Beyond Politics

The Private Governance Response to Climate Change

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CAMBRIDGE
UNIVERSITY PRESS

1 Introduction

Who recently announced a goal of reducing 20 million metric tons of greenhouse gas emissions? We have posed that question to dozens of audiences at public events and in university classrooms, and the answers we get invariably assume that government is the actor. In some cases the answers are cities like Seattle or New York. In other cases the answers point to states and provinces like Rhode Island or British Columbia, or countries ranging from China to small island states.

The correct answer? Walmart. Working with the Environmental Defense Fund, in 2010 Walmart announced the 20 million ton goal, and the effort ultimately yielded more than 28 million tons of emissions reductions between 2010 and 2015 from Walmart's suppliers in China and around the world. Moreover, on the heels of this achievement, Walmart announced the even more ambitious goal of reducing its greenhouse gas emissions between 2015 and 2030 by one billion tons, which would be roughly the same reduction that would be achieved by a government regulation that required to the U.S. Iron and Steel Industry to cut its emissions to zero.[1] Whatever your views are about Walmart, we suspect that taking a leading role in greenhouse gas (GHG) emissions reductions is not the role you envisioned for the company.[2]

In this book, we examine why climate debates so often default to an assumption that government must be the actor that responds to climate change and that the action must be some form of international agreement, or domestic law, policy or program. Although the climate problem will not be solved without government responses, we demonstrate that private actors – including corporations, advocacy groups, individuals and households, civic, cultural, philanthropic and religious organizations, colleges and universities, and hospitals – are achieving major emissions reductions in the United States and around the globe. We explain why they are acting, and we identify additional opportunities that could add up to a billion tons per year of additional emissions reductions over the next decade. A focus on actions by the private sector is particularly important because climate policy is deeply polarized along liberal and conservative

lines, but private sector responses, which we call private climate governance, can bypass "solution aversion" – the resistance to climate change that arises from concerns about a big government response.[3] A billion tons of emissions reductions per year over the next decade will not solve the climate problem, but these reductions will buy additional time for public opinion and public support to catch up with the climate science.

Corporate climate initiatives such as the Walmart example are the most visible example of private governance, and these initiatives have proliferated in the U.S. and around the world in the last decade. Walkers Crisps, the largest potato chip producer in the United Kingdom, feeling pressure to examine its carbon footprint, has learned that because it was buying potatoes by the pound, farmers were responding by picking the potatoes when they were wet and storing them in humidified warehouses, only to have the company dry them before it turned them into potato chips. This process boosted energy costs and carbon emissions, and wasted money. Similarly, an effort to identify potential carbon emissions reductions by Virgin Atlantic Airways revealed that providing pilots with information about jet fuel use could improve fuel efficiency pre-flight, in-flight, and post-flight. Research by several economists suggests that providing this information could lead to thousands of tons of carbon emissions reductions and hundreds of thousands of dollars of cost savings per year for Virgin Atlantic, and the ability to extend these findings to other airlines and transportation sectors has yet to be explored.[4]

Apple has pushed for lower carbon emissions from its suppliers in China, and to address concerns that the suppliers could not reduce their carbon footprint because they could only buy coal-fired electricity, in 2015 Apple partnered with its suppliers to provide two gigawatts of renewable energy (the equivalent of roughly two to four major electric power plants) to these suppliers. In 2016, Apple took a similar step in Arizona, committing to build a major new solar power plant to offset the emissions from a new manufacturing facility.

In the United States, Microsoft, Google and dozens of other major companies have publicly committed to become carbon neutral. Hundreds of others have committed to less ambitious but still important emissions reduction goals. For instance, Dell Computer has committed to 30 percent carbon emissions reductions.[5] Some of these actions may have been taken in anticipation of near-term government regulations that look increasingly unlikely, at least in the United States, but many clearly are not the product of near-term government pressure.

Recent developments in our area, the U.S. Southeast, provide an example. The southeastern states would be the sixth-largest emitter if they were a country, and these states are not known as leaders on climate

policy.[6] Most have not only rejected state climate regulations, but also have litigated vigorously to prevent the federal government from enforcing national regulations that would reduce emissions from coal-fired power plants. Although these states are not pursuing carbon emissions reductions, Google, Facebook, and other companies are pushing utilities in the region to provide renewable energy for new facilities such as data centers and are extending their influence by encouraging other electricity buyers to do the same.[7]

Many of these efforts have occurred in a one-off, uncoordinated way, but in recent years private organizations such as We Mean Business, the Carbon War Room, CDP (formerly the Carbon Disclosure Project), the World Wildlife Fund, and Ceres have begun coordinating climate mitigation actions and quantifying the carbon emissions reduction potential of private climate initiatives across many sectors. Studies by these organizations suggest that our billion ton annual target for private climate governance is not unduly optimistic. In fact, in 2016 a joint We Mean Business-CDP report estimated that several corporate initiatives at the global level could achieve over 3 billion tons of emissions reductions by 2030.[8]

Climate Change and the Paris Agreement

Even if a private response is important in the United States, is it important on a global level now that the Paris agreement is in place? You would be justified in wondering about that given the December 2015 headlines around the world announcing the success of the Paris agreement:

"Nations approve landmark climate accord in Paris" (*The New York Times*)[9]

"COP21: Paris climate deal is 'best chance to save planet'" (*BBC*)[10]

"Chapter of Hope: India hails climate change, says it protects interests of developing countries" (*Asianage, India*)[11]

"Dilma says that global climate accord is 'just and ambitious.'" (*Natureza, Brazil*)[12]

In fact, the mood in the months after the Paris conference was so positive that World Bank Group President Jim Yong Kim felt the need to caution diplomats and policymakers to "wake up from the fog of success."[13]

What created that fog of success? The diplomats who participated in the Paris agreement negotiations were justifiably proud of their achievement. They avoided the rancor that had plagued international climate negotiations for many years. Finessing disagreements over the allocation of responsibility for causing the problem, the negotiators settled on voluntary, nationally determined commitments for the period from

2020–2025. They also agreed on a goal of achieving a global average temperature "well below" 2 degrees Celsius (2°C) above preindustrial levels and an aspiration of achieving 1.5°C. Other commitments focused on improving the ability to verify and coordinate compliance with the 2020–2025 commitments and an agreement to make further commitments for the post-2025 period.

The Paris Gap

Despite this progress, one thing was clear even before the US presidential election blew away the fog of success from Paris: The diplomats finessed but did not break the gridlock that has impeded the international process over the past two decades. Agreement was reached by stating an ambitious 2°C goal while lowering expectations about what the international process will deliver to achieve the goal over the next decade. Even with the full participation of the United States, the modest goal of the Kyoto Protocol – to cut developed nations' emissions 5 percent below 1990 levels by 2012 – was far in the rearview mirror at the Paris conference and was no longer even an aspiration of international negotiators for 2025, much less 2012.[14] In fact, the Paris agreement, even if all commitments are fulfilled, will allow an *increase* in global emissions of roughly 34 to 46 percent in 2025 over 1990 levels. These are emissions levels that will not keep the globe on track to achieve the 2°C target, much less the 1.5°C aspiration. Instead, even with full implementation of all Paris commitments, the globe was probably on a path toward a world with temperatures more than 3°C above pre-industrial temperatures.[15]

We call the difference between the emissions pathway necessary to achieve the 2°C goal adopted in the Paris agreement and the pathway that will occur even if all countries fully comply with all of their Paris agreement commitments the "Paris Gap". Even with full participation by the US, the Paris gap is large: over the next decade, it averages roughly 3–9 billion tons of carbon dioxide per year, which adds up to a total of roughly 30–90 billion tons. This book focuses on carbon dioxide emissions from fossil fuel consumption and industry, and if we focus on these types of emissions, the Paris gap is roughly 54 billion tons of carbon dioxide over the next decade, or an average of a little more than 5 billion tons per year. The Paris gap will only widen to the extent the United States and other nations withdraw from the Paris agreement or otherwise fail to meet their commitments. In addition, although the agreement provides a process for new commitments for the period after 2025, the agreement also relieves the pressure on the participating countries to make additional emissions cuts before then. The Paris agreement thus acts not only as a floor of minimum

reductions that are likely to occur but also as a ceiling, limiting the maximum reductions that nations feel pressure to meet through 2025.

The Paris gap is important. To achieve the 2°C goal of the Paris agreement, global emissions would need to decline by roughly 65 percent below current levels by 2050. A few decades after that emissions would need to become negative, meaning that more carbon is removed from the air through human activity than emitted.[16] To meet a more realistic 3°C target for warming, global emissions could grow slightly between now and 2050 but would need to drop significantly after that.[17] The emissions pathway over the next decade matters because the next round of reductions, even if they can still achieve a 2°C pathway, which we believe is unlikely, will need to be deeper and steeper than the policy process can be expected to yield without some near-miraculous technological developments or very high costs.[18] In addition, although no one can predict all of the effects of global temperature increases of 3°C or more, remaining on this path presents substantial risks. Temperature increases in this range will almost certainly increase the frequency and severity of deadly heat waves around the world. They also will increase the likelihood of crossing tipping points in the climate system and in human systems that could make the consequences of climate change, such as sea level rise, even worse. In short, waiting a decade for national and international processes to yield more aggressive reductions is a risky option.

Closing the Paris Gap

So how should we close the Paris gap? Until now, experts and policymakers have largely focused on how governments at all levels can respond. International climate efforts have focused on the motivations for national governments to reach international agreements and the policies that can be included in the agreements. One response to government gridlock at the national and international levels is to focus on those pollutants, such as soot, that are easiest to control because they cause current, localized harms and thus generate more public support for action.[19] Another is to bypass international gridlock by focusing on how small groups of nations can reach agreements that other countries may want to join over time.[20] Other approaches seek to bypass national gridlock by pursuing government action at regional, state, and local levels, an approach that has become known as a "bottom-up" response.[21] Yet others have focused on technology development or geoengineering in the event that mitigation efforts fail.[22] Several public-private campaigns also have attempted to mobilize corporations, religious organizations, and others to push governments to

act, particularly in the ramp-up to the Paris negotiations and in response to the US announcement to withdraw from the Paris agreement.[23]

All of these government-focused efforts are likely to be important over the long term. Yet after the 2016 US presidential election, it is clear that in the United States and many other parts of the world the public does not consider climate change important enough to pressure politicians to adopt more aggressive policies. At some point, the threat posed by climate change will become far more apparent to the general public, and politicians around the world will scramble to get in front of the parade. When that happens, many of the options that have been favored by climate policy analysts for decades, including a price on carbon that is adopted by all major emitting countries, may be viable. The evidence that climate change poses a genuine threat currently rests on detailed statistical analyses, though, and it may be many years before more directly visible evidence emerges. This suggests that a new era of public support for major emissions reductions may not begin for a decade or more.

The Emergence of Private Climate Governance

In this book we outline a new approach that shifts the focus away from government, not as a substitute but to buy time until substantial shifts occur in public support for climate mitigation. To bypass the gridlock over government responses to climate change, we explore how private climate initiatives can help close the Paris gap over the next decade and complement more comprehensive government climate action when it occurs. Efforts to induce additional government action at the international, national and sub-national levels will be critical to closing the Paris gap, but we make the case that governments are not the only important actors for climate mitigation – private actors, including corporations, advocacy groups, individuals and households, civic, cultural, philanthropic and religious organizations, colleges and universities, and hospitals – are not just advocates for or against government action, but they can make an important, and perhaps essential, contribution on their own. In other words, closing the Paris gap requires more than just government action; a concerted effort is needed to mobilize private actors to reduce their emissions and push other private organizations to do so as well.

As we mentioned at the outset, our analysis suggests that private climate initiatives in the corporate and household sectors alone can reduce carbon dioxide emissions by roughly a billion tons per year over the next decade, on top of the emissions reductions that could be achieved from government climate policies. These private sector–driven emissions reductions are not enough by themselves to limit global warming to 3°C,

much less 2°C or 1.5°C, but they can be an important piece of a larger strategy to buy time, improve the odds of avoiding catastrophic climate change, and reduce the costs and intrusiveness of the emissions reductions that will be necessary after 2025. Even after governments adopt additional policies, private governance can play a complementary role, providing additional information and motivation to achieve emissions reductions.

The private sector opportunity exists because new private governance initiatives can be started, and existing initiatives expanded, by organizations and individuals who are not subject to the barriers that confront governments. In fact, control over private governance initiatives is in the hands of the readers of this book and is not contingent on ending the deep government gridlock over climate change. In many cases private initiatives also cannot be blocked by the government policymakers who are doing what they can to prevent shifts away from fossil fuels.

A related advantage of private climate initiatives is that they have the potential to confound, if not bypass, the role that liberal and conservative worldviews play in delaying the response to climate change. By now, it is not news that worldviews shape beliefs about the climate science and attitudes toward climate mitigation.[24] People do not simply accept new facts and form a worldview, they begin with a worldview and engage in confirmation bias – they accept facts that fit with their worldview and reject those that do not. They also engage in motivated reasoning, seeking out those facts that will provide confirmation.[25] Equally important, individuals engage in "solution aversion" – they allow concern about the policy implications of new information to affect whether they accept that information.[26] These are responses we all share to some extent, and they are an important source of the government gridlock on climate policy in the United States and many other countries. In the United States, roughly 70 percent of the population believes that big government is the greatest threat facing the country, suggesting that many view government solutions to climate change as a bigger threat than the climate problem itself. Private responses hold out the promise of tackling solution aversion by shifting the actor from government to private organizations and by shifting the action from legislation or regulation to a range of private sector initiatives. In other words, for those who are concerned about carbon emissions but fear big government more than climate change, private governance provides an opportunity to contribute to climate mitigation without requiring a change in worldview or support for unpalatable solutions.

Can private actions yield sufficiently large emissions reductions to be worth the effort? Our research suggests that private climate governance is not a sideshow but is one of the few ways to bypass government gridlock and

achieve major emissions reductions over the next decade.[27] International, national, and sub-national actions are obviously important, but private initiatives already are reducing annual global emissions by millions of tons through the individual and collective actions of corporations, private certification and standards groups, advocacy groups, religious organizations, colleges and universities, households, and other actors typically viewed as lobbyists for or against government action, not as important players directly in climate mitigation. In addition, new initiatives such as the private climate prediction market and climate legacy registry discussed in Chapter 7, along with a full-throttled effort to exploit the potential of the corporate and household efforts discussed in Chapters 5 and 6, can yield major new reductions.

Why do we believe that private actors can make this contribution? In this book we not only explore numerous examples of private climate governance but also develop a theory to explain why it has occurred and explore its potential moving forward. In some areas of policy, scholars have developed a new regulatory tool, and policymakers have later learned about it and pursued it. The idea of taxing pollution is an example: It was developed by economists in the 1960s and 1970s before becoming an accepted government policy tool in the 1980s and 1990s. Private climate governance has emerged the other way around: Corporations, advocacy groups, and others have acted in the United States and around the world, leaving scholars scrambling to explain what has happened and where these efforts might go in the future.

The examples of corporate climate initiatives we discussed at the outset arose without explicit government regulatory pressure, programs or resources.

In other cases, initiatives organized or funded by governments have stimulated corporate climate actions. For example, the 2012 Rio Summit included a coordinated set of announcements by corporations and other "non-state actors" to reduce carbon emissions. Following up on these announcements, a concerted effort leading up to the Paris conference developed additional corporate and local government commitments, along with a registry to provide recognition for emissions reductions and a tally of the total claimed reductions from these organizations.[28] After the announcement that the USA would withdraw from the Paris Agreement, the initiatives such as "We're Still In" included statements of support by city and state governments as well as corporations and universities. As we have seen with the data center initiatives in the US southeast, though, in many cases governments have not been pushing or funding these types of efforts, and in some cases policymakers have even tried to discourage

private actions. As a result, we believe it is a mistake to rely solely on government efforts to stimulate climate change mitigation efforts.

Fortunately, there are many sources of pressure on private actors to reduce emissions. For instance, investors are playing a major role in motivating corporate emissions reductions. Through the efforts of CDP, investors holding roughly $100 trillion in assets have pressured large corporations to disclose and reduce their carbon footprints, and these efforts at least arguably contributed to emissions reductions equal to a major emitting country. Efforts by other advocacy organizations such as Ceres and by socially responsible investment firms, which control trillions in assets, also push corporations to reduce emissions not only by threatening to divest from certain companies but also by exerting pressure through shareholder resolutions, letters to corporate executives, and other more informal efforts. Major corporations such as Apple and Hyundai, as well as other organizations such as Columbia University, have taken a more direct approach to the investor sector, issuing "green bonds" that are designed to fund energy efficiency and other projects at favorable rates.[29]

In some cases, private efforts are taking the form of private certification and standards programs, which often involve collaborations between advocacy groups, corporations, and other stakeholders. For example, private forest certification programs and other private forest initiatives regulate forestry practices and seek to reduce deforestation around the world. Many of these programs are taking steps to reduce the greenhouse gas (GHG) emissions from deforestation, although the research is not yet clear on whether they are achieving that goal. On a related note, deforestation is often driven by global demand for palm oil and other commodities, and commodity roundtable efforts initiated by the World Wildlife Fund and other groups have sought to reduce the carbon emissions that arise from the production of these commodities.

On the home front, even though government regulation of household carbon emissions would be controversial in the United States and many other countries, private advocacy groups and corporations have reduced household emissions through new home energy disclosure programs, programs that offer employees incentives to achieve energy efficiency at home, voluntary carbon offset programs, efforts to provide individuals with feedback on their energy use, and many others. Government efficiency standards for vehicles and appliances have been important, but they are complemented by these types of private initiatives directed at the household level. Even if the government standards are rolled back, the private initiatives can mute some of the effects of the rollback. As we demonstrated in a 2009 study, contrary to the popular impression that

household efforts are merely feel-good distractions, the potential for these initiatives is not trivial: Within a decade, simple household energy efforts in the United States could reduce annual emissions of carbon dioxide by around 450 million metric tons, equal to the all of the emissions of the host country for the Paris agreement – France.

When we wrote the 2009 article, we were still following the conventional approach to climate governance, assuming that governments would adopt laws, policies and programs to achieve this "behavioral wedge" of emissions reductions. We now realize the extent to which governments at all levels face barriers to tackling household carbon emissions, and in this book we identify a wide range of private organizations that have the motivation and ability to implement many of the behavioral wedge initiatives. For instance, even simple energy efficiency legislation is now subject to political polarization and gridlock at the federal and state levels in the United States. Similarly, under current public utility laws, in most jurisdictions electric utilities have some incentive to promote efficiency or renewables at low levels, but they do not have incentives to sell less of their product overall. They have incentives for these efforts to achieve minimum levels of success but not to go viral because that could lead to what some industry officials have described as "revenue erosion" for the utilities. Private organizations and advocacy groups have responded by developing private initiatives that can reduce household energy use with state-of-the-art programs. Even in some traditionally liberal states state legislatures have rejected mandatory home energy disclosure requirements, but realtors and environmental groups have begun to work together to add energy information to the data typically provided in multiple listing services for existing and new home sales.

Once the role of private organizations as regulators of their emissions and supply chains becomes clear and once we move beyond thinking of private organizations just as advocates for or against government climate policies, many other new private opportunities become apparent. The Catholic Church is a good example. In the 2016 Papal Encyclical, Pope Francis spoke eloquently about the moral and religious imperative of addressing climate change, and his message was an important part of the effort to increase the pressure on government diplomats at the Paris conference. This is traditional thinking: A private actor is important because of its influence on government. Thinking of the Catholic Church through the lens of private governance leads to another option, though: The Church is not only an advocate for government emissions reductions but also a source of emissions in and of itself, and it is a private regulator of its energy suppliers and supply chain contractors. As a source, the back-of-the-envelope calculations we discuss in Chapter 9 suggest

that its global emissions from churches, schools, and other operations are comparable to a medium-sized country, such as Chile. In other words, the Catholic Church would be among the top fifty largest emitters in the world if it were a country. Many Catholic organizations have taken steps to reduce their carbon footprints, but if the Church committed to the level of reductions from its own operations and suppliers that it believes nations should follow, the Church could make a more significant contribution to global emissions reductions. Framing private actors such as religious organizations, private hospitals and universities, corporations, and other organizations as emissions sources and private regulators, not just as advocates or targets of government regulation, thus suggests new types of emissions reduction opportunities that are not subject to the gridlock that has plagued government responses to climate change.

In short, the Paris agreement demonstrates not only that the international process can take important steps but also that the international process will not yield emissions reductions with the speed and magnitude necessary to achieve its goals, and the US withdrawal from the agreement only underscores this point. We outline a new, complementary approach in this book – a global effort driven by advocacy groups and philanthropists that elicits the participation of corporations, households, and other private actors to help close the Paris gap in the near term and to complement government mitigation efforts when governments treat climate change with the priority and urgency it deserves. The principal barrier to this approach is conceptual, not physical; it is the widespread view that climate mitigation is synonymous with government laws and policies.

Private climate initiatives are not perfect responses to the climate problem, but the appropriate question is not: Are private initiatives a complete response to climate change? Instead, the appropriate question for private initiatives is: As compared to what viable alternative? The Paris agreement represents the high water mark for international emissions reductions for the next decade, and it will fall short of its own goals.[30] Although new laws that price carbon are a first-best response that hold understandable theoretical appeal,[31] the likelihood that these laws will be adopted in the United States in the near term, as well as in most of other major emitting countries, is low at best.[32] For many types of social problems, delay is not a substantial problem, but for climate change time matters.[33] Many climate change harms will be essentially irreversible, and the delay caused by political infeasibility will raise mitigation costs enormously. Some analyses find that the cost of mitigation rises by 40 percent per decade, while others find that even one decade of delay may raise mitigation costs more than one-hundredfold.[34]

Our thesis in this book is that holding out for perfect or near-perfect policies and relying solely on international, national, and sub-national government responses is a flawed strategy. In the short term, we believe that it is far better to pursue a large variety of imperfect policies and programs, both public and private, that can be adopted and implemented quickly. Adopting these stop-gap measures must not interfere with a longer-term strategy of adopting more sweeping measures that can address the whole scope of the climate problem, but if we do nothing while we wait for those measures to pass into law and then into practice, it may be too late for them to prevent catastrophic climate change.

We are not naïve cheerleaders for corporations and other private organizations, and we recognize the risks of undermining government responses to climate change, but we see an enormous opportunity for private initiatives to complement other approaches. The key is to understand the potential of private initiatives and to pursue the most promising options. In some cases, we point to existing initiatives. In others, we suggest new directions for private climate governance and areas for further research, although the ideas we suggest are just the tip of the iceberg. Once the concept of private governance crystalized for us, we began to see new opportunities almost everywhere we looked, and we think that you will, too. To start the process, over the next nine chapters we examine the hurdles to government climate action, the drivers and limits of private climate action, and the types of initiatives that demonstrate the role that private climate governance can play.

Reconceptualizing Climate Governance

The private initiatives we discuss in this book are a form of private environmental governance, which occurs when private organizations perform traditionally governmental functions, including reducing negative externalities and managing public goods or common pool resources.[35] The dominant view of environmental law since its inception has been that the actor that can and should perform these functions is government, and thus the presumption has been that the best response to climate change is public governance via a government-adopted carbon price or regulation. Over the past two decades, though, while many people were assuming that environmental governance was synonymous with government regulation, a remarkable number of private environmental governance initiatives emerged. If you buy a fish sandwich at any McDonald's in the United States, it will have a Marine Stewardship Council label, certifying that the fish is from a sustainably managed fishery. These labels now apply to roughly 10 percent of all of the fish caught for human consumption

around the world. If you buy cleaning fluid at a Target or Walmart, the chemicals in the product, and even the chemicals used to make the product, may be determined by requirements that these retailers, not the government, impose on suppliers in response to pressure from environmental groups.[36] The drivers and watchdogs for the initiatives are often advocacy groups that have realized that stimulating direct action by corporations is often more feasible that stimulating government action. Although government often still plays an important role, as a leading industry advocate stated recently, "[t]he loss of public confidence [in the public regulatory system means] we're going to increasingly have retailers that are regulators, like Walmart and Target."[37]

Wishful thinking is common in debates about the response to climate change, but we argue that private climate governance is not just a feel-good sidelight that is occurring while governments grapple – or can be made to grapple – with the real work of addressing climate change. It is understandable if you think of private initiatives in this way. Media reports often focus on top ten lists that include small steps that individuals can take to save energy or reduce emissions, but these steps often have a trivial effect on their own and cannot be taken at large scale. More substantial private initiatives are often undertaken in isolation from one another, or they are viewed as efforts to induce governments to act rather than as an opportunity for direct emissions reductions in the absence of government action. Private climate initiatives are also hiding in plain sight in many cases: The wide range of private corporate, household, and other activities may appear to be unrelated until the common thread of private organizations bypassing government climate gridlock becomes clear.

Paying close attention to the major media or following the academic literature might only reinforce the tendency to overlook private climate initiatives. It is easy to fall into the trap of assuming that the only important climate policy question, as one leading pundit suggested, is "What can government do?" Even our vocabulary, ranging from terms such as "policymaker" to "regulation" and "international" can create a conceptual trap, implying that government is the actor that can respond to social problems. Instead of asking "What can government do?," in this book we ask, "What can any organization do?" To avoid the vocabulary trap, when talking about private governance we use broad terms such as "actor" and "initiative" in place of "policymaker" and "regulation." These terms may seem too generic, but they can accommodate the large variety of private climate actors and actions, and most alternative terms tend to reinforce the government-as-actor framing.

Re-framing the question to leave room for private governance leads to several additional conceptual shifts. The actor that can drive emissions

reductions shifts from government alone to any public or private organization. In turn, the actions that can be taken shift from government laws, policies and programs alone to include a number of private options as well, such as supply chain contracting requirements, private certification standards for forestry and other carbon-intensive sectors, commodity roundtables, lender standards, corporate and product carbon disclosure, green finance, private sector demand for renewable power, employee household efficiency campaigns, household energy disclosure, and a host of others. Even the conception of emissions sources shifts, since private actors and initiatives can reach many types of sources that are difficult for government to regulate, including households, small businesses, foreign businesses, religious organizations, colleges and universities, hospitals, and civic and cultural organizations.

The conceptual shift regarding climate actors, actions, and sources makes it possible to appreciate the extent of the efforts that are under way and to envision a private climate governance strategy that can bypass government gridlock at the international, national, and sub-national levels. In this new vision, the Catholic Church and other not-for-profit organizations are important sources and regulators of their contractors' emissions, not just advocates for government action. Corporations are regulators of their suppliers, of their borrowers, of their commercial tenants, and sometimes of their corporate customers, not just regulatory targets or lobbyists.

The Case for Private Climate Governance

The amount of private climate governance activity under way now is remarkable. But to see the significance of these initiatives, we need a conceptual framework that does not exclude private actions from our notions of governance. We develop that conceptual framework in this book and outline a private climate governance strategy by defending three propositions. First, we demonstrate that large emissions reductions are needed in the near term. Second, we explain why it is unrealistic to assume that governments will be able to deliver the needed reductions. Third, we demonstrate how private climate governance can achieve a significant fraction of the necessary reductions – carbon dioxide emissions equivalent to roughly 1 billion tons out of the 5.5 billion tons per year of reductions necessary over the next decade to close the Paris gap. Private governance is not enough to close the Paris gap in the near term, nor does it fully address the long-term climate problem, but it can help to keep global emissions on a pathway that will make it more likely for warming to remain below 3°C. Private governance can thus contribute to buying time

for a more comprehensive government response, reduce the risk of catastrophic climate change, and reduce the cost of climate mitigation. We do not pose an all-or-nothing argument that the world must choose between public and private governance. In our view, they are complementary, and we should pursue both.

The Climate Threat and the Limits of Government Responses

Part I sets the stage by addressing our first two propositions: that the threat of climate change deserves urgency and priority and that the barriers to adopting and implementing an adequate government response are unlikely to be overcome in the next decade. Chapter 2 addresses the urgency and priority that should be assigned to emissions reductions. Climate change is different from many other environmental and social problems because it can produce globally severe effects that will be irreversible for thousands of years. The actions that will result from the Paris agreement are important, but even if all emitters, including the USA, fulfill their Paris commitments, the emissions reductions will be insufficient to limit future warming to 3°C (roughly 5.5°F) above preindustrial temperatures, much less 2°C. Governments around the world will take many steps to implement the Paris agreement, but if 2°C or possibly even 3°C is the goal, it is unlikely that adequate government policies will be adopted in time. Although other investments in the future are necessary, we argue for giving priority to near-term emissions reductions that both lower the eventual costs of reaching our goal and reduce the likelihood of passing tipping points.

We argue that giving top priority to greenhouse gas emissions is analogous to the "safety first" strategy used by some investors. Like climate change, financial investments often involve highly uncertain outcomes with potentially devastating consequences, such as bankruptcy. According to the safety first investment model, a firm will select among attractive investment options, but only after first screening to assemble a pool of high-quality, low-risk investments.[38] This strategy minimizes the risk of potentially devastating outcomes. Choosing only low-risk options may reduce the likelihood of very high profits, but it also reduces the risk of a catastrophic loss. Although opting to invest resources in emissions reductions may not produce the greatest of all possible future benefits, this strategy minimizes the odds of incurring potentially catastrophic harms.

Chapter 3 examines the barriers to adopting and implementing an adequate government response. It notes that many, perhaps most, economists prefer a carbon price, either in the form of a carbon tax or a cap-and-trade system, but a carbon price would require legislation in the United States and many other countries as well as coordination at the international

level. It argues that a carbon price is an attractive option, but even before the 2016 election the characteristics of the climate problem, combined with the deep design features of government on an issue with severe political polarization made adoption and implementation of an adequate carbon price unlikely over the next decade. The features of the climate problem that make it so difficult have been addressed elsewhere in detail, and the political system has its own problems. Given the deep design features of the US federal government (checks and balances, divided powers, etc.), an issue such as climate change that generates concentrated, well-funded opponents facing off against a large number of diffuse supporters of government action, most of whom place a low priority on the issue, is unlikely to provoke a vigorous, timely government response.[39] Even if the US president did not view climate change as a hoax, opposition driven by economic or ideological interests could block legislative action entirely by succeeding at any one of several points in the legislative process, including by thwarting a majority vote in the House of Representatives and by taking advantage of the requirement for sixty votes for most legislation to emerge from the Senate.[40] These limitations are evident even in the actions that President Obama was able to accomplish on domestic climate policy.

We provide an appendix with recommended reading on the challenges presented by the climate problem and other topics, but in Chapter 3 we focus principally on conceptual barriers to government action that have received less attention. For instance, the assumption that the best government response can be adopted in time is so common and so embedded in the language used in public climate debates that it is easy to overlook. This is also true in the academic literature. This framing often arises when scholars attempt to identify the optimal or best response and assume away political feasibility.[41] Feasibility issues may be either set aside altogether or given short shrift when comparing the advisability of various options. Policy experts are beginning to show increasing flexibility on this point after decades of critiquing second-best options in favor of a carbon price, but the time to implement second-best measures is running short, and often the focus is still on what government measures might be available, a framing that continues to constrain the thinking of scholars and policymakers.

Creative and potentially fruitful avenues for reducing emissions also remain unexplored due to additional biases or conceptual hurdles among experts and the public. In some cases, a new approach cannot, on its own, solve the entire problem. As Elinor Ostrom noted, policy debates often have a panacea bias, rejecting responses to a problem if the proposed response does not offer a complete solution, even if complete solutions are out of reach. Legitimate concerns also arise about whether private governance will crowd out support for public governance, which we call

negative spillover, but we view these concerns as a spillover bias if negative effects are assumed, rather than observed or inferred from balanced analysis. The one percent problem – the tendency to dismiss the importance of small sources – is another barrier to emissions reductions. Rejecting initiatives directed at small sources is appropriate if doing so avoids a misallocation of regulatory resources, but this approach can be unproductive if the problem is caused by a collection of many sources, most of which can claim to contribute a very small share of global or national emissions. For instance, over 150 countries can claim that they contribute less than 1 percent to global emissions, yet if all of those who contribute 1 percent or less are given a pass, we cannot achieve the necessary emissions reductions to achieve a 2°C or perhaps even a 3°C pathway.

The Private Governance Opportunity

Part II makes the case for the private governance opportunity, arguing that unlocking the potential of private governance will require a conceptual shift. Given the profusion of small sources, the urgency of the problem, and the depth of government gridlock regarding the largest sources of emissions, anything that can help reduce emissions at a reasonable cost without discouraging other, more comprehensive responses should be considered seriously. A private climate governance strategy cannot solve the climate problem, but it can be adopted quickly, increasing the chance to avoid some of the worst climate effects until the political parade begins moving in earnest.

Why is it plausible that private organizations could produce major carbon emissions reductions without the motivations, coercive power, and resources of government? Policy analysis often assumes that when significant negative externalities exist and property rights are poorly defined, as is the case for carbon emissions, the only feasible remedies are either massive government intervention or an assignment of easily enforceable property rights.[42] But in 2009 Ostrom received the Nobel Prize in economics for showing that a broad array of other governance approaches, including private governance, can and do succeed.[43] For climate mitigation, Ostrom recommended polycentric governance, which in the climate case involves not relying solely on a comprehensive international response but on many governmental and non-governmental organizations acting at the local, national, and global levels. We take the analysis a step further by noting that many of the barriers to climate mitigation arise from delays or outright opposition by governments, even accounting for possible government action at multiple levels. As a result, we focus on private initiatives that can function independently of government action.

Chapter 4 provides a simple model of the drivers of corporate, household, and advocacy group actions. The model explains the principal motivations for reducing carbon emissions. It also suggests that the potential for a private climate governance strategy to yield prompt, major reductions at low cost does not rest on unrealistic assumptions about individual or corporate altruism, but it does require rigorous analysis of the opportunities for low-cost emissions reductions, the motivations for carbon-emitting behavior, and the ability of private institutions to respond.[44] In the model, we use a three-part analytical framework to avoid the fuzzy thinking that can easily creep into efforts to achieve efficiencies at the corporate and household levels: We evaluate the actions that are potentially subject to private initiatives based on their technical potential (the emissions reductions that would arise if all possible household or corporate behavior change occurred), behavioral plasticity (the extent of the behavior change that can reasonably be expected from an intervention), and initiative feasibility (the extent to which initiatives that target these actions can be adopted and implemented).[45]

Technical Potential Technical potential is most often thought of as a way to assess the emissions reductions that could be achieved by specific actions. How often have you heard someone tout the fact that they recycle their glass bottles when asked if they are doing their part to respond to environmental threats? Yet what do we know about the emissions reductions that occur from recycling glass? Even the most sophisticated analysts and policymakers fall prey to mental traps when suggesting solutions to the climate problem. On a per-ton basis, recycling glass does not save anywhere near as much energy or carbon as recycling aluminum: If everyone in the United States recycled every glass container, the yield would be a bit more than 2 million tons per year of carbon dioxide (less than 0.1 percent of total US emissions).[46] Recycling aluminum, on the other hand, reduces emissions more than thirty times as much on a per-ton basis.[47] The average household goes through many more pounds of glass containers than aluminum containers, however, and households are already much more diligent about recycling aluminum than glass, so there may be more opportunity to increase the rate of recycling glass. To understand the technical potential at the specific action level we would need to identify the emissions reductions that would arise if everyone or every organization took this step. The answer may be very different from what one might expect, and obtaining an accurate estimate of the technical potential can be challenging. Many efforts to reduce climate change would not make a large dent in the problem even if they succeeded, but others would. The goal is to target actions with large footprints so that successful initiatives will be worth the effort.

The actions and sectors we include in the private climate governance strategy score high on technical potential. This high technical potential arises from the large emissions that occur from some sources and the ability to scale up initiatives to address multiple small sources. For instance, although households are not the traditional targets of environmental law, private initiatives directed at households have high technical potential: In the United States, households account for roughly a third of greenhouse gas emissions.[48] The corporate sector, a common participant in private initiatives, accounts for a similar share.[49]

Behavioral Plasticity How often have you read in a popular magazine article or heard a friend or a local organization announce, "If everyone would just [fill in the blank with carpool, take the bus, or any of many other unpopular steps], then we could solve this problem"? This kind of thinking can occur regarding individual or corporate behavior. Carpooling is a good example. In contrast to some other commonly recommended activities, carpooling has a large technical potential. Cars emit over nineteen pounds of carbon dioxide for every gallon of gas they burn. Every time a car carries two people who would otherwise have driven separately, emissions fall by roughly half, so if everyone who now drives to work carpooled just once a week, US emissions would decline by millions of tons. But carpooling suffers from a different problem: It is inconvenient, and very few people will do it without strong regulatory, financial, or social incentives. This issue addresses what we call behavioral plasticity – the malleability or ease of changing a behavior. Many actions have high technical potential but low behavioral plasticity, so although the actions appear on the surface to be great opportunities, behavior change initiatives will often fail if the initiatives target these behaviors. Providing insight into the behavioral plasticity of individuals and corporations is a core objective of our model of private climate governance.

High behavioral plasticity regarding carbon emissions arises from the ability of private initiatives to target behaviors that can be changed without the coercive power or resources of government. Because private organizations lack the power and resources of government, for private climate governance to be effective on a large scale opportunities must exist for individuals and corporations to save money by reducing emissions. One of the most important ways this can occur is if there is a large "efficiency gap" – if individuals and corporations have not seized all of the negative or low-cost opportunities to reduce both energy use and carbon emissions. As we note in Chapter 4, the size of this opportunity is subject to heated debate, both at an economy-wide scale and with respect to specific behaviors. At the economy-wide scale, engineers engage in bottom-up analysis, identifying specific

areas (e.g., corporate efficiency investments, home weatherization) and assessing the potential reductions achievable from these areas. These studies conclude that there is a large efficiency gap, potentially providing opportunities to achieve several billion tons of annual emissions reductions with the low cost that makes private governance a possibility.[50] Many economists, using a top-down analysis, are skeptical of this efficiency gap.[51] They begin with the theory that markets are efficient and look for exceptions to the theory. From their perspective, the efficiency opportunities that engineers identify must be subject to unobserved costs or barriers not included in the engineers' analyses, or else the opportunity would have been captured. In short, if important opportunities existed to achieve true net cost savings they would have already have been exploited.[52]

We allow the reader to judge whether this is a realistic assumption or whether engineering and other systematic studies, the examples provided in this book, and daily experience suggest that there are areas where quirks in human behavior, legal structures, management practices, or shortcomings in information have left opportunities for energy use and carbon emissions to be reduced with low or even negative costs. We assume that both sides of this debate have some merit. The engineers are probably correct that some major unexploited negative or zero-cost efficiencies exist. But the economists are probably correct that many efficiencies that appear attractive on the surface are subject to a range of unobserved costs or barriers that are not easily detected or overcome. In our view, even if these unobserved costs or other barriers exist, in many cases they may be sufficiently low to enable private initiatives to overcome them. Similarly, it may be the case that these efficiencies would have been ferreted out by market forces over time, but private initiatives can accelerate this process. Even if private initiatives only accelerate the achievement of efficiencies, that acceleration may yield important social dividends.[53] For climate change, which is essentially irreversible and is subject to tipping points, time matters. In addition, the new green financing options we discuss in Chapter 5 may help address barriers arising from the initial costs of efficiency upgrades.

We argue that widely observed behavioral and market failures have discouraged responses to unexploited efficiency opportunities. In other words, behavioral failures and market failures are obstacles to emissions reductions, but these failures also provide opportunities for private initiatives to draw on self-interest to shift behavior with limited resources and little or no coercion.[54] As to behavioral failures, a vast body of research demonstrates that people do not always act in their own interest; on occasion they need a "nudge" to motivate them to do so.[55] We explore these behavioral insights in Chapter 4, and in Chapter 6 we explain why

our earlier research suggests that by 2020 behavioral initiatives that rely on nudge-type interventions can reduce household emissions by hundreds of millions of tons of carbon dioxide.[56]

Private initiatives also can target gaps that exist because of a wide range of market failures. A common example is that landlords for commercial and residential property often control decisions about whether to install efficient heating and cooling systems, but the tenants bear the energy costs. Heating and cooling systems have a large effect on building energy use, but in these situations the landlord has limited incentives to invest in an efficient system. Similarly, a rate structure common in the shipping industry may undermine incentives to reduce energy use. The standard practice is to allocate most shipping fuel costs to the customer, not the shipping company, leaving the party that has the most control over fuel use with limited incentives to invest in efficiency.[57] These types of market failures undermine efficiency, and private initiatives can correct many of them.[58]

Some household and corporate private initiatives also have high behavioral plasticity because they draw on existing public support for climate mitigation. In the United States, only a small subset of the population places a high priority on climate mitigation, although a larger share supports mitigation while giving it a low- or medium-level priority.[59] These levels of support are insufficient to drive federal legislation, especially when some groups place a high priority on blocking climate-related regulation.[60] At the same time, more people believe corporations should act to mitigate climate change than believe government should act.[61] Private initiatives can harness these reservoirs of support for mitigation by providing individuals with opportunities to act on their preferences via consumer choices, household energy use, investment decisions, corporate management decisions, and other actions.

Initiative Feasibility Our third category for analyzing the prospects for private climate governance, initiative feasibility, is simple on the surface, but we have found that the focus on government action in policy debates makes it the most difficult category to conceptualize. We are all conditioned to think that when a social problem exists, the range of options is defined by the different ways that government can respond, whether through regulation, making the behavior more expensive, subsidizing alternatives, or taking similar steps. If this is the only way to conceive of the response, then all we need to consider is political feasibility – the ability to marshal the political support necessary to adopt and implement a government law or policy. If the responses also include the kinds of private governance options we discuss in this book, however, then the feasibility

that matters is not just political feasibility. Instead, feasibility considerations also should include whether a private initiative can be adopted and implemented. For example, an effort by an advocacy group to induce an industry sector to impose carbon reduction requirements on its suppliers does not turn on political feasibility but rather on whether the advocacy group has the resources and desire to pursue a collaborative effort or a naming-and-shaming campaign and whether the industry sector has the motivation and market power to respond with a supply chain carbon emissions reduction effort.

As we mentioned previously, financial resources matter: An effort to achieve major emissions reductions from the household sector in the United States requires making very large amounts of low-interest financing easily available to households who want to weatherize their homes and buy fuel-efficient cars or energy-efficient heating and cooling equipment but cannot just write a check for many thousands of dollars. To expand such an initiative worldwide would require still more capital. We emphasize that this is money that would be repaid, with interest, but the capital would need to be mobilized in advance. The question is how easily can organizations and initiatives be mobilized for this green financing effort and obtain the funding they need?[62] Although the technical potential and behavioral plasticity of private climate initiatives are important, initiative feasibility is equally important and has been given insufficient attention in climate debates.[63] Private governance initiatives are second-best options that lack the breadth and power of national legislation and international agreements, but they often have high initiative feasibility.[64]

After developing a theory in Chapter 4 to explain why corporations, households, and advocacy groups have sufficient motivation and ability to reduce carbon emissions even if not required to do so by governments, in Chapter 5 we explore the remarkable emergence of corporate private climate initiatives over the past decade. We examine leading examples of existing corporate initiatives and suggest that unexplored opportunities could yield half a billion tons of emissions reductions. The corporate initiatives we examine in Chapter 5 include efforts such as the Carbon War Room, which is targeting market failures in several corporate sectors, each of which has the potential to yield a billion tons of emissions over several years. The discussion also examines the role that carbon footprint disclosure can play in driving emissions reductions at the corporate, project, lender and investor, and product levels. Corporate carbon disclosure initiatives by private advocacy organizations such as CDP and Ceres are increasing pressure on firms to reduce emissions, and these efforts could create additional pressure to reduce supply chain emissions if firms can be induced to disclose the emissions of their suppliers (called "Scope 3"

emissions). Although many more options exist, we conclude the corporate overview by examining a new type of corporate form that has emerged in the United States, called a benefit corporation. Corporations organized under benefit corporation statutes, which exist in roughly half of the US states, are explicitly authorized to pursue environmental and social goals as well as profits. These benefit corporations have the potential to provide low-carbon alternatives in a number of important corporate sectors.

Chapter 5 also notes that corporate private governance initiatives are particularly important at the global level; they can leverage the recent growth in international trade, extending pressure for climate mitigation across national borders even in the absence of additional international agreements. This is a critical advantage of private climate governance. The deep divide between developed and developing countries is a principal obstacle to further progress in international climate negotiations even after the Paris agreement, and this divide may grow as the United States reverses course on climate mitigation. Even without international or national government action, though, private governance initiatives can transfer pressure for carbon emissions reductions within and between developed countries and from developed countries to developing countries. As a result, private governance initiatives may create a pool of suppliers in a developing country that have incentives to produce goods with less carbon and to support national policies that enable them to do so. In turn, this may reduce the incentives for national governments to adopt policies that encourage companies to offshore carbon-intensive production from developed countries and for developing countries to object to meaningful emissions reductions commitments in international negotiations. The amounts involved are not trivial – Walmart has 10,000 suppliers in China alone.[65]

Chapter 6 turns to the household sector, focusing on existing and new household initiatives, and concluding that another half-billion-ton opportunity exists in this sector. The household private governance initiatives include a set of behavioral wedge actions ranging from more efficient home appliance purchases, to improved motor vehicle maintenance practices. The behavioral wedge actions are just the beginning, however. By attacking market and behavioral failures, private initiatives can achieve major additional reductions. Examples include efforts to disclose energy data in the listings for new and existing home sales and efforts to provide displays that give homeowners immediate feedback on energy use.

Chapter 7 explores two new cross-cutting private initiatives that could increase support for mitigation efforts. The first is a private climate prediction market. Research about the effect of worldviews on beliefs about climate science suggests the difficulty of inducing individuals to

be open to information that does not simply confirm existing beliefs. Working with social psychologist Kaitlin Toner Raimi, we have suggested that a private climate prediction market is a viable way to reach individuals who place more faith in markets than in government-funded climate science. A private prediction market may be able to bypass worldview concerns, allowing the market to test the accuracy of climate scientists' predictions and allowing individuals in political debates or across the dinner table to say, "put your money where your mouth is" when expressing a view about climate change.

The second cross-cutting initiative is based on our research team's recent work, which suggests that many individuals care a surprising amount about their legacy after they die. With climate change, many of the costs must be borne today, but the benefits will accrue to future generations, in some cases tens or even hundreds of generations from now. Governments are unlikely to be able to respond adequately to this intergenerational problem, but we argue that a private climate registry could enable individuals, corporations, non-profit groups, and religious organizations to record for posterity what they did today in response to climate change. In turn, this opportunity to create a positive legacy could encourage near-term climate mitigation actions.

Objections and Extensions

Part III examines next steps by exploring potential objections to private climate initiatives and extending the private governance concept to new actors and actions. It begins in Chapter 8 by identifying several plausible objections, including whether private governance initiatives are sufficiently accountable, whether they will have unfair effects on disadvantaged populations in the United States and around the world, and whether they are so embedded in the market economy that they will perpetuate, rather than reduce, unsustainable long-term emissions reductions pathways. We view these through the lens of the theme raised throughout this book: As compared to what viable alternative? For instance, we agree that accountability concerns exist regarding private climate initiatives, but we note that government accountability mechanisms are often imperfect and that alternative mechanisms exist for increasing the accountability of private initiatives. On the issue of climate justice, we note that people living in poverty in both developed and developing countries have moral and economic reasons to oppose incurring the costs of near-term emissions reductions, and we identify ways that private governance can address many of these reasons for opposition. For instance, supply chain contracting and similar private initiatives can

be an avenue for private transfers of wealth (e.g., through higher consumer prices for low-carbon goods), information, and technology from developed to developing countries, providing a subsidy as well as a demand for lower-carbon goods. The recent example of Apple partnering with its suppliers to provide two gigawatts of renewable energy production in China to enable its suppliers to meet Apple's requirements for smaller carbon footprints demonstrates that these wealth transfers are already occurring. We also argue, though, that private governance initiatives offer a way to account for the need to reduce emissions from all nations and populations. Perhaps the most under-represented populations in climate negotiations are the hundreds of generations of descendants of people living in poverty today. If they had a seat at the table, we suspect that they would support major emissions reductions by the wealthy and by developed countries, but we also suspect that they would not support economic development patterns among developing countries that contribute to irreversible, catastrophic climate change. Private initiatives can offer a way to bring more actors into the emissions reduction effort and can do so in a way that recognizes the complexity of climate justice efforts.

We also respond to the concerns of sociologists and others who have argued that a fundamental characteristic of the capitalist market economy will prevent private governance from achieving meaningful emissions reductions.[66] The logic behind this argument is that firms that reduce emissions beyond the point at which reductions maximize profits ultimately will be outcompeted by firms that choose not to do so.[67] This logic underlies a more general concern that free enterprise and ecological sustainability are fundamentally incompatible, a key assumption of the "treadmill of production" theory of capitalism in environmental sociology. In other words, these critiques argue that there is a cap on non-regulatory emissions reductions. We do not tackle the larger questions about the role of capitalism in this book, but we do agree that private initiatives are inadequate to solve the entire climate problem. At the same time, we argue that the proper comparison is not to an ideal but politically infeasible government response. Instead, we argue that an adequate government response will not occur in the near term and that these theories do not undermine our argument that private initiatives can help close the Paris gap in the interim and buy time for and complement additional government responses over the long term.

In Chapter 9, we examine additional steps to build on the current momentum for private action. We begin by suggesting a strategic assessment to identify the opportunities for private governance with high technical potential, behavioral plasticity, and initiative feasibility. We argue that a new

private organization may be necessary to coordinate and drive private governance activities and to be a focal point for activity that is attractive to conservatives as well as liberals. We are hesitant to suggest the overhead and resource needs of yet another private organization, however, and we assess whether greater coordination among existing organizations might suffice. Whether structured as a new organization or a coordinating body for existing ones, the organization could conduct the strategic assessment, expand current initiatives, spawn new initiatives, and ensure that current initiatives give sufficient priority to climate mitigation. Importantly, it also could track and report on emissions reductions to ensure that the effects of private governance initiatives are widely understood. We also have only scratched the surface of the opportunity for new private climate governance initiatives, and the new private climate governance organization could launch new initiatives to target new actors, such as religious organizations, the insurance sector, and the small business sector.

Chapter 10 concludes by arguing that private climate initiatives have implications not only for climate and other environmental problems but also for governance more generally in a world that is struggling to account for complex problems that arise on a global scale and present obstacles not contemplated by early framers or current students of government. The themes that run through this book, including not assuming that government is the only actor, not assuming either-or choices among responses, comparing options to viable alternatives, selecting options based on criteria such as initiative feasibility, adopting a safety first approach when appropriate, and others, suggest that the response to climate change, and perhaps other global problems, requires new ways of thinking about what governance means and how it could or should be analyzed and structured.

The Conceptual Shift

We close this introduction by returning to the idea of a conceptual shift. Although we propose a number of new ideas (a legacy registry, a US climate prediction market, expanding corporate carbon disclosure efforts to suppliers, global private carbon labeling for consumer products, etc.), many of the corporate and household activities we discuss in this book are already under way, so what is new in the private governance strategy we present here? The answer is that if you look around, you will see that private governance activities have grown rapidly in recent years, but they are often viewed as a sidelight, something to be funded by bake sales while the real response to climate change occurs through government. Private initiatives are remarkably widespread and sophisticated, but they are occurring with limited coordination, funding, and strategic prioritization, and they are far

from reaching their potential. This is what we would expect if the managers of corporations, advocacy groups, and other private organizations, as well as scholars, philanthropists, pundits, and the public, view them in isolation, not as a critical part of the climate response, and view climate policy as essentially a matter of public, not private, governance. To see something you often have to imagine it, and we are providing the outlines of what private governance is and can be in order to make it easier to see its full potential. Once private climate governance's potential is understood, it can attract the level of resources, staffing, and coordination necessary to achieve this potential.

Health psychologists suggest that people are more likely to respond to a problem if they have a sense of efficacy and an internal locus of control. If you want to improve your diet or exercise to reduce the risk of diabetes, you are much more likely to do so if you not only have accurate information about your diet but also believe that your actions will help reduce the risk and that you control those actions.[68] Efforts to increase efficacy and locus of control have been used not only when helping people control their diets but also for increasing exercise, reducing smoking, and many other health-related behaviors. Not surprisingly, health research also suggests that individual action will be most effective on a large scale if a partnership is formed between the patient and "powerful others," including family, friends, and health care providers. Each side is dependent upon the actions of the other for the best outcomes to occur.

These insights are valuable when thinking about what it will take to get individuals and organizations to recognize the role that private initiatives can play and to seize the opportunity to make major reductions in carbon emissions. Taking private governance seriously requires demonstrating the efficacy of private governance (the potential emissions reductions are sufficiently large to make a meaningful contribution to the global mitigation effort) and an internal locus of control (private organizations have the ability to make major emissions reductions even without the coercive power or resources of government). In the long run, successful private climate governance also requires mutually supporting networks, whether at the household level or among corporations, their suppliers, private standards organizations, and private advocacy organizations. If public governance is gridlocked and cannot take the necessary steps, then it is up to private governance to do the best it can in the interim. Private initiatives cannot keep global emissions on track to achieve the most widely adopted climate target, but they can reduce emissions by roughly a billion tons (a gigaton) of carbon dioxide per year between 2016 and 2025. When combined with other efforts, private governance offers an opportunity to buy valuable time while government remains in gridlock.

Notes

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2. We use "GHG" and "carbon" interchangeably to mean the six greenhouse gases that are the principal drivers of anthropogenic climate change. These are often expressed in the form of carbon dioxide equivalents or CO_2e. When referring to one of the six GHGs, such as carbon dioxide (CO_2), we use the specific term.
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13. Amanda Reilly, After Paris, world leaders try to shake "fog of success," *GreenWire* (2016, 5 May).
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62. *See* Jonathan Gilligan, Michael P. Vandenbergh, Mark A. Cohen, and Alan Wiseman, Accounting for institutional plasticity in climate and energy policy analysis (under review).
63. *See, e.g.*, Nordhaus (2013), *supra* note 30, at 272–273.
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