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The Future of Energy Efficiency in the United States

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The role of energy efficiency in the U.S. energy market has grown rapidly -- driven by the need to reduce reliance on large generation assets, to modulate energy demand, and to mitigate climate change. President Donald Trump has not made specific public statements about energy efficiency, but has begun the process to reduce funding for the federal agencies and the national laboratories largely responsible for national renewable and efficiency programs and energy research. Thus, energy industry stakeholders have been left to speculate on the future of national energy efficiency.

However, the direction of energy efficiency is unlikely to waiver. Energy regulation and policy are developed at multiple levels, with federal policy as one of many levers of power. At the international, state, municipal and corporate levels, the momentum to adopt energy efficient technologies is strong. The pace of technology development and the positive economics of energy efficiency investments will continue to drive energy efficiency adoption, independent of federal policy.

Federal Energy Efficiency

The three main areas of federal policy have been Appliance and Equipment Standards, the Clean Power Plan, and the Paris Agreement.

Appliance and Equipment Standards:

The U.S. Department of Energy (DOE) Appliance and Equipment Standards Program sets federal energy efficiency standards. In 2015, the program saved an estimated 4.5 quads of primary energy use, or 5 percent of total U.S. energy consumption. As older appliances and equipment are retired and more efficient equipment is installed, the total savings are expected to grow annually. The energy efficiency measures put in place are cost-effective and save consumers money over the lifetime of the product. DOE currently has energy efficiency standards for over 55 types of products and equipment.

President Trump has not made specific statements that would suggest a stance on the Appliance and Equipment Standards program, which has strong support from both industry and environmental advocacy groups. However, the President's proposed budget released in March 2017 contains cuts in DOE funding that would likely reduce funding for the office Energy Efficiency and Renewable Energy, the Appliance and Equipment standards program,

and the national laboratories, which play large roles in researching and supporting residential and commercial energy efficiency technologies. The proposed budget also eliminates the ENERGY STAR® , the voluntary program aimed at encouraging market adoption of more efficient technologies. If federal support of energy efficiency is reduced, the non-federal actors influencing our nation's efficient use of electricity and power will play an even larger role in our country's energy future.

Clean Power Plan

Trump directed the U.S. Environmental Protection Agency (EPA) to start the process of withdrawing and rewriting the CPP on March 28. Notably, the March 28 order did not (1) withdraw the U.S. from the Paris Climate Agreement (described below) or (2) start a process to repeal the EPA's endangerment finding on carbon emissions, which underlies the CPP.¹ But as of April 28, the D.C. Circuit granted the EPA's request to pause the litigation and the court ordered a briefing on whether the case should be remanded to the EPA or kept on hold. Sending the rule back to the EPA would allow the agency to modify or rescind the rule following its review. The EPA would have to go through its rulemaking process which could take another 12 months or more.

Regardless of these actions, the United States is on a positive trajectory to achieve CPP goals earlier than planned since the nation has largely moved away from coal and toward natural gas and implementing renewables and increased energy efficiency.² This, coupled with increasing improvements in appliance standards, has led to significant decreases in electricity generation and consumption. Most agree that market forces have already moved toward compliance, and that trend will continue with the ongoing trend away from coal toward natural gas, the ongoing installation of renewables, and the continuing adoption of energy efficiency resources. If natural gas, renewables, and energy efficiency measures are less costly than coal, market forces are likely to dictate the use of the more cost-effective resource.

Paris Agreement

Trump has stated his intention of withdrawing from the Paris Agreement, which commits the United States and 194 other countries to lowering greenhouse gas (GHG) emissions. The CPP is a key means of complying with this agreement. Trump has backtracked since his earlier statements and said he has an open mind about the agreement.³ Several major coal companies, (Cloud Peak Energy Inc., Arch Coal Inc. and Peabody Energy Corp) have asked Trump to remain in the Paris deal, arguing that the accord could provide their best forum for protecting their global interests.⁴ Several major oil companies – Exxon, Royal Dutch Shell plc, BP plc, Statoil and ConocoPhillips Co. have all reportedly expressed support for the agreement, as well as current Secretary of State Rex Tillerson.⁵

At this point, it is unclear which way the administration will go. If the United States withdraws, other nations may impose carbon tariffs on GHG-intensive goods; France and Mexico have stated they are considering this option. This would put pressure on manufacturers to reduce emissions, encouraging energy efficiency.

State Energy Efficiency Initiatives

States that have been aggressively pursuing energy efficiency, including California, New York, Massachusetts, Illinois, and Hawaii, are not likely to change the direction of their energy policy and regulation. Several states have recently made announcements about renewed efficiency efforts and increased commitments to energy savings targets. These state policies drive electric and gas utility programs.

In California, Governor Jerry Brown and legislative leaders said they would work directly with other nations and states to defend and strengthen California's already aggressive policies to fight climate change. The state has had a strong commitment to energy efficiency and this is likely to continue. Illinois, Michigan, Massachusetts, and Ohio have also reaffirmed their commitment to efficiency initiatives:

- This past March, the Vermont House passed a bill that would create state energy efficiency standards if the Federal Appliance and Equipment standards program is eliminated.⁶ The bill would adopt efficiency standards that mirror federal standards as of January 19, 2017. The existing standards save Vermont households an average of 20 percent off their annual energy bills.
- The Michigan legislature passed two sweeping bills on December 15, the last day of its end-of-year lame duck session, and the governor has signed them. The legislation extends and improves the Energy Efficiency Resource Standard (EERS). The EERS bill, SB 438, officially endorses and extends the state's 1 percent annual energy savings requirement for utilities through 2021. It also removes the existing cap on energy efficiency program spending, adds tiered incentives to encourage utilities to exceed 1.5 percent

annual savings, and increases the previous RPS requirement for renewable electricity from 10 percent to 15 percent.⁷

- Proposed Massachusetts air regulations announced in December target 80 percent decarbonization by 2050.⁸ Achieving these targets is likely to require increased energy efficiency.
- In Ohio, Governor John Kasich vetoed a bill at the end of December that would have weakened the state's renewable energy and energy efficiency standards. This ended a two-year long freeze on the standards and cleared the way for the standards to be reinstated as of January 1, 2017.⁹
- In early December, the Illinois General Assembly passed and the governor signed into law a sweeping energy bill that enabled two nuclear power plants to remain operational. The bill significantly increases energy efficiency requirements for the large electric utilities and resets the state's Renewable Portfolio Standard (RPS), which is expected to generate more than \$10 billion in Illinois over the next 10 years.

Municipal

Municipal governments—such as those of Los Angeles, California; Austin, Texas; Boulder, Colorado; Boston, Massachusetts; Madison, Wisconsin; New York, New York, and others—are rapidly embracing the transformation to clean energy, driven by their citizens:

- Los Angeles initiated its Sustainable City Plan in 2015, which aims to reduce energy use per square foot below 2013 levels for all buildings by at least 14 percent by 2025 and 30 percent by 2030.
- Boulder adopted a new Climate Commitment in December. The goal is to build on the success of Boulder's Climate Action Plan and foster economic vibrancy while reducing overall emissions by 80 percent by the year 2050. Reaching this goal means ramping up climate efforts and, in particular, actions to promote energy efficiency and conserve natural resources.
- The City of Madison, Wisconsin recently announced a plan to move toward 100 percent renewable energy use across city agencies, with interim goals of 25 percent clean energy use by 2025. It also aims to reduce overall energy consumption by 50 percent by 2030.

Corporate Initiatives

Fortune 500 companies are committed to their plans related to corporate sustainability initiatives. This will drive clean energy project development regardless of what happens on the federal front. Five hundred and thirty companies – including Hilton, General Mills and Unilever – and 100 investors – including the New York State Common Retirement Fund and Trillium Asset Management – have signed a statement of support of the nation's climate change policies in advance of Trump's inauguration.¹⁰

Google announced recently that it would meet 100 percent of its corporate energy demand from carbon-free sources by 2017. A recent article in Japan Times stated, "Google's efforts are driven not just by a notion of corporate responsibility, but also by business imperatives: Going green is smart, efficient and potentially profitable. That is the way to ensure that such policies are adopted more widely."¹¹

Forbes magazine recently said, "no matter who the president is, business leaders are committed to a clean energy future."¹² General Electric, Exxon and BP, among other large companies, have corporate clean energy initiatives as well as lines of business that focus on driving increased revenue through renewable resources and advanced technologies.

Technology Improvements

Technological improvements continue to offer consumers opportunities to reduce energy costs and reduce contributions to harmful emissions. A key example is LED lighting. LED prices have declined to a point where this type of lighting is becoming the economical choice in almost every application. The current wave of adoption is focused on the value of ongoing energy savings compared to a modest increase in upfront cost. As the payback periods fall below 2-4 years in more and more applications (in part due to Federal Appliance and Equipment standards), those with decision-making power over what type of lighting to use are forced to consider this comparatively new technology.¹³

Conclusion

Energy policy and regulation are developed at multiple levels. While the new president and Congress are likely to alter federal policies and regulations, support for cleaner and more sustainable energy systems will continue and may increase at the state, municipal, and corporate levels. Businesses have found renewables and energy efficiency to be good for businesses and to be a driver of revenue growth. Further, energy technology improvements are driving an increase in efficiency. These forces will not be altered or slowed by federal energy policy changes.

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⁶ Mike Polhamis, "Vermont House Passes Backup Bill on Energy Efficient Appliances" VTDigger, March 24, 2017

⁷ Martin Kushler, "New Michigan law strengthens energy efficiency and renewable energy standards" ACEEE, December 21, 2016.

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⁹ SNL. "Kasich follows through on veto threat for Ohio clean energy standards." December 27, 2016.

¹⁰ <http://www.lowcarbonusa.org/>, downloaded February 2, 2017.

¹¹ Japan Times. "Google's commitment to go green." December 13, 2016.

¹² Mindy Lubber, "It's All About Building A Clean Energy Economy" Forbes, November 10, 2016.

¹³ Navigant Research. 2015. *LED Lighting: Global Outlook*.