CREATING CUSTOMER AND INVESTOR VALUE THROUGH ENERGY EFFICIENCY

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"Government regulators need to be as innovative as the innovators. They need to operate at the speed of Moore's law."

– Thomas Friedman

INTRODUCTION

All regulation sets a framework through which the regulated entity will work to maximize its earned returns and shareholder value. The regulatory model that successfully enabled the buildout of the electric grid incentivized massive private investment in infrastructure for public benefit, including power plants, transmission towers, substations and other capital projects. The ubiquitous availability of safe, reliable, affordable electricity in the U.S. is evidence of the model's success.

Today, regulators, utilities, consumer advocates and other stakeholders are grappling with an expanded set of goals and available alternatives. While the grid still requires significant modernization and investment, many cost-effective energy solutions are available on the customers' side of the meter. For the first 100 years of the regulatory framework that so successfully incentivized infrastructure, there was little need for regulatory innovation to encourage utilities to consider alternatives—very few existed. Today, alternatives abound.

Michigan, Illinois, Utah and Maryland have found unique ways to align utilities' interests with those of their customers to both expand efficiency offerings and lower costs.

Public interest in—and private capital available for—energy efficiency (EE) and other distributed energy resources (DERs) is increasing. At the same time, advanced demand management technologies, such as smart thermostats, connected homes and buildings, and advanced lighting controls, are gaining increasing acceptance among consumers. Under the traditional regulatory model, utilities have little, if any, incentive to encourage widespread deployment of DERs that would reduce sales of electricity and opportunities for investment. However, today there are ever-increasing scenarios in which EE and other DERs could be deployed more cost effectively than traditional infrastructure investments. Unfortunately, few mechanisms are in place to incentivize utilities to deploy DERs or address the opportunity cost (i.e., lost revenues) of pursuing alternatives to traditional solutions.

It's important to note that decoupling or other mechanisms to compensate utilities for lost revenues from EE are in place for at least one utility in 30 states. These regulatory tools are extremely important and perhaps even necessary for utilities to want to increase EE. Still, decoupling and similar mechanisms only remove disincentives to EE and other DERs. This paper examines regulatory mechanisms that provide positive incentives for utilities to help their customers reduce their energy use.

Significant increases in cost-effective EE and other DERs lower consumption and could potentially decrease the need for utility capital investment; in today's regulatory model, this would also lower returns and shareholder value. Utilities that aggressively pursue lower-cost DERs at the expense of more traditional infrastructure could be in violation of their fiduciary responsibilities to act in the best interests of their shareholders. How, then, can regulators, utilities and other stakeholders create a system that incentivizes utilities to empower their customers to use less energy, realize more value, and reap the benefits of lower monthly bills?

In a white paper titled "Lower Spending, Higher Returns," we broach that topic directly and provide concrete examples for how such a system might work. We outline a model in which utilities can increase both their earned returns and their shareholder value while lowering costs and increasing customer participation and satisfaction.

In this paper, our intention is to focus on four states that innovated to redesign and improve upon their regulatory systems to give utilities meaningful financial incentives to empower their customers to use less. Michigan, Illinois, Utah and Maryland have found unique ways to align utilities' interests with those of their customers to both expand efficiency offerings and lower costs.

In the utility sector, there is significant focus on technology innovation, which is important, but regulatory innovation is potentially even more important to open wide the doors of opportunity for new technologies, empowered customers, thriving utilities and lower system costs. Done right, regulatory innovation can create a lasting structure to align shareholder interests with customer interests.

The ideal regulatory environment, in addition to providing safe, reliable and affordable power, also increases system efficiency, empowers customers to be more efficient, and enhances utility shareholder value along the way. Here are four states that are innovating toward those goals. ■

ILLINOIS

Illinois established EE programs in 2007. Since then, the state has steadily increased its utility goals. But, as is the case in most states with EE goals, Illinois utilities found themselves up against an inherent disincentive to pursue EE projects. All infrastructure expenditures came with a return on equity. EE expenditures, on the other hand, were treated as operating expenses and could therefore only be recovered without any added return. Management and shareholders naturally leaned toward infrastructure spending.

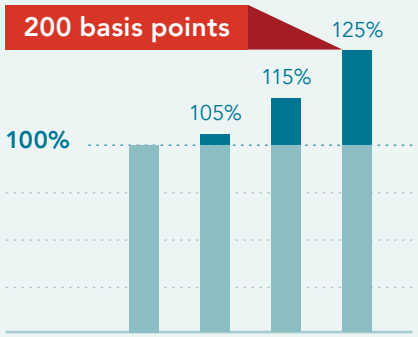
ComEd CEO Anne Pramaggiore set out to fix this misalignment of incentives several years ago. Speaking with Utility Dive early in 2016 about the Future Energy Jobs Act that passed later that year, she said, "Today, what happens with energy efficiency is we recover dollar-for-dollar what we spend on energy efficiency. This [bill] would actually put [efficiency programs] into a regulatory asset. They would look like poles and wires that we recover over a longer period of time and we earn a return on it. So it really treats a service like energy efficiency as an asset."

This approach addresses the problem of misaligned incentives without doing away with the old cost-of-service model; it effectively marries cost of service regulation with incentives for customer empowerment and EE.

In this model, infrastructure and services are both incentivized. Few customers express interest in a new substation, but customers universally want excellent service, lower bills and reliable, safe and affordable energy. The Illinois framework positions utilities as service providers as opposed to the deliverers of a commodity, and incentivizes them as such. It's an elegant solution that other states might want to replicate.

"You start to make that shift," Pramaggiore said. "If services are what we're going to be providing, what's the business case in that? So that's part of the thinking—there's a service element that's going to start to be more important in the future, and how do we make that a business for us?"

In December 2016, Illinois Governor Bruce Rauner signed the Future Energy Jobs Act into law. It allows the state's electric utilities to earn a return on equity for EE spending. The new formula allows a return on equity (ROE) for utilities equal to capital spend if they reach 100 percent of their EE goal. For every 1 percent above its goal, a utility can earn 8 additional basis points. For example, a utility that achieves 125 percent of its goal would be entitled to an ROE 200 basis points (2 percent) higher than its normal return.



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As we demonstrated in "Lower Spending, Higher Returns," investors will prefer an opportunity that provides a higher overall risk adjusted return vs. deploying externally raised capital earning at its cost of capital. Incentivizing EE and DERs as part of a distribution strategy can create more value for investors and customers than traditional infrastructure solutions. By providing up to 200 basis points for EE, Illinois has effectively made substituting cost-effective EE for infrastructure more desirable from the perspective of both potential investors and customers. ■

MICHIGAN

From 1995 to 2008, Michigan utilities engaged in few EE programs, if any at all. In October 2008, Public Act 295—known as the Clean, Renewable, and Efficient Energy Act—established a mandated goal: 0.3 percent of retail sales must be met by EE annually beginning in 2009. This figure would ramp up to 1 percent by 2012. In passing PA 295, Michigan lawmakers understood that utilities would typically favor capital spending over services in the absence of other incentives. Michigan established an incentive equal to the lesser of 15 percent of EE spending, or 25 percent of net benefits. In the latter scenario, consumers would keep at least 75 percent of net benefits, while the utilities would keep 25 percent of the benefits, providing some upside from programs that would otherwise create a drag on revenues and earned returns.

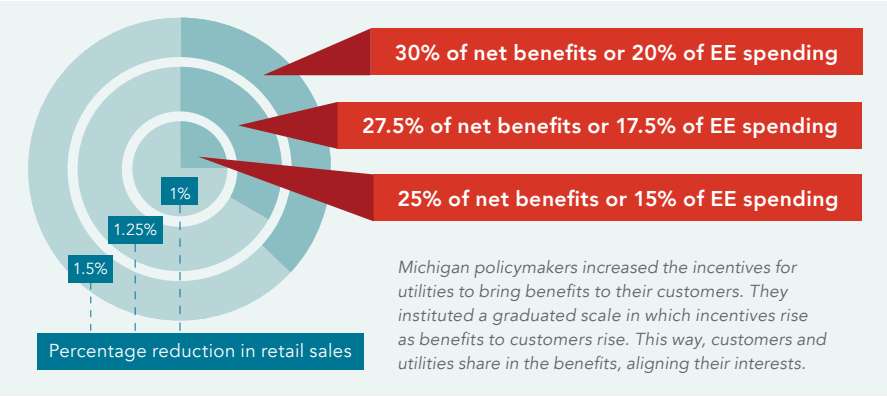
Policymakers gave utilities the ability to generate earned returns from EE programs. The incentive structure allowed for bonus payments roughly equal to or slightly above what a regulated ROE on infrastructure would generate. As a result, the largest utilities in Michigan have been able to earn $10 million–$20 million per year in incentives, while customers saved more than $150 million annually.

In December 2016, in recognition of significant customer savings from energy waste reduction, Michigan's legislature sent a strong signal that consumer empowerment is important to the state by allowing utilities the opportunity to increase their incentives.

The state of Michigan removed the mandate for efficiency after 2021 but allowed the utilities to retain the ability to earn their current incentive levels as long as they maintain a 1 percent reduction in retail sales each year. If, however, they were to exceed that goal by 25 percent, they could then earn the lesser of either 17.5 percent of EE expenditures or 27.5 percent of net benefits. If they were to exceed their goals by 50 percent, they could then earn the lesser of either 20 percent of EE spend or 30 percent of net benefits. Based on performance incentive calculations from recent years, this could—if the utilities hit these aggressive goals—equal $3 million–$6 million in additional incentives for utilities, while their customers would save approximately an additional $30 million per year. Meanwhile, similar incentives apply for gas utilities that exceed 0.75 percent of retail sales.

The new law gives flexibility to the Michigan Public Service Commission to develop an alternative methodology for decoupling and/or other incentives should the commission determine that current methods are insufficient to ensure that EE and demand response (DR) are not "disfavored compared to utility supply-side investments."

A Republican majority controls Michigan's legislature, while the legislatures of both Illinois and Maryland are comprised mostly of Democrats. As such, these states have taken very different paths toward new regulatory models. Ultimately, they all arrived at the same conclusions: customers win when utilities have a financial incentive to empower them to save money and energy. ■



Michigan policymakers increased the incentives for utilities to bring benefits to their customers. They instituted a graduated scale in which incentives rise as benefits to customers rise. This way, customers and utilities share in the benefits, aligning their interests.

MARYLAND

Earlier this year, the American Council for an Energy-Efficient Economy (ACEEE) published a review of the Maryland Energy Administration's EmPOWER Maryland initiative programs.[1] It found that:

- Programs were extremely cost-effective, returning nearly $2 in benefits for every $1 spent.
- EmPOWER programs added $80 million to Maryland's gross state product.
- 2,000 jobs could be attributed directly to the programs.
- Consumers saw significant savings through Demand Reduction-Induced Price Effects (DRIPE) from EE and DR bidding into the Pennsylvania-New Jersey-Maryland Interconnection (PJM) regional wholesale electricity market.

After restructuring (often referred to as "deregulation") in 1999, Maryland utilities discontinued their demand-side management (DSM) EE programs. Around 2005, when it was apparent that the competitive retail market was not delivering EE programs and customer satisfaction was low, stakeholders reconsidered these programs. In cooperation with several Maryland utilities, stakeholders proposed a combination of EE, DR and advanced metering infrastructure (AMI) to the Public Service Commission.

Eventually, Maryland created one of the most successful cost-recovery mechanisms for EE in the country. Operating expenses for EE and DR were converted into capital expenditures that were able to earn a full authorized return on investment (ROI) amortized over five years. In practice, investing roughly $125 million per year into EE creates a five-year, $500 million regulatory asset-earning ROI. The utilities also benefit from full decoupling, which removes the disincentive related to energy consumption levels. By itself, decoupling is an insufficient condition to motivate significant utility efforts toward EE, but combined with the ability to rate base EE, the system has worked extremely well to align utility incentives with decreasing costs for customers.

In practice, investing roughly $125 million per year into EE creates a five-year, $500 million regulatory asset-earning ROI.

Utilities can also earn a performance incentive on DR as well. For all DR that exceeds 200 MW in a given year, the utilities can bid the aggregated savings into the PJM capacity market and keep a portion of the earnings. The total revenue from EE and DR over the last eight auctions exceeds $300 million. Customers retain most of the savings while the utilities earn a portion, providing them more incentive to push for even deeper efficiency and cost savings.

Maryland's regulatory environment equalizes and incentivizes lower-cost EE to financial decision-makers. Under the traditional regulatory model, company management and shareholders would prefer poles, wires, substations and power plants to EE and DR. But infrastructure is often reviewed in a rate case and generally takes more than six months to recover, thus increasing risk. DSM can actually be a better option for utility management.

Perhaps most important, DSM is customer facing and saves on bills. Investments in wires and substations, by contrast, have a very low visibility for consumers. With their new regulatory conditions, Maryland's utilities have seen customer satisfaction scores rise significantly. As recently as 2008, JD Power scores were near the bottom, but have since reached the top quartile.[2] ■

[1] Baatz and Barrett. *Maryland Benefits: Examining the Results of EmPOWER Maryland through 2015*
[2] bizjournals.com/baltimore/stories/2008/02/18/daily37.html
jdpower.com/press-releases/jd-power-2016-electric-utility-residential-customer-satisfaction-study

UTAH

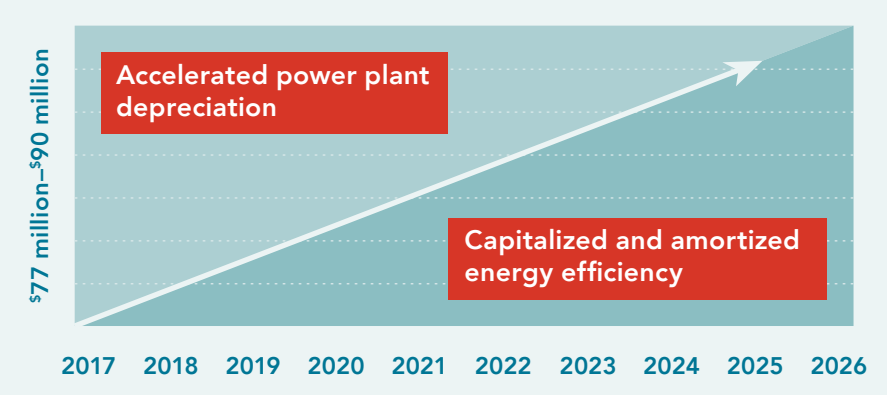
In March 2016, the Utah Legislature passed Senate Bill 115, also known as the Sustainable Transportation and Energy Plan Act. The bill allows Rocky Mountain Power to "capitalize the annual costs incurred for demand-side management" and to "amortize the annual cost for demand side management over a period of 10 years."

Similar to the utilities in Maryland and Illinois, Rocky Mountain Power in Utah can now earn a return on the investment it makes in EE programs, putting efficiency on an equal footing with other capital investments. SB 115 also addresses two other major problems:

1. Many states are struggling to deal with older power plants that are no longer economically viable due to long-term stranded assets. This is the term used to describe older power plants—usually fossil fuel or nuclear—that are no longer economically viable due to low natural gas prices, higher adoption of EE, lower cost of renewables, and more stringent environmental regulations.
2. EE is usually paid for upfront and must be cost effective in the first year. However, many EE installation measures like HVAC systems, insulation and LED lights are designed to save energy for at least 10 years. Building envelope measures can save energy for decades. As a result, some measures and programs don't appear to be as cost effective as power plants, which are amortized over many decades. If power plants, transmission lines and substations were given the same financial treatment and paid for by ratepayers in the first year, very little infrastructure would ever be built.

SB 115 solves both these problems by making EE programs a 10-year regulatory asset, which greatly improves their cost effectiveness relative to other energy resources. And because Rocky Mountain Power only needs a portion of the funds from the EE regulatory asset each year, it can use the remaining funds as accelerated depreciation for an older, economically inefficient plant. This way, Rocky Mountain Power can recover the cost of an aging power plant and retire it early, replacing it with an EE asset. This makes for cleaner air and lower costs for consumers, all while increasing EE. ■

Replacing a traditional asset with an energy efficiency asset



Energy efficiency can be used as a resource but is disadvantaged in most states in that costs cannot be amortized and utilities cannot earn a return on EE programs. Utah addressed this by making energy efficiency a regulatory asset, allowing it to be amortized over a longer period and allowing Rocky Mountain Power to earn a return on activities that help their customers reduce energy use.

CONCLUSION

Any state wishing to lower system costs and empower its citizens to better control energy use while providing financial incentives to utilities could adapt any of these models. There are infinite possible variations, so states can and should continue to focus on regulatory innovation as a way to benefit their citizens.

Looking back at 130 years of utility regulation, incentivizing infrastructure has had enormously positive effects; the near-universal availability of electricity is evidence. In fact, that access, and the infrastructure that makes it possible, has become so enmeshed in the fabric of everyday life that most people take it for granted. And, to be sure, additional investment to modernize the electric grid is needed and will continue to be needed.

Today there are options that were not available at scale for most of the history of the current regulatory model. EE and other DERs can often provide options at lower costs than traditional infrastructure investments or help defer costly upgrades. In many cases, they can also provide more resiliency and reliability. Under the current system, however, these alternatives pose challenges to the utility business model; with regulatory change, the same alternatives can provide earnings opportunities for utilities and additional tools to better serve customers. The models adopted in Utah and Michigan were enacted by Republican legislatures, while Illinois's and Maryland's were passed by Democratic ones. Finding lower-cost solutions that help customers save money and energy has bipartisan support.

Our regulatory frameworks need to continue to evolve to better align the financial interests of utilities with lower costs and customer empowerment. Today's regulatory system needs to be modernized to account for all the energy resource alternatives available for utilities and customers. It should allow utilities to balance investments in infrastructure with EE and DERs to ensure the most economically efficient system with the highest value.

The four states featured here have made very real progress, but there is no perfect solution. Each state can learn from others and innovate in the way that makes the most sense to local policymakers and stakeholders. While there are key differences in each of the examples outlined here, there are more commonalities. Each state enabled their utilities to earn some kind of return on their EE investments; some enabled a higher return for performance. Each state reaps significant benefits, most of which accrue to customers.

	Rate-basing EE	Perf. incentives	Higher ROE for EE
Illinois	✓	✓	✓
Michigan		✓	
Maryland	✓	✓	
Utah	✓		

Regulatory innovation is ongoing and, as with technology innovation, there is tremendous possibility and opportunity. In his landmark book, "The Innovator's Dilemma," Clayton Christensen wrote, "Markets that do not exist cannot be analyzed: suppliers and customers must discover them together." The same is true for new regulatory models: we must discover them together. ■

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