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**2017 outlook on power
and utilities**

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The incoming US Administration and Congress will likely bring change to the power and utilities sector, though it may be more limited than some expect.

And it won't change the fact the utility industry is still in a period of transformation. Rising costs have become the norm for utility planners—and that's likely to persist as long as requirements and expectations from regulators, customers, and other stakeholders continue to mount. But new regulatory structures and business models are emerging that may provide additional tools to help manage these costs.

In the policy realm, it's tough to turn an ocean liner, as they say. One of the Obama Administration's signature policies, the Clean Power Plan, is likely to be a target for the new Administration, though it's unclear whether it would have survived intact even without an election. The ruling was stayed by the Supreme Court in February 2016 and is currently pending judicial review. But this doesn't mean the industry will stop moving toward a cleaner generation slate, for several reasons. First, much of the growth in wind and solar power is driven by state policies, such as Renewable Portfolio Standards, and the rapidly declining costs of these technologies. The federal Production Tax Credit (PTC) for wind and Investment Tax Credit (ITC) for solar are also significant incentives, and they were just extended in late 2015 at current rates, with annual decreases from 2017 until expiration in 2020 for the PTC, and reductions from 2019 until 2023 expiration for the ITC. They are not considered a likely target for direct repeal, though their status (like that of all tax preferences) must be monitored as Congress contemplates a major tax code overhaul in 2017.

On a practical level, Republican Congressional support for wind and solar has been gradually expanding. This is partly due to wind and solar sector job creation in many traditional red states,

overwhelming business and consumer support for renewable energy, and the role of home-grown energy sources in the quest for energy independence. In addition, as the economics of renewable energy improve, the need for government tax incentives is decreasing. So, while certain policies may be altered or walked back, we expect the transition to a cleaner generation slate will continue.

Another trend that's likely to continue is the overall utility sector transformation. So far it's been characterized by steeply rising costs, but emerging trends may help utilities begin to manage some of these costs. Electric and gas utility capital spending for the largest US investor-owned utilities (IOUs) hit an estimated record-breaking \$117 billion in 2016.¹ The biggest ticket items were:

- **Upgrading aging infrastructure** – It can be said that Thomas Edison would likely recognize much of today's utility infrastructure. A large portion of it was built 50-70 years ago, often based on early 20th century designs.² In 2016, IOUs spent about \$44 billion upgrading the electric transmission and distribution (T&D) system and modernizing the grid with information and communications technologies.
- **Grid modernization** – While this subset of T&D spending totaled about \$2.8 billion per year in 2014 and 2015, the Electric Power Research Institute (EPRI) estimated between \$17 and 24 billion would be needed annually through 2030 to fully deploy smart grid technologies.³ The US Department of Energy recently allocated \$220 million to smart grid funding, but that doesn't come close to filling the \$15-20 billion annual funding gap.



- **Generation/environmental/renewables** – IOU capital expenditures hit nearly \$40 billion in this category in 2016, driven largely by fuel-switching, as older coal plants were retired and replaced largely by natural gas and renewables.⁴ Complying with US Environmental Protection Agency mandates and increasing state renewable portfolio standards was another big driver of capital spending that’s likely to continue.
- **Natural gas pipelines, storage, and distribution** – Electric and gas IOUs spent nearly \$23 billion on gas distribution system upgrades and shale gas production infrastructure in 2016. About 96,000 miles of US natural gas distribution mains and seven percent of service lines to US homes and businesses are constructed of materials now considered leak-prone, and they may take up to 30 years to replace.⁵ In addition, the US Pipeline & Hazardous Materials Safety Administration proposed new gas transmission pipeline safety regulations that it estimates could cost \$597 to 711 million to implement over a 15-year period, and some industry estimates are significantly higher.⁶

Utilities are expected to continue funding these programs, and others, at a time when electricity sales revenues are no longer rising over time in many areas of the United States. In fact, US electricity consumption continues to stagnate, and even decline, falling in five of the eight years since the recession, even as GDP rose.⁷ In addition, much of the utility workforce is reaching retirement age, and new tech-savvy workers needed to replace retirees are in short supply. And, if that’s not enough, as utilities digitize the electric grid, cyber risk will likely increase and should be addressed. All of this adds up.

Customers and regulators want utilities to pursue all of these initiatives, and more, but regulators often times are hesitant to approve rate hikes to cover the costs. As pressure mounts, two trends seem to be emerging that may help utilities manage some of the risks of rising costs.

- **Risk-based ratemaking** – Utilities, regulators, and other stakeholders are beginning to collaborate to address risk and uncertainty as part of the rate-case process. Ratemaking decisions have traditionally been based on least cost, with limited consideration of risk. But stakeholders in California and other states, sometimes in the wake of tragic accidents, are increasingly concluding there may be more effective ways to ensure the safety, reliability, and affordability of energy supplies. As a result, the ratemaking process seems to be evolving to increasingly base decisions on the underlying risk of an operational item, which, in turn, enables better decision-making. For example, the risk of owning and operating a natural gas distribution system is different than that of say a maintenance yard; yet, ratemaking has tended to view all costs as somewhat equal. Enterprise risk management and operational risk should converge in the ratemaking process to enable regulators and utilities to make better decisions about where the dollars in rate cases should go. This more collaborative and holistic approach may lead regulators to take a different view of what goes into customer rates based on the outcome of the risk assessment process.

- **Growth of behind-the-meter resources** – As electricity customers rapidly add new distributed energy resources, from solar photovoltaics (PV) to energy storage to electric vehicles, utilities see opportunities to tap into these resources to balance the grid, improve efficiency, boost reliability and resilience, and defer or avoid some of the cost of investment in new generation, transmission and distribution assets. For example, a technology company building a new data center struck a deal allowing the local utility in Wyoming to use its backup gas generator when needed to meet peak demand. This helps the utility avoid the risk of building new generation to serve a single customer, while the technology company can boost utilization of a largely idle asset.

In another example, a utility is hosting a pilot with a storage start-up. The storage company is deploying onsite batteries to help customers reduce demand charges while offering the customers upfront financing and utility incentives. In return, the utility can call on the batteries for an hour at a time as needed to reduce system-wide peak demand.

There's a growing collection of valuable resources behind customers' meters. Instead of seeing these resources as competition, utilities are beginning to see opportunities to "reach behind the meter" and put them to work for the system. In this way, the electric power sector is increasingly acquiring characteristics of the "sharing economy," as utilities and customers begin to "share" resources to keep costs down and make the grid more efficient, reliable, and resilient.



In sum, the new Congress and Administration will likely bring change to the power and utilities sector, though it may be more gradual than some expect. The drivers of high industry spending levels will almost certainly continue, but we expect to see innovative new trends that can help utilities manage and spread those costs.

Endnotes

- ¹ Dan Lowrey, Charlotte Cox, and Heike Doerr, "Financial focus: Capital expenditure update," SNL Energy, an offering of S&P Global Market Intelligence, October 27, 2016, p. 9, <http://marketintelligence.spglobal.com/client-solutions/users/energy-companies>, accessed November 14, 2016.
- ² Meagan Clark, "Aging US power grid blacks out more than any other developed nation," International Business Times, July 17, 2014, <http://www.ibtimes.com/>, accessed November 10, 2016.
- ³ Electric Power Research Institute, "News spotlight: June 2015," p.1, <http://www.epri.com/Documents/in%20the%20news/News%20Spotlight%202015%20June.PDF>, accessed November 28, 2016.
- ⁴ Dan Lowrey et al, "Financial focus: Capital expenditure update."
- ⁵ US Department of Transportation, "About data and statistics," Pipeline & Hazardous Materials Safety Administration, <http://www.phmsa.dot.gov/pipeline/library/data-stats>, accessed August 24, 2016.
- ⁶ "Pipeline safety: Safety of gas transmission and gathering pipelines, A proposed rule by the Pipeline and Hazardous Materials Safety Administration on 04/08/2016," Executive Summary, Section C, "Costs and Benefits," Federal Register, <https://www.federalregister.gov/documents/2016/04/08/2016-06382/pipeline-safety-safety-of-gas-transmission-and-gathering-pipelines>, accessed November 10, 2016.
- ⁷ Kimberley Klaiman, "Total electricity sales fell in 2015 for 5th time in past eight years," Today in Energy, US Energy Information Administration, March 14, 2016, <http://www.eia.gov/todayinenergy/detail.php?id=25352>, accessed November 28, 2016.



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