

# **Making the Business Case for Energy Efficiency: Utility Performance with Supportive Regulation**

*Dan York, Martin Kushler, Sara Hayes, Stephanie Sienkowski and Casey Bell,  
American Council for an Energy-Efficient Economy  
Steve Kihm, Energy Center of Wisconsin*

## **ABSTRACT**

Since the advent of customer energy efficiency programs in the 1970s and 1980s, utilities have faced key financial disincentives for such efforts due to the structure of utility rates and the processes used to determine those rates. Without addressing these structural financial barriers and disincentives, utilities work against their own financial objectives by paying for and providing customer energy efficiency programs. The policy solutions are well established and some states have had them in place for many years.

This paper examines the effectiveness of supportive regulatory frameworks for utility energy efficiency programs for a small set of selected utilities. We interviewed key contacts from within the utilities themselves and from regulatory agencies and other stakeholder groups. We also examined the financial performance of the selected utilities after the enactment of regulatory mechanisms that address the utility business model. We also examined trends in overall program expenditures in relationship to regulatory changes. We were especially interested in looking at how corporate priorities and decision making regarding customer energy efficiency programs have been affected by regulatory changes addressing financial barriers.

As utilities seek to achieve high energy savings through customer programs, the need to address financial barriers becomes more critical. The results of our research suggest that utilities can have large, robust energy efficiency programs and still perform well financially.

## **Introduction**

Utilities have faced financial disincentives for customer energy efficiency programs since their advent in the 1970s and 1980s due to the structure of utility rates and the processes used to determine them. When these disincentives are not addressed, utilities that invest in energy efficiency work against their shareholders' financial interest. These disincentives are as follows:

1. The costs of customer energy efficiency programs constitute financial losses to utilities absent cost recovery allowed through utility rates or fees.
2. Reducing energy use reduces utility revenues, but it does not reduce the short-term fixed costs of providing service. This is known as the throughput incentive.
3. Money invested by utilities in energy efficiency programs defers or avoids the need for investments in utility assets that provide financial returns allowed by traditional rate regulation.<sup>1</sup>

---

<sup>1</sup> This disincentive exists as long as the rate of return exceeds the cost of capital.

Regulators, utilities, and stakeholders can overcome these barriers by implementing well-tested policy solutions to align regulation with energy efficiency (York and Kushler 2011). These policy solutions are:

1. **Cost recovery.** The general industry practice approved by regulators is to treat energy efficiency program costs as expenses in utility accounting. This allows timely cost recovery and avoids problems that can arise via the other principal recovery mechanism, which is to capitalize such costs and create a regulatory asset. Special ratemaking practices, such as escrow accounting and rate riders, allow utilities to recover energy efficiency costs on a dollar-for-dollar basis at roughly the same time costs are incurred.
2. **Throughput incentive.** Reduced energy sales from energy efficiency can be addressed by decoupling sales from revenues. This enables utilities to recover authorized fixed costs via periodic true-ups of collected utility revenues with allowed utility revenue (RAP 2011). Decoupling reduces the throughput incentive and covers revenue shortfalls. A second approach is sometimes used called lost-revenue adjustment mechanisms (LRAMs). These are rate structures that provide revenue recovery tied directly to the loss of sales due to energy efficiency program savings.
3. **Earnings opportunities.** Utilities can be afforded some type of financial incentive for achieving a measure of program success, such as earning a set percentage of program costs as a financial bonus for meeting prescribed targets or a share of net benefits resulting from the energy efficiency programs.

Addressing program cost recovery is well accepted by regulators and other policymakers. Some type of cost recovery via rates or specific fees is common practice in all states where there are energy efficiency programs for utility customers. Policies addressing the throughput incentive and earnings opportunities for energy efficiency programs are not yet commonplace, although their use is growing. Some states have had such policies in place for many years; however, they still are not predominant among utilities in the United States. Such policies still face resistance in many states from a variety of parties, including regulators and some stakeholder groups. Opponents often raise concerns over the rate impacts of decoupling, but research by Morgan (2013) shows that such impacts have been minimal—64% of a set of 1,269 rate adjustments made since 2005 fell within a range of plus or minus 2% of retail rates (surcharges and refunds); 80% of the set fell within a range of plus or minus 3%.

Research by the American Council for an Energy-Efficient Economy (ACEEE) has tracked and documented state spending on utility customer energy efficiency programs (York et al. 2012). Since the early 2000s there has been steady, rapid growth in utility spending on customer energy efficiency programs due to numerous new policies and the strengthening of existing ones. Support for such programs is at an all-time high and is projected to increase further. In 2012, total budgets for electric energy efficiency programs were \$5.9 billion (Downs et al. 2013).

Along with this rapid rise in program spending, however, we have seen a heightening of the inherent conflict created by traditional ratemaking between a utility's financial objectives and its energy efficiency program objectives. Policies such as energy efficiency resource standards (EERS), which have established relatively aggressive energy savings targets in about half of the states (Downs et al. 2013), exacerbate these inherent structural problems, making them a much

higher priority and concern for utilities. Without effectively addressing these concerns, expansion of energy efficiency programs to achieve high savings may be limited.

ACEEE and other organizations have long advocated business models that address utilities' financial barriers to providing customer energy efficiency programs. ACEEE research has documented a growing number of states that have enacted changes necessary to address these barriers. Through September 2013, this research shows that 17 states have decoupling in place for at least one electric utility, 21 states have decoupling in place for at least one natural gas utility, and 27 have some type of shareholder or performance incentives in place (Downs et al. 2013). Several additional states have LRAM policies in place, but not decoupling.

We examined a selected group of utilities that provide relatively large-scale customer energy efficiency programs (program spending greater than 1% of total utility revenues, a range of annual spending of \$23 million to \$125 million) in states with decoupling and/or shareholder incentives in place. Our research focused on (1) financial and program impacts and (2) organizational and managerial impacts. We were especially interested in looking at how regulatory changes addressing financial barriers have affected corporate priorities and decision making regarding customer energy efficiency programs.

## Methods

Our research followed three paths:

- Review of relevant literature, including company program and financial reports
- In-depth interviews with senior utility program staff and managers, as well as with stakeholders, primarily state regulatory staff and selected clean energy advocates
- Analysis of utility financial performance

We chose to use a case-study approach to this work, as this can document how well various regulatory frameworks have worked to support utility customer energy efficiency. Such case studies can reveal important and relevant lessons on creating supportive frameworks for utility energy efficiency. The utilities included in this study and the specific states served are:

- DTE Energy: Michigan
- Idaho Power Company: Idaho
- National Grid: Massachusetts
- Northeast Utilities: Connecticut
- Xcel Energy–Colorado: Colorado
- Xcel Energy–Minnesota: Minnesota

While this is a small set of utilities, we believe our analysis and interviews reveal applicable lessons for utility business model discussions and corresponding regulatory changes. We draw upon these case studies to discuss the effectiveness of regulatory reforms in making energy efficiency integral to the utility business models.

## Findings

### Regulatory Frameworks

Each of the utilities included in this study operates within a unique regulatory framework. This fact reflects the nature of utility regulation, which varies from state to state. Even with these unique characteristics, we did observe some commonalities and general lessons on the nature of these frameworks.

For example, both Xcel Energy–Minnesota and Northeast Utilities are not decoupled to date, although Xcel Energy–Minnesota submitted a decoupling proposal in late 2013 (with the decision to be made in 2014), and Northeast Utilities has submitted decoupling proposals that have not been accepted. Both utilities have shareholder incentives in place. Idaho Power has a bit of the reverse structure, with decoupling in place since a pilot began in 2007 and a shareholder incentive being implemented more recently. Idaho also had established a modest shareholder incentive in conjunction with its initial decoupling pilot, but this initial incentive lapsed after approximately two years. National Grid also had financial incentives in place prior to revenue decoupling being enacted.

These observations alone are important for other states considering similar regulatory frameworks. It does not appear to be necessary to enact decoupling (or other mechanisms addressing lost revenues) and shareholder incentives at the same time. It is possible to enact one such change at a time and still have positive effects on utility energy efficiency programs.

While not all policy elements are necessary for positive impacts, a strong regulatory framework that effectively addresses all three legs of the financial stool supporting utility energy efficiency is the preferred approach among utilities and many stakeholders. This is evident in Connecticut, where the utility included in our study, Northeast Utilities, has not yet been decoupled, while the other large investor-owned utility, United Illuminating, has been decoupled. A Northeast Utilities representative told us clearly that without also being decoupled, the company's ability to achieve proposed higher energy savings was limited.

### The Role of Energy Efficiency within the Companies

The utilities selected for our study are from states that have long, well-established records of supporting energy efficiency or that have made significant advances over the past several years. Massachusetts, Connecticut, and Minnesota have consistently been in the top tier of states in the annual ACEEE State Energy Efficiency Scorecards (Downs et al. 2013). Colorado, Idaho, and Michigan have risen rapidly in the ACEEE rankings over the past several years due to a variety of policy and program decisions regarding energy efficiency.

Reflecting the leadership demonstrated by their states, all the utilities in our case studies are making significant investments in energy efficiency (greater than 1% of total revenues).

State policies and associated utility regulation have created a variety of requirements and guidelines for energy efficiency programs. In all cases these policies and regulations place a high priority on energy efficiency as a utility resource.

Each utility profiled in our case studies reported that energy efficiency plays a prominent role within the company. DTE Energy reports:

- DTE Energy management highly values the energy optimization (energy efficiency) area within the company.

- The energy optimization area is regarded as a desirable work assignment within the company, and an area where creativity and initiative are valued.

While energy efficiency programs were initially developed primarily as part of compliance with the new legislation, DTE Energy has come to strongly value energy efficiency in terms of customer service and customer opinions of the company.

Xcel Energy–Minnesota factors energy efficiency into several areas:

- Long-term resource plans
- Electric and gas rate cases
- Customer engagement and outreach plans
- Community and large customer communications
- Corporate scorecard (top priorities for the entire Xcel Energy company)

Utility contacts noted that demand-side management is a core business function within Xcel Energy–Minnesota. The energy efficiency programs at Xcel Energy–Colorado share the above elements. As additional evidence of the strong role of energy efficiency in the company, Xcel Energy–Colorado senior leadership is actively engaged in energy efficiency programs, policies, and filings. Some examples include:

- Performance scorecards for senior leadership, which are assessments of monthly and annual performance toward regulated savings goals, budgets, and performance incentive projections
- Involvement in major shifts that affect future energy efficiency policy and goals
- Oversight on major regulatory filings that incorporate energy efficiency

National Grid reports that while energy efficiency had long played a prominent role within the company as evidenced by fairly consistent funding, it now is a foundational piece for other sustainability services due to passage of the Green Communities Act by the Massachusetts Legislature in 2008 (for a summary, see Environment Northeast 2008). With this policy directive, energy efficiency is now viewed as a core part of National Grid’s business. Energy efficiency is very important to National Grid as a business operation, fitting within key objectives across many parts of the company.

Northeast Utilities also has a long history of strong support for customer energy efficiency programs. Energy efficiency is 1 of 15 metrics used to assess the performance of the chief executive officer. Further, energy efficiency has been identified as a corporate area of growth and a strategic complement to other key corporate objectives regarding regulatory affairs, energy supply, and load forecasting. Over time, energy efficiency has become such a large resource that it is directly incorporated into system modeling and load forecasts. Program impacts guide key planning and decision-making processes throughout the corporation.

Idaho Power states that pursuit of cost-effective energy efficiency is a primary objective, noting the economic and operational benefits that accrue to the company and its customers from improved energy efficiency.

## Financial Impacts and Performance

A common argument used against utility energy efficiency programs is that they harm utility financial performance. A supportive regulatory framework may protect utilities from the financial harm that otherwise would occur through investments in customer energy efficiency. Consequently, our research examined the financial performance of the selected utilities to see if we could discern any impacts from the enactment of such regulatory frameworks. Utility financial performance, however, is the result of many complex factors and dynamics in energy markets and the overall economy. It may not be possible to isolate and attribute impacts to specific regulations.

We chose to examine relevant financial data from our set of selected utilities. Each of them is a leader in terms of implementing and utilizing energy efficiency programs; they all have relatively large, robust portfolios of programs with associated large budgets and expenditures. We examined the financial performance of these utilities as measured by common metrics used by investors and market analysts. Our goal was to look for measurable impacts from ratemaking practices in the complex information available.

Our first challenge was to determine the best measure of corporate performance. Some advocates turn to earned rates of return, i.e., the return on equity. While that measure may provide some useful information, finance theory tells us that rates of return are not determinative of firm value. Under traditional regulation, corporate expansion may actually lower the company's earned rates of return while simultaneously increasing investor value. That is, sometimes the course to success has been to choose the route with lower, not higher, rates of return (Higgins 1989). In the end, corporate finance has been about creating wealth, which is measured in dollars, not percentages. The rate of return, therefore, has not been the ultimate metric.

Bond ratings are another tool to assess the creditworthiness of a utility, but while they may be revealing, they, too, are not determinative of financial success. Utility managers, the entities who implement efficiency programs, work for the stockholders, not the bondholders. Nevertheless, the bond rating can provide an indication of financial stability, which is one important financial consideration. As an initial step in examining the financial performance of our selected utilities, we examined bond ratings for the most recent year available. As shown below in Table 3, all the utilities studied have about average bond ratings for the utility industry, indicating company stability. Note that some of the individual utilities we include in our research are smaller individual operating companies within the larger corporate structure that participates in financial markets.

Table 3. Utility Bond Ratings (2012)

	S&P	Moody's	Fitch
Xcel	BBB+	Baa1	BBB+
Northern States Power–Minnesota	Nr	A3	Nr
National Grid	BBB+	Baa1	BBB+
National Grid–Massachusetts	A3	A–	Nr
Northeast Utilities	BBB+	Baa2	BBB+
Connecticut Light and Power	Nr	Nr	A–

DTE Energy	Nr	Baa2	BBB
DTE Electric	Nr	Baa2	BBB
IDACORP	Nr	Nr	Nr
Idaho Power	BBB	Baa1	Nr

A potentially better measure of corporate performance than bond rating is stock price. We examined individual utility stock prices to discern any impact that could be attributed to regulations and the companies' energy efficiency programs. Figure 1 below compares the stock price performance of our set of utilities.

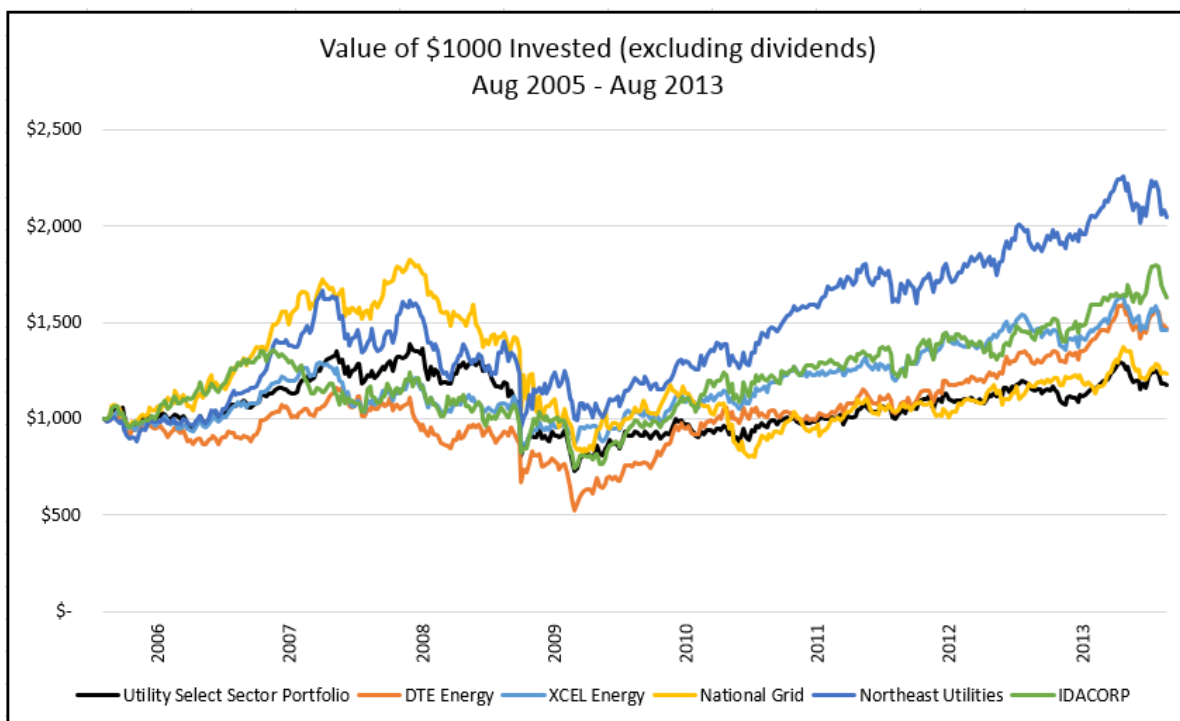


Figure 1. Value of \$1,000 invested.

Figure 1 shows that all the utilities in our set begin an upward growth trend beginning in 2009–2010, and by mid-2013 are all performing better than the Utilities Select Sector Portfolio. (see the discussion of this portfolio below). If the only factors that were changing for the entire corporation over an extended period were a function of efficiency-related ratemaking adjustments, then we would have a visible, value-based, dollar-denominated performance metric: the utility's per-share stock price. In reality, many complex and dynamic factors affect share price. For one thing, each utility is affected by industry-wide and macroeconomic issues. Stock prices move because of changes in investor perceptions about a particular company, but also due to these more general factors. Mergers, expected earnings estimates, rate increases, and adjustments and changes to dividend payments all affect a company's stock price. Utility stocks are often viewed as bond substitutes, so they rise in value when interest rates decline, just as bonds do.

The fact that industry-wide and macroeconomic factors may be driving stock price makes it difficult to discern anything about individual corporate performance from analyzing a stock price in isolation. To control for these broader influences, we compared the change in value of each utility's stock to the change for a portfolio of utility stocks. Diversification causes unique, firm-specific impacts of utilities in the portfolio to cancel out, leaving only the industry-wide and macroeconomic effects. These industry-wide and macroeconomic changes affect each utility equally. Thus the use of a diversified utility portfolio as a reference point allows us to factor out broader influences from each utility's stock price changes, leaving only the stock price changes driven by factors specific to the company in question. If energy efficiency programs were having a significant detrimental effect on utilities' profitability, we would expect to see those impacts reflected in these net stock price changes.

We therefore examined the difference between each utility's share price and the State Street Global Advisors Utilities Select Sector SPDR® Fund (symbol XLU) in order to obtain a clearer picture of financial performance. This diversified utility portfolio holds 30 large investor-owned utilities, weighted by market capitalization (The Select Sector 2012). It is a utility index fund; that is, the fund buys a basket of utility stocks and holds them. It does not actively trade the stocks in an attempt to increase value. The portfolio composition is therefore quite stable, which makes it a good benchmark for our purpose.

Following an initial analysis of diversions from the average, we netted the values of the two portfolios; that is, we subtracted the value of the diversified portfolio from the value of the single utility investment to gain more clarity into the company's diversions. Figure 2 below tracks these data for our selected utilities.

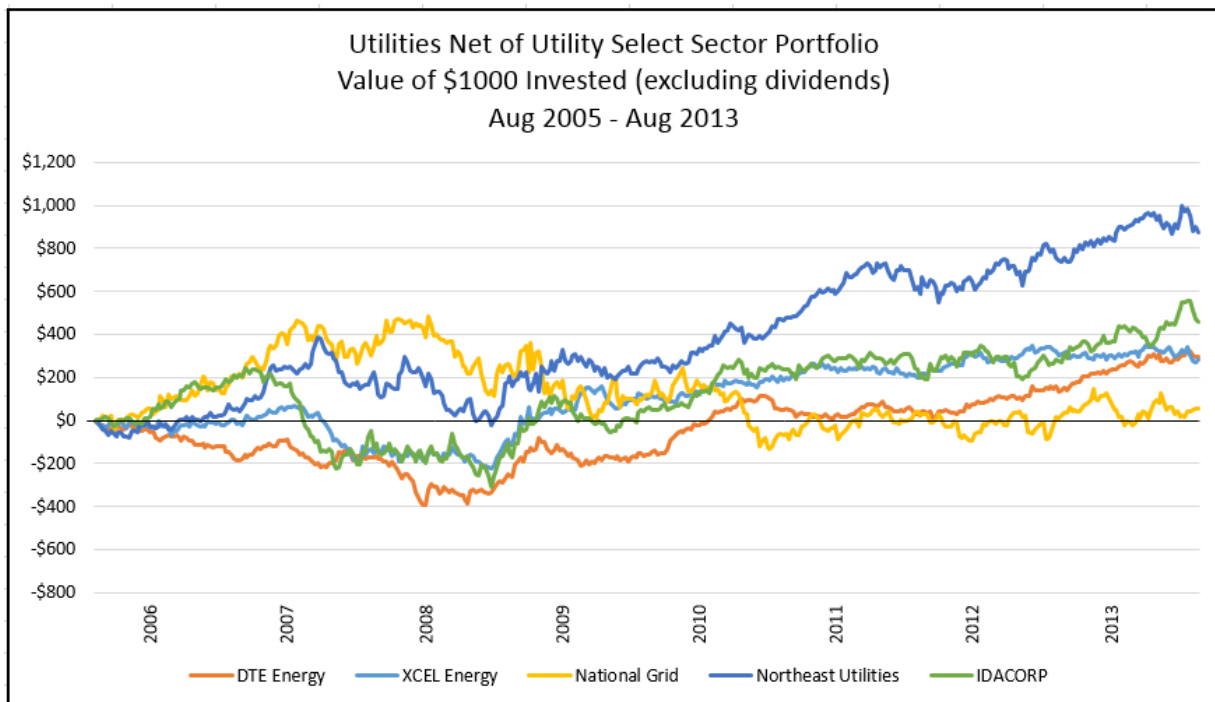


Figure 2. Utilities net of Utility Select Sector Fund, Value of \$1,000 invested.



It is certainly possible that ratemaking adjustments contributed to the stabilization and growth in each of the utilities' stock prices beginning in 2009. Another possibility is that good management is likely associated with strong financial performance, and good management frequently includes strong energy efficiency programs, since generally such programs are lower in cost than alternative resources (Molina 2014).

Nevertheless, due to noise and other company-specific events, we could not detect a direct connection between increases in energy efficiency and increased shareholder value. While it is possible that having supportive regulatory frameworks in place for energy efficiency programs contributes to positive financial performance, we cannot attribute such causation to these policies. On the other hand, we found no evidence that energy efficiency programs have had negative effects on shareholder value. Policies that support robust investment in energy efficiency do appear to help protect utility investors from financial harm.

### **Impacts of Regulations and Policies on Energy Efficiency Programs**

All the companies in the study show large increases in program spending from 2005 to 2011. These spending increases were driven by state policies such as EERS that created energy savings targets or policies requiring utilities to pursue all cost-effective energy efficiency. Our interviews suggested the role that regulatory changes to the utility model seems to have played. Either by having these frameworks already in place or by including them as part of new, more aggressive energy efficiency policies, such frameworks enabled the companies to support the creation of high savings goals. Without having such frameworks in place, the utilities likely would have resisted such policies, since they would have resulted in significant negative financial impacts. We conclude that addressing the financial barriers faced by utilities is an important part of a comprehensive set of policies designed to achieve higher energy efficiency among utility customers and the broader state economies.

What emerges from our interviews and related research is that these utilities share a number of common characteristics that appear to be responsible for their successful energy efficiency programs and high associated energy savings.

**Strong commitments to energy efficiency.** Going hand in hand with a willingness to innovate and learn is a strong commitment from regulators and policymakers to energy efficiency programs that provide value to customers and are cost-effective resources for utility systems. Without such strong commitment via legislation and regulation, it is unlikely that the utilities would have embraced energy efficiency to the extent they have as a core element of their corporate mission. These utilities and their regulators are committed to energy efficiency for the long haul; it is not a passing fad.

**Supportive utility regulation addressing utility financial objectives.** Our case studies show that addressing the financial barriers to utility energy efficiency is critical to achieving corporate commitments to energy efficiency as a valued enterprise. Absent such structures, it is unlikely that the companies included in this study would have been able to support and sustain high expenditures on their customer energy efficiency programs.

**Ongoing collaboration among utilities and stakeholders.** Our case-study interviews, with both utility staff and key stakeholders (including regulators), revealed that regulatory proceedings involving energy efficiency programs are marked by effective and ongoing collaboration. These

proceedings include integrated resource planning, development of multiyear energy efficiency program plans, rate cases, and establishment of new policies and regulation. While collaboration can be time-consuming and contentious, in the end it seems to yield stronger, more robust decisions and other outcomes because the involved parties work through the problems together and develop solutions based on consensus.

**Shared sense of purpose and common goals.** It is clear in all our case studies that the utilities, regulators, and other key stakeholders share a sense of purpose and have common goals. These shared goals and sense of purpose have led to the ongoing collaboration and supportive regulatory environment in these states. While the specific drivers of customer energy efficiency may vary with stakeholder priorities, the people we interviewed overwhelmingly felt that despite some differences from time to time, their common goals helped the parties work through such differences to move ahead.

**Willingness to experiment and learn from experiences.** Creating supportive regulatory environments that enable new utility business models to develop and prosper is still a relatively young and emerging policy field. While there are clear guiding principles, the details of policies and regulations vary widely from state to state, and even from utility to utility within the same state. There is no single best solution. Rather, what emerged from our interviews was a legacy in these states of regulators who were willing to innovate and even experiment with new rate structures and overall regulatory frameworks to advance energy efficiency through utility programs. Sometimes such regulatory innovations did not achieve the desired results. But rather than scrapping the innovation altogether, the regulators in these states were willing to try other approaches to achieve the same end.

## Conclusions

Supportive regulatory frameworks have been critical in elevating the role of energy efficiency within utility business models. All of the utilities profiled in this report have made energy efficiency an integral, core element of their business functions and corporate objectives. Achieving success with customer energy efficiency programs and related initiatives is a priority supported from top management on down. While fixing the traditional regulatory model is clearly important, it is also apparent that other policies, such as establishment of state energy efficiency resource standards, are the primary drivers behind the companies' pursuit of energy efficiency. Without a supportive regulatory framework, however, these companies most likely would be unable to pursue the high savings targets that have been established. Absent such frameworks, the programs would have worked against corporate financial objectives and thus would have faced internal opposition from financial managers and other top company management. As the size and scope of customer energy efficiency programs has increased rapidly for all of the companies we examined, it is even more critical to address their real financial concerns with these programs. The magnitude of the potential financial disincentives grows with the size of programs and associated costs and savings.

A key finding is that most of the utilities included in this study have moved ahead with large, robust portfolios of customer energy efficiency programs without having mechanisms in place that address all three legs of the financial stool. Some utilities have shareholder incentives in place, but nothing to address the throughput incentive through decoupling or other mechanisms. Others have decoupled or otherwise addressed the throughput disincentive but do

not have shareholder incentives in place. So it is clearly possible to have strong programs without the complete business model, although it seems unlikely that utilities will reach the full potential of energy efficiency in these cases. But it is also crucial to note that in all cases where a leg of the financial stool is missing, movements are underway to enact policies to complete the stool and create a full business model for utility energy efficiency. Several of the people we interviewed thought that any further expansion of programs would be limited unless such full-fledged models were enacted.

Having strong, expansive portfolios of customer energy efficiency programs does not appear to affect utility financial performance adversely when coupled with supportive ratemaking practices. Our analysis of the financial performance of the utilities included in our study shows that they all performed well by market standards and comparisons.

For utilities to push for higher energy savings through energy efficiency programs, regulators will have to establish appropriate frameworks that align these targets with utility financial goals. Utilities will need to establish and follow new business models based on regulations that remove financial disincentives for energy efficiency and that provide earnings opportunities for company investors. We encourage continued development and application of these supportive regulatory frameworks. Without them, utilities will hit ceilings as to how much energy efficiency they can capture cost-effectively through their programs.

## References

Downs, A., A. Chittum, S. Hayes, M. Neubauer, S. Nowak, S. Vaidyanathan, and C. Cui. 2013. *The 2013 State Energy Efficiency Scorecard*. Research Report E13K. Washington, DC: American Council for an Energy-Efficient Economy.

Environment Northeast. 2008. "Summary: Massachusetts 2008 Energy Bill. An Act relative to Green Communities, Senate Bill No. 2768, June 25, 2008." [http://www.env-ne.org/public/resources/pdf/ENE\\_MA\\_2008\\_Energy\\_Act\\_Summary\\_062508.pdf](http://www.env-ne.org/public/resources/pdf/ENE_MA_2008_Energy_Act_Summary_062508.pdf)

Higgins, R.C. 1989. *Analysis for Financial Management*. Homewood, IL: Irwin.

Molina, M. 2014. *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*. Research Report U1402 Washington, DC: American Council for an Energy-Efficient Economy.

Morgan, P. 2013. *A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations*. Graceful Systems, LLC. Available through ACEEE at: <http://www.aceee.org/collaborative-report/decade-of-decoupling>

[RAP] Regulatory Assistance Project. 2011. *Revenue Regulation and Decoupling: A Guide to Theory and Application*. Montpelier, VT: Regulatory Assistance Project. June

The Select Sector. 2012. *SPDR Trust Annual Report*, September 30, 2012, p. 54.

York, D., P. Witte, S. Nowak, and M. Kushler. 2012. *Three Decades and Counting: A Historical Review and Current Assessment of Electric Utility Energy Efficiency in the States*. Research Report U123. Washington, DC: American Council for an Energy-Efficient Economy

York, D. and M. Kushler. 2011. *The Old Model Isn't Working: Creating the Energy Utility for the 21st Century*. An ACEEE White Paper. Washington, DC: American Council for an Energy-Efficient Economy. September.