

Trump's election was a surprise. What should not be a surprise is the inevitability of political setbacks for climate policy. We saw that in the U.S. with the shift from Clinton to Bush and then from Obama to Trump. We also saw that in Australia where it meant the repeal of a promising emissions trading system. Even if climate denial is banished from the scene, we can expect to see fluctuations in enthusiasm for climate policy. How can we design climate policies to be sturdy in the face of shifting political currents? There seem to be three or four options beyond simply relying on the inertia of the regulatory system. With each one, I want to suggest a way of extending the strategy.

1. **Jurisdictional Fragmentation.** As we have seen under both Bush and Trump, one basis for robustness is to diversify the political bodies involved in climate policy, making it less likely that they will shift simultaneously. In the U.S., this has primarily meant state climate and energy policy. CLEE has issued a [fifty-state survey](#) that reveals just how much has been done in this space, even in deeply Republican states. A lot has also been written about cities and states. But local government is remarkably fragmented in the United States, with counties playing a major role and special purpose districts for transit, water, sanitation, drainage, and flood control - all of them relevant to adaptation and some to mitigation. We need to be thinking of creative strategies to reach more of these entities.
2. **Regulatory Diversification.** To the extent that climate-related measures become part of different regulatory schemes within different administrative agencies, the logistics of rolling back those policies become more difficult. In addition, dispersed policies may create non-environmental constituencies. For instance, if renewable policies become embedded in utility regulation, they can create constituencies such as renewable generators even in places otherwise inhospitable to environmental regulations. The Obama Administration was active in seeking opportunities for climate policy across the federal administrative states. State governments need to follow suite. It may be particularly helpful to look for programs that provide investment and jobs in rural areas and inner cities. Such programs not only address important unmet needs but also help build political support for renewables.
3. **Expanding Corporate Action.** There has been a real move by some corporations to reduce their carbon emissions and often emissions by their suppliers. This movement could be taken further by using contractual mechanisms to enforce corporate commitments and maybe even creating multi-corporation cap-and-trade and carbon fees. Exploiting social media can also put more pressure on businesses to clean up their acts.
4. **Promoting Innovation.** Another way of making climate policy robust is to shift the

economics in favor of emission reductions. One way of doing that is to help sustainable technologies reach scale through subsidies or marketing guarantees such as renewable portfolio standards. Supporting energy innovation is another way to drive the energy system toward greater sustainability. New technologies may bring down costs, allowing market-driven emissions reductions even when the political atmosphere becomes chilly. They may also encourage more climate friendly policies in other jurisdictions or in the future of that particular jurisdiction by reducing the price of those policies.

Trump's budget proposals have attempted to gut energy research. Fortunately, even a Republican-controlled Congress has refused to go along with efforts to eliminate key programs such as ARPA-E, which funds some of the most innovative energy projects. Moreover, a good deal of energy research takes place in the Defense Department and other corners of the government that have strong constituencies.

I see two areas for improvement in the innovation arena. First, a lot of money goes to hardware, but we also need a better understanding of the economic and social factors that influence the take-up of new technologies and the spread of existing ones. It is harder to find funding for this kind of research. Second, state governments have not been active in funding energy innovation. Instead, they have largely relied on the federal government. A stronger state presence would provide a backstop to federal programs and could be targeted at areas that have particular local relevance or that the feds are underinvesting in, such as social science research on climate issues.

- 4. Winning Hearts and Minds.** In some ways this may be the most difficult in a situation where opinions on climate change are so polarized. Yet in the end it could be the most important, in that it should reduce the severity and frequency of political setbacks. Education does seem to help, at least with young people whose views are less firmly rooted. So, too, may changing how climate issues are framed, as shown by the willingness of a significant number of House Republicans to support a measure terming climate change a national security risk.

I have an idea to suggest here, though it may only appeal to the nerdiest members of the public. How about an app that, for any location, gives the weather forecast for the same date in 2068 and 2118? Of course, these wouldn't be real forecasts in the sense of predicting anything specifically about that day. Rather, they would be based on a typical climate model run at different emissions level - maybe one high and one medium option. I think it would be very cool, not to mention educational, to be able to look on the phone and get a futuristic "forecast." A related idea would be to have virtual reality set up at beaches, so that beachgoers could see how the beach will look after fifty or a hundred

years of sea level rise. Or for that matter, the grassy range and the desert it will become.

We can't count on invariably electing climate advocates or even neutral technocrats. So when we *are* in a position to make progress on climate policy, we need to make those policies robust enough to survive changes in the political winds.