

World view



By Marie Claire
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Innovation in the future can't slash emissions now

To cut energy consumption, governments must boost some unglamorous solutions.

Reading national climate plans feels like perusing corporate advertising brochures. There is an ever-increasing focus on the promise of innovation: hydrogen fuel, new nuclear technologies and carbon capture and storage, the plans claim, will close the gap between what the world needs and what renewables can provide.

Yes, alternative energy sources and carbon removal will be crucial for decarbonization. But let's not pretend they'll be here fast enough to cap temperature rise at 1.5 °C above pre-industrial levels. Politicians and researchers also need to do more with techniques that are already established – highly effective, publicly supported ways to cut energy use.

One estimate suggests that steps such as increasing use of home insulation, public transport, appliance repair and animal-free protein could reduce emissions by 40–80% in the building, transport, industry and food sectors (F. Creutzig *et al. Nature Clim. Change* **12**, 36–46; 2022). Measures to cut energy use can make citizens healthier and happier, and can ease the burden of the rising cost of energy. But they are neglected.

US President Joe Biden's Build Back Better plan heavily finances technologies to produce clean hydrogen and supergrids (which carry large amounts of electricity), with expectations of high economic returns. The UK Ten Point Plan for a Green Industrial Revolution also targets innovations, from carbon capture to electric vehicles. These plans acknowledge the crucial but boring role of reducing energy use, but do little to bring it about. On 28 February, the Intergovernmental Panel on Climate Change released a report on the impacts of climate change and how to mitigate them; I predict that responses will emphasize flashy innovation over familiar established strategies.

This dynamic was evident on Transport Day at the COP26 climate-change conference in Glasgow, UK, last year. The official agenda featured technologies such as electric vehicles and new jet fuels. Cycling, walking and public transport were mentioned only when a bottom-up effort by 350 organizations squeezed one line into the official declaration. By then, it was too late to steer the conversation.

Why do governments neglect proven practices to bet big on technological fixes unlikely to arrive on time? I study the intersection of power, politics and environmental decision-making, and that's the question I've focused on for more than a decade.

Of the hundreds of strategy plans I've analysed over the five years I've been studying energy, almost every single one ensures three things. First, that global citizens will

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still buy a lot of energy. Second, that control of energy resources will remain concentrated among a few industry players. Third, that energy-intensive companies and their shareholders will still make huge profits.

It's no secret that energy industries are powerful political actors, or that governments overwhelmingly measure national progress by economic growth. Less well-known is that this encourages politicians to produce climate strategies that prioritize high economic returns over absolute carbon reductions. There are examples from around the world of industry lobbying to weaken carbon targets, to block the phasing out of coal and even to label fossil-fuel-guzzling natural-gas plants as green investments.

Unglamorous solutions have few politically powerful advocates. Their economic benefits come more from reducing costs than from increasing growth, and tend to be spread across sectors and accrue to less-powerful interests. For example, proposed programmes to retrofit homes in the United Kingdom and Spain to be more energy efficient are projected to create half a million jobs each, most of which would be in small or medium-sized enterprises. National savings as air pollution falls are realized in health and environment budgets, not growth projections.

Governments do sometimes prioritize broad benefits. Italy is offering tax deductions of 110% to finance home energy retrofits. Cities including Paris, Milan, Detroit and Montreal are scraping together money to fund cycle lanes and pedestrian spaces. But these small interventions are not enough. Few governments are making serious financial investments.

Here's where the research community can step up. One way to counter the fixation on profitable rather than proven climate solutions is for analysts and researchers assessing policy options to build in metrics of environmental sustainability, social connection, health and other indicators of well-being. There are a wealth of relevant measures, such as the Organisation for Economic Co-operation and Development's Better Life Index. These should be implemented and advanced widely.

An emerging research base suggests that governments can maintain logistical and social services even when economic output is static. We need more social-science research on how to encourage political support for policies that don't promote growth. Researchers must supply case studies, models and ways to craft policy around energy use that consider people as citizens, not simply consumers.

Unglamorous solutions are effective; critics can't say they are a bad idea. Instead, they argue that green innovation is the only way to mobilize the private capital and ingenuity needed to solve the climate crisis. But the evidence is clear: the planet needs us to do more to implement what's already working.