Climate Change, Governance Failures, and Public Administration

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ABSTRACT How do insights from environmental politics of the 1970s–1990s inform our understanding of contemporary climate governance? I suggest that the governance response for addressing pollution problems of the 1970s–1990s was sequential. The first wave of governance interventions addressed market failures; the second wave targeted government failures. In contrast, climate governance seeks to correct both market and government failures simultaneously. Furthermore, unlike first-generation environmental problems, domestic and international factors together hinder progress on climate change. Theoretically, this article examines how governance failures are recognized and addressed, how and why backlashes arise, and which governance innovations are possible in contested policy spaces. Three lessons emerge. First, governance innovations should be sculpted with failure drivers in mind. Because political challenges stall climate progress, climate policy must address these political concerns. Second, governance innovations cannot be expected to deliver a perfect solution devised by a technocratic elite. Policy progress is uneven, slow, and incremental. Third, governance arrangements, even on arguably highly technocratic issues, require social and political licenses to operate. Instead of asking the public to "listen to science," climate-policy advocates should listen to people and devise policies that the public views as improving their everyday lives.

It is a great honor to receive the 2025 John Gaus Award. Although awards recognize the contributions of individuals, much research takes place within formal and informal teams. Coauthoring is a clear example of formal team effort, but teamwork also encompasses interactions with colleagues and students. Thus, I acknowledge the contributions of my mentors, coauthors, colleagues, and students. I have benefited from the intellectual environment provided by the University of Washington's Center for Environmental Politics and the worldwide Environmental Politics and Governance network.

My journey as a researcher began in 1993 when I enrolled in the Joint PhD Program offered by the O'Neill School of Public and Environmental Affairs and the Department of Political Science at Indiana University Bloomington. Moreover, I was actively associated with the Ostrom Workshop in Political Theory and Policy Analysis. During four wonderful years in Bloomington, I learned from leading scholars of political science and public administration, many of whom have themselves received the John Gaus Award. These scholars include Vincent Ostrom (2006), Rosemary O'Leary (2017), and James Perry (2018). Thus, the connection between political science and public administration was emphasized from the first day of my intellectual journey.

After graduating from Bloomington in 1997, I joined the faculty of the George Washington University's School of Business, Department of Strategic Management and Public Policy. I interacted with scholars working in the area of corporate social responsibility (CSR) (Griffin and Mahon 1997; Griffin and Prakash 2014), a topic I had explored in my doctoral dissertation (Prakash 2000a). From a public-policy perspective, CSR represents a form of private

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governance in which firms voluntarily incur costs to provide public goods.

In 2002, I joined the University of Washington's Department of Political Science, where I work alongside outstanding faculty members and students. I have served (or serving) on more than 35 PhD committees, chairing many of them, and this engagement has played a crucial role in shaping my research ideas.

CORRECTING GOVERNANCE FAILURE

My objective for this article is to examine how insights from environmental politics of the 1970s–1990s inform our understanding of contemporary climate governance. I explore how governance failures are recognized and addressed, how and why backlashes arise, and which types of governance innovations are possible in contested policy spaces.

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I begin by outlining three principles that shape my thinking. First, all institutions or governance structures are prone to failure: markets fail, governments fail, and the civic sector also fails (Dolšak and Prakash 2022a). However, failures should not lead us to condemn an institution. Instead, failures open the policy space for governance innovation. Whereas some failures can be traced to institutional design, others reflect the changing political conditions that undermine institutional fit (Prakash and Potoski 2016). The lesson is that governance innovations should be sculpted with failure drivers in mind.

Second, good governance aims to improve collective well-being rather than deliver a perfect solution that heralds the end of history. This means that governance scholars should take incrementalism seriously (Bendor 1995; Lindblom 1959, 1979; Weiss and Woodhouse 1992). Small, sometimes disjointed, successes over time can cumulate into big wins. Moreover, these successes may stem from unconventional governance arrangements in which governments, businesses, and the civil sector each can play a leading role.

Third, governance arrangements can effectively promote collective endeavors when they have legitimacy or the social and political licenses to operate (Gächter and Fehr 1999; Gunningham, Kagan, and Thornton 2004; Suchman 1995). Instead of appealing to technocratic rationality (McAvoy 1999; Simon 1955), policy makers should engage respectfully with diverse stakeholders to build political alliances (Wilburn and Wilburn 2011). This approach assumes even greater importance in the current era of extreme political polarization.

In environmental policy, the received wisdom is that when action causing environmental harm goes unsanctioned, individuals have few incentives to curb it. In a market-based system, price signals are supposed to shape individual incentives in ways that serve the collective good. However, what if markets fail and these environmental harms are not reflected in the costs that individual actors bear for their actions (Pigou 1924)?

Public Policy 101 teaches that governments step in to compel individual actors to internalize the costs of externalities. This was indeed the narrative since the onset of the Industrial Revolution. As smog engulfed cities and rivers caught fire, the demand for governmental intervention increased (Stradling and Thorsheim 1999). In the United States, the 1970s and the 1980s were the most active decades for the enactment of federal environmental regulations. Governments either banned certain activities or imposed limits on actions that produce externalities, often through technological mandates (Cole and Grossman 1999).

Critics, especially regulated entities, viewed regulations and the permitting processes as heavy handed, complex, and costly. Litigation followed (Kagan 1991) and an ecosystem of environmental lawyers and consultants emerged (Sinclair-Desgagne 2008). Interest groups mobilized to oppose these laws. Instead of remaining in the apolitical domain of administrative agencies, the regulatory process became embroiled in political debates.

Scholars noted that the "market failure, therefore, government intervention" theory assumes an omniscient government that without fear or favor and at low transaction costs, would enact, monitor, and enforce regulations. Coase (1960), Stigler (1971), and Ostrom (1990) challenged these claims. Consequently, issues of high transaction costs, government capture and corruption, and the ability of local communities to use resources sustainably without a centralized mandate have become salient topics in the study of public administration, regulation, and governance.

The 1990s witnessed a broader movement to reform how governments function (Osborne 1993; Thompson and Riccucci 1998). As environmental governance was reinvented, many policy innovations emerged. Whereas previously, the command-and-control approach dominated environmental governance, governments now introduced or facilitated the introduction of new instruments that were politically more acceptable. These included market-based mechanisms (Swaney 1992) that penalize the production of externalities and information-based tools (Konar and Cohen 1997) that allow stakeholders to name and shame regulated actors. The following section focuses on one specific innovation: voluntary regulations.

FIVE LOGICS OF VOLUNTARY ENVIRONMENTAL ACTION

The phrase "voluntary regulations" might seem to be a contradiction in terms. After all, regulations are coercive instruments, intended to compel actors to incur the costs of internalizing externalities. The reality is that there is an element of voluntariness even in the context of mandatory regulation. The reason for this is that enforcement is expensive. After a certain level, coercion to compel compliance has diminishing returns (Scholz 1984). This is why even authoritarian states invest in legitimacy: it motivates citizens to comply voluntarily with state mandates (Akerlof 2017).

However, what if we think of voluntariness more ambitiously? Suppose regulated entities voluntarily adopt costly environmental policies that reduce pollution beyond the legal requirements. Moreover, because covenants without swords are mere words (Hobbes 1651/1960), these entities also submit themselves to nongovernmental actors who monitor and enforce compliance with

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these requirements. To understand why regulated entities might incur costs to reduce pollution beyond legal requirements, I propose five stylized theories of change (Dolšak and Prakash 2022b).

Model 1: Morality Motivates Voluntary Action

Because some firms struggle to find the balance between morality and profits, precipitating events and/or charismatic actors could tip the balance. Firms could embark on the green path, even at the expense of profits. The problem is that ex ante, we cannot assess the moral considerations with which firms operate; thus, morality-based theories of change tend to be ad hoc. Moreover, without a material payoff, morality is expensive. As profit-seeking actors, it is doubtful that a moral awakening could motivate many firms to substitute costly pollution reduction for profits.

Model 2: Science Motivates Voluntary Action

Firms' preferences shift not through a moral awakening but instead through a scientific breakthrough that convinces them that their actions harm humans and the environment. Thus, scientific information enables firms to become environmental stewards. Science-based logic assumes that firms are boundedly rational (Selten 1990; Simon 1957) and that bureaucracies operate with the best available knowledge. These bureaucracies take pride in their scientific and technical expertise. New scientific developments provide evidence that pollution—attributable to these firms' actions—is detrimental to society. Thus, firms start "listening to science." Instead of morality, science motivates firms to voluntarily incur costs to produce public goods. Again, similar to moral theory, science-based logic cannot explain why only some firms and not others seek to become environmental stewards. Moreover, it also is unclear to what extent the internal scientific establishment influences a firm's decision making.

Model 3: Technology Motivates Voluntary Action

Technological breakthroughs allow firms to reduce pollution at low cost. There is evidence that breakthroughs have enabled firms to reduce both costs and their environmental impact. However, there are two problems. New technologies might reduce pollution but not costs. Moreover, technological change could be expensive. Phasing out well-functioning technologies can lead to stranded costs. Furthermore, this perspective cannot explain why firms sometimes voluntarily take costly pro-environmental actions even in the absence of technological changes.

Model 4: Economics Motivates Voluntary Action

Economic theory suggests that with changes in the regulatory context (as opposed to technological changes), firms find it profitable to embrace pro-environmental actions. Porter and van der Linde (1995) argued that because pollution is a form of resource waste, regulations could encourage firms to reduce waste beyond legal requirements. The reason is that regulations focus the attention of boundedly rational firms on waste and the unclaimed opportunities to reduce costs. Thus, regulatory encouragement motivates firms to reduce pollution beyond legal mandates because they increase profits. Although this argument has empirical support (Lim and Prakash 2014), several objections remain. Firms might respond to regulatory changes with lobbying and litigation to stall or reverse these changes. Moreover, firms might welcome certain types of regulation because they raise entry barriers, create technological lock-ins, and protect rents (Buchanan, Tollison, and Tullock 1980; McChesney 1987). In this way, regulations might increase resource waste by insulating firms from competition.

Model 5: Politics Motivates Voluntary Action

Firms might invest in voluntary action in response to changes in the sociopolitical rather than the regulatory context. The reason is that some firms might perceive pro-environmental actions as essential for maintaining their social and political licenses to operate (Gunningham, Kagan, and Thornton 2004). This theory of change is different from economic logic. The firm in the Porter–van der Linde (1995, 97) model, motivated by regulatory changes, is boundedly rational, unaware of dollar bills lying on the ground. In contrast, the political firm is rational and certainly not the type that leaves dollar bills on the sidewalk. It carefully scans its sociopolitical environment to determine the best way to position itself. If a firm perceives its social license to be operating under threat, it is more likely to invest in voluntary environmental action beyond the legal requirements.

FROM COMMON-POOL RESOURCE REGIMES TO GREEN CLUBS

I offer a synthetic approach to studying voluntary regulations, drawing insights from both economic and political perspectives. Elinor Ostrom, my dissertation advisor, inspired my thinking on this subject. Lin is well known for her work on communitarian management of common-pool resources (Dolšak and Ostrom 2003; Ostrom 1990). Challenging the bleak prospects of overgrazed commons that necessitate government intervention (Hardin 1968), Lin argued that the proverbial herders could self-organize and sustainably use the pasture.

My work on voluntary regulation also is rooted in the concept of decentralized governance but in a different context. Instead of local governance of common-pool resources, I am interested in voluntary business regulations. Moreover, unlike the herders who had little interaction with public law, my herders are regulated by well-established regulatory systems.

Ostrom's (1990) local resource-user communities devised their own rules for sustainable resource use, with little government interference. In my work, trade associations, nonprofits, and stakeholder groups devise governance systems and invite firms to join them. The scale of these systems could be global rather than local. From a public administration perspective, it is interesting that even governments have sponsored voluntary programs. The US Environmental Protection Agency (USEPA) was the leader in the voluntary regulation movement (Coglianese and Nash 2009), establishing a wide range of programs, including the Energy Star (Boyd, Dutrow, and Tunnessen 2008)—which the current administration sought to defund but backtracked in the face of industry opposition (Joselow and Friedman 2025). Some programs likely have long-term effects on firm behavior. Hoang, McGuire, and Prakash (2018) found that firms that joined the USEPA 33/50 Program (i.e., program participants pledged to reduce the release or transfer of 17 toxic pollutants listed in the Toxics Release Inventory by 33% by 1992 and by 50% by 1995 with 1988 as the baseline) continued to reduce the emissions of the targeted chemicals, even after the program ended in 1995.

Because I worked in the business sector as a marketing manager, I recognize the importance that a firm attaches to its reputation and how this could secure the social license to operate.

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Through my dissertation (Prakash 2000a, 2000b) and the subsequent two decades of collaboration with Matthew Potoski (Prakash and Potoski 2006a, 2012) and other colleagues, I developed the theory of clubs to understand the motivations of firms to join voluntary programs. As scholars have suggested (Buchanan 1965; Cornes and Sandler 1996), clubs are institutions that facilitate the supply of non-rival, excludable goods (e.g., toll roads, cinemas, and museums). In my work, voluntary programs are akin to clubs in that they create reputational benefits that are non-rival but excludable.

The core idea is that some firms are willing to reduce pollution beyond the legal requirements when they can expect rewards for doing so. At the same time, some external stakeholders want to reward green firms. For example, regulators might offer regulatory relief (Potoski and Prakash 2004), financial institutions might reward firms that reduce pollution, and consumers might vote with dollars in favor of green firms.

From a governance perspective, the problem is that firms lack a way to signal their commitment to stakeholders and stakeholders lack the information to distinguish environmental stewards from non-stewards. That is, we lack the governance mechanism to facilitate the exchange of virtuous environmental behavior for stakeholder rewards.

Voluntary programs could be viewed as a governance response that mitigates information problems between firms and their stakeholders (Prakash 2000b; Prakash and Potoski 2006a). When a firm joins a green club, it can use the club's brand to signal its commitment to environmental stewardship—a crucial issue because outside stakeholders typically cannot observe its internal workings. Thus, the brand signal is a club good, excludable in that non-members cannot use it and non-rival in that all club members can jointly enjoy its branding benefits. For stakeholders, the club signal allows them to identify environmental stewards and express their appreciation. In effect, clubs potentially can create a market for environmental virtue (Vogel 2005).

Voluntary clubs raise important questions for the study of public administration. Although clubs operate under the shadow of public law (Berliner and Prakash 2013), do they preempt future regulations (Malhotra, Monin, and Tomz 2019)? Should regulators view these regulations as substitutes for their own monitoring and enforcement? If viewed as complements, should regulators offer "carrots" (e.g., regulatory relief) to firms that join them (Potoski and Prakash 2004)? How are incentives for different types of actors to establish voluntary programs explained, and why do excludable benefits offered to potential members depend on who sponsors the program (Darnall, Potoski, and Prakash 2010; Hsueh and Prakash 2012)?

Indeed, like markets and states, voluntary programs can fail in the sense that firms that join them do not reduce pollution (Berliner and Prakash 2015; Borck and Coglianese 2009; King and Lenox 2000). This may be because clubs either impose lenient obligations or fail to adequately monitor compliance. Thus, in the club ecosystem, greenwashers (i.e., a claim that the club encourages pro-environmental behaviors than it actually does) coexist alongside clubs that impose stringent obligations. The policy implication is that claims about club effectiveness must be verified instead of taken at face value.

My work on voluntary clubs highlights the importance of the sociopolitical context in facilitating governance innovations, as well as the contributions of both governmental and nongovernmental actors as governance entrepreneurs. It demonstrates the opportunities and the limitations of how innovations can address governance failures. Moreover, my work reveals the close connection between mandatory law and voluntary efforts in furthering the good-governance agenda.

My interest in governance innovations motivated me to examine climate change, a second-generation environmental problem. In this work, I am most indebted to Nives Dolšak, my frequent coauthor. The remainder of the article compares first-generation pollution problems with climate change and explore how insights from governance innovations of the 1990s can be applied to the study of climate governance.

CLIMATE CHANGE AND GOVERNANCE CHALLENGES

The governance debate for addressing pollution problems was a sequential process. The first wave of governance interventions focused on addressing market failures; the second wave targeted government failures. In contrast, climate governance seeks to correct both market and government failures simultaneously.

The origins of traditional environmental issues and modern-day climate problems differ. The modern US environmental movement began in the 1960s with the publication of Rachel Carson's *Silent Spring* in 1962. In the 1970s and 1980s, a spate of federal regulations and governance infrastructure emerged in response to public demand, within a somewhat bipartisan context. These regulations often tackled local, visible pollution problems and—to some extent—conservation problems. Moreover, technological and governance solutions are relatively uncomplicated.

This is probably why environmental regulations experienced early success. Cities no longer suffer from smog, rivers do not catch fire, and companies now carefully account for pollution and avoid dumping hazardous waste in landfills. However, even with this visible success, environmental regulations experienced backlash starting in the 1980s due to counter-mobilization by the regulated sectors. Globalization and trade issues complicated the domestic regulatory debate as critics claimed that environmental regulations motivated firms to move abroad (Dechezleprêtre and Sato 2017; Prakash and Potoski 2006b; Wheeler 2001). Beginning in the mid-1990s, environmental governance has stalled at the federal level due to intense partisanship. This created the policy space for the emergence of new governance mechanisms along with innovation at the subnational level (Rabe 2004).

In contrast to pollution problems, climate governance (specifically, climate mitigation) addresses the historic overuse of the global atmosphere, an open-access resource whose capacity to store or process greenhouse gases is overtaxed, leading to the rise in Earth's temperature. The problem driver is the modern industrial economy's dependence on fossil fuels to meet its energy needs.

Arguably, the problem definition is clear, technological solutions are relatively uncomplicated, and the regulatory toolkit is available. Why, then, the stall—or even reversal—of climate-mitigation policies? Given the severity of the problem, has this induced urgent policy action?

It has not. On the contrary, climate policy faces backlash in many countries: the Yellow Vests in France, farmers' protests in Belgium and the Netherlands, coal miners and oil and gas workers in the United States, and truckers in Canada. The United States and the European Union (EU) are rolling back climate laws, and

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Canada has axed its consumer carbon tax. Meanwhile, China and India continue to build coal plants, and many corporations have exited their net-zero climate commitments.

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Global Free Riding

Because climate change is a global-commons issue, international treaties provide the organizing governance architecture. Treaties are effective if they can be implemented domestically. This implementation can become challenging if there is a perception that the treaties are unfair or ineffective.

The 1992 United Nations Framework Convention on Climate Change enshrined the principle of common and differentiated responsibility to reduce greenhouse gas emissions. According to the 1997 Kyoto Treaty, only the Global North countries are subject to mandatory emission reductions. The reason for this was that because early industrializers relied on fossil fuels for their energy needs, the Global North countries account for most of the accumulated greenhouse-gas emissions (Dolšak 2001). This is why developing countries, including China and India, were exempted from mandatory reductions.

When the 1997 Kyoto Treaty was negotiated, it was less appreciated that the world economy was undergoing a structural shift in both economic activity and greenhouse gas emissions. This shift was accelerated when China joined the World Trade Organization in 2001. As China experienced impressive economic growth, it emerged as the largest emitter of greenhouse gases in 2006. By 2019, China's emissions exceeded those of all Global North countries combined. Thus, the exclusion of China from mandatory emission reductions has created a perception in Global North countries of global free riding and ineffective climate treaties (Nordhaus 2015). In the United States, this has provided justification to domestic-policy critics to delay decarbonization, the so-called China excuse (Dolšak and Prakash 2015).

China's climate journey is complex. China played an important role in the 2015 Paris Climate Agreement. The country has emerged as a leader in renewable energy, in terms of both installed capacity of wind and solar and the supply chain supporting its manufacturing. It also is a global leader in electric vehicles (EVs). Yet, even as China installs more solar and wind, it continues to build coal power plants at a rate of about two per week, which is six times the rate of the rest of the world combined (Simon 2023).

The bottom line is that, unlike environmental regulations of the 1970s and 1980s, climate change has a salient international dimension. The perception is that local interests are being sacrificed to help other countries, especially China—the United States' main economic and military competitor.

Energy Security and Energy Poverty

Unlike first-generation pollution problems, climate policy is perceived as directly affecting household budgets and creating national-security challenges. The Ukraine war has propelled energy security and energy inflation to the top of the global policy agenda. This is why all countries embrace energy self-sufficiency and energy equity as worthy goals. In the 2024 presidential election, Kamala Harris took credit for the most significant increase in oil and gas production in US history.

Moreover, with increasing energy prices, including electricity costs, governments are facing a public backlash (Beiser-McGrath 2025), leading to policy reversals. In March 2025, just hours after being sworn in as Canada's Prime Minister, Mark Carney's first move was to sign an order eliminating the federal carbon tax (Major 2025). For context, Carney gained global recognition as a climate champion in his roles as the Governor of the Bank of England from 2013 to 2020, the UN Special Envoy for Climate Action and Finance, and the architect of the 2021 Glasgow Financial Alliance for Net Zero—an initiative aimed at bringing together financial institutions to support the transition to a net-zero economy. Thus, even a climate champion rushed to repeal a carbon tax to neutralize the political backlash to energy inflation.

Domestic Distributional Conflicts

Climate policy is mired in economic and cultural conflicts along similar fault lines. The costs of climate mitigation tend to be concentrated in specific sectors, creating an opportunity for counter-mobilization (Aklin and Mildenberger 2020). This does not seem to pose a problem for techno-determinists, who invoke "creative destruction" (Schumpeter 1942) to explain why the fossil-fuel–based industrial order must perish. The problem is that creation and destruction are experienced differently across communities (Dolšak and Prakash 2022c). The expectation that coal miners will retool quickly and become solar-panel installers is false. Because blue-collar Americans see climate change being promoted by regulations and elite organizations, they have incentives to use the political process to push back against such changes.

It is not surprising that, unlike first-generation environmental regulations, climate policy is embroiled in a cultural war that seems to pit the "sushi world against the steak world" (Dolšak and Prakash 2020). That is, the predominantly educated, affluent, urban, pro-climate constituencies are facing off against relatively less-privileged coal miners, manufacturing workers, and other blue-collar workers in energy-intensive industries. Unfortunately, there is a perception that a war on the coal industry became a war on coal communities. This is how economic conflict seems to merge with cultural wars. Recognizing this problem, climate advocates have started discussing the concept of a "just transition" and the Blue and Green Alliance in recent years (McCauley and Heffron 2018; Newell and Mulvaney 2013; Stevis and Felli 2020). Yet, in terms of large-scale governance innovation, little has emerged.

THEORIES OF CHANGE AND CLIMATE GOVERNANCE INNOVATION

How and why might policy change happen? This section revisits the five theories of change to explore drivers of governance change.

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Could moral appeals facilitate climate action? Morality pertains to principles about what is right and wrong. From a moral perspective, climate change reflects the wrongs that humans inflict on the ecosystem and on future generations. Pope Francis, for example, was a prominent advocate of the moral imperative to address climate change, as reflected in his encyclical *Laudato Si'* (Jamieson 2015). Secular moral leaders view climate change as a crisis of intergenerational inequity, as epitomized in the use of the "public-trust doctrine" in the widely publicized Julianna case (Blumm and Wood 2017).

However, is it less clear which specific governance innovations might emerge in response to moral appeals? It seems that moral advocates favor command-and-control approaches to regulating emissions, including even banning the use of fossil fuels. Some scholars might even argue that the moral perspective probably favors "degrowth" (Kallis et al. 2018). However, it is politically difficult for any government to embrace economic shrinking to save the planet (Huber 2022).

But morality might motivate individuals to reduce their carbon footprint; this was indeed the core message from *Laudato Si'* (Pope Francis 2015). I find this to be a practical policy that gives individuals some level of agency, counteracting climate anxiety and helplessness (Fragnière 2016; Hiller 2011). Yet, empirical evidence about the efficacy of such moral appeals is weak (Mrchkovska, Dolšak, and Prakash 2023, 2024). Moreover, many climate groups are skeptical of the emphasis on individual responsibility (Mann 2021) and strongly favor a structural solution, such as command-and-control measures or a ban on fossil fuels. Thus, it is unlikely that the climate movement will pursue governance innovations that encourage individuals to be carbon frugal.

The science-based perspective suggests that as scientific evidence of anthropogenic climate change increases and the impacts of global warming are documented carefully, policy makers will be compelled to offer governance solutions and the mass public will accept them. The problem is that politics and science follow different logics. Moreover, the "listen-to-science" argument stirs cultural wars rather than building trust and consensus (Pielke 2007). In some ways, it echoes the elitism-versus-populism debate (Mills 1956), rooted in the tension between the Hamiltonian and Jeffersonian impulses of a liberal democracy (Dunkelman 2025).

Science influences policy when it is viewed as neutral (Grundmann 2007). However, the legitimacy of science is under serious challenge (Mede and Schäfer 2020; Nichols 2024), with many unwilling to cede authority to "the best and the brightest" (Halberstam 1993). Even more worrisome, support for higher education—the creator of scientific knowledge—is diminishing among the US public as well (Parker 2025).

Did the climate movement overplay the "science card" by equating opposition to climate policy with climate denial? If climate science becomes the domain of what Gethin, Martínez-Toledano, and Piketty (2022) termed the "Brahmin left," climate policy likely will suffer in the "science-versus-populism" conflict. This is why when some of my colleagues state that "policy makers should listen to science," I respond with a friendly amendment: "Policy makers should listen to political science."

Technology-based perspectives suggest that governance innovations will emerge as new technologies displace the world's current carbon-intensive technologies. Along with command-and-control–type mandates, these governance innovations will create structures such as innovation clusters and national missions.

System-wide changes require governmental support. This approach has allowed China to dominate the renewable energy and EV industries. Yet, the centralized technology-forcing approach also has problems. National champions and industrial policy could lead to rent seeking and capture.

I view this as a political risk. Relying on governments to push technological change assumes that they will always support climate policy. What if they do not? Drawing on Weingast's (1995) observation that governments that are strong enough to protect property rights also are strong enough to confiscate wealth, I suggest that governments that have the economic and political resources to facilitate technological change also might be able to derail it. The experience of the Inflation Reduction Act of 2022 should remind us that relying on the government for technological mandates is politically risky in polarized societies.

The economic perspective suggests that climate problems can be addressed with a Pigouvian tax (Pigou 1924), specifically carbon pricing. This could occur through either carbon taxes or a cap-and-trade system. These policies could be deemed politically acceptable through revenue recycling, ensuring that citizens do not view carbon pricing as a revenue grab (Dolšak, Adolph, and Prakash 2020). Additional measures (e.g., border taxes) could ensure that there is no carbon leakage, thereby preventing carbon-intensive industries from relocating abroad.

On the face of it, implementing carbon pricing should not be difficult. After all, governments have established administrative infrastructure to assess and collect taxes. Carbon pricing has been implemented in many countries and regions, including the European Emissions Trading Scheme.

The problem with the economic approach is that whereas carbon pricing might be efficient, its political logic is debatable. When citizens view carbon taxes as increasing energy costs, political backlash follows, as the Canadian example suggested (Major 2025). In the 2024 US presidential elections, no candidate spoke of carbon pricing. In the EU, public support for the carbon border-adjustment mechanism—which aims to penalize firms relocating abroad to evade the EU's climate regulations—is weak due to concerns about potential price increases (Bayer and Schaffer 2024).

What about using subsidies instead of taxes? A notable example is the Inflation Reduction Act of 2022 that sought to provide subsidies to promote clean-energy technologies. Subsidy-based approaches certainly are more acceptable politically, but they have obvious limitations given the budgetary deficits with which most countries are grappling.

The political approach suggests that climate change should be viewed as a political problem, as defined by Lasswell (1950), in terms of who gets what, when, and how. Climate transition will not necessarily follow the trajectory of what is most economically efficient or technologically best. Its pace and form will depend on how climate advocates construct political alliances.

The core causes of climate backlash must be addressed. Some renewable energy policies face challenges due to the way they distribute benefits and costs (Dolšak and Prakash 2022c). Rural areas may not like the aesthetics of wind farms, and Native American tribes might perceive them as violating sacred places, as in the Horse Heaven Hills Wind Farm project in Washington State. Every fourth US county has enacted ordinances restricting renewable-energy projects, and liberal counties are more likely to enact such ordinances (Ko, Dolšak, and Prakash 2023). Social-

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justice groups criticize subsidies for EVs and rooftop solar panels because they view these payments as benefiting more affluent households (Light, McIntosh, and Stephenson 2022). Indeed, recent changes to California's net-metering policies address these concerns. Furthermore, many Native American tribes and nations oppose critical mineral mining on lands that they hold sacred (Uji et al. 2023).

Constructing coalitions requires making climate policy less ideological, perhaps by reframing policy—for example, by dropping the phrase "climate change" that triggers opposition from conservatives. Approximately one third of climate policies in US states are enacted in red states (Marshall and Burgess 2022), often justified by their advocates as promoting economic development. The idea is to "let the cat catch the mice" without becoming preoccupied about how the cat is described.

How could voluntary programs fit into the climate-governance world? As with first-generation environmental problems, several firms aim to become climate champions, provided that they can receive recognition for doing so. At the same time, several stakeholders want to recognize and reward climate champions. The structural conditions are favorable for the emergence of climate clubs. Indeed, the climate field has witnessed a proliferation of climate clubs, ranging from the Science-Based Targets Initiative; the C40 Cities Climate Leadership Group; the Net Zero Banking Alliance (NZBA); and the Environmental, Social, and Governance (ESG) Movement.

Yet, in the past 12 months, NZBA has folded, many firms have left other climate clubs, and some have stopped discussing their climate actions—a phenomenon now known as "climate hushing" (Hilson 2024).

Three lessons emerge. First, voluntary programs might fill the regulatory void but they cannot function effectively in the face of regulatory opposition. After all, voluntary clubs are nested institutions that operate under the shadow of the state.

Second, in terms of retaining members, some clubs are more successful than others. It is less clear why this is so—an issue that scholars should examine. Is it because some stakeholders are more forthcoming in rewarding climate leaders as opposed to free riding?

This is where the controversial subject of individual responsibility is concerned. If firms recognize that there is a determined cadre of pro-consumers who vote with their dollars rather than their tweets, firms will have incentives to pursue climate action. However, this raises collective-action problems at the individual level. Are individuals willing to purchase climate-friendly products, which may entail additional costs and lifestyle changes? It remains unclear whether climate supporters are engaging in empty rhetoric or are willing to put their climate talk into action.

Third, any governance innovation is likely to face backlash. Club leaders must offer a careful and well-calibrated response. It might involve rebranding the club or redefining its focus. Governance is politics and, in politics, there is no shame in making a tactical retreat.

CONCLUDING THOUGHTS

I conclude by offering my thoughts on how to move forward on climate-mitigation issues. This article outlines three principles that shape my thinking. First, all institutions are prone to failure. Although failures open the policy space for governance innovations, these innovations should be sculpted with failure drivers in mind. Climate change is fundamentally a political failure (Harrison and Sundstrom 2007), and climate governance must address these political issues (Hadden and Prakash 2024).

Second, governance innovation cannot be expected to deliver a perfect solution devised by a technocratic elite. As Lindblom (1959, 1979) noted, policy progress is uneven, slow, and incremental—but small successes over time can cumulate into big wins.

Third, governance arrangements, even on arguably highly technocratic issues, require social and political licenses to operate. In their insistence on "listening to science," climate leaders have neglected this issue.

Which governance architecture should we strive for? We have technologies to deliver emission reductions in power generation and transportation. Why not use stringent laws and regulatory centralization enforced by the administrative state to ensure their adoption, and perhaps add generous subsidies to the governance toolkit?

I propose an alternative approach to climate governance. The objective is to create governance structures that deliver reduced emissions and survive regime change. This requires the following actions. First, we need to listen to people—not exclusively to science—which will allow us to construct a winning coalition. Listening implies acknowledging that some coalition members may not "wave the climate flag." Republican governors could seek renewable energy projects but refer to them as economic development. Ranchers and wildlife enthusiasts could oppose the sale of public lands that sequester carbon because they see economic merit in protecting forests and wilderness areas.

The objective is to create governance structures that deliver reduced emissions and survive regime change. This requires the following actions. First, we need to listen to people—not exclusively to science—which will allow us to construct a winning coalition.

This alliance must include low-income households, which question why they should bear the costs of rooftop solar panels for the affluent (Light, McIntosh, and Stephenson 2022), as debate on net-metering policy suggests, as well as coal miners and manufacturing workers who want to see their livelihoods protected from climate transition. Nives Dolšak and I coined the term "embedded environmentalism," which refers to incorporating climate policy into the social-welfare governance agenda to protect vulnerable populations from the disruptions caused by climate policy (Dolšak and Prakash 2016).

Second, this governance is decentralized, which may result in slow and uneven progress. Following Demsetz (1969), who warned against the dangers of the "nirvana fallacy," I favor a portfolio of imperfect, sometimes slow, decentralized governance systems.

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Decentralization creates space for policy experimentation, which is crucial for complex issues such as climate change (Shen 2025).

It is important to note that decentralization likely would shield climate policy from cultural wars, in which national-level groups compete with one another. In this sense, decentralization offers policy durability—a crucial issue as we navigate a politically polarized world.

This article focuses on climate mitigation. I recognize that adaptation is the second pillar of climate policy (Dolšak and Prakash 2018; Javeline 2014). Unlike mitigation, adaptation is politically attractive because it imposes local costs to deliver local benefits. Because climate impacts vary by context, adaptation is local and lends itself to decentralized approaches. Adaptation and mitigation have a complex relationship, but mobilizing local support for adaptation could create local support for mitigation (Greenhill, Dolšak, and Prakash 2018). Adaptation-mitigation co-governance is a promising issue for future research.

I conclude by quoting Tom Steyer (2025), one of the generous funders of climate causes. He recently wrote:

> For too long, the climate conversation has been in Celsius to a country that thinks in Fahrenheit. We used science, metrics, and parts per million, but none of it answered the question most people have: What does this mean for me and my family? The most powerful climate solutions are the ones that address core economic concerns.
> ...
> If we want to win, we need a fundamental recalibration. Climate can no longer be a separate cause. It must be the context for making people's lives better.
>
> Thank you.

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CONFLICTS OF INTEREST

The author declares that there are no ethical issues or conflicts of interest in this research. ■

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