current inventory of permits and would vastly exceed the current

administrative resources of the permitting authorities. Permit gridlock would result with the permitting authorities able to issue only a tiny fraction of the permits requested. * * *

The thresholds we are establishing are based on CO_2e for the aggregate sum of six greenhouse gases that constitute the pollutant that will be subject to regulation, which we refer to as GHGs. These gases are: CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Thus, in this rule, we provide that PSD . . . applicability is based on the quantity that results when the mass emissions of each of these gases is multiplied by the Global Warming Potential (GWP) of that gas, and then summed for all six gases. However, we further provide that in order for a source's GHG emissions to trigger PSD . . . requirements, the quantity of the GHGs must equal or exceed both the applicability thresholds established in this rulemaking on a CO_2e basis and the statutory thresholds of 100 or 250 tpy on a mass basis. * * *

IV. Summary of Final Actions * * *

B. When will PSD and title V applicability begin for GHGs and emission sources? * * *

1. What are the Step 1 thresholds, timing, and calculation methodology?

a. PSD Permitting

Step 1 of the Tailoring Rule phase-in will begin on January 2, 2011. With respect to the PSD program, GHG sources will become subject to PSD for their GHG emissions if they undergo PSD permitting anyway, either for new construction or for modification projects, based on emissions of non-GHG pollutants, in which case they will be subject to the PSD requirements for GHG if they increase GHG emissions by 75,000 tpy CO_2 e or more. Under this step, only these sources, which we refer to as "anyway" PSD sources, will become subject to PSD; no sources will become major sources for PSD purposes or be treated as undertaking modifications that trigger PSD based solely on their GHG emissions. As a result, no additional PSD permitting actions will be necessary solely due to GHG emissions. However, existing or newly-constructed sources that are determined to be major sources based on non-GHG emissions are required to conduct a BACT review for their GHG emissions (from new construction) or emissions increases (from modifications), if they are subject to PSD due to their non-GHG emissions from construction or modification actions and each of the following conditions is met:

(1) The GHG emissions (or net emissions increase) due to the new construction (or modification) project, calculated as the sum of the six well-mixed GHGs on a mass basis (no GWPs applied) exceed a value of 0 tpy; and

(2) The GHG emissions (or net emissions increase) due to the new construction (or modification) project, calculated as the sum of the six well-mixed GHGs on a CO_2e basis (GWPs applied) equal or exceed a value of 75,000 tpy CO_2e.* * *

2. What are the Step 2 thresholds, timing, and calculation methodology?

a. PSD Permitting

Step 2 will begin July 1, 2011. Under Step 2, anyway PSD sources — that is, sources already subject to PSD based on non-GHGs and covered under Step 1 previously — will remain subject to PSD. In addition, sources with the potential to emit 100,000 tpy CO_2e or more of GHG will be considered major sources for PSD permitting purposes (provided that they also emit GHGs or some other regulated NSR pollutant above the 100/250 tpy (mass based) statutory thresholds. Additionally, any physical change or change in the method of operation at a major source (including one that is only major due to GHGs) resulting in a net GHG emissions increase of 75,000 tpy CO_2e or more will be subject to PSD review and requirements with respect to GHGs (provided that it also results in an increase of GHG emissions on a mass basis).

Specifically, for purposes of determining whether a GHG emission source, resulting from either new construction or a physical or operational change at an existing source, is considered a major source under PSD, both of the following conditions must be met:

(1) The GHG emission source, which is not major for another pollutant, emits or has the potential to emit GHG in amounts that equal or exceed the following, calculated as the sum-of-six well-mixed GHGs on a mass basis (no GWPs applied):

- 100 tpy for sources in any of the 28 major emitting facility source categories listed under PSD, or

- 250 tpy for any other stationary source.

(2) The GHG emission source emits or has the potential to emit GHGs in amounts that equal or exceed 100,000 tpy CO_2e basis.

For determining whether a modification project at a major stationary source is subject to PSD review, both of the following conditions must be met:

(1) The net GHG emissions increase resulting from the project, calculated as the sum-of-six well-mixed GHGs on a mass basis (no GWPs applied) equals or exceeds 0 tpy.

(2) The net GHG emissions increase resulting from the project, calculated as the sum-of-six well-mixed GHGs on a CO_2e basis (GWPs applied) equals or exceeds 75,000 tpy CO_2e. * * *

As an example of how the mass-based test would apply, consider a modification project that results in a 5 tpy increase of GHG emissions on a mass basis, associated with a high-GWP GHG gas (for example, SF_6, with a GWP value of 23,900), but also results in a 100 tpy reduction in CO_2 emissions (assume no other contemporaneous increases or decreases of GHG). In this example, there would be a net decrease of GHG emissions on a mass basis (5 tpy-100 tpy = -95 tpy). Because there is no mass-based increase of GHG, this project does not trigger PSD, despite the fact that the net GWP-adjusted emissions increase of SF_6 in this example would equal 119,500 tpy of CO_2e and the project would thus exceed 75,000 tpy CO_2e. * * *

V. What Is the Legal and Policy Rationale for the Final Actions? * * *

*B. Rationale for Thresholds and Timing for PSD and Title V Applicability to GHG Emissions Sources * * **

1. Overview

Under the familiar Chevron two-step approach to construction of agency-administered statutes, the agency must first, at Chevron Step 1, determine whether Congress's intent in a particular provision on a specific question is clear; and if so, then the agency must follow that intent. If the intent of the provision is not clear, then the agency may, under Chevron Step 2, fashion a reasonable interpretation of the provision. The best indicator of congressional intent is the literal meaning of the provision and generally, according to the case law, if the literal meaning addresses the specific question, then the agency should follow the literal meaning.

However, the courts have developed three doctrines relevant here that authorize departure from a literal application of statutory provisions. The first is the "absurd results" doctrine, which authorizes such a departure if the literal application would produce a result that is inconsistent with congressional intent, and particularly if it would undermine congressional intent. The judicial doctrine of "administrative necessity" authorizes an agency to depart from statutory requirements if the agency can demonstrate that the statutory requirements, as written, are impossible to administer. The "one-step-at-a-time" doctrine authorizes an agency, under certain circumstances, to implement a statutory requirement through a phased approach. Each of the three doctrines fits into the Chevron framework for statutory construction because each of the three is designed to effectuate congressional intent.

To apply the statutory PSD . . . thresholds literally to sources of GHG emissions would bring tens of thousands of small sources and modifications into the PSD program each year. . . . These extraordinary increases in the scope of the permitting programs would mean that the programs would become several hundred-fold larger than what Congress appeared to contemplate. Moreover, the great majority of additional sources brought into the PSD and Title V programs would be small sources that Congress did not expect would need to undergo permitting and that, at the present time, in the absence of streamlined permit procedures, would face unduly high permitting costs. Further . . . in the absence of streamlined permit procedures the administrative strains would lead to multi-year backlogs in the issuance of . . . permits, which would undermine the purposes of those programs. Sources of all types — whether they emit GHGs or not — would face long delays in receiving PSD permits, which Congress intended to allow construction or expansion. . . . For both programs, the addition of enormous numbers of additional sources would provide relatively little benefit compared to the costs to sources and the burdens to permitting authorities. In the case of PSD, the large number of small sources that would be subject to control constitute a relatively small part of the environmental problem. . . . For these reasons, the "absurd results" doctrine applies to avoid a literal application of the thresholds at this time. By the same token, the impossibility of administering the permit programs brings into play the "administrative necessity" doctrine. This doctrine also justifies not applying the PSD or Title V applicability threshold provisions literally to GHG sources at this time.

The situation presented here is exactly the kind that the "absurd results," "administrative necessity," and "one-step-at-a-time" doctrines have been developed to address. Separately and interdependently, they authorize EPA and the permitting authorities to tailor the PSD . . . applicability provisions through a phased program as set forth in this rule, and to use the initial period of phase-in to develop streamlining measures, acquire expertise, and increase resources, all of which would facilitate applying PSD . . . on a broader scale without overburdening sources and permitting authorities. In this manner, the phased approach reconciles the language of the statutory provisions with the results of their application and with congressional intent.

2. Data Concerning Costs to Sources and Administrative Burdens to Permitting Authorities * * *

a. Costs to Sources

* * * For PSD, at proposal, we estimated that on average, an industrial source would incur costs of $84,500 to prepare the PSD application and receive the permit . . . This type of source would need 866 hours, which would cost $84,500, to prepare the application and the PSD permit. . . . [A]n average commercial or residential source would need 606 hours, which would cost $59,000, to prepare the PSD application and receive the permit. . . . The actual costs to sources to install BACT controls, while still uncertain at this point, would likely add additional costs across a variety of sources in a sector not traditionally subject to such permitting requirements. * * *

b. Administrative Burdens to Permitting Authorities * * *

[W]e estimate that in all, if sources that emit GHGs become subject to PSD at the 100/250 tpy levels, permitting authorities across the country would face over $1.5 billion in additional PSD permitting costs each year. This would represent an increase of 130 times the current annual burden hours under the NSR major source program for permitting authorities. The permitting authorities would need a total of almost 10,000 new FTEs to process PSD permits for GHG emissions. . . . [A]pplication of the PSD requirements to GHG-emitting sources at the level of 100/250 tpy or more of actual emissions would, without additional FTEs, increase the average processing time for a PSD permit from one to 3 years. * * *

3. "Absurd Results," "Administrative Necessity," and "One-Step-at-a-Time" Legal Doctrines * * *

b. The "Absurd Results" Doctrine

* * * The courts consider the best indicator of congressional intent to be the plain meaning of the statute. However, the U.S. Supreme Court has held that the literal meaning of a statutory provision is not conclusive "in the 'rare cases [in which] the literal application of a statute will produce a result demonstrably at odds with the intentions of the drafters' . . . [in which case] the intention of the drafters, rather than the strict language, controls." United States v. Ron Pair Enterprises, 489 U.S. 235, 242 (1989). This doctrine of statutory interpretation may be termed

the "absurd results" doctrine.

Although, as just noted, the U.S. Supreme Court has described the "absurd results" cases as "rare," in that case the Court seemed to be referring to the small percentage of statutory-construction cases that are decided on the basis of the doctrine. The DC Circuit, in surveying the doctrine over more than a century of jurisprudence, characterized the body of law in absolute numbers as comprising "legions of court decisions." In re Franklyn C. Nofziger, 925 F.2d 428, 434 (DC Cir. 1991). Indeed, there are dozens of cases, dating from within the past several years to well into the 19th century, in which the U.S. Supreme Court has applied the "absurd results" doctrine to avoid the literal application of a statute, or if not so holding, has nevertheless clearly acknowledged the validity of the doctrine. * * *

c. The "Administrative Necessity" Doctrine

. . . Under this doctrine, if a statutory provision, however clear on its face, is impossible for the agency to administer, then the agency is not required to follow the literal requirements, and instead, the agency may adjust the requirements in as refined a manner as possible to assure that the requirements are administrable, while still achieving Congress's overall intent. The DC Circuit set out the doctrine of "administrative necessity" in a line of cases that most prominently includes Alabama Power v. Costle, 636 F.2d 323 (DC Cir. 1980). . . .

As we stated in the proposed rulemaking, "We believe that the "administrative necessity" case law establishes a three-step process . . . :

> [T]he three steps are as follows: When an agency has identified what it believes may be insurmountable burdens in administering a statutory requirement, the first step the agency must take is to evaluate how it could streamline administration as much as possible, while remaining within the confines of the statutory requirements. The second step is that the agency must determine whether it can justifiably conclude that even after whatever streamlining of administration of statutory requirements (consistent with those statutory requirements) it conducts, the remaining administrative tasks are impossible for the agency because they are beyond its resources, e.g., beyond the capacities of its personnel and funding. If the agency concludes with justification that it would be impossible to administer the statutory requirements, as streamlined, then the agency may take the third step, which is to phase in or otherwise adjust the requirements so that they are administrable. However, the agency must do so in a manner that is as refined as possible so that the agency may continue to implement as fully as possible Congressional intent.

It should also be noted that we believe the administrative burdens encountered by the state and local permitting authorities are fully relevant under the "administrative necessity" doctrine. * * *

d. "One-Step-at-a-Time" Doctrine

In addition to the "absurd results" and "administrative necessity" doctrines, another judicial doctrine supports at least part of EPA's Tailoring Rule, and that is the doctrine that agencies may implement statutory mandates one step at a time, which we will call the "one-step-at-a-time" doctrine. . . . [T]he U.S. Supreme Court recently described the doctrine in Massachusetts v. EPA, 549 U.S. 497, 524 (2007), as follows: "Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop;" and instead they may permissibly implement such regulatory programs over time, "refining their preferred approach as circumstances change and as they develop a more nuanced understanding of how best to proceed." . . . The roots of the doctrine go back at least to the DC Circuit's 1979 decision in United States Brewers Association, Inc. v. EPA, 600 F.2d 974 (DC Cir. 1979). There, the Court considered a challenge to EPA's guidelines for managing beverage containers, which EPA was required to promulgate under the Resource Conservation and Recovery Act of 1976 (RCRA). RCRA gave EPA one year to promulgate the guidelines. EPA promulgated a partial set of guidelines, started two others, and was challenged before the year was out by petitioners who objected to the initial guideline, saying it fell short of the statutory mandate. The Court upheld the initial guideline, stating: "Under these circumstances we think the question of whether the Agency has fully satisfied the mandate of the statute is not fit for judicial review at this time, when the Agency, still well within the one-year period granted by statute, is deeply involved in the process of formulating rules designed to carry out the congressional mandate. The Agency might properly take one step at a time."

The Court addressed the doctrine at greater length in National Association of Broadcasters v. FCC, 740 F.2d 1190, 1209-14 (DC Cir. 1984). There, the Court noted that under certain statutory schemes, step-by-step agency action might not be authorized; but the Court emphasized that when it is authorized, it may offer significant benefits; and the Court went on to delineate some of the circumstances under which its use is justified. * * *

> Drawing a line between the permissible and the impermissible in this area will generally raise two questions. First the agency will likely have made some estimation, based upon evolving economic and technological conditions, as to the nature and magnitude of the problem it will have to confront when it comes to resolve the postponed issue. With regard to this aspect of the agency's decision, as long as the agency's predictions about the course of future events are plausible and flow from the factual record compiled, a reviewing court should accept the agency's estimation. . . . Second, once the nature and magnitude of the unresolved issue is determined, the relevant question is whether it was reasonable, in the context of the decisions made in the proceeding under review, for the agency to have deferred the issue to the future. With respect to that question, postponement will be most easily justified when an agency acts against a background of rapid technical and social change and when the agency's initial decision as a practical matter is reversible should the future proceedings yield drastically unexpected results. In contrast, an incremental approach to agency decision making is least justified when small errors in predictive judgments can have catastrophic effects on the public welfare or when future proceedings are likely to be systematically defective in taking into account certain relevant interests * * *.

740 F.2d at 1210–11 (citations omitted).

In City of Las Vegas v. Lujan, 891 F.2d 927 (DC Cir. 1989), the Court suggested that one component of upholding partial agency compliance with a statutory directive is evidence that the agency was on track for full compliance. * * *

e. Consistency of Doctrines With Chevron Framework

* * * Step 1 under Chevron calls for determining congressional intent for the relevant statutory directive on the specific issue presented. To determine Congress's intent, the agency must look first to the statutory terms in question, and generally interpret them according to their literal meaning, within the overall statutory context, and perhaps with reference to the legislative history. If the literal meaning of the statutory requirements is clear then, absent indications to the contrary, the agency must take it to indicate congressional intent and must implement it. Even if the literal meaning of the statutory requirements is not clear, if the agency can otherwise find indications of clear congressional intent, such as in the legislative history, then the agency must implement that congressional intent.

The DC Circuit has indicated that the "absurd results" doctrine fits into the Chevron Step 1 analysis * * *

Under these circumstances, the agency must not take the literal meaning to indicate congressional intent. . . . [I]f the agency can find other indications of clear congressional intent, then the agency must implement that intent. This may mean implementing the statutory terms, albeit not in accordance with their literal meaning, but in a way that achieves a result that is as close as possible to congressional intent. * * *

The "administrative necessity" doctrine is not as well developed as the "absurd results" doctrine, so that the courts have not had occasion to explicitly describe how the doctrine fits into the Chevron analytical framework. . . . Placed in the context of the Chevron framework, we think that that the "administrative necessity" doctrine is based on the premise that inherent in the statutory design is the presumption that Congress does not intend to impose an impossible burden on an administrative agency.

Therefore, if the literal meaning of a statutory directive would impose on an agency an impossible administrative burden, then that literal meaning should not be considered to be indicative of congressional intent. Rather, congressional intent should be considered to achieve as much of the statutory directive as possible. As a result, the agency must adopt an approach that implements the statutory directive as fully as possible. * * *

The "one-step-at-a-time" doctrine fits into the Chevron framework in much the same manner that the "administrative necessity" doctrine does. . . .

Under all of the circumstances described previously, congressional intent is clear — whether it is indicated by the plain language or otherwise — and as a result, the agency must follow that intent under Chevron Step 1. On the other hand, the agency may determine that congressional

intent on the specific issue is not clear. In these cases, the agencies should proceed to Chevron Step 2 and select an interpretation or an application that is a permissible construction of the statute. . . . Under all these circumstances, the agency is authorized, under Chevron Step 2, to develop and implement a construction of the statute that the courts will uphold as long as it is reasonable. * * *

g. Application of Chevron Approach

* * * For each of these applicability provisions, the approach under Chevron is as follows: Under Chevron Step 1, we must determine whether Congress expressed an intention on the specific question, which is whether the PSD . . . applicability provisions apply to GHG sources. Said differently, the specific question is whether, in the case of PSD, Congress intended that the definitions of "major emitting facility" and "modification" apply, respectively, to all GHG sources that emit at least 100 or 250 tpy or GHGs and to all physical or operational changes by major emitting facilities that "increase[ ] the amount" of GHGs . . .

To determine intent, we must first examine the terms of the statute in light of their literal meaning. Here, the literal reading of each provision covers GHG sources. For PSD, a GHG source that emits at least 100 or 250 tpy GHGs literally qualifies as "stationary source [ ] of air pollutants which emit[s] or ha[s] the potential to emit, one hundred [or two hundred fifty] tons per year or more of any air pollutant [subject to regulation under the CAA]." CAA section 169(1). For modifications, a physical or operational change that increases the amount of GHG emissions qualifies as a "modification" because it "increases the amount of any air pollutant emitted" by the source. . . .

Although each definition is clear that it applies to GHG sources as a general matter, applying each definition in accordance with its literal meaning to all GHG sources at the specified levels of emissions and at the present time — in advance of the development of streamlining methods and greater permitting authority expertise and resources — would create undue costs for sources and impossible administrative burdens for permitting authorities. These results are not consistent with other provisions of the PSD [program]. Accordingly, under the "absurd results" doctrine, neither the PSD definition of "major emitting facility" or "modification" . . . should be applied literally to all GHG sources, and therefore none should be considered to have a literal meaning with respect to its application to all GHG sources. * * *

On the issue of how to apply PSD to GHG sources, including the specific threshold levels and the timing, we believe that Congress could be considered to have expressed a clear intent that GHG sources be included in the PSD program at as close to the statutory thresholds as possible, and as quickly as possible, and at least to a certain point, all as consistent with the need to assure that the PSD program does not impose undue costs on sources or undue administrative burdens on the permitting authorities. Under this view, EPA would be required at Chevron Step 1 to adopt the Tailoring Rule because, by phasing in PSD applicability, it most closely gives effect to Congress's intent. Under these circumstances, EPA is authorized to exercise its expert judgment as to the best approach for phasing in the application of PSD to GHG sources.

Even so, we recognize that it could be concluded that on the issue of how to apply PSD to

GHG sources, congressional intent is unclear. Under these circumstances, EPA has the discretion at Chevron Step 2 to adopt the Tailoring Rule because it is a reasonable interpretation of the statutory requirements (remaining mindful that the applicability requirements cannot be applied literally). Under the Tailoring Rule, EPA seeks to include as many GHG sources in the permitting programs at as close to the statutory thresholds as possible, and as quickly as possible, although we recognize that we ultimately may stop the phase-in process short of the statutory threshold levels. * * *

Within the context of the Chevron framework, the "administrative necessity" doctrine applies as follows: Under the doctrine, Congress is presumed to intend that the PSD . . . requirements be administrable. Here, those applicability requirements, if applied to GHG sources in accordance with their literal meaning, would be impossible to administer. Accordingly, under Chevron Step 1, it is consistent with congressional intent that EPA and the permitting authorities be authorized to implement the applicability requirements in a manner that is administrable, that is, through the tailoring approach.

As for the "one-step-at-a-time" doctrine, we believe it applies within the Chevron framework in conjunction with the "absurd results" and "administrative necessity" doctrines. As we discuss elsewhere, the PSD . . . provisions by their terms require that sources at or above the 100/250 tpy thresholds comply with PSD . . . at the time those requirements are triggered, which is when GHGs become subject to regulation. Therefore, if the literal meaning of the applicability provisions as applied to GHG sources were controlling — that is, if it reflected congressional intent — it would foreclose use of the one-step-at-a-time doctrine to implement a phase-in approach. However, the literal meaning is not controlling because — in light of the absurd results, including the insurmountable administrative burdens, that would result from the literal meaning — congressional intent is not to require the application of the PSD . . . requirements to all GHG sources at or above the statutory thresholds at the time that GHGs become subject to regulation. Instead, as described previously, we consider congressional intent for the applicability provisions, as applied to GHG sources, either (i) to be clear that PSD . . .should be phased in for GHG sources as quickly as possible, or (ii) to be unclear, so that EPA may reasonably choose to phase PSD . . . in for those sources in that manner. Under either view, congressional intent for PSD . . . applicability to GHG sources accommodates the "one-step-at-a-time" approach.

QUESTIONS AND DISCUSSION

1. The Tailoring Rule requires facilities to calculate two sets of emissions levels: their mass-based emissions, measured in tons per year, which must meet the statutory threshold of 100 or 250 tons per year; and their global warming-based emissions, measured based on carbon dioxide equivalence, which must meet the new 100,000 or 75,000 tons per year. Do you understand how these emissions thresholds work together? If a new facility will emit 70 tons of a SF_6, which has a global warming potential of 23,900, will it trigger PSD? What about a new facility that will emit 300 tons of methane, which has a global warming potential of 23?

Recall the earlier discussion of significant emissions rates (SERs) necessary to trigger a

"major modification." The 75,000 CO_2eq tons per year threshold is the new global warming-based SER for greenhouse gases, and the mass-based SER is zero. Thus, if a facility makes a regulated physical change that will increase its mass-based emissions by 700 tons per year and global warming-based emissions by 70,000 CO_2eq tons per year, it will not trigger PSD, even though it has far exceeded its mass-based SER.

2. EPA initially proposed lower emissions thresholds that would trigger the PSD program. Specifically, its initial proposal would have applied to new sources that emitted 25,000 tons per year of greenhouse gases and to modified sources that increased their emissions by at least 10,000 tons per year. It estimated that these lower thresholds would apply to about 68 percent of U.S. greenhouse gas emissions and subject about 400 new and modified facilities to PSD permitting requirements each year. After receiving comments from states and industrial sources that EPA had underestimated the number of required sources and the administrative burdens associated with permitting the sources, EPA increased the emissions thresholds to the 100,000/75,000 tons per year levels in the Tailoring Rule. The Center for Biological Diversity claims that this change resulted from "pure fear politics." Robin Bravender, *Enviro Group Sues EPA Over "Tailoring" Rule*, Greenwire, Aug. 2, 2010. Did EPA justify the significant changes it made between the proposed and final rule?

3. What do you think of EPA's invocation of the "absurd results," "administrative necessity," and "one-step-at-a-time" doctrines? Do you think a court would uphold EPA's deviations from the statutory 100/250 tons per year thresholds?

4. EPA's changes to the PSD program have interesting implications for states under the Clean Air Act. As explained earlier in the text, EPA and states work through the Clean Air Act's "cooperative federalism" scheme to implement the Act. States must prepare State Implementation Plans (SIPs) demonstrating how states will comply with the various parts of the Clean Air Act. If a state wishes to administer the PSD program, it must receive EPA authority to do so. If EPA determines that a state's SIP no longer conforms to the requirements of the Clean Air Act, EPA will issue a "SIP call" identifying the ways in which the SIP is inadequate and recommending changes. If the state fails to correct the SIP, EPA will take over implementation of the programs the SIP does not adequately regulate. To do this, EPA must promulgate a Federal Implementation Plan (FIP) explaining how EPA will regulate in states with inadequate SIPs.

After EPA released the final Tailoring Rule, it began the SIP review process. It initially proposed to find more than a dozen state SIPs inadequate because the states either had rules that did not clearly authorize regulation of greenhouse gases or because the states had laws that affirmatively prohibited state regulation of greenhouse gases. Ultimately, EPA finalized the SIP call for several states, which then sued EPA. As of April 2013, the suit was still pending.

5. Perhaps not surprisingly, the Tailoring Rule triggered a flurry of lawsuits. Several states and industrial groups argued that EPA lacks authority to regulate greenhouse gas emissions under the PSD program and that the agency's recognition that a literal reading of the statute produces "absurd results" shows that the PSD program should not apply at all. Although some environmental groups threatened to challenge the rule, they dismissed their cases, leaving those

opposed to Clean Air Act regulation as the petitioners. Ultimately, the D.C. Circuit rejected their challenge on Article III standing grounds. Coalition for Responsible Regulation v. EPA, 684 F.3d 102 (D.C. Cir. 2012), *rhrg. en banc denied by* 2012 U.S. App. LEXIS 25997 (D.C. Cir. Dec. 20, 2012). The court held the petitioners could not demonstrate they would be injured from regulatory requirements that would actually reduce their regulatory burden. Moreover, the petitioners could not show redressability, since a favorable ruling would presumably vacate the Tailoring Rule and subject petitioners to the PSD program at much lower emissions thresholds. The court also rejected the petitioners' argument that this outcome would ultimately redress their injuries by motivating Congress to pass some sort of legislative exemption from the PSD program. ("We have serious doubts as to whether, for standing purposes, it is ever "likely" that Congress will enact legislation at all."). The petitioners sought certiorari in March 2013.

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3. *What is BACT for Greenhouse Gas Emissions?*

Applying the PSD program to greenhouse gases also raises questions about the best available control technology (BACT) for greenhouse gas emissions. Before EPA had even issued the Tailoring Rule, environmental organizations had challenged permits that failed to establish BACT-based limitations for greenhouse gas emissions. In particular, the groups argued that EPA could not allow construction of new coal-fired power plants that would use older technology without at least considering the availability of Integrated Gasification Combined-Cycle (IGCC) technology, which burns coal much more efficiently and thus emits fewer pollutants. In response, EPA argued that any consideration of IGCC technology would go beyond the scope of the BACT analysis. In essence, EPA took the position that the Clean Air Act did not allow EPA to order a facility to design a different type of coal combustion plant, but instead only allowed the agency to consider technologies that would either make the proposed coal plant more efficient or else capture pollutants once the pollutants entered the smoke stacks. After EPA issued the Tailoring Rule, it changed its approach to BACT analyses for greenhouse gases. The following materials excerpt a part of EPA's permitting manual, which the agency drafted to help permit writers understand how to implement the PSD program for greenhouse gases.

ENVIRONMENTAL PROTECTION AGENCY, PSD AND TITLE V PERMITTING GUIDANCE FOR GREENHOUSE GASES

(Nov. 2010)

III. BACT Analysis

Under the CAA and applicable regulations, a PSD permit must contain emissions limitations based on application of BACT for each regulated NSR pollutant. A determination of BACT for GHGs should be conducted in the same manner as it is done for any other PSD regulated pollutant.

* * * CAA § 169(3) defines BACT as:

> an emissions limitation (including a visible emission standard) based on the

> maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. . . .

Each new source or modified emission unit subject to PSD is required to undergo a BACT review.

The CAA and corresponding implementing regulations require that a permitting authority conduct a BACT analysis on a case-by-case basis, and the permitting authority must evaluate the amount of emissions reductions that each available emissions-reducing technology or technique would achieve, as well as the energy, environmental, economic and other costs associated with each technology or technique. Based on this assessment, the permitting authority must establish a numeric emissions limitation that reflects the maximum degree of reduction achievable for each pollutant subject to BACT through the application of the selected technology or technique. However, if the permitting authority determines that technical or economic limitations on the application of a measurement methodology would make a numerical emissions standard infeasible for one or more pollutants, it may establish design, equipment, work practices or operational standards to satisfy the BACT requirement.

Top-Down BACT Process

EPA recommends that permitting authorities continue to use the Agency's five-step "top-down" BACT process to determine BACT for GHGs. In brief, the top-down process calls for all available control technologies for a given pollutant to be identified and ranked in descending order of control effectiveness. The permit applicant should first examine the highest-ranked ("top") option. The top-ranked options should be established as BACT unless the permit applicant demonstrates to the satisfaction of the permitting authority that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the top-ranked technology is not "achievable" in that case. If the most effective control strategy is eliminated in this fashion, then the next most effective alternative should be evaluated, and so on, until an option is selected as BACT.

EPA has broken down this analytical process into the following five steps, which are each discussed in detail later in this section.

Step 1: Identify all available control technologies.
Step 2: Eliminate technically infeasible options.
Step 3: Rank remaining control technologies.
Step 4: Evaluate most effective controls and document results.
Step 5: Select the BACT.

To illustrate how the analysis proceeds through these steps, assume at Step 1 that the permit applicant and permitting authority identify four control strategies that may be applicable to the particular source under review. At the second step of the process, assume that one of these four options is demonstrated to be technically infeasible for the source and is eliminated from further consideration. The remaining three pollution control options should then be ranked from the most to the least effective at the third step of the process. In the fourth step, the permit applicant and permitting authority should begin by evaluating the energy, environmental, and economic impacts of the top-ranked option. If these considerations do not justify eliminating the top-ranked option, it should be selected as BACT at the fifth step. However, if the energy, environmental, or economic impacts of the top-ranked option demonstrate that this option is not achievable, then the evaluation remains in Step 4 of the process and continues with an examination of the energy, environmental, and economic impacts of the second-ranked option. This Step 4 assessment should continue until an achievable option is identified for each source. The highest-ranked option that cannot be eliminated is selected as BACT at Step 5, which includes the development of an emissions limitation that is achievable by the particular source using the selected control strategy. Thus, the inclusion and evaluation of an option as part of a top-down BACT analysis for a particular source does not necessarily mean that option will ultimately be required as BACT for that source. * * *

This guidance (including the appendices) provides some preliminary EPA views on some key issues that may arise in a BACT analysis for GHGs. It is important to recognize that this document does not provide any final determination of BACT for a particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. * * *

Relationship of BACT and New Source Performance Standards (NSPS)

The CAA specifies that BACT cannot be less stringent than any applicable standard of performance under the New Source Performance Standards (NSPS). As of the date of this guidance, EPA has not promulgated any NSPS that contain emissions limits for GHGs. EPA has developed this permitting guidance and associated technical "white papers" to support initial BACT determinations for GHGs that will need to be made without the benefit of having an NSPS and supporting technical documents to inform the evaluation of the performance of available control systems and techniques.

To the extent EPA completes an NSPS for a relevant source category, BACT determinations that follow will need to consider the levels of the GHG standards and the supporting rationale for the NSPS. The process of developing NSPS and considering public input on proposed standards will advance the technical record on GHG control strategies and may reflect advances in control technology or reductions in the costs or other impacts of using particular control strategies. Thus, the guidance in this document should be viewed taking into consideration the potential development of an NSPS for a particular source category. In addition, the fact that a NSPS for a source category does not require a more stringent level of control does not preclude its consideration in a top-down BACT analysis.

Importance of Energy Efficiency

As discussed in greater detail below, EPA believes that it is important in BACT reviews for permitting authorities to consider options that improve the overall energy efficiency of the source or modification – through technologies, processes and practices at the emitting unit. In general, a more energy efficient technology burns less fuel than a less energy efficient technology on a per unit of output basis * * *

B. BACT Step 1 – Identify All Available Control Options

General Concepts

The first step in the top-down BACT process is to identify all "available" control options. Available control options are those air pollution control technologies or techniques (including lower-emitting processes and practices) that have the potential for practical application to the emissions unit and the regulated pollutant under evaluation. To satisfy the statutory requirements of BACT, EPA believes that the applicant must focus on technologies that have been demonstrated to achieve the highest levels of control for the pollutant in question, regardless of the source type in which the demonstration has occurred. * * *

Air pollution control technologies and techniques include the application of alternative production processes, methods, systems, and techniques, including clean fuels or treatment or innovative fuel combustion techniques for control of the affected pollutant. In some circumstances, inherently lower-polluting processes are appropriate for consideration as available control alternatives. The control options should include not only existing controls for the source category in question, but also controls determined through "technology transfer" that are applied to source categories with exhaust streams that are similar to the source category in question. * * *

Technologies that formed the basis for an applicable NSPS (if any) should, in most circumstances, be included in the analysis, as BACT cannot be set at an emission control level that is less stringent than that required by the NSPS. In cases where a NSPS is proposed, the NSPS will not be controlling for BACT purposes since it is not a final action and the proposed standard may change, but the record of the proposed standard (including any significant public comments on EPA's evaluation) should be weighed when considering available control strategies and achievable emission levels for BACT determinations made that are completed before a final standard is set by EPA. However, even though a proposed NSPS is not a controlling floor for BACT, the NSPS is an independent requirement that will apply to an NSPS source that commences construction after an NSPS is proposed and carries with it a strong presumption as to what level of control is achievable. This is not intended to limit available options to only those considered in the development of the NSPS. . . .

EPA has placed potentially applicable control alternatives identified and evaluated in the BACT analysis into the following three categories:

- *Inherently Lower-Emitting Processes/Practices/Designs,*
- *Add-on Controls*, and

- *Combinations of Inherently Lower Emitting Processes/Practices/Designs and Add-on Controls*.

The BACT analysis should consider potentially applicable control techniques from all of the above three categories. Lower-polluting processes (including design considerations) should be considered based on demonstrations made on the basis of manufacturing identical or similar products from identical or similar raw materials or fuels. Add-on controls, on the other hand, should be considered based on the physical and chemical characteristics of the pollutant-bearing emission stream.

As explained later in this guidance, in the course of the BACT analysis, one or more of the available options may be eliminated from consideration because they are demonstrated to be technically infeasible or have unacceptable energy, economic, and environmental impacts on a case- and fact-specific basis. However, such options should still be included in Step 1 of the BACT process, since the purpose of Step 1 of the process is to cast a wide net and identify all control options with potential application to the emissions unit under review that should be subject to scrutiny under later steps of the process.

While Step 1 is intended to capture a broad array of potential options for pollution control, this step of the process is not without limits. EPA has recognized that a Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant. BACT should generally not be applied to regulate the applicant's purpose or objective for the proposed facility.

In assessing whether an option would fundamentally redefine a proposed source, EPA recommends that permitting authorities apply the analytical framework recently articulated by the Environmental Appeals Board. Under this framework, a permitting authority should look first at the administrative record to see how the applicant defined its goal, objectives, purpose or basic design for the proposed facility in its application. The underlying record will be an essential component of a supportable BACT determination that a proposed control technology redefines the source. The permitting authority should then take a "hard look" at the applicant's proposed design in order to discern which design elements are inherent for the applicant's purpose and which design elements may be changed to achieve pollutant emissions reductions without disrupting the applicant's basic business purpose for the proposed facility. In doing so, the permitting authority should keep in mind that BACT, in most cases, should not be applied to regulate the applicant's purpose or objective for the proposed facility. This approach does not preclude a permitting authority from considering options that would change aspects (either minor or significant) of an applicants' proposed facility design in order to achieve pollutant reductions that may or may not be deemed achievable after further evaluation at later steps of the process. EPA does not interpret the CAA to prohibit fundamentally redefining the source and has recognized that permitting authorities have the discretion to conduct a broader BACT analysis if they desire. The "redefining the source" issue is ultimately a question of degree that is within the discretion of the permitting authority. However, any decision to exclude an option on "redefining the source" grounds must be explained and documented in the permit record, especially where such an option has been identified as significant in public comments.

In circumstances where there are varying configurations for a particular type of source, the applicant should include in the application a discussion of the reasons why that particular configuration is necessary to achieve the fundamental business objective for the proposed construction project. The permitting authority should determine the applicant's basic or fundamental business purpose or objective based on the record in each individual case. For example, the permitting authority can consider the intended function of an electric generating facility as a baseload or peaking unit in assessing the fundamental business purpose of a permit applicant. However, a factor that might be considered at later steps of the top-down BACT process, such as whether a process or technology can be applied on a specific type of source (Step 2) or the cost of constructing a source with particular characteristics (Step 4), should not be used as a justification for eliminating an option in Step 1 of the BACT analysis. Thus, cost savings and avoiding the risk of an apparently achievable technology transfer are not appropriately considered to be a part of the applicant's basic design or fundamental business purpose or objective. Since BACT Step 4 also includes consideration of "energy" impacts from the control options under consideration, such impacts should not be used to justify excluding an option in Step 1 of a top-down BACT analysis.

The CAA includes "clean fuels" in the definition of BACT. Thus, clean fuels which would reduce GHG emissions should be considered, but EPA has recognized that the initial list of control options for a BACT analysis does not need to include "clean fuel" options that would fundamentally redefine the source. Such options include those that would require a permit applicant to switch to a primary fuel type (*i.e.*, coal, natural gas, or biomass) other than the type of fuel that an applicant proposes to use for its primary combustion process. For example, when an applicant proposes to construct a coal-fired steam electric generating unit, EPA continues to believe that permitting authorities can show in most cases that the option of using natural gas as a primary fuel would fundamentally redefine a coal-fired electric generating unit. Ultimately, however, a permitting authority retains the discretion to conduct a broader BACT analysis and to consider changes in the primary fuel in Step 1 of the analysis. EPA does not classify the option of using a cleaner form of the same type of fuel that a permit applicant proposes to use as a change in primary fuel, so these types of options should be assessed in a top-down BACT analysis in most cases. For example, a permitting authority may consider that some types of coal can have lower emissions of GHG than other forms of coal, and they may insist that the lower emitting coal be evaluated in the BACT review. Furthermore, when a permit applicant has incorporated a particular fuel into one aspect of the project design (such as startup or auxiliary applications), this suggests that a fuel is "available" to a permit applicant. In such circumstances, greater utilization of a fuel that the applicant is already proposing to use in some aspect of the project design should be listed as an option in Step 1 unless it can be demonstrated that such an option would disrupt the applicant's basic business purpose for the proposed facility.* * *

GHG-Specific Considerations

Permit applicants and permitting authorities should identify all "available" GHG control options that have the potential for practical application to the source under consideration. The application of BACT to GHGs does not affect the discretion of a permitting authority to exclude options that would fundamentally redefine a proposed source. GHG control technologies are likely to vary based on the type of facility, processes involved, and GHGs being addressed. The

discussion below is focused on energy efficiency and carbon capture and storage (CCS) because these control approaches may be applicable to a wide range of facilities that emit large amounts of CO_2. . . .

The application of methods, systems, or techniques to increase energy efficiency is a key GHG-reducing opportunity that falls under the category of "lower-polluting processes/practices." Use of inherently lower-emitting technologies, including energy efficiency measures, represents an opportunity for GHG reductions in these BACT reviews. In some cases, selecting a more energy efficient process or project design is preferred over end-of-stack controls; in other cases, an energy efficient measure can be used effectively in tandem with end-of-stack controls to achieve additional control of criteria pollutants. Applying the most energy efficient technologies at a source should in most cases translate into fewer overall emissions of all air pollutants per unit of energy produced. Selecting technologies, measures and options that are energy efficient translates not only in the reduction of emissions of the particular regulated NSR air pollutant undergoing BACT review, but it also may achieve collateral reductions of emissions of other pollutants, as well as GHGs.

For these reasons, EPA encourages permitting authorities to use the discretion available under the PSD program to include the most energy efficient options in BACT analyses for both GHG and non-GHG regulated NSR pollutants. While energy efficiency can reduce emissions of all combustion-related emissions, it is a particularly important consideration for GHGs since the use of add-on controls to reduce GHG emissions is not as well-advanced as it is for most combustion-derived pollutants. Initially, in many instances energy efficient measures may serve as the foundation for a BACT analysis for GHGs with add-on pollution control technology and other strategies added as they become more accessible. Energy efficient options that should be considered in Step 1 of a BACT analysis for GHGs can be classified in two categories.

The first category of energy efficiency improvement options includes technologies or processes that maximize the efficiency of the individual emissions unit. For example, the processes that may be used in electric generating facilities have varying levels of efficiency, measured in terms of amount of heat input that is used in the process or in terms of per unit of the amount of electricity that is produced. When a permit applicant proposes to construct a facility using a less efficient boiler design, such as a pulverized coal (PC) or circulating fluidized bed (CFB) boiler using subcritical steam pressure, a BACT analysis for this source should include more efficient options such as boilers with supercritical and ultra-supercritical steam pressures. Furthermore, combined cycle combustion turbines, which have higher efficiencies than simple cycle turbines, should be listed as options when an applicant proposes to construct a natural gas-fired facility. In coal-fired permit applications, EPA believes that integrated gasification combined cycle (IGCC) should also be listed for consideration when it is more efficient than the proposed technology.[78] However, these options may be evaluated under the

[78] EPA no longer subscribes to the reasoning used by the Agency in a 2005 letter to justify excluding IGCC from consideration in all cases on redefining the source grounds. Letter from Stephen Page, EPA OAQPS to Paul Plath, E3 Consulting, *Best Available Control Technology Requirements for Proposed Coal-Fired Power Plant Projects* (Dec. 13, 2005) (last paragraph on page 2). The Environmental Appeals Board subsequently rejected the application of this reasoning in an individual permit decision, where the record did not demonstrate that IGCC was inconsistent with the fundamental objectives of the permit applicant or distinguish between prior permit decisions that evaluated

redefining the source framework described above and excluded from consideration at Step 1 of a top-down analysis on a case-by-case basis if it can be shown that application of such a control strategy would disrupt the applicant's basic or fundamental business purpose for the proposed facility. * * *

For the purposes of a BACT analysis for GHGs, EPA classifies CCS as an add-on pollution control technology that is "available" for large CO2-emitting facilities * * *

C. BACT Step 2 – Eliminate Technically Infeasible Options

General Concepts

Under the second step of the top-down BACT analysis, a potentially applicable control technique listed in Step 1 may be eliminated from further consideration if it is not technically feasible for the specific source under review. A demonstration of technical infeasibility should be clearly documented and should show, based on physical, chemical, or engineering principles, that technical difficulties would preclude the successful use of the control option on the emissions unit under review.

EPA considers a technology to be technically feasible if it has been demonstrated in practice or is available and applicable to the source type under review. The term "demonstrated" is focused on the technology being used in the same type of source, such as a similar plant producing the same product. Therefore, EPA considers a technology to be "demonstrated," if it has been installed and operated successfully on the type of source at issue. If application of a technology to the source type under review has not been demonstrated, then questions regarding "availability" and "applicability" should be considered. In the context of a technical feasibility analysis, the terms "availability" and "applicability" relate to the use of technology in a situation that appears similar even if it has not been used in the same industry. Specifically, EPA considers a technology to be "available" where it can be obtained through commercial channels or is otherwise available within the common meaning of the term. EPA considers an available technology to be "applicable" if it can reasonably be installed and operated on the source type under consideration. Where a control technology has been applied on one type of source, this is largely a question of the transferability of the technology to another source type. A control technique should remain under consideration if it has been applied to a pollutant-bearing gas stream with similar chemical and physical characteristics. The control technology would not be applicable if it can be shown that there are significant differences that preclude the successful

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the technology in more detail. *In re Desert Rock Energy Company*, Slip. Op. at 68-69. Based on this decision, EPA also concluded that a state permit decision following substantially the same reasoning lacked a reasoned basis for excluding further consideration of IGCC. *In the Matter of: American Electric Power Service Corporation,* Order at 8-12. However, EPA continues to interpret the relevant provisions of the CAA, as described in the 2005 letter (pages 1-2), to provide discretion for permitting authorities to exclude options that would fundamentally redefine a proposed source, provided the record includes an appropriate justification in each case *In re Desert Rock Energy Company*, Slip. Op. at 76. Thus, IGCC should not be categorically excluded from a BACT analysis for a coal fired electric generating unit, and this technology should not be excluded on redefining the source grounds at Step 1 of a BACT analysis in any particular case unless the record clearly demonstrates why the permit applicant's basic or fundamental business purpose would be frustrated by application of this process.

operation of the control device. For example, the temperature, pressure, pollutant concentration, or volume of the gas stream to be controlled, may differ so significantly from previous applications that it is uncertain the control device will work in the situation currently undergoing review. * * *

GHG-Specific Considerations

* * * This guidance is being issued at a time when add-on control technologies for certain GHGs or emissions sources may be limited in number and in various stages of development and commercialization. A number of ongoing research, development, and demonstration programs may make CCS technologies more widely applicable in the future. These facts are important to BACT Step 2, wherein technically infeasible control options are eliminated from further consideration. When considering the guidance provided below, permitting authorities should be aware of the changing status of various control options for GHG emissions when determining BACT.

In the early years of GHG control strategies, consideration of commercial guarantees is likely to be involved in the BACT determination process. This type of guarantee may be more relevant for certain GHG controls because, unlike other pollutants with available, proven control technologies, some GHG controls may have a greater uncertainty regarding their expected performance. As noted above, the lack of availability of a commercial guarantee, by itself, is not a sufficient basis to classify a technology as "technologically infeasible" for BACT evaluation purposes, even for GHG control determinations.

As discussed earlier, although CCS is not in widespread use at this time, EPA generally considers CCS to be an "available" add-on pollution control technology for large CO2-emitting facilities and industrial facilities with high-purity CO2 streams. Assuming CCS has been included in Step 1 of the top-down BACT process for such sources, it now must be evaluated for technical feasibility in Step 2. * * *

D. BACT Step 3 – Ranking of Controls

General Concepts

After the list of all available controls is winnowed down to a list of the technically feasible control technologies in Step 2, Step 3 of the top-down BACT process calls for the remaining control technologies to be listed in order of overall control effectiveness for the regulated NSR pollutant under review. The most effective control alternative (*i.e.*, the option that achieves the lowest emissions level) should be listed at the top and the remaining technologies ranked in descending order of control effectiveness. The ranking of control options in Step 3 determines where to start the top-down BACT selection process in Step 4.

In determining and ranking technologies based on control effectiveness, applicants and permitting authorities should include information on each technology's control efficiency (*e.g.*, percent pollutant removed, emissions per unit product), expected emission rate (*e.g.*, tons per year, pounds per hour, pounds per unit of product, pounds per unit of input, parts per million),

and expected emissions reduction (*e.g.*, tons per year). * * *

E. BACT Step 4 – Economic, Energy, and Environmental Impacts

General Concepts

Under Step 4 of the top-down BACT analysis, permitting authorities must consider the economic, energy, and environmental impacts arising from each option remaining under consideration. Accordingly, after all available and technically feasible control options have been ranked in terms of control effectiveness (BACT Step 3), the permitting authority should consider any specific energy, environmental, and economic impacts identified with those technologies to either confirm that the top control alternative is appropriate or determine it to be inappropriate. The "top" control option should be established as BACT unless the applicant demonstrates, and the permitting authority agrees, that the energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case. If the most stringent technology is eliminated in this fashion, then the next most stringent alternative is considered, and so on. * * *

The economic impacts component of the analysis should focus on direct economic impacts calculated in terms of cost effectiveness (dollars per ton of pollutant emission reduced). Cost effectiveness should be addressed on both an average basis for each measure and combination of measures, and on an incremental basis comparing the costs and emissions performance level of a control option to the cost and performance of the next most stringent control option. The emphasis should be on the cost of control relative to the amount of pollutant removed, rather than economic parameters that provide an indication of the general affordability of the control alternative relative to the source. To justify elimination of an option on economic grounds, the permit applicant should demonstrate that the costs of pollutant removal for that option are disproportionately high. * * *

F. BACT Step 5 – Selecting BACT

. . . In Step 5 of the BACT determination process, the most effective control option not eliminated in Step 4 should be selected as BACT.

QUESTIONS AND DISCUSSION

1. EPA's new BACT guidance indicates that both IGCC technologies — which produce electricity more efficiently — and carbon capture and sequestration (CCS) may be available technologies under its top-down analysis. Does this mean that every new coal plant will need to use IGCC *and* include CCS capacity? Thus far, no commercial application of CCS technology has succeeded on a large scale in the United States. How can EPA reasonably suggest that CCS is available?

2. Many opponents of coal have promoted the use of natural gas instead. Does EPA's guidance mandate that permitting agencies consider natural gas as a replacement for coal? If not,

what discretion do agencies have to require substitute fuels? Moreover, what should BACT for natural gas emissions be? While natural gas is a cleaner burning fuel and emits about half the carbon dioxide that coal does during the combustion process, natural gas production and transportation result in significant emissions of methane. Indeed, several studies estimate that the lifecycle emissions of natural gas, when based on its 20-year global warming potential, exceed those of coal. *See e.g.*, Tom M. L. Wigley, *Coal to Gas: The Influence of Methane Leakage*, 108 CLIMATIC CHANGE 601 (2011); Robert W. Howarth, *Methane and the Greenhouse-gas Footprint of Natural Gas from Shale Formations: A Letter*, 106 CLIMATIC CHANGE 679 (2011). How should the BACT analysis factor in these lifecycle impacts, if at all?

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B. Regulation of New and Modified Sources under the NSPS Program and Regulation of Existing Sources

As noted above, environmental organizations and several states petitioned EPA in the early 2000s to establish New Source Performance Standards (NSPS) for categories of sources that emit greenhouse gases. After *Massachusetts*, EPA settled pending litigation regarding its refusal to set NSPS and instead negotiated settlements under which EPA agreed to release NSPS for fossil fuel-fired power plants and oil refineries within specified timeframes. Pursuant to the settlement agreements, EPA was supposed to have issued final regulations setting NSPS for power plants by May 2012 and for refineries by November 2012. EPA and the petitioners ultimately modified the settlement agreements to extend the deadlines into 2013. In April 2013, EPA missed its deadline to issue NSPS for power plants, and it became unclear when EPA would finalize its rule. These materials therefore only briefly explore how EPA might regulate greenhouse gas emissions for these source categories. They also briefly explore existing source regulation, which EPA indicated it would not pursue in its proposed NSPS for power plants.

1. *Regulation of New and Modified Sources under NSPS*

As explained above, the NSPS program requires certain categories and classes of stationary sources to comply with specified "standards of performance," which are emissions standards that "reflect[] the degree of emission limitation achievable through the application of the best system of emission reduction which . . . the Administrator [of the EPA] determines has been adequately demonstrated." CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1). For NSPS to apply to a particular facility, the facility must fall within a category of sources which, in the EPA Administrator's judgment "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare," CAA § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1). Thus, when EPA sets NSPS for particular source categories, it must first make an endangerment and cause and contribution finding similar to the finding it made for motor vehicles.

Next, EPA must set NSPS that reflect emissions limitations achievable through the use of the "best system of emission reduction which . . . the Administrator [of the EPA] determines has been adequately demonstrated." CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1). When EPA sets this standard — referred to as the best demonstrated adequate technology, or BDAT, standard — it must consider cost, any "nonair quality health and environmental impact," and energy requirements. *Id.* The emissions limitations EPA promulgates through this program typically

limit rates or concentrations of pollutants, rather than the total amount of emissions. In cases where EPA determines it is not feasible to prescribe or enforce a standard of performance, EPA may instead "promulgate a design, equipment, work practice, or operational standard . . . which reflects the best technological system of continuous emission reduction." CAA § 111(h)(1), 42 U.S.C. § 7411(h)(1). Standards of performance are often considered somewhat weak because of the degree to which cost concerns affect their establishment and because many are quite old. Nonetheless, they often serve as the minimum technology requirement applicable to many stationary sources.

In its proposed NSPS for power plants, EPA indicated that the standards of performance would require facilities to meet an output-based emissions limit of 1,000 pounds of CO_2 per megawatt-hour (lb CO_2/MWh gross). If adopted, this would effectively limit the construction of new fossil fuel power plants to either natural gas plants or coal plants that use carbon capture and sequestration technology. *See* EPA Fact Sheet: Proposed Carbon Pollution Standard for New Power Plants 2 (2012).

The most interesting aspect of its proposal was that EPA proposal stated the NSPS would apply only to new, rather than new and modified, power plants. If finalized, this would seem to violate the Clean Air Act. Specifically, Section 111(e) states: "After the effective date of standards of performance promulgated under this section, it shall be unlawful for any owner or operator of any new source to operate such source in violation of any standard of performance applicable to such source." 42 U.S.C. § 7411(e). While this language would seem to constrain NSPS to new sources only, the definitions define "new source" as "any stationary source, the *construction or modification* of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance . . . applicable to such source." CAA § 111(a)(2), 42 U.S.C. § 7411(a)(2). By defining new source to include any source that undergoes a modification, it appears that Congress intended EPA to regulate both new and modified sources. The question has never been litigated, however, and it may be possible that EPA could justify its establishment of NSPS for new sources only.

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2. *Regulation of Existing Sources under NSPS*

Notwithstanding the term New Source Performance Standards, section 111 of the Clean Air Act establishes regulatory requirements for existing sources as well. Unlike the rest of the NSPS program — under which EPA establishes national emissions standards for categories of sources, which states may then implement — section 111(d) gives states the primary authority for developing the standards. CAA § 111(d), 42 U.S.C. § 7411(d). The CAA directs EPA to "prescribe regulations which shall establish a procedure similar to that provided by section [110, regarding SIP development] under which each State shall submit to the Administrator a plan which (A) establishes standards of performance for any existing source for any [designated] air pollutant . . . and (B) provides for the implementation and enforcement of such standards of performance." CAA § 111(d)(1), 42 U.S.C. § 7411(d)(1). If a state fails to submit a satisfactory plan, then EPA has authority to promulgate a FIP establishing standards of performance or implementation requirements for existing sources covered under § 111(d). *Id.* at § 111(d)(2), 42

U.S.C. § 7411(d)(2). If a state fails to enforce or implement the provisions of an approved plan, EPA may itself bring enforcement actions. *Id.* at § 113(a), 42 U.S.C. § 7413(a).

Various organizations have petitioned EPA to establish standards of performance for carbon dioxide emissions from existing fossil-fueled power plants. These materials first discuss the regulations applicable to the existing source program and then explore how EPA might establish standards of performance for carbon dioxide or other greenhouse gases.

a. *Which Existing Sources and Pollutants are Regulated?*

NSPS regulate only some existing sources and pollutants. First, existing sources are subject to NSPS only if they fall within a source category for which EPA has established NSPS for new and modified sources. Second, existing source NSPS may not regulate criteria pollutants or HAPs (although there are some exceptions for HAPs). Existing source NSPS would be appropriate for greenhouse gases, then, because they are neither HAPs nor criteria pollutants.

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b. *What Would Existing Source Emissions Standards Require?*

The "emissions standards" under § 111(d) are more flexible than the standards of performance applicable to new and modified sources. Notably, the regulations define "emission standard" as "a legally enforceable regulation setting forth an allowable rate of emissions into the atmosphere, establishing an allowance system, or prescribing equipment specifications for control of air pollution emissions." 40 C.F.R. § 60.21(f). An allowance system, in turn, is a

> control program under which the owner or operator of each designated facility is required to hold an authorization for each specified unit of a designated pollutant emitted from that facility during a specified period and which limits the total amount of such authorizations available to be held for a designated pollutant for a specified period and allows the transfer of such authorizations not used to meet the authorization-holding requirement.

Id. at § 60.21(k). In other words, emissions standards include emissions trading programs in which designated facilities may receive pollution allowances and trade the right to emit pollution.

The following article proposes ways in which existing source standards of performance could apply to various industries. As you read it, consider whether you think EPA could use NSPS in the way the author recommends. Note also the somewhat moderate emissions reductions NSPS regulation would achieve. Do you think the focus on existing source standards makes sense?

TERESA B. CLEMMER, STAVING OFF THE CLIMATE CRISIS: THE SECTORAL APPROACH UNDER THE CLEAN AIR ACT

40 ENVTL. L. 1125 (2010)

B. The NSPS Program

Stationary sources, including power plants, are responsible for 3747 teragrams of greenhouse gas emissions annually, or roughly 54% of all United States emissions. EPA regulations for stationary sources under the NSPS program therefore have the potential to address more than half of all United States greenhouse gas emissions.

Under section 111 of the Clean Air Act, EPA is required to issue technology-based performance standards for designated categories of industries that emit significant quantities of air pollution. As a first step, EPA must create a list of categories of stationary sources that, in EPA's judgment, "cause[], or contribute[] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." * * *

After EPA makes such a finding for one or more stationary source categories . . . EPA must issue "standards of performance" for new and modified sources within each listed category. EPA is also required to review and, if appropriate, revise each standard at least once every eight years. The eight-year review and revision process is meant to balance industry's need for regulatory certainty over an extended period of time with society's need to ensure that pollution controls keep pace with new scientific and technological developments. * * *

The performance standard at the heart of the NSPS program is known as the best demonstrated technology (BDT) standard. While EPA is expected to look at what level of emissions these "demonstrated" technologies can achieve, the final standard is framed as an emission limitation and does not actually require the use of any particular technology. This is an important feature because it gives facilities the flexibility to adapt to changing circumstances and look for cost-effective alternatives. EPA also has the discretion to craft a "design, equipment, work practice, or operational standard, or combination thereof" where it is "not feasible" to apply a simple emission limitation. * * *

Finally, despite the program's emphasis on new and modified sources, the statute also requires EPA to help develop standards for existing sources through coordination with states. Using EPA guidance, states must adopt and implement performance standards for existing sources that would otherwise be regulated by EPA if they were a new or modified source. An important caveat, however, is that these controls on existing sources are only required for non-criteria air pollutants. This means greenhouse gas emissions from the fleet of existing sources within the various NSPS categories can only be regulated under the NSPS program so long as they are not designated as criteria air pollutants. If greenhouse gases were to be listed as criteria air pollutants, this valuable regulatory tool would no longer be available.

We will now turn to what the NSPS program could actually achieve in practice, particularly in the near term. The following discussion describes several of the industrial categories that are responsible for the greatest share of greenhouse gas emissions (i.e., power plants, petroleum refineries, and concentrated animal feeding operations (CAFOs)) and hence are important to address in at least a preliminary fashion immediately. In addition, a few examples with smaller shares are included here (i.e., landfills, coal mines, cement plants, and nitric acid plants) because the technological solutions are so straightforward and cost-effective that these should likewise be

addressed right away. Early reductions achieved by controlling these low-hanging fruit emissions will help buy us the time we need to make the transition to alternative energy sources and adjust our energy consumption patterns.

1. Electricity Generation

Electricity generation is the proverbial elephant in the room. In 2008, for example, the power sector was responsible for 2404 teragrams of greenhouse gas emissions, which accounted for 64% of all industrial emissions and 34% of overall United States emissions. The NSPS standard for this category thus has the potential to control emissions from the sector that bears the lion's share of responsibility for climate change. In 2008, electricity generation alone produced more greenhouse gas emissions than the entire transportation and agriculture sectors combined.

As noted above, under the flexible BDT standard, EPA has the authority to adopt "design, equipment, work practice, or operational standard[s,]" rather than a specific emission limit. This approach could work well for existing power plants. These emissions could be addressed through an NSPS 111(d) guidance document directing states to incorporate energy efficiency measures and a variety of other operational and technological improvements into their implementation plans. In a recent report prepared for EPA, an expert consulting firm has identified specific plant systems and equipment where cost-effective efficiency improvements can be realized for existing coal-fired power plants, including 1) boiler modifications, 2) optimization of plant controls using more accurate neural network technology, 3) use of intelligent sootblowers, 4) improved air heater and duct leakage control, 5) lowering air heater outlet temperature by controlling acid dew point, 6) turbine upgrades, 7) effective operation of the steam surface condenser, 8) upgrading or rebuilding of boiler feed pumps, 9) upgrading or replacing the induced-draft fan, or adding a booster fan, in the flue gas system, 10) installing a variable-frequency drive for use with induced-draft fans in the flue gas system, and 11) modifications to air pollution control and water treatment systems. Measures like these can be implemented in the near future at existing power plants, and experts have concluded that, by doing so, it would be possible to reduce greenhouse gas emissions by approximately 120 teragrams, or 5%, annually.
* * *

2. Petroleum Refineries

Petroleum refineries are another key category as they are responsible for 514 teragrams of greenhouse gas emissions annually, or 7.3% of overall United States emissions. Petroleum refineries are already regulated as an NSPS stationary source category.

Work practice or operational standards would likely be appropriate for existing facilities in this context as well. The United States Department of Energy has found that efficiency and other operational measures at petroleum refineries using readily available technologies and processes could result in energy savings totaling 12% of each plant's total energy consumption, i.e., a reduction of roughly sixty teragrams of greenhouse gas emissions. Some examples of efficiency-enhancing measures appropriate for refineries include 1) improving the heat integration between atmospheric and vacuum towers, 2) fouling mitigation, 3) ultra-low emission process heaters with advanced fire heater design, 4) aggressive combustion/burner tuning and process

optimization programs for existing process heaters, 5) reduced reliance on flaring, 6) electricity cogeneration using excess fuel gas, and 7) carbon capture and sequestration in conjunction with steam methane reforming or gasification. Since energy efficiency measures by definition reduce the need for energy, the cost of these measures will be offset to a large extent by fuel savings, as we have seen with the rule for light-duty vehicles.

3. Concentrated Animal Feeding Operations

Concentrated animal feeding operations (CAFOs) emit high quantities of methane and nitrous oxide through the enteric fermentation of ruminant farm animals, as well as related manure treatment, storage, and disposal practices. Both methane and nitrous oxide are potent greenhouse gases, with global warming potentials 21 and 310 times that of carbon dioxide, respectively. The agricultural sector as a whole is responsible for approximately 428 teragrams of greenhouse gas emissions, or 6% of overall United States emissions, each year. Enteric fermentation and manure management are responsible for nearly half of these emissions, 203 teragrams annually, and the vast majority of these are generated through the operation of CAFOs. Although these facilities are not currently listed as an NSPS stationary source category, their high emissions and increasingly mechanized and confined operations may lead them to be designated as such in the future, as urged by numerous citizen groups in a recent petition to EPA.

As discussed above, NSPS standards can be based on "design, equipment, work practice or operational" measures, rather than traditional "end-of-pipe" controls. Many aspects of CAFO operations can be adjusted to minimize greenhouse gas emissions, including the anaerobic nature of manure storage conditions, the animals' diet, the acidity and temperature of the manure during storage, and the length of time the manure is kept in storage. One study conducted by the United States Department of Agriculture in 2006 at major pig confinement facilities, for example, showed that switching from a traditional anaerobic lagoon/spray irrigation technique to a dual wastewater treatment and manure composting approach resulted in a 97% reduction in greenhouse gas emissions. If this rate of reduction could be achieved at all CAFOs, it would mean a reduction of approximately 197 teragrams of greenhouse gas emissions annually.

4. Landfills

Landfills offer a golden opportunity for greenhouse gas reductions under the NSPS program because the technological solutions are not just cost-effective, they also generate power and serve as a source of income for facility owners. Landfills are responsible for over 126 teragrams of greenhouse gas emissions annually, primarily in the form of methane. Landfills are already a listed source category under the NSPS program.

Several members of the waste sector have already implemented landfill gas-to-energy projects, and these have been demonstrated to be feasible for both small and large landfills . . . This suggests that an NSPS based on gas-to-energy projects could reduce the vast majority of methane emissions from landfills. Assuming roughly a 90% reduction, or 113 teragrams annually, this would make another significant dent in overall United States industrial emissions.

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QUESTIONS AND DISCUSSION

1. Some people have suggested that EPA could establish an emissions trading program under section 111(d). The regulations do seem to create quite a bit of flexibility regarding existing source regulation. But do you think EPA could use them to establish a national cap-and-trade program? Even if it could, would this be a good idea? The following articles explore how this might happen and the limitations of using the CAA as the mechanism for regulation: DALLAS BURTRAW, ET AL., RESOURCES FOR THE FUTURE, PREVAILING ACADEMIC VIEW ON COMPLIANCE FLEXIBILITY UNDER § 111 OF THE CLEAN AIR ACT (2011); NATHAN RICHARDSON, RESOURCES FOR THE FUTURE, PLAYING WITHOUT ACES: OFFSETS AND THE LIMITS OF FLEXIBILITY UNDER CLEAN AIR ACT CLIMATE POLICY (2011).

2. Other commentators dispute whether existing source regulation would achieve any benefits at all. One pervasive critique is that, whatever emissions reductions the regulation might achieve would be offset by the global nature of climate change. Essentially, climate change results from greenhouse gas emissions from anywhere in the world, and localized reductions will have little to no impact on global emissions or global consequences of climate change. *See, e.g.*, Jonathan H. Adler, *Heat Expands all Things: The Proliferation of Greenhouse Gas Regulation under the Obama Administration*, 34 HARV. J. L. & PUB. POL'Y 421 (2011).

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3. Using SIPs to Compel Greenhouse Gas Regulation of Existing Sources

A final tool for compelling existing source regulation may exist within specific state SIPs. The citizen suit provision of the Clean Air act authorizes suits against "any person" allegedly in a violation (ongoing or past, if repeated) of "an emission standard or limitation." CAA § 304(a)(1), 42 U.S.C. § 7604(a)(1). Section 304(f)(4) defines "emission standard or limitation" for the purpose of citizen suits to include "any other standard, limitation, or schedule established . . . under any applicable State implementation plan approved by the Administrator." 42 U.S.C. § 7604(f)(4). Courts have interpreted the citizen suit to authorize suits against states for failing to implement their approved SIPs. *See* Coalition Against Columbus Ctr. v. City of New York, 967 F.2d 764 (2d Cir. 1992); El Comite para el Bienestar de Earlimart v. Warmerdam, 539 F.3d 1062 (9th Cir. 2008).

Environmental groups successfully sued the state of Washington for failing to comply with its SIP's greenhouse gas limitations. Wash. Envtl. Council v. Sturdevant, 834 F.Supp.2d 1209 (W.D. Wash. 2011). Under Washington's SIP, greenhouse gases are specifically listed as regulated air contaminants (the equivalent of air pollutants under the Clean Air Act). Washington's SIP also requires the state agencies in charge of implementing the Clean Air Act to establish emissions limitations based on "reasonably available control technology" (RACT) for existing sources. The environmental groups argued this mean that the agencies were required to set RACT-based emissions limitations for greenhouse gases, and the court agreed:

> The RACT provision's plain language requires the Agencies to define RACT requirements where emission units are less than RACT. It provides: "Where

> current controls are determined to be less than RACT, the permitting authority *shall* . . . define RACT for each source or source category and issue a rule or regulatory order requiring the installation of RACT." *Id.* (emphasis added). . . . [T]he Agencies must establish a list of sources requiring RACT review, develop a schedule for review, and update the list at least once every five years. In establishing or revising RACT requirements, the Agencies "must address, where practicable, all *air contaminants* deemed to be of concern for that source or source category." In Washington, "air contaminant" includes "particulate matter, vapor, gas, odorous substance or any combination thereof." GHGs fall under this definition and Washington Governor Christine Gregoire's 2009 executive order confirms that, in Washington, "greenhouse gases are air contaminants." In sum, based on its plain language, the RACT provision is not discretionary and requires Agencies to establish RACT standards for GHGs.

Id. at 1213. If the case survives appellate review, other state SIPs may similarly require states to develop emissions standards for existing sources of greenhouse gases. Although states could theoretically revise their SIPs to remove any such requirements, EPA would need to approve the revisions for them to have the force of federal law. Unless and until that occurred, SIP requirements applicable to greenhouse gases could be federally enforceable.

QUESTIONS AND DISCUSSION

1. Distinctions between new, modified and existing sources apply to all pollutants in various parts of the Clean Air Act. The Act's prolific use of "grandfathering" has been criticized for allowing heavily polluting power plants to remain online well past their expected lifespans. In the case of climate change, failure to regulate greenhouse gas emissions from existing sources means that the largest sources of greenhouse gases avoid regulation, while newer, more efficient plants must comply with requirements under NSR and, eventually, NSPS. How do you think the Clean Air Act should regulate existing sources? At what point do the costs of regulation outweigh the benefits of requiring existing sources to reduce their emissions?

2. What do you think of the strategy of suing states for failing to implement their own laws? What are the risks and benefits?

VI. FUTURE CLEAN AIR ACT REGULATION OF GREENHOUSE GASES

It is hard to overstate how much the regulatory landscape has changed since the Supreme Court issued its decision in *Massachusetts* in 2007. The vehicle emissions program provides the most remarkable example of change within this short period, but stationary source regulations also seem likely to change over time as well. While most of EPA's actions to date have occurred under the PSD program, future regulatory actions under the NSPS program will command EPA's attention in the upcoming months, if not years. If EPA finalizes its proposal to limit NSPS to new sources only, this will almost certainly spur litigation and, perhaps, a mandated expansion of

NSPS to modifications. Perhaps more importantly, EPA may need to do more to regulate existing sources under NSPS. Even without EPA action, states may play a bigger role in the Clean Air Act's development and implementation. Those that have SIP provisions similar to Washington's may be forced to establish their own emissions limitations for existing sources. Some states may voluntarily increase their regulation of existing sources within their borders. As this chapter indicates, the Clean Air Act has a number of mechanisms available to regulate new, modified, and even existing sources of greenhouse gases.

Yet uncertainty continues to hang over the Clean Air Act even after *Massachusetts*. In her dissent from the D.C. Circuit's denial of *en banc* review of the *Coalition for Responsible Regulation* decision, Judge Brown made it clear she thought the Supreme Court should reverse its decision in *Massachusetts*:

> Bound as I am by *Massachusetts,* I reluctantly concur with the Panel's determination that EPA may regulate GHGs in tailpipe emissions. But I do not choose to go quietly. Because the most significant regulations of recent memory rest on the shakiest of foundations, Part I of this statement engages *Massachusetts's* interpretive shortcomings in the hope that either Court or Congress will restore order to the CAA.

Coalition of Responsible Regulation, 2012 U.S. App. LEXIS 25997, at *3 (D.C. Cir. Dec. 20, 2012) (Brown, J., dissenting). If the Supreme Court accepts Judge Brown's invitation to reconsider *Massachusetts* or at least agrees to evaluate EPA's implementation of the Act through the various vehicle emissions rules and the Tailoring Rule, Clean Air Act regulation may stall out until the Court issues a decision. If the Supreme Court declines review of *Coalition for Responsible Regulation*, it seems likely that Clean Air Act regulation of greenhouse gases will finally be on some solid footing.