# Winning Coalitions for Climate Policy

## How Industrial Policy Builds Support for Carbon Regulation

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The gap between the implications of climate science and actual achievements of climate policy is wide. Natural sciences tell us with increasing certainty that climate change is real, dangerous, and solvable; social sciences report that key constituencies like the US public largely support action (*1*). But policy lags; current and planned policy remains weak and will still allow an increase in temperature of 3.6° C by 2100 (*2*).

How can we address the gap between the science and policy? Polic(*1*)ymakers and scholars increasingly believe that global climate agreements emerge from aggregating bottom-up, domestically-driven policies rather than from top-down negotiations (*3-5*). But previous research on bottom-up approaches does not explain what gives such a process upward momentum toward the requirements suggested by current climate science, rather than pointing it toward a lowest common denominator outcome. How do we create and maintain the political and entrepreneurial will to de-carbonize our energy systems progressively over time and undertake the fundamental transformations in our economy, infrastructure, and institutions that such de-carbonization will require? How do we overcome the barriers keeping us from translating science into policy progress?

Recent empirical research on actual de-carbonization strategies provides a powerful answer: providing benefits to the economic winners of climate change policies supports strong, effective policymaking in a way that penalizing industrial polluters does not (*6-10*). Green industrial policy creates momentum for stronger subsequent action by bringing economic constituencies into coalitions for de-carbonization, resulting in increased support for more comprehensive carbon regulation. In other words, creating and growing low-carbon industries and interests creates feedback effects that allow for progress toward more comprehensive climate policy.

**Carbon Pricing, Marginal Change.**

Understanding this dynamic forces us to reevaluate some of the basic assumptions underlying modern carbon emissions policymaking, through the lens of *coalition-building*. Economists favor directly regulating emissions by putting a price on greenhouse gas (GHG) emissions. Pricing carbon through a tax or a cap-and-trade scheme is the theoretically most efficient solution. But history has demonstrated that the implementation of an effective carbon price faces very high political barriers (*11*). To date, 1 regional, 38 national, and 21 sub-national jurisdictions have implemented, are scheduled to implement, or are considering a carbon price (*12*). Only half of these schemes have been implemented. But even if all were implemented, they would cover only 12 percent of global GHG emissions.

The reason for slow progress on carbon pricing to date is that carbon regulation imposes costs on the powerful few—well-organized energy and energy-intensive manufacturing firms—and provides dispersed

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benefits to the weak many—the broader public (*13-15*). The few regulatory losers have greater incentives and capacity to organize politically and prevent policy implementation. Therefore, polluters shape the political game more than potential winners. So policies that focus on imposing a cost on carbon pollution often fail, as seen in cases like the US, Australia, and Canada. Even when carbon pricing schemes are created, they are designed to accommodate many of the demands of polluters (*16*), rendering them only marginally effective in the short to medium term. In essence, without some way of building prior political support, carbon pricing tends to be weak at best.

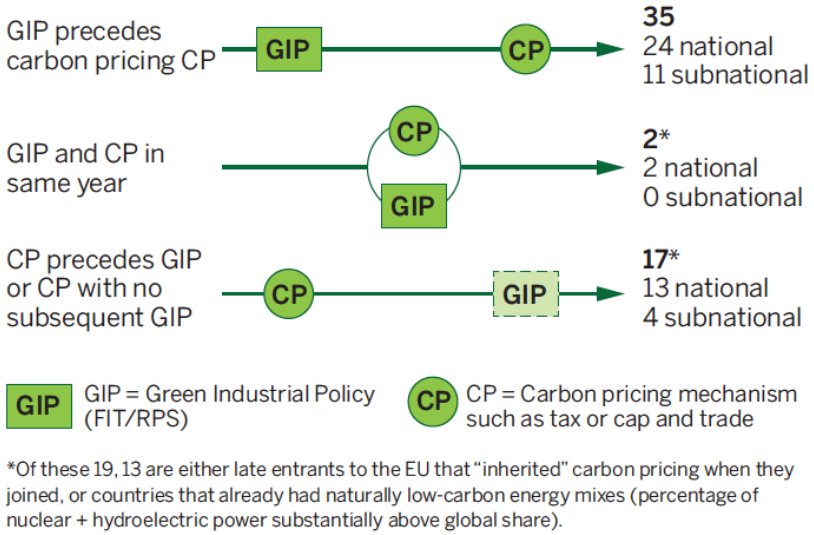
Unfortunately, weak carbon pricing may be ineffective at growing coalitions for future stronger low-carbon policy. Pricing is efficient because it favors least-cost changes. But it is precisely the costly moves, like major new capital investments, that underlie substantive interest realignment. In concrete terms, this means that weak carbon pricing is likely best suited to drive marginal increases in fuel efficiency and fuel mix, rather than the major capital investments in new low-carbon products and infrastructure – like solar generation, electric vehicles, storage, and the manufacturing facilities to make them – that realign corporate interests. Empirical evidence is still accumulating, but so far suggests that current (weak) pricing schemes do indeed tend to operate through marginal changes such as supplementary equipment and fuel switching in existing infrastructure, though there is some modest increase in patenting as well (*17*). *Strong* carbon pricing would likely drive more fundamental changes, but is politically costly in a way that more direct measures, such as renewable portfolio standards, have historically not been.

**Coalitions and Feedback.**

Unlike carbon pricing, green industrial policy—by which we mean policies that provide direct support and incentives for the growth of particular green industries like renewable energy—have proliferated since the late 1980s. Such policies provide concentrated benefits to the few and well-organized, like renewable energy firms and investors. By 2013, at least 132 countries and subnational entities had enacted either a feed-in tariff (FIT), a renewable portfolio standard (RPS) or both (*18*). A few of those have been abolished since, though the large majority of schemes continue to exist. And stimulus responses to the 2008 financial crisis have expanded financial support for many low-carbon industries.

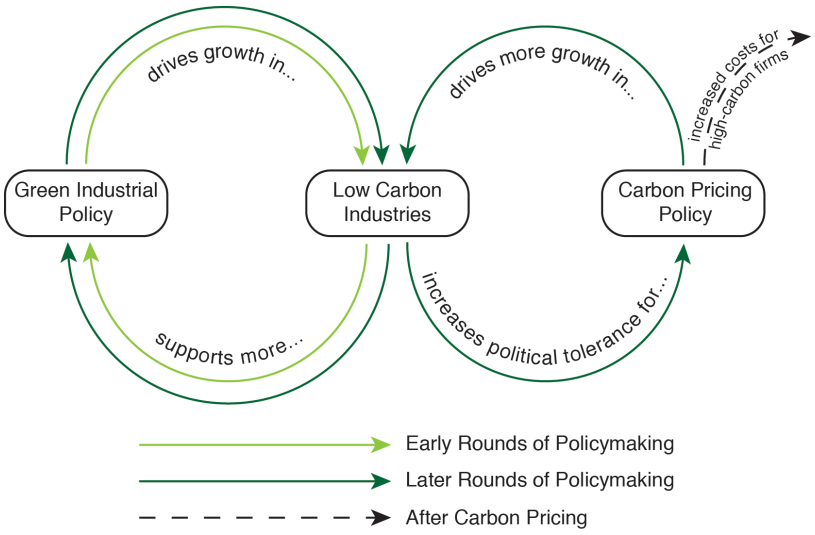
Economists view such measures as third- or fourth-best options on efficiency grounds (*19*). But recent research in political science and law suggests that green industrial policy helps grow a *political* landscape of interests and coalitions (including renewable energy firms, investors, and others) that benefit from a low-carbon energy transformation. Those interests provide political support for implementing green industrial policy in the first place, even when polluting industries might oppose it. The wide-spread adoption of FITs and RPSs suggests that the political support from economic winners outweighs the opposition from economic losers. And, green industries are political allies in the development of more stringent climate policy that penalizes incumbent polluters subsequently. Carrots buy sticks. Of the 55 countries and states/provinces that adopted a carbon pricing scheme by 2013, two thirds installed a FIT or RPS before setting up the pricing regime (*12, 18*). In contrast, Canada and the US both failed to create national cap-and-trade schemes; neither had a strong, comprehensive prior federal renewable energy policy.

**Figure 1 Sequencing in Climate Policy**




Winning coalitions thrive on positive feedbacks (*20*). Early policy moves can help green industries form or grow. The more they grow, the stronger coalitions for policies to de-carbonize energy systems become and the easier it gets to install stronger or more comprehensive regulatory strategies. Kelsey and Zysman (*7*) have described this policy-industry feedback cycle as a "green spiral." In this process, both green industrial policy and carbon pricing strategies have their place, but they are most effective when they are sequenced to grow political support for further climate action over time. Effective early policies for growing low-carbon industries include not only classic industrial policy instruments like subsidies and tax credits, but also low-carbon energy mandates.

**Figure 2 Feedback in Climate Policy**



Climate leaders both large and small have gone through such feedback processes before implementing carbon prices, as new empirical work shows. Denmark from the 1970s on created a variety of supportive policies that culminated in a feed-in tariff in 1993. These measures created a domestic wind turbine industry and distributed grassroots investments in wind generation. That, in turn, contributed to political momentum that allowed for the implementation of further de-carbonization policies, with the goal to create a fossil fuel-free economy (*21*). Germany shares a similar story (*22*); German policies began with funding for R&D and subsidies for demonstration installation during the 1970s and 1980s and continued to larger-scale market formation programs including Germany's early feed-in law following the 1986 Chernobyl disaster. These policies led to industry expansion after 1990 in wind and later solar; this helped create and expand a coalition of interests that fought to defend existing measures and supported further measures. California, too, demonstrates feedback (*23, 24*): early measures responding to pollution and oil crises led to the creation of strong regulatory infrastructure; efficiency regulations; decoupling of profits from sales volume for utilities; and early support for renewables. Those measures created tolerance for regulation and set the stage for the passage of a renewable portfolio standard (2002) and GHG reduction legislation (2006) that ultimately resulted in an emissions trading scheme.

A political strategy that emphasizes growing green industries may raise concerns that it is vulnerable to rent-seeking and regulatory capture (*25*). Indeed, a key feature of a feedback-based strategy is to provide rents to green industries to grow them, which has the consequence of broadening political support. This is what makes it effective at leading energy systems out of carbon lock-in. But let us make two responses. First, as Dani Rodrik (*26*) convincingly argues, rent provision can be managed to prevent capture of policymakers by winning constituencies. Second, it is possible that the "extra" cost of these "third-best" policy options may result in avoided future costs, by speeding up progress toward more ambitious emission cuts. If so, *politically* optimal policy might also ultimately be *economically* optimal in the long-run, even if it creates short-run inefficiencies.

**Policy Implications.**

Based on the political histories of climate leaders, we identify three key strategies for building winning domestic coalitions for de-carbonization: (1) adopt initial policy suites of targeted sector-specific policies; (2) send direct, high-leverage policy signals rather than broad, shallow ones; and (3) sequence policies strategically.

First, multiple narrow sector-, technology-, and region-specific policies are effective at *initiating* a de-carbonization trajectory because they provide concentrated benefits and allow for policy deals based on linkage of climate policies with local issues. Targeted green industrial policies like subsidies, tax rebates and renewable energy standards provide concrete benefits to firms and households. Specificity means they are politically bounded and relatively easy to understand, unlike broader, more systemic strategies like carbon pricing or urban planning reform. Moreover, they can be tailored in such a way as to also provide side benefits and balance different demands, allowing policymakers to mobilize support based on associated contemporary needs and problems, contributing to coalition-building. All of these qualities are important in the early phases of policy-industry feedback, when political will for climate policy per se is still limited: issue linkage allows for greater leverage in policymaking. As Huberty (*27*) shows, the EU's climate policy mix did not just aim at reducing emissions but equally played to energy security concerns and national competitiveness issues. The broad policy suite allowed policymakers to link emission cuts to other key energy-related policy goals (such as reducing dependence on Russian gas and creating export opportunities), thus creating broad political support. Particular opportunities for such linkage vary by context; in China, for instance, air pollution is salient.

Second, policy signals need to have high leverage, by which we mean that they need to be directly tied to concrete, meaningful changes in industry investment or structure. Relative to weak carbon pricing, policy instruments like FIT or RPS provide comparatively strong, direct incentives for the growth of specific, cohesive green industry groups, and are therefore most likely to drive the initial shifts in investment and revenues that create interest realignment in industries (*28*). This realignment expands coalitions for low-carbon policy, which provides support for active experimentation with policy and technology, and hence progress toward systems transformation. The marginal changes encouraged by weak economy-wide signals like carbon-pricing will not accomplish this goal. As we note above, strong carbon pricing would also be effective – but has historically been more politically difficult than green industrial policy.

Third, it follows from our first and second recommendations that strategic sequencing of policies matters. Early climate policy must help create green constituencies that provide the support for subsequent policy moves. Our first two recommendations, taken together, suggest that early in the transition to a low-carbon economy, when political support is limited, there are multiple reasons to favor high-leverage policies rather than weak carbon pricing. Early policies that are high-leverage are particularly likely to mobilize support, as we have argued. They also prove to be politically "sticky" given support from the constituencies and coalitions they create, as the case of California demonstrates (*23*). For instance, several political efforts to roll back RPSs at the level of US states have failed over the past few years. Political opposition from beneficiaries of those policies was instrumental. Over time, broader policy signals targeted at polluters, like carbon prices, can be introduced and strengthened. The more carbon policy is politically entrenched, the more policy discretion there is for less-targeted, more theoretically efficient policy. Such policy sequencing requires careful analysis to avoid policy retrenchment as a result of political backlash (see *29*) and to prevent lock-in of techno-institutional paths that fail to grow political support and/or de-carbonize the energy system. Ethanol policy is a case in point of a failed policy path that was politically appealing. Sequencing also needs to be tailored by political, economic, and social context, as the optimal choices for specific instruments and timing vary by situation.

Future research needs to identify the context dependence of those strategies and further specify potential policy interventions, particularly as they vary by locale. For instance, what type of policy sequences and causal logics work in different types of political or energy systems? How can policymakers best avoid dead ends and maintain flexibility to adjust policy measures in later rounds of policymaking? How can policymakers best balance the needs for politically salient and economically efficient policy interventions? When are policymakers likely to retrench from de-carbonization trajectories? To what extent, and how, will members of opposing "brown" coalitions tend to adapt over time to strategies based on these concepts? The answers to these questions will allow for context-sensitive strategies to grow winning coalitions for de-carbonization and energy systems transformation.

Over the past year, climate change has risen on the global agenda. The US climate action plan, the US-China deal, and the EU's 2040 targets are key developments. Paris may deliver more. Yet the real litmus test for effective climate policy will be the extent to which governments are capable of building and growing domestic low-carbon energy coalitions that support the implementation and strengthening of those international commitments over time. Such winning coalitions hold the potential to accelerate policy progress and narrow the gap between the science and policy.

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