CLIMATE CHANGE

Winning coalitions for climate policy

Green industrial policy builds support for carbon regulation

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The gap is wide between the implications of climate science and the achievements of climate policy. Natural sciences tell us with increasing certainty that climate change is real, dangerous, and solvable; social sciences report that key constituencies largely support action. But current and planned policy remains weak and will allow a long-term increase in temperature of 3.6°C (*1*). How can we address the gap between science and policy? From the political successes of climate policy leaders, we identify key strategies for building winning coalitions for decarbonization of domestic economies. Green industrial policy provides direct incentives for growth of green industries, which builds political support for carbon regulation.

POLICY

Policy-makers and scholars increasingly think that global climate agreements emerge from aggregating bottom-up, domestically driven policies rather than from top-down negotiations (*2*). But research does not explain what drives bottom-up approaches. How do we create and maintain political and entrepreneurial will for the fundamental transformations in our economy, infrastructure, and institutions needed to decarbonize our energy systems?

Empirical research on actual decarbonization strategies gives an answer: Providing economic benefits supports effective policy-making in a way that penalizing industrial polluters does not (*3*–*6*). Green industrial policy creates and enhances low-carbon industries, which brings economic constituencies into coalitions for decarbonization, as well as giving feedback that drives progress toward more comprehensive climate policy.

CARBON PRICING, MARGINAL CHANGE. This dynamic forces us to reevaluate assumptions underlying carbon emissions policy-making 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, theoretically, the most efficient solution. But there are political barriers to implementing an effective carbon price. To date, one regional, 38 national, and 21 subnational jurisdictions have, are scheduled to implement, or are considering a carbon price (*7*). Although half of these schemes are operating, realizing all of them would cover only 12% of global GHG emissions.

Progress is slow because carbon regulation imposes costs on the powerful few—well-organized energy and energy-intensive manufacturing firms—and provides dispersed benefits to the weak many—the broader public (*8*). The few regulatory losers have greater incentives and capacity to organize politically and prevent policy implementation. So policies focused on imposing a cost on carbon often fail. Even when carbon pricing schemes are created, they accommodate the demands of polluters (*9*), which renders them only marginally effective. Without political support, carbon pricing tends to be a weak instrument at best.

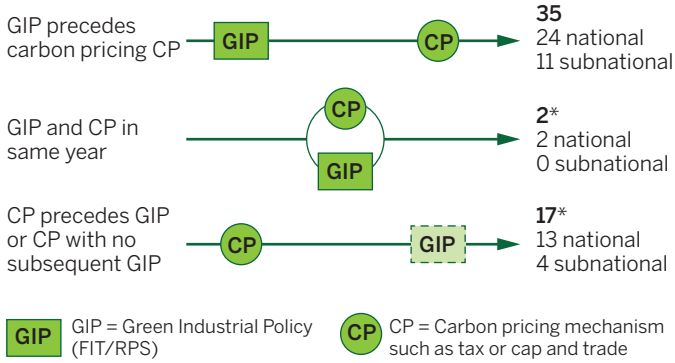
As such, carbon pricing may be ineffective for cultivating coalitions for stronger low-carbon policy. It favors least-cost changes, but costly moves, like major new capital investments, underlie corporate interest realignment. Current (weak) pricing schemes tend to effect marginal changes, such as supplementary equipment and fuel switching in existing infrastructure, although there is also a modest increase in patenting (*10*). Strong carbon pricing would likely drive more fundamental changes but is politically costly, whereas more direct measures, such as renewable portfolio standards (RPSs), have had more support.

COALITIONS AND FEEDBACK. Unlike carbon pricing, green industrial policies have proliferated since the late 1980s. Such policies provide concentrated benefits to the few and well-organized, such as renewable energy firms, low-carbon industries, and investors. By 2013, at least 132 countries and subnational entities had enacted a feed-in tariff (FIT), an RPS, or both (*11*).

Economists view such measures as third- or fourth-best options for efficiency (*12*). But research in political science and law suggests that green industrial policy nurtures a political landscape of interests and coalitions that benefit from a transformation to low-carbon energy use—even when polluting industries might oppose it. The widespread adoption of FITs and RPSs and the fact that they often precede carbon pricing, confirms this (see the figure). Green industries are political allies in the development of more stringent climate policy that subsequently penalizes incumbent polluters. Carrots buy sticks. In contrast, Canada and the United States both failed to create cap-and-trade schemes and lacked strong, prior federal renewable energy policy.

Winning coalitions thrive on positive feedback (*13*). The more green industries form or expand, the stronger coalitions for decarbonizing energy systems become, and the easier it gets to install stronger or more

Sequencing in climate policy. Of the 54 countries and subnational entities that adopted a carbon pricing scheme by 2013, nearly two-thirds installed a FIT or RPS before setting up the pricing regime. Data from (*7*, *11*).



*Of these 19, 13 are either late entrants to the EU that "inherited" carbon pricing when they joined, or countries that already had naturally low-carbon energy mixes (percentage of nuclear + hydroelectric power substantially above global share).

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comprehensive regulatory strategies. Policy leaders have used feedback processes before implementing carbon pricing. For instance, German policies began with funding for research and development, then subsidies for demonstration projects during the 1970s and 1980s, and continued to larger-scale market formation programs, including a feed-in law after the 1986 Chernobyl disaster. These policies led to industrial expansion in wind and, later, solar energy production; these developments helped create and expand a coalition of interests that fought to defend existing measures and supported further measures (*14*). California, too, demonstrates feedback effects (*15*): Early measures responding to pollution and oil crises led to (i) the creation of a strong regulatory infrastructure; (ii) efficiency regulations; (iii) decoupling of profits from sales volume for utilities; and (iv) early support for renewables. Those measures created tolerance for regulation and set the stage for the passage of a renewable portfolio standard and GHG reduction legislation that ultimately resulted in an emissions trading scheme. Denmark has a similar story (*4*).

A political strategy that emphasizes green industries may raise concerns that it is vulnerable to costs from rent-seeking (obtaining economic gain from others without benefitting others) and regulatory capture. However, a feedback-based strategy broadens political support, which can effectively lead energy systems out of carbon lock-in. And as Rodrik (*16*) convincingly argues, rent provision can be managed to prevent capture of policy-makers by winners. Moreover, it is possible that these "third-best" policy options may avoid future costs, by speeding up progress toward more ambitious emission cuts.

POLICY IMPLICATIONS. Although some governments have—often unintentionally—built winning coalitions, policy-makers should use the approach more strategically to cut emissions across power, transport, and heating sectors and as other countries adopt their initial climate policies. We propose three key strategies: (i) adopt initial policy suites of targeted sector-specific policies; (ii) send direct, high-leverage policy signals rather than broad, shallow ones; and (iii) sequence policies strategically.

First, multiple policies—narrow sector, technology, and region-specific—are effective for initiating a trend toward decarbonization because they provide concentrated benefits and can link 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 makes them politically bounded and relatively easy to understand—unlike broader, more systemic strategies, such as carbon pricing or urban planning reform. They can be tailored to provide side benefits and to balance different demands. Linking issues allows for greater leverage in policy-making (*4*). For example, the European Union's (EU's) climate policy mix aimed at reducing emissions and also played to concerns about energy security and national competitiveness. The broad policy suite allowed policy-

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makers to link emission cuts to other key energy-related policy goals, such as reducing dependence on Russian gas and creating export opportunities. In early phases of policy-industry feedback, when political will for climate policy per se is still limited, all these qualities are important.

Second, policy signals need to have high leverage, 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 growth of cohesive green industry groups and, thus, are most likely to drive initial shifts in investment and revenues that can realign interests in industries (*17*). This realignment expands coalitions for low-carbon policy and provides support for experimentation with policy and technology, as well as progress toward systems transformation. Marginal changes encouraged by weak economy-wide signals like carbon-pricing will not accomplish this goal.

Third, strategic sequencing of policies matters. Initially, climate policy must create constituencies that provide the support for subsequent policy moves. Early high-leverage measures are particularly likely to mobilize support. They also prove to be politically stable and lasting given support from the constituencies and coalitions they create. For instance, several efforts in U.S. states to roll back RPSs have failed in recent years, in part owing to political opposition from beneficiaries of those policies. 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 discretion there is for less-targeted policy that is more efficient. Strategic sequencing requires adaptive policy design—focused on knowledge exchange, discipline, and accountability (*16*)—to prevent lock-in of technical-institutional paths that fail to increase political support and/or to decarbonize the energy system (e.g., ethanol policy).

Future research needs to note the context of successful strategies and to specify potential policy interventions, particularly as they vary by locale. For instance, what type of policy sequences work in different types of political or energy systems? How can policy-makers avoid dead ends and maintain flexibility for adjusting policy measures? How can policy-makers best balance needs for politically salient and economically efficient policy interventions? When are policy-makers likely to retrench from decarbonization trajectories? How will opposing "brown" coalitions adapt over time to strategies based on these concepts?

Over the past year, climate change has risen on the global agenda. The U.S. climate action plan, the United States–China deal, and the EU's 2040 targets are key developments. The December climate meeting in Paris may deliver more. The real test for effective climate policy will be the extent to which governments are capable of building and growing domestic coalitions for low-carbon energy that support implementation and strengthening of those international commitments over time. ■

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