

Chapter 7

FEDERALISM AND CLIMATE CHANGE

In ratifying the United Nations Framework Convention on Climate Change (UNFCCC), the United States committed itself to regulating greenhouse gases. Two provisions of the UNFCCC applicable to the United States are particularly relevant. First, in Article 3(3) of the Convention, the parties pledge to take "precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects." Second, under Article 4(1)(b), the parties agree to "formulate, implement, publish and regularly update . . . measures to mitigate climate change by addressing anthropogenic emissions by sources." In particular, developed countries such as the United States commit to adopting "national policies and tak[ing] corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs." The UNFCCC also contemplates international cooperation. Article 4(2)(a) provides that "Parties may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention." These primary obligations remain in effect regardless of whether the United States adheres to the later Paris Agreement. One might have expected the United States government to turn to the task of implementing these responsibilities through domestic regulation. But as it turned out, climate mitigation efforts in the United States took a different turn.

The history of climate change mitigation in the United States contains what seems to be a paradox. Because it is a global problem, climate change seems like a natural subject for the attention of the federal government but an unlikely subject for state and local activism. Yet state and local governments were the first to enter the field. The Bush Administration failed to address climate change either through administrative action or legislation. Congress tried but failed to pass comprehensive climate legislation in 2010, at a time when several states had already created cap-and-trade schemes. Indeed, when the federal government finally did become active through the Clean Air Act, it did so only because of lawsuits supported by state governments. During the Obama Administration, it seemed that EPA might finally be catching up to the leading states through the Clean Power Plan discussed in the previous chapter. The Trump Administration is attempting to head in exactly the opposite

direction, which once again places the onus on state and local governments to make further progress.

The issues in this area reflect the nature of the American system of federalism. By default, states have plenary power to make policy, subject only to the limitations of federal law. Federal limits may stem directly from the Constitution itself and the judicial doctrines elaborating the Constitution's meaning. Or they may stem from federal legislation and the supremacy clause, which designates federal statutes as part of the "supreme law of the land." Over time, the scope of federal legislation has dramatically increased, but state law remains central in many domains such as land use planning, and states actively participate in all spheres of domestic policy. Yet the actions of one state may impinge on national policy or on the people and economies of other states. The federal courts referee these disputes over the division of authority between different states and between states and the federal government.

In this chapter, we consider the role that state and local governments have played in addressing climate change (with the main emphasis being on state governments). Part I provides an overview of state programs. The positions of states regarding climate change could hardly be more diverse. Some states are doing little to limit emissions and fighting bitterly against EPA's efforts, while others are on the forefront of climate action. Still, there does seem to be broad state support for at least making an effort to encourage renewable energy, and some states have been aggressive in their efforts to address climate change. States that are inclined in the liberal direction tend to do more, but even conservative states, such as Ohio and Texas, have taken action to promote renewable energy.

After the background discussion about state activities, the remainder of the chapter focuses on the legal challenges that states may face when they do try to limit emissions. Part II is devoted to the dormant commerce clause, a constitutional doctrine that can pose a particular problem for state energy regulation. For instance, state renewable energy programs can be attacked because of their repercussions on energy producers and consumers in other states. In particular, state governments may be confronted by claims that their programs discriminate against out-of-state firms or may be an indirect effort to extend the states regulatory authority beyond its own borders.

Part III considers other legal issues that may hamper state efforts. Those challenges can take a variety of forms. Industry may argue that federal statutes regulating energy preempt state emissions limitations or state efforts to promote renewables. A related argument is that state regulatory efforts impinge on federal

authority over foreign affairs because of the international nature of the climate problem. Finally, industry may argue that cooperative efforts between states and other states, or between states and foreign jurisdictions, are unconstitutional in the absence of congressional approval.

There is obviously plenty to keep lawyers busy in designing state programs to minimize legal risks and in litigating the validity of the programs. So far, states have done fairly well in litigation, but the law is still in the process of developing. It remains to be seen how the doctrine will eventually shake out. In the meantime, an understanding of the areas in dispute remains crucial.

I. State and Local Climate Change Programs

American state governments have actively engaged with the issue of climate change on many fronts. States have also been active in promoting renewable energy, sometimes under the climate umbrella and sometimes independently. Every state has adopted some programs that either directly address climate change or encourage renewable energy and energy efficiency.

Over three-quarters of the states have state climate action plans. About half the states have also set targets for reducing emissions. State targets vary widely, with perhaps the most ambitious being Oregon's 2050 target of reducing emissions by 75 percent from the 1990 level and California's 80 percent target for that year. Notably, states have been active even under the Bush and Trump Administrations, when the federal government steadfastly refused to take any action at all to reduce emissions, and even seemed dedicated to increasing them through expanded production of fossil fuels.

Many states have adopted a renewable portfolio standard (RPS), which requires that a certain percentage of retail electricity sales be derived from renewable sources.¹ California's RPS has an especially ambitious 33 percent target by 2020 and a 50 percent target for 2030. There are significant variations in these standards from state to state. The most obvious are differences in the percentage of renewables required. But there are also differences in what energy sources count as renewables, with nuclear power and hydropower included in some places but not others. There may also be differences in whether all utilities are covered or only investor-owned activities, in whether there are specific requirements for particular sources such as solar or wind, and in the deadlines. Finally, there may be differences with respect to the tradability of renewable credits. A firm

¹ Michael B. Gerrard, *Introduction*, in MICHAEL B. GERRARD, *GLOBAL CLIMATE CHANGE AND U.S. LAW* 22 (2007).

that gets more of its energy from renewables than required may be able to sell credits to a firm that is under target. Currently twenty-nine states have RPSs, and another eight have voluntary standards or non-binding targets. There is also a political tilt in terms of adoption of RFPs, with Democratic-leaning states the most likely to have binding standards. But this is only a trend, and there are some significant exceptions. For instance, Texas has been aggressive in promoting wind power. As a result, it has by far the highest wind generation capacity in the country, followed by Iowa and Oklahoma, with California fourth. Nevertheless, there are two areas of the country that have been holdouts from RPS requirements. One, in the West, is a strip consisting of Idaho, Wyoming, and Nebraska. The other exception is the Southeastern United States, where the only states that do have some type of RFP are South Carolina, North Carolina, and Virginia (and only North Carolina's is binding). At present, the political equilibrium seems to be stable, with little movement in either direction. There has been an effort recently on the part of conservatives to roll back RFPs, but so far this effort has met only very limited success.

Among the states that are addressing climate change in meaningful ways, California has played a leading role. California legislation focusing specifically on climate change dates back to a 1988 law mandating an inventory of California greenhouse gas emissions.² In 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act, usually referred to as AB 32,³ which requires California to reduce emissions to the 1990 level by 2020. This California law generated worldwide attention, including enthusiastic approval by the British Prime Minister at the time it was passed. The California effort undoubtedly received additional attention because the governor was an international celebrity and because it was such a stark contrast with the Bush Administration's recalcitrance. But there were also more tangible international steps involving California. The Prime Minister and the Governor of California entered into an agreement to share best practices on market-based systems and to cooperate to investigate new technologies; similar agreements now exist between California and states and provinces in Australia and Canada. (We will discuss possible legal issues relating to such agreements later in the chapter). California has also pursued discussion with government authorities in China.

California has implemented AB 32 aggressively. The law itself is notably brief and gives the government enormous discretion about

² AB 4420 (Sher), Chapter 1506, Statutes of 1988.

³ AB 32 (Nunez), Chapter 488, California Statutes of 2006, codified at CAL. HEALTH & SAFETY CODE §§ 38500 *et seq.*

how to achieve its goals, though it does rule out a carbon tax. The California Air Resources Board (CARB) first developed nine "early action" measures, some of which focus on reducing emissions of non-CO₂ greenhouse gases. Another important early action was a low-carbon fuel standard to reduce the carbon intensity of transportation fuels by 10 percent by 2020. But the CARB's most important action was to establish an emissions trading system, which was discussed in more detail in chapter 4. California's cap-and-trade program sets a declining, statewide cap on greenhouse gas emission. The program originally covered about 600 industrial facilities, with fuel distributors having been added to the program more recently. Many allowances have been distributed free to firms, but an increasing percentage will be auctioned. The auctions have already begun to generate significant amounts of revenue for the state. In 2017, the state extended the life of the trading system through 2030, with a target of reducing its total emissions thirty percent below 1990 levels.

States have also combined efforts in regional programs,⁴ including the Northeast Regional Greenhouse Gas Initiative (RGGI) and initiatives in New England, the Great Plains, the Southwest, and the West Coast. RGGI, which is currently composed of nine states, created a multistate trading system for power plant emissions with the goal of achieving a 10 percent reduction by 2019.⁵ In 2013, the cap was reset to 91 million tons of carbon, down from 165 million tons. A quarter of the proceeds are auctioned, with the proceeds going to finance energy efficiency programs or reduce fee hikes caused by the program. Indeed, many of the carbon reductions associated with the program have stemmed from these energy efficiency programs rather than from the cap itself. (About eight states outside of RGGI have created similar funds with other funding sources.) The allowance prices remain low, indicating that the cap is still generous, but the cap is set to decline by 2.5 percent annually. In mid-2017, the RGGI states began to consider an even further tightening of the cap in response to the Trump Administration's climate policies.

In addition to actions at the state level, many cities have adopted climate action plans. Although cities do not have the same extensive regulatory powers as state governments, some specific aspects of emission reduction relate to municipal activities in a fairly direct way. Efforts by city governments have taken many forms. Urban planning and land use control is an important municipal function with important implications for climate change. For instance, cities may use their building codes to encourage more energy-efficient buildings and their transit planning to promote

⁴ See Kirsten H. Engel, *Mitigating Global Climate Change in the United States: A Regional Approach*, 14 NYU ENVTL. L. J. 54 (2005).

⁵ See <http://www.rggi.org/design>.

public transportation. One area of interest is promotion of transportation-oriented development, where the goal is to promote additional development close to public transportation hubs. Cities can also reduce barriers to the use of renewable energy, such as zoning restrictions that could hinder rooftop solar.

In addition, city governments can reduce their own energy use and can adopt renewable sources of energy, such as generating electricity from methane produced by waste. Municipalities own a significant number of buildings and vehicles such as police cars, so potential emissions reductions are not trivial. Finally, a number of cities run their own municipal electrical utilities, which sometimes have adopted ambitious renewable energy and energy efficiency programs. Given the proportion of the population and the economy found in urban areas, these are not necessarily insignificant steps.

Apart from more formal cooperative efforts between state and local jurisdictions, which are discussed later in the chapter, extensive networks and collaborative groups have also arisen. These groups provide forums for mutual encouragement and sharing of expertise. They also help identify best practices and promising new techniques. In many cases, these efforts span national borders, with active participation from sub-national governments around the world.

Before we turn to the legal issues raised by state and local climate programs, it is worth taking a moment to consider why states and localities have entered this area at all. Their activity in the climate area seems somewhat surprising in light of their normal responsibilities. State governments are predominantly concerned with the day-to-day concerns of their citizens and with traditional areas of law such as criminal law, family law, and contracts. International problems like climate change seem well outside these normal concerns.

It is natural to ask why states have chosen to take action on what is, after all, a global problem. Given the need for global cooperation to reduce emissions, it seems odd that a relatively small entity such as a U.S. state would be willing to invest in cutting emissions on its own. The costs of the emission reduction are felt within the state, but almost all of the climate reduction benefits go to outsiders, including many outside the United States entirely. No single state can make more than a tiny contribution to the global effort to reduce global emissions. This seems to be a classic example of the tragedy of the commons. We might have predicted a similar result, in which individual actors such as states make the rational decision to refrain from costly efforts that mostly produce benefits for others. Thus, the voluntary activism of many states and cities is puzzling.

No doubt each state presents its own complicated political story. But there are some general factors that seem to be at work. One is that actions that reduce carbon emissions generally reduce other kinds of emissions as well, so they have immediate benefits to states with air pollution problems. These co-benefits may justify the state programs even without consideration of climate change. In this way, states can reap benefits without waiting for global action on climate change. Moreover, states may see economic advantages in diversifying their sources of power, which is one reason why Texas has done so much to develop wind power so as to avoid complete dependence on natural gas. States may see advantages in expanding a local industry such as solar installation that involve many jobs, or they may hope to become centers for clean technologies. States may also hope that leadership in climate policy may promote innovation hubs in clean energy, ultimately bringing new investment to the state. Some states may also have seen potential advantages to acting on climate change ahead of the federal government in order to position themselves to comply with any new federal requirements. And of course, climate change is an issue that concerns many members of the public, not to mention some political leaders themselves. Local politicians had an incentive to take advantage of this public sentiment in locales where it was strong.

Whatever the reason, it is clear that many American states and cities have decided to take action against climate change. Our present concern is the legal validity of those actions. It is difficult to say anything in general about the legality of municipal actions, because local government law varies so much between states. The traditional rule is that municipalities have only the powers delegated to them by state governments, although some now have home rule powers. State governments, too, may be limited by their own state constitutions. These issues of state law, however, are beyond the scope of this book.

Regardless of their powers under state law, however, cities and states must always comply with federal law. The general rule in American law is that state governments have the power to do anything that is not prohibited by federal law. We begin our consideration of these federal limitations with one of the main restrictions on state and local regulation, the dormant commerce clause.

II. Climate Regulations and the Dormant Commerce Clause

The otherwise-broad powers of state governments are limited by the dormant commerce clause, a constitutional doctrine created by the Supreme Court under the aegis of the commerce clause. The

commerce clause itself is simply a delegation of power to Congress to regulate interstate commerce. But the Supreme Court has viewed the clause as implicitly limiting state interference with interstate commerce. By protecting interstate commerce from state interference, the Court has attempted to prevent balkanization of the U.S. economy and state discrimination against outsiders, who are not represented in the state's political process. But given that almost any regulation has interstate ramifications in the modern, highly integrated national economy, line drawing has proved difficult.

Over two centuries, the Court's decisions have created what is now known as the dormant commerce clause doctrine ("dormant" because it does not involve the exercise of Congress's authority under the commerce clause.) Some scholars and judges criticize the Court's efforts for having a weak foundation in the constitutional text. The Supreme Court has inferred limitations on state authority from the clause since the early Nineteenth Century, although both the precise rationale and the Court's test have varied over time. But whatever might be said about these issues as a matter of constitutional theory, it seems clear that at least seven Justices fully support the doctrine. As a practical matter, regardless of theory, state regulators and regulated parties must operate under the requirements of the doctrine.

The Supreme Court has distinguished between regulations that merely burden interstate commerce and those that discriminate against it or regulate commerce outside of the state. Discriminatory and extraterritorial regulations face more stringent scrutiny, and for that reason we will focus on those categories. Regulations that merely burden interstate commerce also face scrutiny, however, although in a less rigorous mode. Under the balancing test of *Pike v. Bruce Church, Inc.*,⁶ state laws burdening commerce are invalid if the burden on interstate commerce is "clearly excessive in relation to the putative local benefits."⁷

Although defending climate regulations under the *Pike* test will require extensive factual inquiry, states should be well positioned to win those disputes. They should be able to demonstrate the strength of their interest in reducing emissions, given what we now know about climate change. In *Massachusetts v. EPA*,⁸ the Court emphasized that climate change threatens the state's semi-sovereign interest in the welfare of its citizens and in protecting its territory (as a result of sea level rise). In general, states seem to fare well under the balancing test, regardless of the type of regulation under

⁶ 397 U.S. 137 (1970).

⁷ *Id.* at 142.

⁸ 549 U.S. 497 (2007).

attack. They can be expected to do well under the *Pike* test in the domain of climate regulation as well, although no doubt there will also be some losses. But if regulations are classified as discriminatory or extraterritorial, their fate is likely to be grim.

Determining the limits of state regulatory authority is especially challenging in the realm of electricity regulation. The nation's energy system is tightly integrated. With the exception of much of Texas, the 48 contiguous states are part of an interconnected, multistate electrical transmission system. The market for fossil fuels also extends well beyond state boundaries, being national if not international in scope. It is not surprising that climate regulations, which often address the energy sector, are prone to challenge under the dormant commerce clause.

Climate regulations are also apt to raise issues under the commerce clause because of efforts to by regulators to combat leakage. The usefulness of a state's restrictions on emissions can be severely undercut if the effect is to shift carbon emissions out of state rather than eliminating them. For instance, as discussed in Chapter 4, a state's effort to limit emissions from its own products may have little effect if its citizens merely shift their buying to cheaper, out-of-state sources with high emissions. Efforts to impede leakage have clear interstate implications, since they are aimed at preventing state regulations from increasing emissions outside the state. This makes them an especially likely target for attack under the dormant commerce clause.

Dormant commerce clause challenges are not merely a theoretical threat. For instance, in *Rocky Mountain Farmers Union v. Goldstene*,⁹ a federal district court struck down California's low carbon fuel standard. The standard attempted to measure the carbon intensity of vehicle fuels based on a lifecycle analysis from production to combustion. The court found the standard to be discriminatory because it included geographic factors such as transportation distances and the carbon-intensity of the electricity used for production from the local grid.¹⁰ These factors disfavored some out-of-state producers, especially from the Midwest where coal is a favored fuel for generating the electricity used to process corn into ethanol. The court also found that the standard was impermissibly extra-territorial because it took into account carbon emissions that occurred outside of the state.¹¹ In effect, the district court thought, California was trying to regulate emissions outside of its own borders that were beyond its jurisdiction.

⁹ 843 F.Supp.2d 1071 (E.D.Cal. 2011).

¹⁰ *Id.* at 1086–1089.

¹¹ *Id.* at 1090–1093.

We will discuss the appellate court's opinion and the ultimate fate of the regulations later. But the district court's ruling highlights the importance of careful attention to possible claims of discrimination and extraterritoriality by state regulators. We will focus first on claims that laws discriminate against interstate commerce, and then turn to claims that they amount to extraterritorial regulation of emission sources.

A. The Ban on Discriminatory State Regulation

If a state attempts to control the carbon intensity of goods and services sold within the state, out-of-state producers may well complain that their goods are being subject to standards that are more restrictive than their home states. Those out-of-state firms are likely to claim that the state is discriminating against interstate commerce. For instance, coal-fired power plants located outside of the state may protest measures that make their electricity less attractive to in-state utilities. They are likely to argue that the regulations discriminate against them versus renewable energy generators within the state.

The Supreme Court has taken vigorous action against what it perceives to be discriminatory state laws. The seminal modern case is *City of Philadelphia v. New Jersey*,¹² in which New Jersey limited imports of solid waste due to concerns about limited landfill capacity. Bypassing disputes about the purpose and effect of the program, the Court emphasized the principle of non-discrimination: "[W]hatever New Jersey's ultimate purpose, it may not be accomplished by discriminating against articles of commerce coming from outside the State unless there is some reason, apart from their origin, to treat them differently."¹³ Having found that the statute before it was discriminatory, the Court roundly condemned this "attempt by one State to isolate itself from a problem common to many by erecting a barrier against the movement of interstate trade."¹⁴

A state law is discriminatory if it explicitly targets out-of-state firms for negative treatment or if it was clearly intended to do so. But it can also be classified as discriminatory because of its effects. A state law "discriminates only when it discriminates between similarly situated in-state and out-of-state interests."¹⁵ A key question is when two producer are "similarly situated." High-carbon intensity and low-carbon intensity producers might or might not be considered "similarly situated" under this approach.

¹² 437 U.S. 617 (1978).

¹³ *Id.* at 627.

¹⁴ *Id.* at 628.

¹⁵ *Allstate Ins. Co. v. Abbott*, 495 F.3d 151, 163 (9th Cir. 2007).

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Moreover, to render a state law discriminatory, it is not enough that some out-of-state firms are disadvantaged or that the state's regulations modify the "natural" operation of the market. Under the Supreme Court's holding in *Exxon Corp. v. Maryland*,¹⁶ interfering with the natural operation of the national market does not in itself implicate the commerce clause; instead, plaintiffs must show that the regulation will increase the total market share of in-state goods.¹⁷ Even if climate regulations impact some imported goods more than some local goods, the argument that a regulation that discriminates in effect (rather than on its face) should be viewed cautiously. The courts have cautioned that "[t]he proof of the pudding here must be in the eating, not in the picture on the box as seen through the partial eyes of the beholder—which is especially true in a case where neither facial economic discrimination nor improper purpose is an issue."¹⁸

Out-of-state firms are likely to argue that their product is identical to that of other firms even if the production process involves higher carbon emissions. In response, regulating states will argue that subjecting imports to the same standards as home-produced products should not be considered discriminatory regardless of how carbon intensities are distributed between local and imported goods.¹⁹ In the eyes of regulators, differing carbon intensities reflect real differences among the goods consumed in the state and real differences between the harm they inflict within the state through their contribution to climate change.

On this basis, the Ninth Circuit overturned the district court opinion discussed earlier and rejected a discrimination claim against the California low carbon fuel standard (LCFS) in *Rocky Mountain Farmers Union v. Corey*.²⁰ Location is obviously a relevant factor in the lifecycle analysis of fuels. For instance, fuels that are produced further away will result in more transportation emissions on their way to market. Moreover, electricity is used to produce biofuels such as corn ethanol, and the amount of carbon produced by electricity generation varies greatly between states, depending in part on how much coal is used. Thus, if "discrimination" simply means taking the location of production into account, the LCFS was certainly guilty.

Nevertheless, the majority on the Ninth Circuit held that the LCFS was nondiscriminatory. The court faulted the trial judge for

¹⁶ 437 U.S. 117 (1978); accord, *Hampton Feedlot, Inc. v. Nixon*, 249 F.3d 814, 819 (8th Cir. 2001).

¹⁷ *Id.* at 126 n. 16.

¹⁸ *Black Star Farms LLC v. Oliver*, 600 F.3d 1225, 1232 (9th Cir. 2010).

¹⁹ See Kirsten H. Engel, *The Dormant Commerce Clause Threat to Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 *ECOLOGY L.Q.* 243, 288–289 (1999).

²⁰ 730 F.3d 1070, 1077 (9th Cir. 2013) cert. denied, 134 S.Ct. 2875 (2014).

"ignoring GHG emissions related to: (1) the electricity used to power the conversion process, (2) the efficiency of the ethanol plant, and (3) the transportation of the feedstock, ethanol, and co-products," because "those factors contribute to the actual GHG emissions from every ethanol pathway, even if the size of their contribution is correlated with their location." According to the appellate court, "California, if it is to have any chance to curtail GHG emissions, must be able to consider all factors that cause those emissions when it assesses alternative fuels." Thus, the court added, "[t]hese factors are not discriminatory because they reflect the reality of assessing and attempting to limit GHG emissions from ethanol production."

Like the majority, the dissenting judge also rejected the industry argument that use of life-cycle analysis was inherently impermissible. The dissent concluded on narrower grounds, however, that the LCFS was discriminatory on its face and that it was not narrowly tailored to the state's legitimate interest in reducing carbon emissions. The reason related to the details of the LCFS. The regulation provided default carbon intensities for various categories of producers such as Midwest producers of corn ethanol. Producers could then present arguments for modifying the default values due to their circumstances. The dissenting judge argued that the default values were too crude a tool. Instead, the state needed to apply lifecycle analysis on an individualized basis to each producer. By doing so, the state would have narrowly tailored the regulation to the point where it would be constitutional. The majority, however, considered the default values a reasonable way of making the regulation more efficient.

It is not surprising that courts have found this kind of problem difficult. Discrimination can be a slippery concept in any setting, and the commerce clause is no exception. The ban on regulations that discriminate against commerce in effect is particularly poorly defined. A court that is unsympathetic to state climate regulation can probably find some doctrinal basis for objecting to efforts to control carbon leakage. But if courts understand the reasons for state regulation, well-designed regulations should be able to avoid the anti-discrimination rule. The crucial question is whether other courts will follow the Ninth Circuit in recognizing that carbon intensity is a legitimate, non-discriminatory basis for regulation.

B. The Extraterritorial Regulation Issue

A related issue is whether measures designed to control leakage violate the dormant commerce clause's strictures against "extraterritorial" regulation. It is clear, of course, that states cannot punish conduct that lacks any connection to the state. A crime committed in Ohio cannot be prosecuted by California. But in the

cases we are about to consider, the state does have some connection with the conduct, because the regulation applies directly to sale or use of a product inside the state. In terms of the dormant commerce clause, the claim is that such regulations are nevertheless extra-territorial because the regulation takes into account emissions outside the state.

From the view of the challengers of state carbon regulations, the analogy would be to a state banning the import of products unless the producers had met the state's labor regulations. If states were allowed to do that, either national markets would be hopelessly fractured or states with large numbers of consumers would be able to control labor policy across the nation. But regulators would argue that this is a false analogy. The labor conditions under which products are produced in other states have no direct effect in California even if the products are later sold there. The only harm to California when those goods are imported is economic. But carbon emissions from production in other states in connection with California sales do directly impact California, so California has an interest other than protectionism.

Unfortunately, the Supreme Court has failed to provide a clear test for determining when a regulation is extra-territorial. The extraterritoriality doctrine stems from a handful of Supreme Court cases. None of those cases have clearly explained when a regulation's effects on conduct outside the jurisdiction constitute "extraterritorial regulations." The cases also deal with situations far removed from environmental regulation. Nevertheless, it behooves us to examine the handful of Supreme Court opinions applying the doctrine.

In one of the key modern cases, the Court struck down a state law requiring liquor wholesalers to give "most favored nation" treatment to New York retailers—in other words, wholesalers had to charge New York retailers the lowest price they offered anywhere else. This may have been an effort by New York to prevent discrimination against the state's retailers, but closer analysis shows that it could also actually impact the prices that wholesalers charged outside of New York. The New York law created powerful pressure on wholesalers to avoid cutting prices in other states, because doing so meant they would also have to cut prices in New York, doubling the loss of revenue. Thus, the New York law indirectly penalized wholesalers for price cuts in surrounding states, something it had no right to directly. A few years later, the Court struck down a similar law from another state.²¹

²¹ The details of the laws differed, but the Court found no practical difference between the New York and Connecticut laws, which were equally coercive of out-of-state conduct. *Id.* at 338-399.

These more recent cases relied on a Depression-era case, *Baldwin v. G.A.F. Seelig, Inc.*, 294 U.S. 511 (1935). *Baldwin* involved an effort to protect New York dairy farmers from out-of-state competition. New York banned the in-state resale of milk acquired outside the state at a price below the New York wholesale floor. Violators were subject to heavy penalties.²² In effect, buyers had to pay the New York price no matter where they purchased the milk, if they wanted to resell the milk in New York. The *Baldwin* Court held that the state could not extend its price control regime beyond its borders. The New York law in this case was clearly protectionist in the sense of being designed to prevent out-of-state competition with its farmers, making it an easy target for attack under the dormant commerce clause.

Because the few Supreme Court cases on the subject have failed to give clear guidance, the lower courts have found it difficult to interpret the extraterritoriality doctrine. On the whole, they have resisted efforts to recast the limited Supreme Court's precedents into a broad shield against state regulation. In the few court of appeals cases to find extraterritoriality, the courts considered the state law to be the functional equivalent of direct penalties on out-of-state actors or conduct. In contrast, lower courts have refused to find extraterritoriality when a regulation does not directly regulate the actions of parties located in other states and instead regulates contractual relationships with at least one in-state party. Some lower courts have limited the extraterritoriality doctrine to cases involving price regulations, hewing closely to the facts of the Supreme Court cases.

The most important case to date to consider extraterritoriality in the climate change context is *Rocky Mountain Farmers*. In addition to the argument that the LCFS discriminated against interstate commerce, industry also argued that it was extraterritorial because it penalized producers for carbon emitted outside of California. As mentioned earlier, the district court had accepted this argument. The Ninth Circuit rejected this argument because the LCFS "says nothing at all about ethanol produced, sold, and used outside California, it does not require other jurisdictions to adopt reciprocal standards before their ethanol can be sold in California, it makes no effort to ensure the price of ethanol is lower in California than in other states, and it imposes no civil or criminal penalties on non-compliant transactions completed wholly out of state." Although it was true that the LCFS did encourage the use of lower carbon methods of production for out-of-state producers, encouragement is different than control. Finally, the LCFS was

²² *Id.* at 520.

based on differences in fuels that had a direct relationship to harm done within the state. Thus, the extraterritoriality doctrine was inapplicable.

In another recent case, the Tenth Circuit rejected an extraterritoriality challenge to Colorado's renewable portfolio standard. The court argued that the doctrine should be limited to cases involving "price control or price affirmation statutes that link in-state prices with those charged elsewhere and discriminate against out-of-staters." If applied more broadly, the court said, the doctrine might end up penalizing states for statutes that either did not affect or actually benefitted interstate commerce:

[A]s far as we know, all fossil fuel producers in the area served by the grid will be hurt equally and all renewable energy producers in the area will be helped equally. If there's any disproportionate adverse effect felt by out-of-state producers or any disproportionate advantage enjoyed by in-state producers, it hasn't been explained to this court. And it's far from clear how the mandate might hurt out-of-state consumers either. . . . To reach hastily for *Baldwin's per se* rule, then, might lead to the decidedly awkward result of striking down as an improper burden on interstate commerce a law that may not disadvantage out-of-state businesses and that may actually reduce price for out-of-state consumers.²³

Notably, the opinion was written by Neil Gorsuch, who was later appointed by President Trump to the Supreme Court.

The concept of extraterritoriality is certainly less than crystal clear, but it would be a mistake to apply it expansively. In a unified national market, any important state regulation is likely to have some spillover effects on other markets. The extraterritoriality prong of commerce clause doctrine is strong medicine. Courts have employed it sparingly and only in cases where the state exercised effective control over transactions wholly outside its borders. Many state regulations have *some* impact on producers or consumers outside the state; such impacts are the very reason for the balancing test. To the extent that the extraterritoriality doctrine is aimed at those impacts, it is a crude tool compared with the *Pike* balancing test. If the extra-territoriality doctrine is given its proper, narrow scope, it should not pose a challenge to well-designed state efforts to regulate embedded carbon in locally consumed goods. But extraterritoriality may be to some extent in the eye of the beholder,

²³ Energy & Env't Legal Inst. v. Epel, 793 F.3d 1169 (10th Cir. 2015).

and judges may think extraterritoriality is present unless they understand the reasons for regulating embedded carbon.

III. Other Federalism Issues

Although the dormant commerce clause is the potential challenge with the broadest applicability, state climate regulations may face other challenges. There is extensive federal regulation of energy markets, and it is not hard for industry to formulate arguments that state energy regulations conflict with these federal schemes. In addition, state actions may be subject to challenges under the compact clause when the state(s) attempt to cooperate with other jurisdictions, as well as to challenges under the foreign affairs preemption doctrine when the other jurisdiction is foreign. All of this provides a fertile area for litigation.

A. Statutory Preemption

Part II dealt with the validity of state regulation independent of federal regulation. In this section we will be concerned with the validity of state regulations in areas where Congress has acted. In cases of direct conflict, the state statute must give way. The Supremacy Clause of the Constitution provides:

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the authority of the United States, shall be the Supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

Thus, a federal statute trumps state law, assuming the federal statute is constitutional.

Congress often speaks directly to the scope of state authority to regulate. Congress can limit state authority explicitly, for instance by stating that any state law or administrative action in a particular area is invalid. (Conversely, Congress can preserve state laws through a savings clause, such as a statement that nothing in a particular statute shall preclude states from taking particular types of action.) But courts can find that a state law is preempted despite the lack of explicit preemption language in a statute. In the climate change arena, two doctrines concerning "implied preemption" are most relevant.

First, courts may rule that an entire domain is off-limits to states, which is often called field preemption. One reason for field preemption is that the federal regulatory scheme may be so pervasive and detailed as to suggest that Congress left no room for states to

supplement it. Similarly, a statute enacted by Congress may involve a field in which the federal interest is so dominant that enforcement of all state laws is precluded. Other aspects of the regulatory scheme imposed by Congress may also support the inference that Congress has completely foreclosed state legislation in a particular area, including even state laws that support federal goals. To date, the courts have not implied field preemption from environmental statutes, but state energy regulations could run up against field preemption under some non-environmental federal statute.

Second, even when Congress has not completely foreclosed state regulation on a subject, a state statute is void to the extent that it actually conflicts with a valid federal statute. Such a conflict can be found where compliance with both the federal and state regulations is impossible, or more often, where the state law interferes with the full accomplishment of Congress's objectives. Conflict preemption often involves difficult judgments about congressional purposes and the permissible degree of incidental interference by state laws.

Preemption cases are first and foremost about statutory interpretation. If there is an express preemption clause or a savings clause, the court must determine the scope of the clause. This can be a difficult undertaking. When the statute is not explicit, the court must make a difficult judgment of its own, in effect deciding whether Congress would have wanted the state law preempted if it had anticipated the situation. Not surprisingly, preemption decisions are often difficult to parse and are a fertile source of disagreement among judges.

Because the Clean Air Act is the basic federal statute regulating emissions into the air (including greenhouse gases), it is the obvious starting point in thinking about possible preemption of state climate regulations. The Clean Air Act, like almost all contemporary federal environmental laws, utilizes a basic "floor" preemption strategy. Federal law sets minimum required levels of environmental protection (the "floor"), but the states are expressly authorized to go further and adopt more stringent environmental requirements. Like many other statutes, the Clean Air Act contains an explicit savings clause to limit preemption. The language of the Clean Air Act's savings clause is quite sweeping. Section 116 provides that "nothing in the chapter shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution."²⁴ Thus, states seem to be free to impose stricter limits on carbon emissions than the federal government.

²⁴ Section 116, 42 U.S.C. § 7416.

There is an important though somewhat complicated exception to the savings clause in section 209 of the statute, which applies to regulations of emissions from new vehicles. The Clean Air Act directs EPA to issue federal standards for tailpipe emissions from vehicles. When the statute was under consideration, the automobile industry was alarmed at the risk that it would have to produce multiple models of cars to meet emissions standards in different states. Section 209 responds to the fear that companies might have to maintain multiple production lines for vehicles sold in different locales. Subsection (a) of section 209 prohibits states and their subdivisions from adopting or enforcing any standard relating to emissions controls from new vehicles. Taken alone, section 209(a) would seem to completely preempt state regulation, a classic case of field preemption. But section 209(b) creates an important exception to this preemption rule. Although it does not mention California by name, section 209(b) is drafted in a way that allows only California to qualify. It permits California to apply for a waiver in order to adopt stricter standards, based on "compelling and extraordinary" circumstances. The rationale was that California's severe air pollution problems were likely to be insoluble unless it was allowed to vigorously regulate pollution from cars and trucks.

By itself, section 209(b) would allow only California to impose such regulations. But given that manufacturers would have to set up production runs to supply the California market, it was relatively feasible for them to supply those vehicles to other states. For that reason, Congress later decided to allow other states to piggyback on the California standards. Under section 177, other states have the option of adopting standard's identical to California's, with no deviations allowed.²⁵ The upshot is that car manufacturers produce a "national car" complying only with the federal standards and a "California car" meeting that state's higher standards.

So far, the most important preemption dispute relating to climate change under the Clean Air Act involved California's efforts to impose tailpipe standards for greenhouse gases. The Bush Administration denied a waiver, but the Obama Administration reversed course. There was immediate litigation by car manufacturers over the validity of the waiver, but the litigation was settled as part of an agreement with the manufacturers over federal tailpipe standards. There are some hints that the Trump Administration may want to reconsider California's waiver, but so far no legal steps have been taken in that direction.

It is important to keep in mind that section 209 does not give California carte blanche to regulate new vehicles. First, the statute

²⁵ Section 177, 42 U.S.C. § 7507.

applies to statewide standards only, not regulations by particular air quality districts or municipalities. Second, California must actually apply for a waiver—it is not enough that it could have obtained a waiver if it asked. And third, California must actually obtain the waiver. Similarly, other states can piggyback on California's waiver but they must be careful to follow California's lead precisely, since deviations can be fatal to their authority under section 177.

Note that this preemption provision applies only to the transportation sector. The Clean Air Act is unlikely to be a source of preemption in the electricity sector, given the savings clause. However, a non-environmental statute, the Federal Power Act (FPA), can be a potential issue. The statute gives the Federal Energy Regulatory Commission (FERC) jurisdiction over interstate transmission and over wholesale interstate transactions. The courts have interpreted FERC's authority over interstate wholesale transactions to be exclusive, in effect applying field preemption. But the statute also has a strong savings clause. Section 201 provides that FERC "shall not have jurisdiction . . . over facilities used for the generation of electric energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce, or over facilities for the transmission of electric energy consumed wholly by the transmitter." The clear intention is to draw a line between local utility regulation in the retail market and federal regulation in the interstate wholesale market. The trouble is that this line between retail and wholesale is not always terribly clear.

It has become even harder to draw that line as federal regulation of the interstate electricity market has moved away from traditional utility regulation, where the regulatory agency sets a reasonable price for electricity or electricity transmission. FERC has basically abandoned that approach in favor of trying to structure electricity markets to produce competitive prices. State regulations can impact market structure or operations even if they do not directly interfere with price. This makes it harder to draw a line between the state's legitimate interests in generation and consumer distribution within its boundaries and the FERC's control of the interstate market. For that reason, FPA preemption claims are endemic in cases involving challenges to state renewable energy laws. A more detailed discussion of these issues can be found in Chapter 5.

B. Foreign Affairs Preemption

In statutory preemption cases, at least we have the advantage of a specific statutory scheme to guide the inquiry. A knottier issue arises in the context of state agreements with foreign jurisdictions: whether such agreements infringe the exclusive federal power over

foreign affairs.²⁶ Since climate change is a global issue, it is not surprising that states made connections with foreign countries in attempting to deal with the issue. For instance, California has linked its emissions trading system with Quebec's, and California is also engaged in active discussions with two Latin American state governments over the possibility of accepting offsets based on preservation of tropical forests.

Even apart from any specifically international activity on the part of states, the very fact that state governments are addressing a global issue may seem incongruous. We generally expect states to deal with local problems, not to address the problems of the world. Even people who are unfamiliar with constitutional law probably realize that there is an American embassy in foreign countries, not separate embassies for each state, and that by the same token it is the President and Secretary of State who negotiate treaties, not their state counterparts. The issue, then, is whether state efforts at international cooperation cross over into the exclusively federal domain of foreign affairs.

It is helpful to start with a brief review of the constitutional provisions relating to international affairs. The Constitution gives various organs of the federal government the authority to enter into treaties, receive ambassadors, and go to war. Other provisions ban the states from making war or entering treaties (but not necessarily "agreements" or "compacts" with foreign states). It is not difficult to discern a constitutional purpose to give the federal government control over foreign affairs. Nevertheless, in an increasingly globalized society, states cannot completely ignore the world beyond the borders of the United States. It seems to be increasingly common for states to reach out beyond national borders in their activities, and not just in the area of climate change. For instance, state governors often lead trade delegation to foreign countries in the hope of encouraging foreign investment within the state. Recent Supreme Court cases leave great doubt, however, about the constitutional limits on states' ability to engage with foreign jurisdictions.

In the past two decades, the Supreme Court has issued several opinions dealing directly with implied restrictions on state regulatory authority affecting foreign affairs.²⁷ The first case was

²⁶ See Note, *Foreign Affairs Preemption and State Regulation of Greenhouse Gas Emissions*, 119 HARV. L. REV. 1877 (2006). A concise doctrinal overview can be found in Judith Resnick, *Foreign as Domestic Affairs: Rethinking Horizontal Federalism and Foreign Affairs Preemption in Light of Translocal Internationalism*, 57 EMORY L.J. 31, 71-78 (2007).

²⁷ An earlier significant decision was *Zschernig v. Miller*, 389 U.S. 429 (1968), which struck down an Oregon law that allowed aliens to inherit property in that state only if their home country allowed Americans to inherit the property of that country's citizens.

Crosby v. National Foreign Trade Council.²⁸ In 1996, the state of Massachusetts passed a law that prohibited state or local governments from doing business with companies that were themselves doing business with Burma (now Myanmar). The Court concluded that the state law interfered with a provision of the federal law that gave the President discretion to control economic sanctions against Burma. Congress had enacted initial sanctions but gave the President the power to end the sanctions if he certified that Burma had made progress on human rights; he also had the power to reimpose sanctions in case of back-sliding and to suspend sanctions in the interest of national security. The Court doubted that Congress would have given such broad authority to the President while allowing states to undermine the effect of his decisions. Also, the state sanctions were harsher than the federal sanctions, trespassing beyond the limits Congress had set for pressuring Burma. As the Court said, the state laws "compromise the very capacity of the President to speak for the Nation with one voice in dealing with other governments."²⁹

The Court's more recent ruling in *American Insurance Ass'n v. Garamendi*,³⁰ is more difficult to interpret. California had passed legislation dealing with World War II-era insurance policies held by European Jews, many of which were either confiscated by the Nazis or dishonored by insurers after the War. Ultimately, the Allied governments had mandated restitution to Nazi victims by the West German government. Unfortunately, although a large numbers of claims were paid, many others were not, and large-scale litigation resulted after German reunification. The U.S. government entered into negotiations to try to resolve the dispute, resulting in an agreement with Germany. In the meantime, California passed a law requiring any insurer doing business in the state to disclose information about all policies sold in Europe between 1920 and 1945. California officials were unmoved by a protest from the federal government that the statute might derail its agreement with Germany.

A narrowly divided Court struck down the California law.³¹ According to the majority, the consistent presidential policy had been to encourage voluntary settlement funds in preference to litigation or coercive sanctions. California sought to place more pressure on

²⁸ 530 U.S. 363 (2000).

²⁹ 530 U.S. at 381.

³⁰ *Id.* at 381.

³¹ The majority included a conservative (Chief Justice Rehnquist) and four of the Court's centrist judges (Souter, O'Connor, Kennedy, and Breyer), while the dissent contained two liberals (Ginsburg and Stevens) as well as the Court's two most conservative members (Scalia and Thomas).

foreign companies than the president had been willing to exert. This clear conflict between the federal policy and state law was itself a sufficient basis for preemption. The majority found the argument for the preemption issue particularly persuasive given the weakness of the state's interest in terms of traditional state legislative activities.³²

Garamendi's broader language about Presidential authority to preempt state law may have been tempered by the later decision in *Medellin v. Texas*.³³ *Medellin* was a complex case involving state violation of an international consular treaty, at least as the treaty was interpreted by a decision of the International Court of Justice (ICJ). The Supreme Court found that the treaty providing the ICJ's authority to decide cases involving the United States was not self-executing and did not bind the states directly. But President George W. Bush had also issued a memorandum stating that the "United States will discharge its international obligations . . . by having State courts give effect to the [ICJ] decision in accordance with general principles of comity." The Court rejected the President's argument that he had inherent authority "to establish binding rules of decision that preempt state law." The scope of *Garamendi* was not directly at issue, but the Court was clearly less sympathetic to the argument that Presidential actions had the effect of preempting state law without any support from a treaty, statute, or clear history of Congressional acquiescence.

It seems unlikely that courts will apply foreign affairs preemption to rule out state laws that independently limit carbon emissions. But states do not always attempt to reduce carbon emissions on their own. Instead, they seek to work with other state governments or even with foreign jurisdictions, as exemplified by the Quebec-California emissions trading system.

When states try to pursue their policy goals through cooperation with foreign governments, they may encounter additional constitutional problems. Recall that states are forbidden to enter into treaties with foreign governments. In addition, the compact clause provides that no state can enter into an "Agreement or Compact with another State, or with a foreign Power" without the approval of Congress. As we will see in the next section, however, the term Agreement does not include all cooperative arrangements. The Supreme Court cases involve alleged Agreements or Compacts with

³² The dissent cogently argued that upholding the state law "would not compromise the President's ability to speak with one voice for the Nation" and that the Court should reserve foreign affairs preemption for "circumstances where the President, acting under statutory or constitutional authority, has spoken clearly to the issue at hand." *Id.* at 442.

³³ 552 U.S. 491 (2008).

other states rather than with foreign jurisdictions. But given that the same Constitutional language applies in both the interstate and transnational settings, the doctrine should apply equally to agreements between state governments and foreign jurisdictions.

C. The Compact Clause

Just as states have made linkages with foreign jurisdictions in their climate mitigation efforts, they have also made linkages with each other. State emissions trading systems often involve linkages with other states or Canadian provinces. For instance, in 2001, the Conference of New England Governors and Eastern Canadian Premiers adopted a Climate Action Plan pledging to reduce greenhouse gas emissions to 1990 levels by 2010 and 10 percent below those levels by 2020.³⁴ Such linkages offer several advantages. States can "magnify the importance of their climate change initiatives by banding together with other state and local governments."³⁵ In an emissions trading system, "size matters" because "a greater number of sources makes possible a greater number of trades thus making the market more competitive."³⁶ Finally, regional systems may fit well with the regional organization of the electricity grid.³⁷

Despite their advantages, regional agreements may encounter constitutional challenges. The main issue is whether Congressional consent to a regional agreement is required under the compact clause. To what extent does this clause prevent cooperation by states with other states or foreign jurisdictions—for example, in jointly designing and implementing emission trading systems? The answer seems to be the compact clause should not be a major problem for states pursuing linkages with other jurisdictions.

The Supreme Court has not construed the compact clause to reach all agreements between states, but only those that are "directed to the formation of any combination tending to the increase of political power in the States, which may encroach upon or interfere with the just supremacy of the United States."³⁸ On this basis, the Court upheld the formation of a multistate tax commission formed to develop tax policies for individual states, which would then be adopted separately by each member state.³⁹ The commission had the

³⁴ Engel, *supra* note 4, at 65.

³⁵ *Id.* at 64.

³⁶ *Id.* at 69.

³⁷ *Id.* at 71.

³⁸ *Virginia v. Tennessee*, 148 U.S. 503, 519 (1893).

³⁹ *United States Steel Corp. v. Multistate Tax Comm'n*, 434 U.S. 452 (1978).

power to conduct audits using subpoenas in any of the member states' courts, including audits of multinational corporations.

Similarly, in *Northeast Bancorp, Inc. v. Bd. of Governors of the Federal Res. Sys.*,⁴⁰ the Court found that no compact existed despite deliberately parallel state laws and informal agreements between state officers regarding acquisition of local banks by out-of-state banks. Although the parallel state laws were adopted in concert, the Court found other circumstances more important: that no joint regulatory body was established, the statutes were not conditional on each other, and states were not legally bound.⁴¹ The Court held that the statutes did not "either enhance the political power of the New England States at the expense of other States or have an 'impact on our federal structure.'"⁴² Note that the text of the compact clause does not distinguish between other states and other countries, so the reasoning of *Northeast Bancorp* would appear to apply in both contexts.

In designing trading systems, states have been careful to respect the strictures of the compact clause. The Northeast trading system, RGGI, was the product of two years of negotiations between states. The governors of the states entered into a Memorandum of Understanding (MOU), which ultimately led to the creation of a model rule for adoption by individual states. States then individually adopted regulations based on the Model Rule. At no point were the states as sovereign entities legally bound to take any action, nor did they delegate regulatory power to an interstate entity. All of this is in line with the Supreme Court's rulings upholding the multi-state tax commission and bank acquisition agreements.

A virtually forgotten provision of the Clean Air Act eliminates any remaining doubt about the legality of interstate linkage efforts such as RGGI, although it does not apply to linkage with foreign jurisdictions. Section 102 of the Clean Air Act is entitled "cooperative activities."⁴³ Subsection (a) calls upon EPA to encourage "cooperative activities by the States and local government" and foster the passage of uniform state laws. Subsection (c) is even more clearly on point. It provides:

The consent of the Congress is hereby given to two or more States to negotiate and enter into agreements or compacts . . . for (1) cooperative effort and mutual assistance for the prevention and control of air pollution and the enforcement of their respective laws relating thereto, and (2) the

⁴⁰ 472 U.S. 159 (1985).

⁴¹ *Id.* at 175.

⁴² *Id.* at 176.

⁴³ CAA § 102, 42 U.S.C. § 7402.

establishment of such agencies, joint or otherwise, as they may deem desirable for making effective such agreements or compacts. No such agreement or compact shall be binding or obligatory upon any State a party thereto unless and until it has been approved by Congress.⁴⁴

This provision squarely covers RGGI-like interstate agreements, given that the Supreme Court has held that greenhouse gases are a form of air pollution under the statute. Congressional consent is needed only in order to make an agreement about greenhouse gases legally binding on the states. Thus, although states may retain the right to withdraw, an interstate trading agreement seems permissible even if it goes beyond the safe harbor provided by the Supreme Court opinions.⁴⁵

The Clean Power Plan is designed to encourage states to create and link their trading systems. It would seem that this could be accomplished through parallel state submissions to EPA rather than by a formal agreement between the states. This would presumably obviate any compact clause challenge.

IV. Assessing State Mitigation Actions

How much can state policies contribute to reducing greenhouse gases? Clearly, the extent that any state can contribute towards solving such a global problem is limited. Even California, which has one of the 10 largest economies in the world, is a minor emitter compared with the United States as a whole or China or the European Union. Cities, of course, are even smaller players. Still, even small reductions in greenhouse gases have some positive effect: the less carbon in the atmosphere, the lower the amount of harm from climate change.

The ability of states to reduce pollution is limited, however, by the problem of leakage, which was discussed in Chapter 2. For instance, if a state were to close its own coal-fired power plants, it might find that utilities simply purchased electricity on the wholesale market from coal-fired plants in neighboring states. Similarly, if the state imposes restrictions on manufacturers in its own state, manufacturing might simply increase in another state that does not impose such emissions standards. Because states are

⁴⁴ CAA § 102(c), 42 U.S.C. § 7402(c). A concluding sentence provides that compacts relating to "control and abatement of air pollution in any air quality control region" can only include states in that region. That sentence seems to have no application to climate change, which does not relate to a specific air quality control region.

⁴⁵ Section 102 may also be relevant to certain kinds of discrimination claims. States outside the agreement (and their firms) can hardly complain that they fail to receive the benefits of an agreement that they have not entered.

relatively small and because goods, services, and capital move readily between states, leakage is a larger problem at the state level than at the national level. It is difficult to estimate the magnitude of leakage, but it is clearly not insignificant.

States can take some steps to reduce leakage. They can impose less stringent restrictions on industries where leakage seems more likely to be a problem. They may also have some ability to reduce leakage by regulated the carbon intensity of imports, as shown in the *Rocky Mountain* case. But some leakage is almost inevitable given that states operate in a wide-open national market. This leakage needs to be offset against the emission reductions achieved within the state.

Leakage means that regulation in one states increases emissions elsewhere. But the opposite effect is also possible. Localities do not act entirely on their own when they choose to address climate change. Both within the Untied States and globally, there are well-developed networks of countries, state governments, and cities that provide mutual support and coordination. Moreover, like early adopters of new technologies, these "early adopters" of climate policy can promote improvements in regulatory tools, which make it easier for others to adopt those tools later. More directly, by providing markets for renewable technologies, they promote the development of those technologies and help producers gain the experience necessary to reduce costs through "learning by doing." In these ways, early adopters may make it more likely that others will follow in their footsteps.

Some scholars argue that this "bottom up" approach to climate mitigation has better prospects than the top-down approach in which an international agreement sets standards, which are then adopted at the national level. The problem with the top-down approach is that it requires universal agreement, or at the very least agreement of all the largest emitters such as the United States, the EU, China, India, and perhaps another half dozen major countries. That agreement has proved difficult to establish and maintain in practice. Advocates of the bottom-up approach argue that it may be easier to create a global climate regime by building cooperative networks of jurisdictions. These networks could gradually grow until they controlled a sufficient share of emissions to bring the problem under control.

State and local governments also have another important role to play in the climate change arena. Up to this point in the book, we have focused on efforts at all levels (international, national, state) to mitigate climate change by reducing carbon emissions. But as we saw in Chapter 1, some degree of climate change seems virtually inevitable. Society will then be faced with the problem of adapting to

these changes. Because many of the impacts of climate change are localized, much of the adaptation effort is likely to fall on state and local governments. Thus, the next chapter, which deals with climate change, involves matters that are directly relevant to these levels of government.

Further Readings

Brannon P. Denning, *Environmental Federalism and State Renewable Portfolio Standards*, 44 CASE W. RES. L. REV. 1519 (2014).

Kirsten Engel, Edella C. Schlager, & Sally Rider, NAVIGATING CLIMATE CHANGE POLICY: THE OPPORTUNITIES OF FEDERALISM (2011).

Daniel A. Farber, *Carbon Leakage Versus Policy Diffusion: The Perils and Promise of Subglobal Climate Action*, 13 CHI. J. INT'L LAW 359 (2013).

David R. Hodas, *State Initiatives*, in Michael B. Gerard and Jody Freeman (eds.), GLOBAL CLIMATE CHANGE AND U.S. LAW (2d ed. 2014).

Alexandra B. Klass and Elizabeth Henly, *Energy Policy, Extraterritoriality, and the Dormant Commerce Clauses*, 5 SAN DIEGO J. CLIMATE & ENERGY L. 69 (2013–2014).

Hari Osofsky, *The Geography of Solving Global Environmental Problems: Reflections on Polycentric efforts to Address Climate Change*, 58 NYL SCH. L. REV. 777 (2013/2014).

Eleanor Stein, *Regional Initiatives to Reduce Greenhouse Gas Emissions*, in Michael B. Gerard and Jody Freeman (eds.), GLOBAL CLIMATE CHANGE AND U.S. LAW (2d ed. 2014).