U.S. Energy and Climate Roadmap

Evidence-based Policies for Effective Action

No longer a problem for the distant future, the costs of climate change—wildfire, storm and flood damages, disruptions to agriculture, changes to insurance markets, and more—are already adding up and taking a toll on the lives and livelihoods of ordinary Americans. These costs disproportionately fall on communities of color and America's economically vulnerable, who are already contending with higher exposure to local pollutants. At the same time, as the country works to restart its economy following the COVID-19 pandemic, energy must remain inexpensive and reliable, capable of fueling a robust recovery.

U.S. Energy and Climate Policy Roadmap aims to inform climate and energy policy in the new administration and Congress through a compilation of evidence-based proposals from scholars at the Energy Policy Institute at the University of Chicago (EPIC). It is grounded in empirical research that has been galvanized by rigorous academic debate and channeled into practical policy applications.

"Global Energy Challenge demands that we find effective policies. The most effective policy ideas are often cultivated in academia, where they are strengthened and enriched by the scrutiny of peers. Unfortunately, they are all too often hidden in academic journals and dusty libraries. Our mission at EPIC is to develop these ideas and to deliver them to those who can make policy...

...With this book, we have gone one step further by developing the ideas and turning them into concrete and actionable policy proposals that aim to cost-effectively confront climate change, while ensuring energy costs are low and the pollution burden is reduced, especially for the economically vulnerable and people who have been treated inequitably historically."

Michael Greenstone
Milton Friedman Distinguished Service Professor in Economics
Director, EPIC
Director, Becker Friedman Institute

Effects & Costs of Climate Change

Climate Change and the U.S. Economic Future
Amir Jina, Assistant Professor, Harris School of Public Policy

The effects of climate change are already being seen and felt today. This chapter provides readers with a base of understanding about the effects of climate change in the United States. It demonstrates that the consequences will be different across the country, with some of the worst effects falling on already-disadvantaged regions.

Updating the United States Government's Social Cost of Carbon
Michael Greenstone, Milton Friedman Distinguished Service Professor in Economics; Director, EPIC; Director, Becker Friedman Institute; Tamma Carleton, Assistant Professor of Economics, Bren School of Environmental Science and Management, The University of California, Santa Barbara

The social cost of carbon (SCC), the total cost to society from the release of a ton of CO_2 emissions, is vital in evaluating the benefits and costs of climate policies. Carleton and Greenstone recommend that the Biden administration immediately update the SCC by using a discount rate of no higher than 2 percent and including global damages. These changes would produce a social cost of carbon of $125 per metric ton. As a second step, they recommend that the Biden administration form an interagency working group with the goal of returning the SCC to the frontier of understanding about the science and economics of climate change.

Economy-wide Approaches

Put a Price on It: The How and Why of Pricing Carbon
Michael Greenstone, Milton Friedman Distinguished Service Professor in Economics; Director, EPIC; Director, Becker Friedman Institute; Ishan Nath, Postdoctoral Scholar, EPIC

Enacting a national, market-based framework to put a price on carbon can achieve ambitious climate change goals while minimizing the cost to the American economy. The most effective climate policy will be one that establishes a national carbon price that is guided by the social cost of carbon. Critically, such a policy would incentivize other countries to reduce their emissions. The revenue collected can be used to refund low-income households and invest in clean energy R&D.

A Solution to the Leakage Problem
David Weisbach, Walter J. Blum Professor of Law, University of Chicago Law School; Samuel Kortum, James Burrows Moffatt Professor of Economics, Yale University Department of Economics

When only a subset of countries restrict emissions, energy-intensive industries—and their emissions—may move offshore to countries with few or no restrictions on emissions, a phenomenon known as "leakage." Border tax adjustments are typically used to confront this challenge, but they are difficult to implement, are legally questionable and do not make the emissions restrictions much more effective. A better approach is to tax domestic extraction along with border adjustments on imports and exports of energy. This approach is simple to implement, clearly legal, and is much more effective at reducing emissions.

Sector-by-Sector Approaches

Decarbonizing the U.S. Economy with a National Grid
Steve Cicala, Assistant Professor of Economics, Tufts University; Non-Resident Scholar, EPIC

One of the cheapest ways for the federal government to encourage the growth of renewable power is to remove the regulatory obstacles that prevent grid access to the most cost-effective renewable resources in the country. To facilitate building a nationwide high voltage direct current grid, the federal government could simultaneously assert FERC's primary role in transmission permitting and encourage the upgrading and re-use of existing rights of way.

Fueling Technology Deployment with a Clean Electricity Standard
Michael Greenstone, Milton Friedman Distinguished Service Professor in Economics; Director, EPIC; Director, Becker Friedman Institute; Ishan Nath, Postdoctoral Scholar, EPIC

A national Clean Electricity Standard would level the playing field between clean and dirty energy sources, facilitate decarbonization of the power sector, and encourage innovation in clean energy technologies. Policymakers could maximize the benefits of this approach by making the standard flexible and technology neutral, linking it to carbon reduction policies in other sectors, and pairing it with complementary policies that facilitate grid integration and directly support technological innovation.

Restoring the Future of Nuclear Energy
Robert Rosner, William E. Wrather Distinguished Service Professor in the departments of Astronomy & Astrophysics and Physics, and Founding Co-Director, EPIC; Rebecca Lordan-Perret, Postdoctoral Scholar, University of Basel, Switzerland

To successfully decarbonize its economy, the United States should incorporate the technology that is here, proven, and ready to deploy: nuclear energy. Modern nuclear plant designs are capable of ramping production up and down, making them an important complement to wind and solar energy. But policymakers should improve design, manufacturing and construction processes to lower the cost of building new facilities, confront market failures to improve overall cost competitiveness, and take steps to improve public trust in the technology's safety.

Making Energy Efficiency Work
Fiona Burlig, Assistant Professor, Harris School of Public Policy

Energy efficiency policies have proven to be expensive ways of reducing carbon emissions. But doing more with less energy is appealing, so finding ways to improve these programs should be a key policy goal. Moving forward, funding should be allocated to the programs and the specific retrofits that are most cost-effective based on independent and rigorous real-world evaluations. Existing empirical analyses should be used where possible, and new evaluations should be conducted as technologies are deployed.

Four Proposals to Improve Fuel Economy Standards
Koichiro Ito, Associate Professor, Harris School of Public Policy

Policymakers can make fuel economy standards more efficient and effective by eliminating distinctions between vehicles of different sizes and types to remove an implicit incentive for automakers to build bigger vehicles; by establishing a formal, transparent market to trade emissions credits to help industry reduce emissions at the lowest possible cost; and by promulgating new rules to bring emissions testing under the direct supervision of regulators and tough penalties for violations to deter cheating and increase trust.

Accelerating and Smoothing the Transition away from Coal
Mark Templeton, Clinical Professor of Law, University of Chicago Law School

To accelerate the country's transition away from coal, regulators should consider coal's full social costs when deciding whether to approve new mines on federal lands and how much pollution should be allowed from power plants. Further, regulators should address legacy environmental issues at these sites, while giving coal workers the opportunity to help clean up closed mines and plants in their communities.

Ensuring Americans Receive Fair Value for U.S. Oil and Gas Resources
Thomas Covert, Assistant Professor, Booth School of Business; Ryan Kellogg, Professor and Deputy Dean for Academic Programs, Harris School of Public Policy

Several administrative and legislative changes to the federal mineral leasing process would better protect the environment and public health and also deliver more attractive financial returns to taxpayers. These changes would make the leasing process more similar to those already used in state and private markets, and include increasing the royalty rate, eliminating deductions and using a transparent price index, shortening primary terms, increasing the minimum bid and eliminating the non-competitive leasing program, and strengthening bonding requirements.