

Political economy of Clinton's ambitious energy program

Joseph E. Aldy

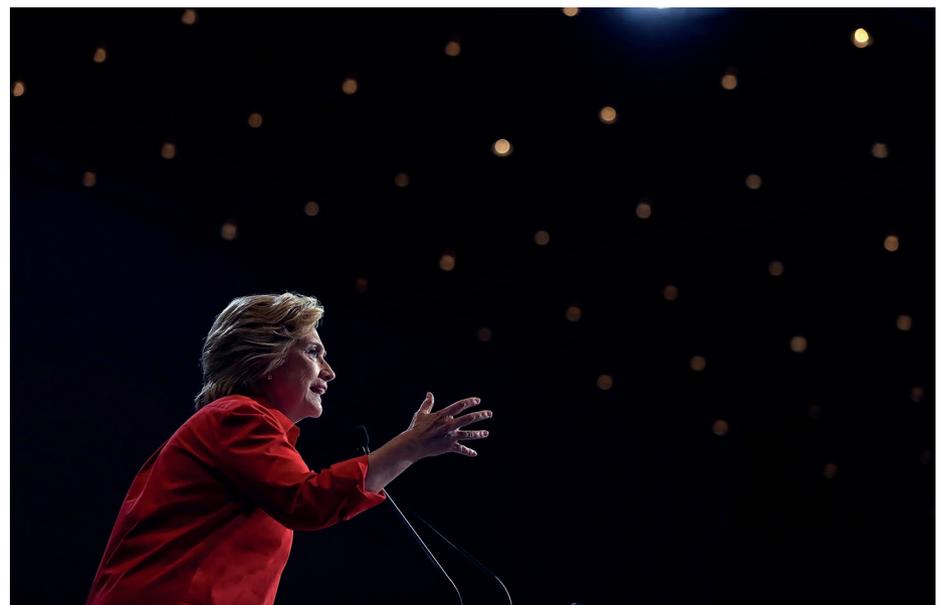
Hillary Clinton's campaign has stressed her continuity with Obama's energy policy on key aspects such as decarbonization of the US economy, technological innovation and global cooperation. However, policy reforms to deliver long-term climate goals might be out of reach in a highly divided Congress.

Democrats have traditionally pursued energy policy with the goal of delivering clean, affordable and reliable energy to US consumers. The Obama administration has implemented policies focused on these objectives¹, and Secretary Clinton has advocated for energy policy goals that would build on this foundation². On clean energy, President Obama has pledged to lower greenhouse gas emissions 26–28% below 2005 levels by 2025; Secretary Clinton has called for a 30% emissions cut by 2025. Under Obama's support of tax expenditures and grants, the US has generated 40 times more solar power this year than it did in 2008^{3,4}; Clinton will continue to support solar energy with a national goal of installing half a billion solar panels⁵. Like Obama, Clinton supports prudent development of domestic oil and gas resources. Moreover, she has advocated for cutting oil consumption by one-third, which would mitigate the impact of foreign supply shocks to the US economy, and continue the trend of falling US net oil imports. On energy-related foreign policy, Clinton supports two Obama administration priorities: the Paris Agreement on climate and the Iran nuclear agreement. The starkest contrast with Republicans on energy policy lies with the central focus of the Clinton campaign to combat climate change.

Principles and policies

The Clinton campaign must confront inherent trade-offs in the pursuit of clean, affordable, reliable energy. Clean, reliable energy is potentially costly, and some of the most reliable, affordable power sources are not clean. Here, we elaborate principles and discuss proposed policies to illustrate how a Democratic administration might manage these trade-offs and implement energy policy in practice.

Progress on US energy policy has historically reflected politically feasible



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incremental steps, not wholesale policy reforms. This reflects the political and regional differences in energy policy as well as the long-lived nature of energy technologies. Occasionally, a bipartisan consensus can advance important legislation, as evident in the passage of the 1990 Clean Air Act amendments and the 1992 and 2007 energy bills. In recent years, however, political gridlock has hindered efforts to improve energy policy, especially with respect to legislative action on climate change. As a result, the Obama administration focused on administratively feasible climate change policies under existing statutory authorities (for example, the Clean Power Plan). In the absence of dramatic changes in Congress, the next administration would continue to concentrate its policy efforts on what is feasible through executive actions².

Given the costs of promoting clean and/or reliable energy, cost-effective policies will

be necessary to ensure the affordability of energy. Cost-effective implementation lowers the political costs of ambitious energy policies and enables more ambitious policies to yield higher social returns than social costs⁶. While the Reagan and first Bush administrations championed cost-effective market-based regulatory approaches to phasing lead out of gasoline and reducing sulfur pollution from power plants⁷, Democratic political leaders have become more enthusiastic about market-based environmental policy. Few leaders in the Republican party today embrace carbon dioxide cap-and-trade like Senator McCain, Governor Schwarzenegger, and Governor Pataki did in the mid-to-late 2000s. In 2009, Obama supported an economy-wide greenhouse gas emissions cap-and-trade program. Clinton also supported cap-and-trade during her Senate tenure and in her 2008 presidential campaign. She has neither embraced this approach nor a carbon

tax supported by Senator Sanders⁸ in the current campaign, reflecting the political obstacles such legislation would face in a Republican-controlled Congress. Supporting market-based implementation of the Clean Power Plan could deliver on the pricing of greenhouse gas emissions as called for in the Democratic party platform⁹.

The prospect that policies increasing the price of energy — such as through carbon pricing — could disproportionately harm low-income households has been subject to academic debate^{10,11}. Democrats have supported policies to assist low-income households, such as the Low Income Home Energy Assistance Program and the Energy Refund Program in the 2009 Waxman–Markey climate change bill¹². Some Senate Republican support for low-income housing weatherization in the recent Senate energy bill suggests that a progressive approach to energy policy could generate bipartisan support¹³. In addressing the distributional consequences of energy policy, there will also need to be careful consideration of concentrated costs on workers. For example, Secretary Clinton has advocated for a US\$30 billion coal worker transition program, recognizing how low-cost natural gas, further mechanization of coal mining, and environmental regulations could reduce coal mining employment¹⁴. Making a major investment in these coal communities could enable an economic transformation in Appalachia and other coal-producing regions.

Well-designed energy policies should promote the innovation necessary to yield future generations of energy technologies and systems that are cleaner, cheaper and more resilient. The dearth of private sector energy R&D highlights opportunities for public spending on basic science and potential breakthrough technologies. Clinton has proposed increasing public investment in clean energy R&D, including for ARPA-E (Advanced Research Projects Agency — Energy)², which was initially funded in the Obama administration through the 2009 Recovery Act.

The design and implementation of energy policy should be evidence-based. Periodic review of existing policies and regulations — to assess if they are delivering on expectations and to weigh their benefits and costs — can assure the public about the efficacy of energy policy and facilitate the updating of energy programmes so that they can better deliver on key energy policy objectives¹⁵. In her proposal for a Clean Energy Challenge, Clinton has called for a metrics-based implementation of state and local efforts — to exploit these “policy laboratories” — to identify the most effective policies¹⁶.

In appropriate contexts, US energy policy should be globally collaborative — embracing and leveraging collaboration with partners around the world. A variety of energy policy issues — from climate change to nuclear power safeguards to reliability and security of supplies — have transborder implications for effective policy design. The 2015 Paris Agreement is a prime example: the United States pledged to reduce its greenhouse gas emissions in an agreement in which more than 180 countries have reciprocated with their own emission mitigation pledges. The US effort to cut emissions not only delivers global climate benefits, but it also illustrates how proactive leadership, especially with China through several joint statements¹⁷, can leverage emission mitigation around the world. Reflecting on her experience in climate negotiations as secretary of state, Clinton has emphasized the importance of working with other nations to combat climate change².

Efforts to implement these principles to deliver clean, affordable, reliable energy must confront the status quo energy policy landscape. Indeed, there is a fundamental tension between the ambition in the goals and the limits of policy tools at the president's disposal.

Challenges

Clinton has emphasized the importance of defending the progress on climate change made during the Obama administration². Specifically, she would fight efforts to weaken the Clean Power Plan — an Environmental Protection Agency (EPA)-designed regulatory framework that establishes state-specific carbon dioxide limits and delegates implementation to the states. The EPA has encouraged cost-effective state implementation that would lower US power sector emissions 32% below 2005 levels by 2030¹⁸. The Supreme Court has paused the implementation of the Clean Power Plan pending its review, and most legal analysts expect it to rule on its legality during the next administration¹⁹. An adverse decision could reduce the ambition in cutting power sector emissions. Moreover, it could threaten efforts to reduce oil and gas development-related methane emissions that could be regulated under the same provision of the Clean Air Act. If the final legal ruling on the Clean Power Plan requires the EPA to redraft the rule in a way that undermines its emission mitigation, then it would make it more difficult to achieve Clinton's 2025 goal and potentially weaken US leadership in future multilateral climate change talks.

Incremental policy changes often result in multiple, overlapping policy

instruments that can undermine the efficacy and increase emission reduction costs. For example, providing subsidies for clean power technologies and making more stringent appliance efficiency standards may have zero impact on US power sector emissions if the Clean Power Plan — which effectively sets binding caps on power sector emissions — is fully implemented^{20,21}. The dramatic increase in solar power generation called for by Clinton may not reduce greenhouse gas emissions if US power sector emissions are limited by the Clean Power Plan, but the solar subsidies could increase the total costs of attaining the Clean Power Plan's goals. Subsidies in the presence of performance standards and information mandates could primarily pay consumers for what they would have done in the absence of the subsidies²². Efforts to avoid impacting energy prices, such as through mandates for efficient vehicles and appliances, will result in higher product prices associated with complying with the standards that disproportionately harm low-income households²³.

With power sector standards set through 2030, solar subsidies covering as much as 40% of costs through 2023, tailpipe carbon standards set through 2025, and biofuels mandated through at least 2022, among other emission mitigation policies, there is a risk that additional, incremental policies may do little to reduce emissions but could impose adverse distributional effects and yield high costs per unit of carbon abated. Given the opaque nature of tax expenditures, there may be a strong political interest to pursue these types of subsidies to lower the residual cost of quantity-based policies. Overlapping subsidies on the Clean Power Plan would likely lower the apparent cost of the power sector regulation. An effective near-term policy approach would target those emission sources that bear little regulation and don't enjoy subsidies for lower-emission investment, which would complement the existing suite of policies.

Constraints

Clinton has proposed several programmes and policies that will require working with Congress to secure federal appropriations and, in some cases, associated statutory authorizations. This includes an infrastructure bank that could help finance energy-related projects as well as an array of non-energy projects, which is an idea that has drawn little Republican support during the Obama administration. If not through a new bank, Republicans' general interest in addressing infrastructure needs

suggests some opportunities for bipartisan support through the regular appropriations processes. The infrastructure investment will need to consider the potential physical threats — such as from hurricanes and other storms, droughts, and longer-term risks associated with climate change — as well as cyber-related risks to the movement of energy throughout the United States.

Clinton advocates for a US\$60 billion, 10-year Clean Energy Challenge to subsidize state and local investment in clean energy technologies and related policy reforms². Part of the motivation is to exploit heterogeneity in state and local government implementation of these programmes in order to evaluate quantitative outcomes and identify effective policies¹⁶. This proposal raises questions about how it would compare to the approximately US\$90 billion clean energy investment under the 2009 Recovery Act — the largest energy bill in US history²⁴. What would be the incremental impact of these investments after those made under the Recovery Act, especially given their smaller scale and longer time horizon? Can the federal government promote state and local implementation that enables rigorous evaluations and statistical identification of causal impacts of the Clean Energy Challenge? Would Republicans vote to fund this program?

While the states provide opportunities for policy experimentation, some may also constrain the ambition of a national climate policy programme. Many states have joined the legal challenge of the Clean Power Plan. If the Supreme Court upholds the Clean Power Plan, these states opposing the policy would then be responsible for designing its implementation. Moreover, the states are responsible for the economic regulation of power generation. As a result, state rules and policies will play a major role in creating the incentives for investment in clean power and associated upstream manufacturing capacity.

Opportunities

Policy reforms are not alone in changing the complexion of the US energy system. The so-called fracking revolution has dramatically increased domestic oil and gas production, contributing to lower gasoline prices and cheaper electricity rates. With natural gas displacing about a quarter of coal's power sector market share since 2008, the US has realized quite substantial local public health and global climate change benefits. While fracking may pose risks to local water bodies and air quality, prudent development — that is, subject to appropriate environmental regulations — can mitigate these risks and deliver affordable energy to

consumers that is cleaner than the status quo alternative. Cheap natural gas prices, coupled with declining solar and wind power costs, have contributed to an unprecedented decline in US carbon dioxide emissions and meaningfully lowered the costs of more ambitious emission mitigation. If the price of natural gas were to increase considerably from its current, low prices, this would make more ambitious climate change policy politically, economically, and even technologically more challenging. For example, developing new, stringent regulations on oil and gas operations could increase gas prices.

Clinton has called for a long-term, deep decarbonization of the US energy economy, with greenhouse gas emissions more than 80% below 2005 levels by 2050. This goal is unfeasible under existing statutory authorities. Even the goal to cut emissions 30% by 2025 is quite difficult under current law. Several recent analyses estimate that the United States will reduce its emissions 22–23% below 2005 levels by 2025 under current law, policies, and regulations^{25,26}. Aggressively pursuing additional mitigation efforts under current law could deliver on President Obama's goal and potentially the –30% by 2025 Clinton goal^{25–27}. Bending down the emissions curve at least 7 percentage points from current law over less than a decade would represent quite a substantial policy effort by the new administration. But even advocates of aggressive use of current law recognize that new federal legislation will be necessary to deliver deeper, post-2025 emission reductions²⁷.

To drive the innovation necessary to realize the long-term goal and to attain it in a cost-effective manner requires an economy-wide price on carbon. The question is whether the political debate can be modified in a way to build a durable constituency for carbon pricing policies²⁸. In recent years, policy advocates have proposed a carbon tax as a part of a larger reform of the US tax code, which both major political parties have identified as important and could provide the means for addressing the distributional impacts of pricing carbon²⁹. Providing opportunities for periodic updating of the carbon price — to reflect regular reviews of the policy's performance as well as the evolution of international climate negotiations — could ensure that the tax rate is appropriate to the climate challenge. Given Clinton's long-term climate policy goals, she would likely entertain such a policy debate if Republicans made a good-faith effort to consider a carbon tax in the context of a revenue-neutral tax reform. Indeed, broad political support — from

Democrats and Republicans, business, labour, and environmental groups — could be attainable for a great swap of an ambitious carbon tax for lower tax rates. But until there is serious discussion about new statutory authorities, it will be difficult for domestic policy to deliver on ambitious, long-term climate change goals. □

Joseph E. Aldy is at the John F. Kennedy School of Government at Harvard University, 79 JFK Street, Cambridge, Massachusetts 02138, USA.
e-mail: Joseph_Aldy@hks.harvard.edu

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