Mastering Environmental Law

Chapter 2

The Clean Air Act

Roadmap

- Understand the role of common law approaches to air pollution control.
- Learn what criteria pollutants are.
- Comprehend how National Ambient Air Quality Standards are established.
- Understand how State Implementation Plans are devised as a means of regulating criteria pollutants.
- Learn the Clean Air Act's approach to limiting emissions of hazardous air pollutants.
- Grasp the requirements that apply to new and modified sources of air pollution in clean air (attainment areas) and dirty air (nonattainment areas).
- Comprehend Clean Air Act requirements that pertain to air pollution from motor vehicles.

I. Introduction and Overview

Air pollution presents serious problems for public health, property, and the natural environment. It has been linked to increases in premature deaths and in rates of illness—particularly among babies and infants, the elderly, and people with preexisting respiratory or cardiac conditions. It also may inflict extensive and costly damage on buildings, materials, and food crops and other plants, and it may dim visibility.

In this chapter, we will examine the United States' legal response to the air pollution problem. After considering the private common law of air pollution, we will focus on key facets of the Clean Air Act, an important, comprehensive federal statute that was passed (in its modern form) in 1970, and amended by Congress in 1977 and 1990.

We will look first at the Act's scheme for regulating "criteria pollutants," the most common types of air pollution, through the establishment of national standards of outdoor air purity (the so-called "National Ambient Air

Quality Standards" or "NAAQS"), and State Implementation Plans ("SIPs"), i.e., state-by-state requirements intended to attain (or maintain) NAAQS by establishing enforceable air pollution control requirements. We will then turn to the controls on hazardous air pollutants mandated by the Act. From there, we will focus on the Clean Air Act's treatment of new sources of air pollution, both in dirty air areas in which NAAQS have not been attained and in clean air regions where those ambient air quality standards are being attained. Finally, we will consider the way in which this legislation imposes controls on air pollution emitted by motor vehicles.

II. Common Law Approaches to Air Pollution Control

While most modern law of air pollution control is based upon federal legislation, the common law doctrines of nuisance and trespass have retained vitality as sources of law regarding air pollution problems. Along with local smoke ordinances, these doctrines were the foundations of the Clean Air Act. The earliest smoke abatement legislation was enacted in London in the thirteenth century, and private common law actions regarding air pollution have their roots in early English common law.

One issue that has arisen in modern air pollution nuisance cases involves the remedy to be awarded to a prevailing plaintiff. In *Boomer v. Atlantic Cement Co.,* 257 N.E.2d 870 (1970), the New York Court of Appeals declined to enjoin the operation of a cement plant that was damaging adjoining properties by emitting smoke and vibrations onto them. Although the plant's activities were creating a private nuisance, the court took note of the fact that the total damage to the plaintiff's properties was relatively small in comparison with the value of the defendant's operation and the consequences of issuing an injunction. As a result, over a vigorous dissent, the court required the defendant to instead pay permanent damages to the plaintiffs to compensate them for their present and future property losses.

The U.S. Supreme Court took a different approach in a public nuisance case, *Georgia v. Tennessee Copper Co.,* 237 U.S. 474 (1915). There, air pollutants from a copper smelter were harming some nearby small farms. The Court granted an injunction but allowed the defendant smelting company time to devise a technological solution to its emission problem. In the meanwhile, the Court established a claims process to compensate the plaintiff farmers. This judicial approach presaged the "technology forcing" policy of the Clean Air Act discussed below.

Another remedial approach in air pollution nuisance matters, adopted by the Supreme Court of Arizona, is the "compensated injunction." In most states, no recovery is permitted in a nuisance case where the plaintiff has "come to the nuisance," i.e., located its development in a community after a nuisance was already in place. In *Spur Industries, Inc. v. Del Webb Development Co.*, 494 P.2d 700 (Ariz. 1972), however, the court created an exception to that doctrine. It enjoined the operation of a smelly cattle feedlot that had been present in a rural part of Arizona before a retirement community was built close to it. However, it also required the plaintiff retirement community developer to reimburse the feedlot owner for the expense of moving or closing.

Although state common law claims generally remain available to redress air pollution problems, federal common law claims have been displaced where the Clean Air Act empowers EPA to regulate the pollutant in question. This is the case with respect to both claims for damages and requests for injunctive relief. *See Native Village of Kivalina v. Exxon-Mobil Corp.*, 639 F.3d 849 (9th Cir. 2012); and *American Electric Power Co., Inc. v. Connecticut*, 564 U.S. 410 (2011).

III. The Clean Air Act

A. National Ambient Air Quality Standards and State Implementation Plans

1. Setting National Ambient Air Quality Standards

The Clean Air Act creates several distinct sets of requirements for the control of air pollution from stationary sources (like factory smokestacks) and mobile sources (such as cars and trucks). A central part of the Act calls for the regulation of "criteria pollutants," i.e., air pollutants from different sources that may reasonably be anticipated to endanger public health or welfare. Clean Air Act § 108, 42 U.S.C. § 7408. The U.S. Environmental Protection Agency ("EPA" or "the Agency") was initially required to identify such pollutants, and to prepare "air quality criteria" documents for each of them that indicate their effects on public health and welfare, and the techniques available to prevent or control their emissions. *Id.* EPA has done this with respect to six commonly emitted air pollutants: sulfur dioxide, nitrogen oxide, carbon monoxide, ozone, suspended particulate matter, and lead.

After identifying criteria pollutants, and reporting on their impacts and possible controls, EPA must establish National Ambient Air Quality Standards

(NAAQS) for each criteria pollutant. These standards are to reflect the levels of outdoor air purity that are neither necessary to protect public health and public welfare. Health-based standards are referred to as "primary standards." Welfare-protective standards are known as "secondary standards." Clean Air Act § 109, 42 U.S.C. § 7904.

In contrast to other parts of the Clean Air Act, and other environmental statutes, it has been firmly established that considerations of economic cost may play no part in the promulgation of NAAQS. The protection of public health "with an adequate margin of safety" is the only pertinent factor to be used in setting those standards. *Lead Industries Association, Inc. v. EPA*, 647 F.2d 1130 (D.C. Cir. 1980); *Whitman v. American Trucking Association, Inc.,* 531 U.S. 457 (2001).

Although they are often controversial, and frequently challenged in lawsuits, EPA's NAAQS have generally fared well under judicial review. A paradigmatic illustration of this is *Lead Industries Association, Inc. v. EPA*, 647 F.2d 1130 (D.C. Cir. 1980), in which the D.C. Circuit upheld the health-and welfare-based standards the Agency had established for lead. Rejecting the industry challengers' contentions, the court declared that "requiring EPA to wait until it can conclusively demonstrate that a particular effect is adverse to health before it acts is inconsistent with both the Act's precautionary and preventative orientation and the nature of the [EPA] Administrator's statutory responsibilities." *Id.* The court went on to review the agency's lead NAAQS and supporting data in considerable detail, concluding that the standards were based on sound decisions regarding the health effects of lead, and did not exceed the adequate margin of safety required by the statute. The court also accepted EPA's conclusion that a secondary standard for lead more stringent than the primary standard was necessary. *Id.*

2. What Must a State Implementation Plan Contain?

Once EPA has established NAAQS for criteria pollutants, individual states are required to identify air quality control regions within their borders that do and do not meet the standards. Clean Air Act, § 110, 42 U.S.C. § 7410. Regions whose air quality meets the NAAQS for a pollutant are considered "attainment areas" for the pollutant in question. Areas where the standards are not being met are referred to as "nonattainment areas."

Each state must then adopt a State Implementation Plan ("SIP") containing enforceable emissions limitations that will result in the attainment and maintenance of NAAQS in all air quality control regions within the state. *Id.* SIPs must meet a detailed list of conditions set forth in the statute; and they

must be the subject of a public hearing prior to their adoption. Clean Air Act § 110(a)(2), 42 U.S.C. § 7410(a)(2).

Once a state has adopted a SIP, it must submit its plan to EPA for approval (in whole or part), conditional approval, or disapproval. Where the Agency determines that a state's plan is not consistent with the Act's requirements — or a state entirely fails to submit a plan — EPA is authorized to adopt a binding Federal Implementation Plan ("FIP") for the state.

SIPs and FIPs generally contain specific and detailed substantive requirements governing the types and amounts of air pollutants that pollution sources are permitted to emit under both federal and state law. They are the source of many of the provisions incorporated in permits issued to individual emitting facilities, and they may be enforced by EPA (through the U.S. Department of Justice), state officials, and private citizens. *See* Clean Air Act § 110(a)(1), 42 U.S.C. § 7410(a)(1); Clean Air Act § 110(c)(1), 42 U.S.C. § 7410(c)(1); and Clean Air Act § 304, U.S.C. § 7604.

In nonattainment areas, SIPs must require already-existing stationary sources of air pollution to make use of "reasonably available control technology" ("RACT"), which is generally defined through the application of "Control Techniques Guidelines" ("CTGs") prepared by EPA. The latter describe RACT for particular kinds of sources, and the levels of controls that the technology in question may be expected to achieve. Moreover, nonattainment area SIPs must also contain any additional control measures for existing sources (such as fees, marketable permits, and auctions of emission rights) that are necessary to attain NAAQS. Clean Air Act §§ 172(c)(1), (2), and (3), 42 U.S.C. §§ 7502(c)(1), (2), and (3).

The Clean Air Act reflects an underlying theory of "technology-forcing," i.e., the legislation is designed to force regulated sources to develop and make use of pollution control devices that appear to be economically or technologically infeasible at the time applicable standards are established. As a result, the U.S. Supreme Court has held that claims of economic and technology infeasibility must be "wholly foreign" to EPA's review of a state-proposed SIP, and such claims may not be raised on judicial review. *Union Electric Co. v. EPA*, 427 U.S. 246 (1976).

The statute also contains a provision, commonly known as the "Good Neighbor Provision," that is intended to tackle the complex problem of efficiently and equitably controlling air pollution that is emitted in one state and causes harm in one or more other states. The Act mandates that upwind states design their SIPs to prohibit in-state sources "from emitting any air pollutant in amounts which will . . . contribute significantly" to downwind

states' "nonattainment . . . or interfere with maintenance" of any NAAQS. *See* Clean Air Act § 110(a)(2)(D)(i), 42 U.S.C. § 7410(a)(2)(D)(i). In response to this provision, EPA devised a rule ("the Transport Rule") to define what constitutes a "significant contribution" to downwind state nonattainment. First, an upwind state must produce one percent or more of an NAAQS in at least one downward state. And second, to constitute a significant contribution, the upwind state's cross-border air pollution must be capable of "cost-effective" elimination (as determined by EPA). This rule was upheld by the U.S. Supreme Court in *Environmental Protection Agency v. EME Homer Generation*, 134 S. Ct. 1584 (2014). The Court pronounced the rule both efficient and equitable since it achieves the required emission reductions at a lower overall cost while also subjecting states that have done relatively less in the past to control their pollution to stricter regulation. *Id.*

B. Regulation of Hazardous Air Pollutants

The initial approach to the control of hazardous air pollutants — also sometimes called "air toxins" or "HAPs" — required EPA to establish health-based standards for individual pollutants from specific sources. These regulations were referred to as National Emission Standards for Hazardous Air Pollutants ("NESHAPS"), and some of those standards remain in force today. *See* 40 C.F.R. pt. 61. Perhaps the most significant of the NESHAPS is the standard for asbestos demolition and renovation, which requires that asbestos be handled using specific workplace techniques. *See* 40 C.F.R. § 61.1145(c)(2). This regulation has been the basis for a significant number of federal criminal enforcement cases.

When the Clean Air Act was amended in 1990, however, Congress established a new, more comprehensive approach to the regulation of HAPs. The amended Act included a list of 189 specific toxic substances that were presumed to require strict control. *See* Clean Air Act § 112(b)(1), 42 U.S.C. § 7412(b)(1). EPA was required to publish a list of all categories and subcategories of "major sources" of the toxic substances listed in the statute, and to establish technology-based emissions standards for each such category or sub-category for both new and hazardous pollutant sources. Clean Air Act §§ 112(c)(1) and (2), 42 U.S.C. §§ 7412(c)(1) and (2). The Agency must also periodically review Congress' list of air toxins and add to that list when an unlisted pollutant is found to threaten adverse effects on human health or the environment. Clean Air Act § 112(b)(2), 42 U.S.C. § 7412(b)(2). In addition, "any person" is permitted to petition EPA for the addition or deletion of any substance from the statutory air toxins list; and the Agency may add or

delete a substance from the list upon a persuasive showing that the substance may or may not reasonably be anticipated to cause "any adverse effects to the human health or adverse environmental effects." Clean Air Act § 112(b)(3), 42 U.S.C. § 7412(b)(3).

The amended Clean Air Act set forth a timetable for EPA to adhere to in establishing standards for HAPs. *See* Clean Air Act § 112(e), 42 U.S.C. § 7412(e). For major sources, those standards were to be based upon the maximum available control technology ("MACT"). With regard to new major sources, MACT standards must reflect the level of emission control achieved in practice by the best controlled similar sources. Clean Air Act § 112(d)(3), 42 U.S.C. § 7412(d)(3). MACT standards for existing sources of air toxins may be less stringent than new source MACT requirements, but they must nonetheless be within specific statutorily prescribed limitations. *Id.* And EPA is authorized to promulgate less demanding standards, based upon "generally available control technologies or management practices" ("GACT") for smaller sources—known as "area sources"—that are too small to be classified as major sources of HAPs. Clean Air Act § 112(d)(5), 42 U.S.C. § 7412(d)(5).

The statute also requires EPA to study and report to Congress on any public health risks that will remain after MACT standards have been implemented and on "the technologically and commercially available methods and costs of reducing such risks." Clean Air Act § 112(f), 42 U.S.C. § 7412(f). Where Congress fails to act on any recommendation contained in this EPA report, the Agency may then set additional standards regarding air toxin emissions that will further protect public health "with an ample margin of safety." Clean Air Act § 112(f)(2), 42 U.S.C. § 7412(f)(2).

EPA's definitions of "major sources" within particular industrial categories and sub-categories have been the subject of litigation. For example, in *National Mining Association v. United States Environmental Protection Agency*, 59 F.3d 1351 (D.C. Cir. 1995) industry petitioners challenged an EPA decision to determine whether a site is a major source by taking account of all emissions from the site that are on a contiguous plant site under common control. The court rejected the petitioners' contentions, concluding that "EPA's definition of major source . . . is faithful to the language of [Clean Air Act] § 112(a)(1). . . ." *Id.* On the other hand, a divided U.S. Supreme Court remanded EPA's regulations regarding hazardous air pollutants from power plants on the basis that the Agency had failed to find that such regulations were "appropriate and necessary" when it did not consider cost in its initial decision to develop those regulations. *See Michigan v. Environmental Protection Agency*, 135 S. Ct. 2699 (2015).

C. Requirements Applying to New Sources of Air Pollution

1. Limitations on New Sources in "Nonattainment Areas"

New and modified stationary sources of air pollution in designated nonattainment areas must meet two sets of Clean Air Act requirements: New Source Performance Standards ("NSPS") and New Source Review (NSR). To establish an NSPS, EPA is required to publish (and from time to time revise) a list of categories of stationary sources that cause or contribute significantly to air pollution "which may reasonably be anticipated to endanger public health or welfare." Clean Air Act § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A). EPA must then propose and promulgate "standards of performance" for the listed categories. These standards must reflect "the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health or environmental impact and energy requirements) the [EPA] Administrator determines has been adequately demonstrated." Clean Air Act § 111(a)(1), 42 U.S.C. § 7411(a)(1). The Agency carried out this mandate by promulgating NSPS to be specifically applied to designated source categories (e.g., iron and steel mills, pulp and paper plants, and electroplating facilities).

Parties who wish to construct major new air polluting sources in dirty air regions are also subject to a more stringent set of requirements, generically referred to as "New Source Review." These sources must first comply with technology-based standards based upon the "lowest achievable emission rate" ("LAER"), i.e., the most stringent achievable emission standard contained in the implementation plan of any state for the class or category of source in question, or any more stringent emission limitation that is achieved in practice for that source or category. Clean Air Act § 173(a)(2), 42 U.S.C. § 7503(a)(2) and Clean Air Act § 171(3), 42 U.S.C. § 7501(3).

Second, new and modified stationary sources in nonattainment areas must comply with "emission offset requirements," i.e., legally enforceable reductions from existing sources in the same nonattainment area above and beyond any reductions that would otherwise be required for those other sources. Clean Air Act § 173(a)(1)(A), 42 U.S.C. § 7503(a)(1)(A).

Third, the owner or operator of any proposed new or modified source within a nonattainment area must demonstrate that all major stationary sources it owns or operates in the same state are in compliance or on a schedule for compliance with all applicable Clean Air Act emission limitations and standards. Clean Air Act § 173(a)(3), 42 U.S.C. § 7503(a)(3). And finally, proposed

new or modified nonattainment area source owners or operators must demonstrate that the benefits of their proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification. Clean Air Act § 173(a)(5), 42 U.S.C. § 7503(a)(5).

Proposals to approve new sources in nonattainment areas are sometimes challenged on the basis that the proposed offset emission reductions are contrary to the Act's requirements. *Citizens Against the Refinery's Effects, Inc. v. United States Environmental Protection Agency*, 643 F.2d 183 (4th Cir. 1981) was such a case. There a company wished to build a new refinery in a nonattainment area for ozone. It proposed to offset its hydrocarbon emissions by arranging with the Virginia Highway Department to decrease the Department's usage of a certain type of asphalt. The Virginia State Air Pollution Control Board approved this plan, as did EPA. In a challenge by a citizens group to the state and federal decisions that attempted to prevent the new refinery's construction, the Fourth Circuit rejected the plaintiff's arguments that EPA had used the wrong base year to compare usage of cutback asphalt, and that other aspects of its rationale for ratifying the state's approval of the new refinery had been arbitrary and capricious. The court reasoned that Congress had intended that the states and EPA be given flexibility in designing SIPs and the terms of permits, and that the governments' actions were neither arbitrary nor capricious. *Id.*

2. New Source Limitations in Attainment Areas

Major new or modified sources of criteria pollutants in (mainly rural) areas, where existing air quality is cleaner than the NAAQS, are also required to meet two sets of requirements: New Source Performance Standards (NSPS), as described above, and separate standards to prevent the "significant deterioration" of air quality ("PSD"). Beyond preventing adverse effects on public health, PSD rules are intended to promote economic growth in a manner consistent with preserving clean-air resources, and to protect air quality in and around national parks and other areas of natural or scenic value. Clean Air Act § 160, 42 U.S.C. § 7470.

PSD requirements apply to "major emitting facilities." This term is defined in the Act as a stationary source of any air pollutant(s) that appears on a statutory list of types of sources and emits (or has the potential to emit) 100 tons per year or more of a criteria pollutant. The term also includes any nonlisted source with the potential to emit 250 tons per year or more of any air pollutant. Clean Air Act § 169(1), 42 U.S.C. § 7479(1).

Under the statute, states are required to classify their attainment areas into Classes I, II, or III, based on how pristine their outdoor air is measured

to be. These classifications differ in the maximum amounts of air pollutant increases that are allowed in them. Class I areas, the cleanest, receive the strictest protections. Class III areas, where air quality is already more degraded, are permitted the highest maximum allowable increases in pollution. *See* Clean Air Act §§ 162 and 163(b), 42 U.S.C. §§ 7472 and 7473(b). The attainment area classifications may be re-designated by individual states, under limited conditions, as long as those states follow a specified procedure that includes an analysis of the impacts of re-designation, public hearings, consultation with federal land managers, and approval by EPA. Clean Air Act § 164, 42 U.S.C. § 7474.

Entities that wish to construct or modify major emitting facilities in attainment areas must meet several requirements to satisfy the statute. They must apply for "preconstruction permits" from EPA or state officials. They must also do a number of other things, including: (i) demonstrating that emissions from their proposed facility will not cause or contribute to air pollution in excess of the NAAQS or any maximum allowable pollutant concentration for the class of nonattainment area in which they are located, (ii) preparing an air quality impact analysis on any growth that will be associated with their proposed facility, (iii) showing that their facility will utilize the best available control technology ("BACT") for every regulated pollutant it will emit, and (iv) agreeing to conduct emissions self-monitoring to determine the impact of their facility's emissions on air quality. Clean Air Act § 165(1), 42 U.S.C. § 7475.

The statute generally defines BACT as "an emissions limitation based on the maximum degree of [pollutant] reduction . . . which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is available for [the] facility." Clean Air Act § 169(1), 42 U.S.C. § 7479(1). In most instances, the "permitting authority" that makes case-by-case decisions as to what control measures constitute BACT is the state in which a new or modified facility in a clean air area is proposed. However, in an important decision, the U.S. Supreme Court has made clear that EPA has "supervisory authority" over the reasonableness of state permitting authorities' BACT determinations; and the Agency may issue a stop construction order if a BACT selection is not reasonable. *See Alaska Department of Environmental Conservation v. Environmental Protection Agency*, 540 U.S. 461 (2004).

D. Air Pollution Controls on Motor Vehicles

Motor vehicles emit a substantial proportion of several designated criteria pollutants. In recognition of the hazards posed by motor vehicle pollution,

the Clean Air Act established standards limiting motor vehicle tailpipe emissions and regulating the contents of vehicle fuels and fuel additives.

The Act directed EPA to establish 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 [EPA's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." Clean Air Act §202(a)(1), 42 U.S.C. §7521(a)(1). EPA's new vehicle standards were required to "reflect the greatest degree of emission reduction achievable through the application of available technology . . . giving appropriate consideration to cost, energy, and safety factors associated with the application of such technology." Clean Air Act §202(a)(3)(A)(i), 42 U.S.C. §7521(a)(3)(A)(i). These standards must apply during the "useful life" of a vehicle, as defined in the statute. Clean Air Act §202(a)(1), 42 U.S.C. §7421(a)(1). EPA adhered to Congress' mandate. It promulgated separate sets of emission standards for light-duty passenger vehicles, light-duty trucks, motorcycles, and heavy-duty trucks. *See* 40 C.F.R. pt. 86. It also banned lead additives in gasoline, a measure that has been credited with the immense improvement in public health, particularly among children.

The Clean Air Act generally preempts state regulation of motor vehicle emissions. Clean Air Act §209(a)(1), 42 U.S.C. §7543. However, Congress created a special exception for the State of California because its state laws already regulated mobile sources prior to passage of the federal statute. Clean Air Act §209(b), 42 U.S.C. §7543(b). California is permitted to set its own vehicle standards up to two years before the commencement of any vehicle model year, and all other states may adopt standards of their own as long as they are identical to those adopted in California. Clean Air Act §177, 42 U.S.C. §7507.

EPA is also required to conduct a testing program on samples of new cars that must be provided by the manufacturer. Vehicles that pass Agency testing receive a "certificate of conformity," which is legally required before any motor vehicle may be sold in the United States. Clean Air Act §206, 42 U.S.C. §7525. Parties who sell vehicles without a certificate of conformity are subject to steep civil penalties. The Act also creates penalties for persons who "remove or render inoperative" any automobile pollution control device, or who knowingly manufacture or sell any part or component that will "bypass, defeat or render inoperative" a vehicle pollution control device. Clean Air Act §§203(a)(3)(A) and (B), 42 U.S.C. §§7522(a)(3)(A) and (B).

Checkpoints

- The common law doctrines of nuisance and trespass have retained vitality as sources of law regarding air pollution problems.
- Courts vary in the approaches they have taken with respect to the remedy to be awarded successful plaintiffs in common law air pollution nuisance cases.
- "Criteria pollutants" are air pollutants from different sources that may reasonably be expected to endanger public health or welfare.
- The Clean Air Act requires EPA to identify criteria pollutants and to prepare "air quality criteria" documents for each identified criteria pollutant that indicate the effects on public health and welfare of those pollutants and techniques available to control their emission.
- EPA must also establish National Ambient Air Quality Standards for each criteria pollutant reflecting the level of air purity necessary to protect the public health (with an adequate margin of safety) and the public welfare. Areas that have air cleaner than the standards required are deemed "attainment areas." Dirtier air regions are known as "nonattainment areas."
- Considerations of economic costs may play no part in the setting of health-based National Ambient Air Quality Standards.
- Individual states are required to adopt State Implementation Plans containing enforceable emissions limitations that will result in the implementation and maintenance of National Ambient Air Quality Standards.
- State Implementation Plans must be submitted to EPA for review. Where the federal agency determines that a state's plan is inconsistent with the Act, EPA may create a binding Federal Implementation Plan for the control of criteria pollutants in the state.
- The Clean Air Act is technology-forcing legislation, i.e., legislation designed to force regulated entities to develop and use new pollution control devices and techniques where such techniques are not technically or economically feasible.
- The current Clean Air Act contains an extensive list of hazardous air pollutants.
- EPA is required to publish a listing of all categories and subcategories of major sources of all listed hazardous air pollutants and to develop maximum available control technology standards for those sources.
- New and modified sources of air pollutants in nonattainment areas must meet New Source Performance Standards (requiring the use of best demonstrated control technology in each source category) and New Source Review (mandating use of air pollution control technology that will achieve the "lowest achievable emission rate" and "offsets" to any new pollution those new or modified sources will create through reductions of pollutant emissions from existing sources.)

- In attainment areas, new or modified sources must meet both New Source Performance Standards and Prevention of Significant Deterioration Standards.
- Under Prevention of Significant Deterioration requirements, states are required to classify their attainment areas based on how clean their air is.
- Entities that wish to construct new or modified sources in attainment areas must obtain preconstruction permits requiring, among other things, the use of the best available control technology.
- As directed by Congress, EPA has created new motor vehicle emissions standards that reflect the greatest degree of emission reduction achievable throughout the useful life of the vehicle.
- EPA is required to test samples of new cars, which must be supplied by auto manufacturers, for compliance with applicable standards.
- Passing EPA's tests is a prerequisite to obtain the "Certificate of Conformity" that is required before a vehicle may legally be sold in the United States.

Chapter 3

Climate Change Law

Roadmap

- Grasp how international commitments and laws affect legal obligations to reduce greenhouse gas emissions as well as account for climate change in the United States, in other nations, and under international law.
- Understand how the federal Clean Air Act may require operators of facilities to reduce their emissions of greenhouse gases.
- Identify how other federal laws, such as the Clean Water Act and the Endangered Species Act, require actions by the federal government and private persons to respond to climate change effects.
- Learn how tort lawsuits have sought — and many instances failed — to impose liability for climate change damages on large emitters of greenhouse gases, and how future lawsuits might succeed.
- Understand how state environmental laws have approached climate change issues, and how these state and local approaches differ from federal approaches.

Vast quantities of greenhouse gases, such as carbon dioxide and methane, emitted by human activities have already begun to affect the global environment. According to the overwhelming consensus among climatologists and other scientists, concentrations of carbon dioxide in the ambient atmosphere have nearly doubled since the beginning of the Industrial Revolution, and those emissions have already caused global surface temperatures to increase by 0.8 degrees C. These temperature increases will likely continue because greenhouse gases (in particular, carbon dioxide) persist in the atmosphere once they are emitted, and — if current emissions of greenhouse gases from human activities do not abate — global surface temperatures will likely exceed 2.0 degrees C by the year 2100. This temperature rise can significantly disrupt global climate systems and weather patterns, cause sea level rise that will drown low-lying coast areas and islands, and lead to such severe weather events as heat waves, droughts, floods, and destructive storms.

Because of its threat of damage and disruption on a global scale, climate change is one of the most serious and difficult challenges for international and U.S. environmental laws. Greenhouse gas emissions arise from an enormous array of human activities, including the combustion of fossil fuels for energy; and most greenhouse gas emissions from any location on the planet contribute equally to climate change effects. Because greenhouse gases such as carbon dioxide can remain in the atmosphere for centuries, the accumulated greenhouse gases already in the atmosphere have resulted from past activities by developed nations who benefited from those economic activities. Their requests for developing nations now to restrict emissions from their economic activities spark concerns about fairness, the need for equal economic opportunity, and self-determination.

As a result, attempts to control greenhouse gas emissions at any level have caused political conflict at the international level. Many nations either disagree with each other on the best ways to reduce climate change risks or cannot reach agreements even within themselves on how to control their own emissions. In the United States, for example, attempts to create federal legislation to set limits on greenhouse gas emissions have largely failed, and successive presidential administrations have sharply changed course on greenhouse gas control priorities every eight years since 1992.

This impasse has caused climate change law in the United States to grow by amalgamation. Rather than being grounded in an integrated statute setting out a single coherent strategy to reduce emissions, federal efforts have relied on a complex mixture of binding and voluntary international commitments, extension of existing federal laws and regulations crafted originally for different purposes, and state and local programs to promote clean energy and greenhouse gas reductions.

This chapter summarizes some of the most important features of the complex legal landscape governing climate change responses. It describes the most important provisions of relevant international treaties, the federal Clean Air Act and other federal environmental statutes, and key state environmental and energy laws. This chapter also gives an overview of the ways that tort claims have sought recovery from greenhouse gas emitters or to force governmental action to control emissions. Last, it focuses on how non-environmental statutes and regulations—such as disclosure requirements for sales of securities in publicly traded corporations—may have important consequences for climate change controls.

I. International Climate Change Treaties and Their Legal Effects within the United States

After scientists initially identified climate change effects as a serious global concern in the late 1970s, a series of international treaties and conventions has tried different strategies to encourage reductions in greenhouse gas emissions. These types of controls are typically referred to as *mitigation*. By contrast, attempts to prepare for unavoidable climate change effects through planning and strengthening infrastructure is called *adaptation*.

Climate change law typically strives to achieve both aims, and international treaties have sought to promote aggressive mitigation measures by current emitters in tandem with heightened efforts to assist nations (particularly developing ones) to prepare and implement adaptation strategies. These adaptation efforts have typically consisted of direct financial support, transfer of needed technologies, and promotion of systems to pay for transferable emission reduction credits.

A. International Legal Commitments by the United States on Climate Change

The array of international laws and conventions governing or affecting climate change is vast and bewildering. The United States has played a key role in the negotiation and creation of numerous international conferences and instruments on climate change, but it has endorsed aspirational goals and strategic planning rather than binding international agreements that would commit it to concrete emission reductions. Against this backdrop, three international climate conventions matter for charting legal obligations in the United States: the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, and customary international laws created by the conduct of nations under a sense of legal obligation. This section briefly explores each agreement, and it points out numerous other international agreements on other topics that might affect legal climate obligations in the United States (e.g., the U.N. Convention on the Law of the Sea).

1. UNFCCC

The UNFCCC is the keystone environmental convention that supports and structures international efforts to work on mitigating, adapting to, and forestalling climate change. After the United Nations opened the UNFCCC for signatures in 1992, it quickly obtained the support of enough nations to

enter into force in 1992. The UNFCCC now has more than 192 signatories—including the United States—and has become one of the most widely adopted international agreements in history. President George H.W. Bush signed the Convention, and the U.S. Senate ratified it in 1992.

As a framework convention, the UNFCCC essentially sets the stage for future negotiations and agreements. It imposes relatively few substantive obligations on its signatories, but those commitments play a large role in guiding and spurring international climate negotiations and activities within its overarching structure. The UNFCCC's key legal commitments by ratifying countries include: (i) stabilizing greenhouse gas concentrations in the atmosphere at levels that would prevent dangerous anthropogenic climate change; (ii) submitting data on their greenhouse gas emissions broken down by sources and sinks; (iii) fostering the conservation and enhancement of natural sinks of greenhouse gases, such as forests and other terrestrial ecosystems; and (iv) cooperating to adapt to climate change impacts such as natural disasters and sea level rise.

The signatories, or Parties, to the UNFCCC meet annually at the Conference of the Parties (COP) to review progress under the UNFCCC and negotiate additional agreements to implement their UNFCCC commitments. For example, one COP—in Kyoto in 1997—led to an additional international agreement that imposed binding emission limits on its signatories. This Kyoto Protocol served as an important initial attempt to translate the UNFCCC's aspirational goals and diffuse framework into enforcement and specific legal obligations. Notably, the United States signed but never ratified the Kyoto Protocol, and the agreement has now largely expired. The Kyoto Protocol's initial creation of mechanisms to track, trade, and structure varying commitments by its Parties to reduce their emissions, however, has strongly influenced subsequent international agreements and national emission trading systems.

2. The Paris Agreement

In addition to the UNFCCC, the United States has entered into the Paris Agreement. This agreement is the latest, and most important, agreement reached under the UNFCCC, and nearly every nation on earth has agreed to its terms since its promulgation in December 2015. Notably, the United States agreed to join the Paris Agreement as an executive agreement under the previously ratified UNFCCC (which sidestepped the need for Senate ratification of the Paris Agreement), but its continued participation has fallen into doubt after President Donald Trump's announced intent to withdraw the United States from the agreement.

The Paris Agreement intentionally uses a broad and flexible "ground-up" approach that allows each nation to determine its contribution to emissions reductions and the methods it will use to achieve them. The agreement's most important element is its requirement for Nationally Determined Contributions (NDCs), which allow each nation to set its own targets and actions within its own political system. Each nation submits a revised NDC at least once every five years, Art. 4(9), and each successive submission should identify more ambitious reductions in emissions. The NDCs are reviewed and revised every five years, and collectively they should describe expected emission reductions to achieve the Paris Agreement's aspirational goal of limiting temperature increases to 1.5 degrees C. The agreement then combines the NDC process with important additional tools, including transparency mandates (such as domestic monitoring, reporting, and verification), allowance for linkage and coordination of international policies (including carbon trading through "internationally transferred mitigation outcomes"), and opportunities for financial assistance and determinations of loss and damage.

While the Paris Agreement has garnered praise as one of the most ambitious international agreements in history, with virtually universal participation by almost every nation, its potential for application within the United States seems paltry at best. Most notably, President Trump has announced his intention to withdraw the United States from the agreement. While this withdrawal cannot take effect under the Paris Agreement's terms until 2020, Art. 28(1), it leaves the United States in the dubious position as the sole signatory to the UNFCCC (indeed, the world community of nations) that has chosen not to participate in the agreement. In addition, the Paris Agreement by its own terms allows each nation to determine its contribution to emission reductions under its own laws. As a result, the Agreement does not impose any new obligations that would translate into self-ratifying obligations effective under U.S. law. Nonetheless, any U.S. citizens or corporations operating in other nations would need to account for the domestic laws that each nation may implement to satisfy its obligations under the Paris Agreement or the UNFCCC.

3. Customary International Laws and Other Subject-Specific International Commitments

Beyond the two international agreements, international law may apply to U.S. actors in other ways. For example, international law can arise outside of treaties through the creation of customary international law. This type of law results from the combination of consistent patterns of practice by

nations undertaken with a sense of legal obligation (*opinio juris*). The United States has incorporated customary international law into federal common law as a matter of long-standing precedent from the U.S. Supreme Court. *In re Paquette Habana,* 175 U.S. 677 (1900)*; In re Charming Betsy,* 16 U.S. 64 (1804). If nations begin to act in consistent fashion in the international arena to avoid harming the global climate under a clear sense of legal obligation, they may create a norm of international law that could create legal obligations for the United States and its citizens.

This prospect, however, faces several hurdles. As a matter of principle, customary international law applies almost solely to sovereigns and their instrumentalities. It generally will not directly apply to individuals or corporations except for rare instances of universal norms (such as crimes under international law) or when nations pass domestic laws to implement customary international law. Nations can also prevent the formation of customary international law norms that apply to their actions by expressly disavowing consent to those emerging legal precepts and consistently acting in ways that reject the customary law principle. To date, the United States has not expressly consented to the creation or application of customary international law norms pertaining to climate change that would apply to its actions (beyond its express commitments under international agreements). In addition, U.S. statutes would override any international customary norms as a matter of sovereignty under any U.S. federal law governing a domestic legal proceeding (even if that preemption constituted a separate violation of international law that would create state responsibility for the United States itself).

International law may also invoke climate change obligations, but under a different cloak. If an international treaty or convention imposes substantive obligations on its Parties that require supplemental responses to address new conditions caused by climate change, a signatory may find itself bound by international law norms to act on climate change to satisfy its existing commitments for other purposes. For example, climate change already subjects rare and threatened species to additional stress, and it will undeniably contribute substantially to an accelerated loss of biodiversity and crucial habitat. Nations that have joined the Convention on Biological Diversity, as a result, may find themselves obligated to take additional steps to mitigate or adapt to climate change as necessary to protect biodiversity per their commitments under the Convention. Members to the U.N. Convention on the Law of the Sea may find themselves in a similar legal posture. Notably, however, the United States has not joined or ratified either of these international agreements, but it participates in other agreements where climate change effects may bolster or create additional dimensions to existing U.S. obligations. For

example, the United States has joined the Montreal Protocol to the Vienna Convention on the Control of Ozone Depleting Substances. Several ozone-harming chemicals have strong greenhouse gas effects, and the United States may find itself taking steps to control their production and distribution as part of its international legal commitment to protect the stratospheric ozone layer.

II. U.S. Laws that Apply to Climate Change

There is no comprehensive federal climate change statute in the United States. Congress made its last (failed) attempt to pass comprehensive climate change legislation through the proposed American Climate and Energy Security Act in 2008, and the current Trump Administration has made clear its intention not to consider climate change as a significant priority. As a result, legal obligations on climate change in the United States rely on a welter of older federal environmental and energy laws written for other purposes, as well as varying state and local laws.

A. Clean Air Act Requirements

The primary federal environmental statute invoked to address climate change is the federal Clean Air Act. This statute, which Congress has not significantly revised since 1990, does not expressly direct EPA to regulate greenhouse gas emissions as a form of air pollution that requires permitting or controls. The statute's broad definitions of "air pollutant" and its sweeping mandate to EPA have nonetheless sparked attempts from 2008 through 2016 to use several of its programs to restrict greenhouse gas emissions and counteract climate change effects. These initiatives, however, remain in a state of legal flux in light of efforts in the past two years to either revoke the new climate change regulations, suspend enforcement of their requirements, or alter interpretations of the Clean Air Act to narrow its applicability to climate change concerns.

1. Authority to Regulate Greenhouse Gas Emissions as Air Pollution under the Clean Air Act

To regulate greenhouse gas emissions under the Clean Air Act, EPA first had to overcome objections that Congress did not intend for the statute to apply to greenhouse gas emissions. According to critics, the Clean Air Act targeted only conventional pollutants that degraded air quality in a relatively local area that directly injured public health. Greenhouse gases, under this

interpretation, did not qualify because they mix quickly into ambient air and affect global concentration levels rather than local air quality conditions, and they only injure public health indirectly by altering climate conditions to exacerbate floods, storms, heat waves, diseases, and other threats.

The U.S. Supreme Court decisively rejected this argument in its landmark *Massachusetts v. EPA* opinion, 549 U.S. 497, in 2007. When EPA denied a rulemaking petition to regulate greenhouse gases from motor vehicles by disclaiming any authority under the Clean Air Act to regulate greenhouse gases (and declining to exercise that authority even if it had it), the Court disagreed. It ruled instead that greenhouse gases comfortably fell within the Clean Air Act's broad definition of "air pollutant," and the Court further ruled that EPA could regulate them if it determined that they caused or contributed to climate change. Rather than mandate EPA to regulate greenhouse gases under the Clean Air Act, the Court instead remanded the case back to EPA to decide whether greenhouse gases, as pollutants, caused or contributed to air pollution that endangered public health or welfare—i.e., an "endangerment finding." It expressly forbade EPA, however, from refusing to regulate greenhouse gas emissions on any other grounds of expediency, cost, difficulty, or deference on foreign affairs concerns.

The regulatory dominoes fell quickly after *Massachusetts v. EPA,* aided by the election of President Barack Obama in 2008. EPA issued its endangerment finding in 2009, and that determination triggered a series of statutory obligations for EPA to issue rules to address the threat under the Clean Air Act's programs for mobile sources, large stationary sources that emit regulated pollutants, and certain new and existing facilities. EPA quickly followed up with a host of regulations to require reporting of greenhouse gas emissions, establish permitting obligations, and include climate change effects under other programs (including a rule specifically to govern emissions from light-duty motor vehicles in 2010). The most notable regulatory restrictions arose under its programs for Prevention of Significant Deterioration permits (PSD) and New Source Performance Standards/Existing Source Performance Standards (NSPS/ESPS).

2. PSD Permitting for Major Greenhouse Gas Sources

The Clean Air Act requires that major facilities constructed in areas where the air meets national ambient air quality standards must first obtain a PSD permit before they begin construction. EPA attempted to extend the PSD program by requiring large facilities that emit greenhouse gases to obtain permits limiting their emissions of those gases. This initiative required a series of rulemakings to establish the triggers, timetables, and thresholds for

the permit program, which culminated in EPA's Tailoring Rule. This rule set out a series of emission thresholds that would trigger an obligation to obtain a permit depending on whether the facility emitted other pollutants in addition to greenhouse gases or was a minor source that emitted a relatively small amount of greenhouse gases. The Tailoring Rule spurred a wave of litigation to challenge several key aspects of the rule, including its abandonment of statutory emission threshold triggers and its assertion of authority to regulate facilities that emitted solely greenhouse gases.

The U.S. Supreme Court resolved those challenges in *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014). The Court struck down EPA's attempts to regulate carbon dioxide and other greenhouse gases as an air pollutant for purposes of the PSD program by finding that EPA's attempt to include them conflicted with other express requirements of the Clean Air Act (e.g., low emission thresholds to trigger permit obligations). Nonetheless, EPA received an important practical win when the Court upheld EPA's authority under the Clean Air Act to require greenhouse gas controls as an element in selecting the Best Available Control Technologies for a particular facility. This ruling allowed EPA to potentially include greenhouse gas emission restrictions for large sources that emit more than 80 percent of the United States' current greenhouse gas emissions.

3. NSPS/ESPS Requirements for Greenhouse Gases and the Fate of the Clean Power Plan

In addition to extending the PSD program to cover large greenhouse gas emitters, EPA promulgated new emission requirements for facilities that fell under its New Source Performance Standard [NSPS] and Existing Source Performance Standard [ESPS] programs. Beyond requiring permits under the PSD rules for emissions of criteria pollutants that affect the quality of ambient air surrounding a facility, the Clean Air Act also requires facilities in certain industrial categories to meet technology-driven emission standards for regulated pollutants they emit. These NSPS standards can reach a broader set of pollutants, and they can apply uniformly to an industrial sector without regard to their location or whether the facility lies within an area that does not attain national ambient air quality standards. In addition, if EPA has not yet regulated emissions of a particular pollutant, it can impose similar emission restrictions on existing facilities in the same industrial sector. To do so, EPA must specify reductions in pollutants that a particular technology designated as the Best System of Emission Reduction (BSER) can reach, and then require facilities to attain those levels (even if they choose a different technology).

EPA sought to extend the NSPS and ESPS programs to fossil-fueled power plants and regulate their emissions of greenhouse gases. This regulatory program, called the Clean Power Plan, emerged after years of hotly contested rulemaking proceedings and public hearings at EPA, and it would have imposed a novel and sweeping set of standards to reduce power sector emissions. For example, the Clean Power Plan would have allowed power generators to attain low emission standards by participating in market trading mechanisms or modulating the amount of power demanded by their consumers. It would have also forced facilities to improve the efficiency of their combustion processes in ways that would reduce their emissions of greenhouse gases.

As one of the crowning achievements of the Obama Administration's climate action plan, the Clean Power Plan became the immediate target of vigorous opposition and litigation. The U.S. Supreme Court again stepped in by issuing a stay that prevented EPA from implementing or enforcing the Clean Power Plan's requirements until the Court had completed its review and ruling on challenges to the rule.

The Trump Administration subsequently proposed a substitute for the Clean Power Plan, labeled the "Affordable Clean Energy Rule," that would only allow power plants to cut back on greenhouse gas emissions by adopting on-site ("inside the fenceline") measures to encourage plant operating efficiency. This preliminary proposal would also allow individual states to set their own emissions standards for highly polluting facilities. At best, the direct result of this plan would likely be a minimal decrease in greenhouse gas emissions from power plants. It is not clear at this writing whether the Trump administration will modify its initial proposal significantly. Nor can it be predicted with certainty whether whatever final regulation EPA adopts will survive judicial review. This situation has created a sort of limbo for electric utility companies that are faced with uncertainty as to which emissions limitations they will ultimately be required to follow at power plants that presently burn fossil fuels.

B. Other Federal Environmental Statutes That Create Climate Change Legal Obligations

Given its broad swath of effects on the environment, climate change unsurprisingly raises new and difficult challenges under other federal and state environmental laws in addition to the Clean Air Act. For example, the federal Clean Water Act requires permits for all discharges of pollutants into waters of the United States to assure those discharges undergo treatment (if needed) to meet appropriate technological standards. Other portions of the Clean Water

Act require permits for actions that discharge or fill wetlands that qualify as waters of the United States. These programs will need to wrestle with climate change's effect on the amount and locations of waters of the United States (as storms become more severe and unpredictable, or shifts in rainfall patterns create droughts and sculpt new watersheds), alteration of the quality of water (as water levels drop, their capacity to absorb pollutants may change), and preparation for potential spills of pollutants into those waters. For example, some lawsuits have contended that operators of facilities abutting waterways failed to account for climate change effects that raise the risks of spills and environmental damages when they prepared their spill prevention and contingency plans. *Conservation Law Foundation v. Exxon Mobil Corp.*, Complaint, Civ. No. 1:16-cv-11950 (MLW) (D. Mass. filed Sept. 29, 2016).

Other federal environmental permitting programs have also struggled to account for climate change. The Endangered Species Act, for example, requires the Secretary of either the Department of Interior (for non-marine species) or the Department of Commerce (for marine species) to identify species that are either threatened or endangered by extinction. In making these selections, the agencies must forecast which species will face mortal threats from climate change over relatively long periods (say, 50 years) and decide whether to classify them as threatened now because of a high risk of extinction 50 to 100 years in the future. Attempts by the United States to list such species as protected under the Endangered Species Act—such as the polar bear or bearded walrus—have triggered a firestorm of controversy and litigation. Some environmental advocacy groups have invoked the Endangered Species Act to oppose the issuance of federal permits or federal actions that they contend will jeopardize a protected species, including the permitting of fossil-fueled power plants that arguably would contribute to climate change.

Efforts to force federal action on climate change through these other federal environmental statutes, however, have yielded inconsistent results. Neither the Clean Water Act nor the Endangered Species Act have spurred comprehensive or vigorous federal environmental responses to climate change at this time. For example, when environmental groups filed a petition for rulemaking to force EPA to act under the Clean Water Act to treat ocean acidification as an impairment of marine waters of the United States, EPA only responded by issuing a broad framework policy for further research. Notice of Voluntary Dismissal, *Center for Biological Diversity v. EPA*, Case No. 2:09-cv-00670 (JCC) (settlement agreement filed on March 11, 2010); Memorandum from D. Keehner, Director of EPA Office of Wetlands, Oceans and Watersheds, to Water Divisions Directors, Re: *Integrated Reporting and Listing Decisions Related to Ocean Acidification* (Nov. 15, 2010). Similarly,

EPA has rejected efforts to invoke the Endangered Species Act to stop federal environmental permits for fossil-fueled power generation plants that would contribute to global climate change effects. *See, e.g.,* Memorandum from U.S. Fish & Wildlife Service Director to Regional Directors, Re: *Expectations for Consultations on Actions that Would Emit Greenhouse Gases* (May 14, 2008); Letter from R. Meyers, EPA Office of Air and Radiation, to D. Hall and J. Lecky, Re: *Endangered Species Act and GHG Emitting Activities*, Oct. 3, 2008 (concluding that any greenhouse gas emissions from any single coal-fired power plant outside Alaska would have too small an effect on global climate change to require permits under the Endangered Species Act for the incidental taking of polar bears).

At least one federal environmental statute (outside of the Clean Air Act) has had a substantial impact on climate change policy and legal obligations: the National Environmental Policy Act (NEPA). NEPA requires the federal government to assess the impacts of major federal actions that may have a significant impact on the environment (as we discuss in Chapter 8). Specifically, when a federal agency wishes to undertake a major action (such as issuing a federal permit needed to build a new power plant or pipeline), it must first conduct an environmental assessment to weigh the project's potential impact on the environment. If the project has little or no impact, the agency can issue a finding of no significant impact and then grant the permit. If the project does impact the environment, however, the agency usually must prepare a full environmental impact statement (EIS). An EIS can be an intense and time-consuming endeavor, and failure to follow NEPA's procedures may lead to a preliminary injunction to halt activity and a suspension or rescission of the underlying project. Interestingly, NEPA requires only a careful evaluation of the environmental impacts, but doesn't impose a substantive standard—an agency can proceed with an environmentally harmful project under NEPA, as long as it has carefully considered those consequences.

Given the statute's sweeping scope and powerful remedies, NEPA has understandably emerged as one of the favorite legal grounds to challenge projects that emit greenhouse gases or fail to account for climate change impacts. For example, during the first five months of 2018 environmental groups had already filed at least 10 NEPA challenges to federal agency actions based on climate change concerns. These cases have scored notable successes. For example, in *Center for Biological Diversity v. National Highway Transportation Administration,* 508 F.2d 508 (9th Cir. 2007), *opinion vacated and withdrawn,* 538 F.3d 117 (9th Cir. 2008), the Ninth Circuit rejected the agency's issuance of a fuel efficiency standard that would only slightly reduce greenhouse gas emissions from vehicles because the agency's environmental

assessment failed to monetize the cost of carbon emissions or to provide particularized efficiency standards for certain high-emitting vehicles. More recently, the federal district court of Montana reached a similar conclusion in *Montana Environmental Information Center v. U.S. Office of Surface Mining*, No. CV-106-M-DWN (D. Montana, Aug. 14, 2017) by holding that the U.S. Office of Surface Mining had improperly failed to account for the indirect costs of carbon emissions in its Finding of No Significant Impact for a proposed expansion of a coal mine on federal land. Similar NEPA challenges have also arisen against liquefied natural gas plants, *Sierra Club v. U.S. Department of Energy*, 867 F.3d 189 (D.C. Cir. 2017); and environmental advocates will undoubtedly continue to rely on NEPA as a mechanism to force federal planning and action to deal with climate change.

Continuing NEPA litigation over federal actions involving climate change is likely to take place against a backdrop of confusion and retrenchment in federal agency guidance sparked by the recent change in climate policy under the Trump Administration. In particular, the federal Council on Environmental Quality (CEQ) issued its final guidance on NEPA reviews of greenhouse gas emissions and climate change in mid-2016. Memorandum from C. Goldfuss to Heads of Federal Departments and Agencies, Re: *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (Aug. 1, 2016). This guidance, in fact, simply made official the informal direction that CEQ had provided since 2014 on how to account for greenhouse gas emission impacts. President Trump, however, directed the withdrawal of the CEQ guidance within a few months of taking office, Executive Order 13783 (March 28, 2017), and CEQ has retracted the guidance. 82 Fed. Reg. 16,576 (April 5, 2017). To the extent that federal climate change policy continues to rely on agency guidances, memoranda, and executive orders rather than statutory directives or formal agency regulations, it seems likely to continue to swing erratically and widely in response to the immediate results of contested federal elections.

C. State Laws and Regulations

Given the inconstant nature of federal climate policy and the litigation uncertainties swirling around it, state and local governments have taken their own steps to fill the void. These actions have taken two forms. First, several state governments have created their own regional affiliations and organizations to coordinate climate change initiatives and policies, including the trading of greenhouse gas emissions across state borders. Second, several

large states have enacted their own state laws and regulations to control greenhouse gas emissions within their borders.

The most notable regional programs stretch from the eastern United States — where the Regional Greenhouse Gas Initiative (RGGI) includes several states along the East Coast — through the Midwestern Greenhouse Gas Accord outward to the Western Climate Initiative's coordination of emissions among several West Coast states and Canadian provincial governments. Following the withdrawal of several western states, however, California is the only U.S. state remaining in the Western Climate Initiative.

RGGI brought together nine states in an emissions trading program that focuses exclusively on fossil-fueled power generators. Pursuant to a nonbinding memorandum of understanding, participating states agreed to coordinate their emissions reduction requirements by establishing a regional cap-and-trade system that required power plants to buy credits that would allow them to emit greenhouse gases. The states in RGGI have seen substantial reductions in greenhouse gas emissions — although some critics claim that other factors caused the reductions — and the program has generated substantial revenues for participating states. Nevertheless, the stability and effectiveness of these regional approaches depends in part on the vicissitudes of state elections and leadership changes that may cause states to enter, or withdraw, from the coalitions.

On a more local level, some states have shouldered the burden of regulating greenhouse gases within their borders by imposing their own direct state laws or regulatory standards. The most aggressive state on greenhouse gas policies is California, which has passed its own climate change policy statute. The California Global Warming Securities Act (also known as AB 32) sets up a state-wide cap-and-trade system for greenhouse gas emissions that includes all industrial sectors, including transportation. AB 32 will require large greenhouse gas emitters in California, including fossil-fueled power plants, to obtain either permits or allowances to control their emissions. California has also invoked its waiver authority under the federal Clean Air Act to require more stringent emission limits on mobile source vehicles sold within the state (although, at the time of this writing, EPA had yet to approve California's most recent request for a waiver). Beyond California, other states (e.g., Washington State) have included limits on greenhouse gas emissions in their state air quality permit programs, and some states have indirectly reduced greenhouse gas emissions through requiring utilities to generate a set amount or percentage of their power from renewable or low-carbon sources. All of these state programs, however, must operate within limits imposed

by the federal Constitution's dormant commerce clause provisions, which prohibit efforts by states to explicitly disfavor commerce in other states or improperly burden interstate commerce in favor of its local producers. *Rocky Mountain Farmer's Union v. Corey,* 730 F.3d 1070 (9th Cir. 2013).

D. Tort Liability

Like federal regulations and policy, climate change tort litigation in U.S. courts has seen dramatic gains and reversals of direction. A wave of new court actions, however, foreshadows much more aggressive climate change litigation over the next several years.

The initial wave of climate tort actions consisted primarily of three keystone cases. Each of the cases brought slightly different plaintiffs and claims. In *Connecticut v. American Electric Power,* 564 U.S. 410 (2011), several state attorneys general brought a public nuisance action against utilities whose coal-fired power plants released enormous amounts of greenhouse gases, while *Comer v. Murphy Oil Company*, 607 F.3d 1049 (5th Cir. 2009) saw a class action suit by Mississippi residents who claimed that greenhouse gas emissions by a motley collection of energy, chemical, and other industrial defendants worsened the damage caused by Hurricane Katrina. *Kivalina v. Exxon Mobil,* by contrast, rested on claims by an Inuit village government that the defendants' greenhouse gas emissions had aggravated winter storms and weakened pack ice to a degree that they needed to relocate the village. The plaintiffs simply wanted the energy and chemical defendants to reimburse them for their relocation expenses.

Despite their differences, all three claims shared important features. First, the plaintiffs in all three actions filed their lawsuits in federal court. Second, all three actions sought recovery under federal common law tort theories, including public nuisance, trespass, nuisance, and negligence. While the plaintiffs also brought tort claims under state law, they urged the federal court to hear their state law claims under the court's supplemental jurisdiction, which authorizes courts to hear state claims arising from the same core operative facts underlying the federal action. It is important to note that the federal courts typically have discretion on whether to hear such supplemental claims.

The U.S. Supreme Court brought a conclusive end to this first wave of climate tort litigation in *Connecticut v. American Electric Power Co.* in 2011. In a unanimous opinion by Justice Ginsburg, the Court held that the federal Clean Air Act displaced any federal common law tort actions for damages

arising from climate change. In its opinion, the Court emphasized that the displacement occurred when Congress passed the Clean Air Act and gave EPA the power to regulate greenhouse gas emissions even if EPA never chose to exercise that power. As a result, EPA's reluctance to regulate greenhouse gases did not leave any room for the plaintiffs to bring their tort claims. After the ruling, each district court on remand dismissed both the federal tort claim and the associated state tort claims by refusing to exercise their supplemental jurisdiction.

After a hiatus of nearly a decade, climate tort actions returned in a new guise in 2017. Rather than suing under federal common law, several cities and local governments in California, New York, Washington State, Rhode Island, Maryland, and Colorado filed separate tort actions under their state laws to recover damages for harms caused by climate change. These lawsuits, filed in both state courts and federal courts (under diversity jurisdiction), seek compensation for climate change effects attributable to the defendants' emissions and false representations during their marketing and distribution of fossil fuel products. As this chapter is written, the cases have already yielded conflicting decisions on motions to dismiss and to remand the actions. Nonetheless, this area is likely to develop into a fast-moving and hotly contested branch of climate change law.

Finally, an entirely new form of climate litigation has begun to emerge. Under the long-standing public trust doctrine, governments bear a fiduciary duty to preserve certain resources that fall within the sovereignty of the public at large. In the past, this doctrine has primarily applied to certain limited categories of land, such as submerged river bottoms or coastal lands, and the courts have generally upheld restrictions on the state's ability to alienate those resources for private gain or to allow damage or waste to those public resources.

However, a set of underage minor plaintiffs have now invoked the public trust doctrine to claim that the federal and state governments have failed to meet their obligations to protect a new category of resource—the atmosphere. While virtually every action brought under state laws or regulations has failed, one set of plaintiffs, alleging violations of the federal public trust doctrine in federal district court, has survived dismissal motions and appear poised to proceed to trial. If the claim yields a concrete judgment that requires more aggressive action by the federal government, this breed of litigation may quickly become much more vigorous and common.

Checkpoints

- While the United States does not have a federal climate change statute, it uses a collection of other international, federal, and state environmental laws to require tracking, reporting, and control of greenhouse gas emissions.
- The United States has announced its desire to withdraw from the Paris Agreement, which is currently the leading international agreement for climate change actions by the international community.
  - The United States, however, remains a signatory to the U.N. Framework Convention on Climate Change, and it remains a member of the Paris Agreement under its terms until 2020.
  - The Paris Agreement does not impose any substantive emissions limits itself, and the United States can choose how it wishes to satisfy its general commitments under the Agreement.
- Although the U.S. Supreme Court has held that greenhouse gases are "pollutants" subject to regulation under the federal Clean Air Act, the Court struck down EPA's attempt to require permits for facilities that emit only greenhouse gases.
  - The Court has also stayed EPA's Clean Power Plan regulations, which would have limited emissions of greenhouse gases from fossil-fueled power plants under the Clean Air Act's performance standard program for new and existing sources.
  - It remains unclear the extent to which EPA can, or will, regulate greenhouse gases from facilities that also emit other regulated pollutants.
- As a result of recent electoral outcomes, the federal government has suspended or withdrawn several regulatory initiatives to regulate greenhouse gas emissions. These efforts include a proposal to formally overturn the Clean Power Plan regulations, a withdrawal of guidances and memoranda on the social cost of carbon emissions, and ways to account for greenhouse gas emissions in environmental impact statements.
- Other federal environmental statutes, including the Endangered Species Act and the Clean Water Act, may have limited applicability in requiring actions to mitigate or prevent climate change. But long-term climate change effects can affect the scope of protection offered to species threatened by climate change or to protections required for waters of the United States affected by climate change.
- The National Environmental Policy Act requires an assessment of the environmental impacts of major actions by the federal government, and this assessment may include a review of potential impacts by or to climate change.
- Tort law actions against emitters of greenhouse gases may not proceed under federal common law because the federal Clean Air Act has displaced those

types of lawsuits. It remains to be seen whether state or local governmental plaintiffs can successfully pursue similar claims under solely state law in state or federal courts.

- Similarly, public trust doctrine lawsuits to force more aggressive actions by the government against climate change are actively underway in federal court, but have not yet yielded a definitive verdict or award.