

## **Making the Business Case for Energy Efficiency: Case Studies of Supportive Utility Regulation**

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## Executive Summary

Since the early 2000s, utility spending on customer energy efficiency programs has grown rapidly 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. But along with this rapid rise in program spending, we have seen a heightening of the inherent tension created by traditional ratemaking, a conflict between a utility's financial objectives and its energy efficiency program objectives.

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 investing 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.

Regulators, utilities, and stakeholders can overcome these barriers by implementing well-tested policy solutions to align regulation with energy efficiency. Program cost recovery is generally not a major barrier, as regulators recognize this need and readily approve such recovery via rates or fees. Revenue decoupling addresses the throughput incentive. Shareholder incentives for energy efficiency programs provide earnings opportunities for utility investors. 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 U.S. utilities.

We examined a selected group of utilities that provide relatively large-scale customer energy efficiency programs in states with decoupling and/or shareholder incentives in place. Generally such policies are part of a much larger set of policies that address energy efficiency. The experiences we examined reveal the importance of comprehensive policies addressing customer energy efficiency programs, including policies that address utility financial barriers. Our research focused on (1) financial and program impacts and (2) organizational and managerial impacts.

An ideal regulatory framework addresses all three financial barriers faced by utilities. We found that this is not necessarily the actual model in place even in states with recognized leading energy efficiency programs. The utilities selected in our study include states with different regulatory frameworks in place. 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.

The utilities selected in our study are from states that either have long, well established records supportive of energy efficiency or have made significant advances over the past several years. The utilities and states are:

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

We interviewed key staff associated with programs at these utilities along with regulatory staff and other key stakeholders such as environmentalists and energy efficiency advocates. We also analyzed financial data to assess utility financial performance.

We found that these utilities share a number of characteristics that appear to be responsible for their successful energy efficiency programs and high associated energy savings. These are:

- Strong commitment to energy efficiency by regulators and utilities
- Supportive utility regulation addressing utility financial objectives
- Ongoing collaboration among utilities and stakeholders
- A shared sense of purpose and common goals
- A willingness to experiment and learn from experience

A premise of enacting a supportive regulatory framework for utility energy efficiency programs is that doing so protects utilities from financial harm that otherwise would occur through such investments in customer energy efficiency. Consequently, our research examined the financial performance of the selected utilities to try to discern any impacts from the enactment of such regulatory frameworks. Our analysis of the financial performance of the utilities included in our study shows that they all performed well by market standards and comparisons. However we found it difficult to detect the financial impact associated with ratemaking adjustments that support energy efficiency programs since many other factors drive corporate performance. Due to noise and other company-specific events, we could not detect a direct connection between increases in energy efficiency and increased shareholder value. On the other hand, we found no evidence that energy efficiency programs have had negative effects on shareholder value. When coupled with supportive ratemaking practices, strong portfolios of customer energy efficiency programs do not appear to affect utility financial performance adversely. Policy frameworks that support robust investments in energy efficiency appear to help protect utility investors from being financially harmed.

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. But while the traditional regulatory model is clearly important, it also is apparent that other policies (such as establishment of state energy efficiency resource standards) are the primary drivers behind the companies' pursuit of energy efficiency.

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.

## **Acknowledgments**

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ACEEE research staff interviewed numerous staff persons from the utilities profiled in this report, as well as staff from associated regulatory agencies and stakeholder groups. We thank these many individuals who were willing to give their time and input. Their contributions were invaluable for gaining insights into these utility business models for customer energy efficiency programs.

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## 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.<sup>1</sup> 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>2</sup>

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

- *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.
- *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 (LRAM). These are rate structures that provide revenue recovery tied directly to the loss of sales due to energy efficiency program savings.<sup>3</sup>
- *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.

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<sup>1</sup> This report primarily addresses investor-owned utilities (IOUs). Publicly owned utilities (POUs) face some of the same financial barriers as IOUs, primarily in addressing program cost recovery and reductions in revenues needed to cover short-term fixed cost recovery. POUs do not face the barrier of financial returns to shareholders.

<sup>2</sup> To create investor value, the return a utility earns must exceed its cost of capital. Investments that simply earn the cost of capital create no value for investors.

<sup>3</sup> Lost revenue adjustment mechanisms (LRAM) are not the only other approach to stabilize revenues. RAP 2011 identifies and discusses LRAM (termed "lost-margin recovery mechanisms" in their report) along with other revenue stabilization measures. We focus on revenue decoupling in this report as the preferred policy addressing the throughput incentive. As RAP 2011 notes, "Some of these [alternatives to decoupling] provide nearly the same benefits to utility shareholders as decoupling, but all of them fall short of the full range of benefits that revenue decoupling provides, particularly for consumers and the environment."

Addressing program cost recovery is well accepted by regulators and other policy makers. 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 U.S. 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 – plus or minus 2% of retail rates, both surcharges and refunds to customers, for the set of 1,269 rate adjustments made since 2005.

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). In the early 1990s, such spending nationwide was about \$2 billion per year for electric programs. However utility restructuring (i.e., deregulation) led to a precipitous drop in such spending in the later 1990s, with spending falling by around 50% to about \$900 million per year. Since the early 2000s, though, 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. These problems exist even at relatively low levels of program spending with associated small energy savings, but their small size generally has meant that for most utilities, addressing the problems has not been a high priority. However, 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 in states with decoupling and/or shareholder incentives in place. Generally such policies are part of a much larger set of policies that address energy efficiency. The experiences we examined reveal the importance of comprehensive policies addressing customer energy efficiency programs, including policies that address utility financial barriers. 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, believing that in-depth case studies best reveal how well various regulatory frameworks have worked to support utility customer energy efficiency.

In choosing utilities to include in this study, we used the following guidelines:

- At least one, and preferably both, of the mechanisms addressing the throughput incentive or shareholder earnings were in place.
- These mechanisms must have been in place long enough for changes to have occurred in how the utility designs, funds, and implements customer energy efficiency programs.
- The utility was willing to participate in the study by agreeing to interviews and publishing results.
- The utility had a record of investing in customer energy efficiency programs for several years or more.

We also sought some geographic diversity in selecting states and associated utilities for the study.

## **Analysis, Synthesis and Discussion**

We present the individual case studies in the appendices following the main body of the report. In the current section we draw upon these case studies to discuss what they reveal about the effectiveness of regulatory reforms in making energy efficiency integral to the utility business models. While such observations are based on a small subset of all utilities operating in such frameworks, we believe the case studies do reveal important lessons about more widely applicable regulatory approaches to supporting utility energy efficiency.

### ***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 has recently submitted a decoupling proposal (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 in 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 Scorecards (Downs et al. 2013; Foster et al. 2012; Sciortino et al. 2011; Molina et al. 2010). 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 as evidenced by program spending data for 2005-2011 in Table 1.

**Table 1. Utility Energy Efficiency Program Spending**

	2005	2006	2007	2008	2009	2010	2011
<b>Xcel Energy—Minn.</b>							
Northern States Power Company	31,915	32,786	31,961	39,199	46,411	55,989	62,910
<b>Xcel Energy—Colorado</b>							
Public Service Company of Colorado	13,140	4,976	11,243	11,609	30,257	41,036	50,404
<b>National Grid</b>							
Massachusetts Electric	52,804	51,878	54,473	54,399	90,051	90,051	125,248
<b>Northeast Utilities</b>							
Connecticut Light and Power Company	54,278	49,178	71,634	86,933	47,413	110,499	92,764
<b>DTE Energy</b>							
Detroit Edison	NA	NA	NA	NA	20,059	41,200	56,280
Idaho Power Company	4,418	8,853	11,413	16,580	20,797	23,987	23,009

**Source: Energy Information Administration, Form 861, annual series, 2005-2011. Notes: Units: \$1,000s. Detroit Edison had essentially no customer energy efficiency programs in 2005-2008. NA indicates no program data were reported to EIA for those years.**

Table 2 shows each utility's energy efficiency program savings.

Table 2. Utility Energy Efficiency Program Savings

	2005	2006	2007	2008	2009	2010	2011
Xcel Energy—Minn.							
Northern States Power Company	259,422	253,664	257,516	308,774	319,747	382,261	431,804
Xcel Energy—Colorado							
Public Service Company of Colorado	101,251	46,584	126,812	254,702	149,009	235,262	279,108
National Grid							
Massachusetts Electric	199,421	256,956	195,357	110,651	239,815	NA	365,100
Northeast Utilities							
Connecticut Light and Power Company	236,818	264,916	281,367	280,764	161,469	310,748	290,844
DTE Energy							
Detroit Edison	NA	NA	NA	NA	203,000	402,995	519,000
Idaho Power Company	41,267	70,766	91,144	138,585	147,540	172,291	163,247

Source: Energy Information Administration, Form 861, annual series, 2005-2011. Notes: Units: Megawatt-hours (annual incremental savings). Detroit Edison had essentially no customer energy efficiency programs in 2005-2008. NA indicates no program data were reported to EIA for those years.

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 (DSM) is a core business function within Xcel Energy-Minnesota.

The energy efficiency programs at Xcel Energy-Colorado shares 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:

- Assessments of monthly and annual performance toward regulated savings goals, budgets, and performance incentive projections (performance scorecards for senior leadership are in place)
- 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.<sup>4</sup> 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 one 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 correlative of other key corporate objectives, including 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.

### ***IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS***

The utilities in our study fall into two primary categories in terms of their spending and associated energy efficiency program activity:

- Companies that have had significant energy efficiency funding in place for over a decade, even going back to the 1980s (Xcel Energy-Minnesota, Northeast Utilities and National Grid)
- Companies with low spending on programs before the early to mid-2000s (Idaho Power, DTE Energy, and Xcel Energy-Colorado)

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

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<sup>4</sup> The Green Communities Act (Chapter 169 of the Acts of 2008) requires that electric and gas utilities make acquiring all cost-effective energy efficiency a higher priority than using other resources. The act created an Energy Efficiency Advisory Council (EEAC) that works with utility program administrators to establish statewide plans for gas and electric utilities for three years into the future. Utilities must "provide for the acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply" in coordination with the EEAC.

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. Three of the utilities in our set have two to three decades of experience with and commitment to energy efficiency. None of these are wavering in this commitment; in fact, they all have increased their commitments over the past few years. Three of the utilities have ten years of experience or less with energy efficiency, but the policies now in place provide strong support for energy efficiency and have high goals that guide all policy and program decisions. These utilities and their regulators are committed to energy efficiency for the long haul; it is not a passing fad. While this is admittedly a small, selected set of utilities, we believe that their experiences demonstrate what is possible with consistent, supportive regulation for utility energy efficiency programs.

*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, both with 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 multi-year 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 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 (i.e., the three-legged financial stool), the details of policies and regulations vary widely from state to state or even 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.

### **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. While we suspected it might not be possible to isolate and attribute impacts to specific regulations, we believed it was still worth examining relevant financial data to see what they might reveal.

Another approach is to use a financial model for a prototypical utility to analyze and estimate the impacts of decoupling and shareholder incentives. Using such a modeling approach, Cappers et al. (2009) demonstrate the importance of effectively addressing utility financial concerns associated with energy efficiency programs and the benefits that are possible through careful design of shareholder incentives and decoupling.

We chose to examine relevant financial data from our set of real 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 hints of 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.<sup>5</sup>

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+
NSP—Minnesota	Nr	A3	nr
National Grid	BBB+	Baa1	BBB+
National Grid—Massachusetts	A3	A-	nr
Northeast Utilities	BBB+	Baa2	BBB+
Connecticut Light & 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.

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<sup>5</sup> This valuing of corporate expansion over rates of return may need to be revisited in developing a 21st century utility business model.

Figure 1. Value of \$1000 Invested

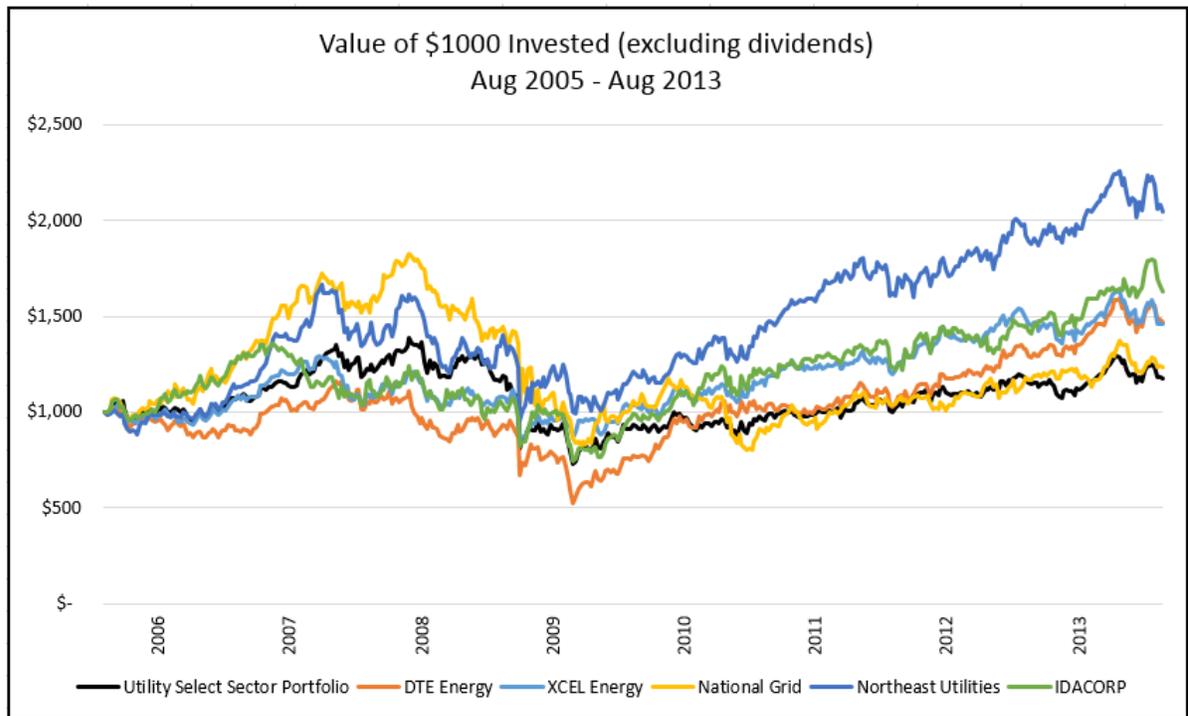


Figure 1 shows that all the utilities in our set begin an upward growth trend beginning in 2009–2010, and by mid-2013 are all performing better than the Utilities Select Sector Portfolio.

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. Almost everything changes associated with markets and corresponding company financial performance. 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 hikes, and dividend increases 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.

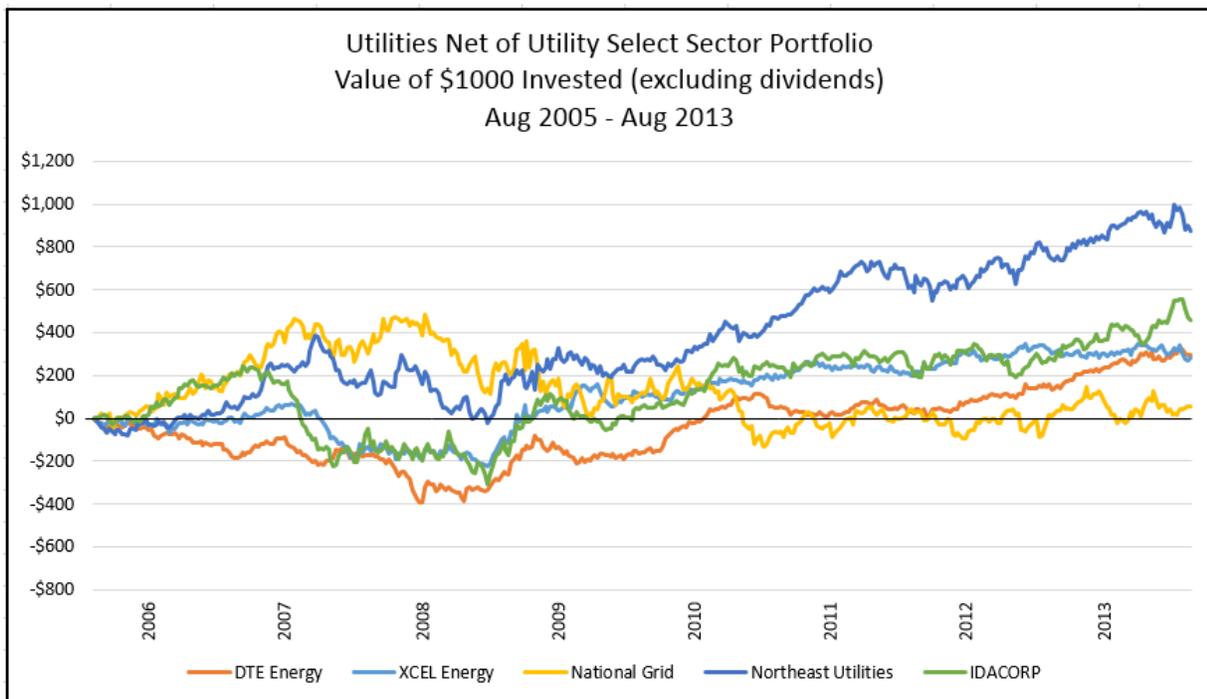
The fact that industry-wide and macroeconomic factors may be driving stock price makes it difficult to discern anything about individual corporate performance from analyzing a stock price in isolation. To control for these broader influences, we compared the change in value of each utility’s stock to 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 Advisor's Utilities Select Sector SPDR Portfolio (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 Portfolio, Value of \$1000 Invested



It is evident that each of these utilities is performing well on its own as indicated by the fact that its share price increases over time. But even absent industry-wide and macroeconomic factors, there are still a multitude of influences on a utility's financial performance. In addition to internal managerial issues, external factors such as severe or unusual weather patterns, local economic growth, an increase in the overall market, or changes in rate policies can all contribute to corporate performance. It is difficult to isolate the impact of ratemaking mechanisms among so many other drivers.

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 cost than alternative resources (Molina 2013).

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.

## **Conclusions and Recommendations**

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 addressing 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. While these selected utilities exhibited generally strong financial performance, we did not examine or reach any conclusions regarding relative risk associated with various regulatory

treatment of utility energy efficiency investments. Nothing in our findings supports suggestions by some parties that utility commissions should adjust risk factors associated with utility earnings (e.g., prospective return-on-equity reductions) as a condition of adopting revenue decoupling and related business model reforms.

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. The states and utilities profiled in this study are leaders in the progress toward this vision of a 21st century utility. Each of them is still striving to achieve a business model that integrates customer energy efficiency into corporate objectives. 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.

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## Appendix A: National Grid—Massachusetts

### REGULATORY FRAMEWORK

Massachusetts has a history of utility energy efficiency programs going back to the 1980s. The policies and programs have changed over the years, but support for these programs have been consistent. Massachusetts was a pioneer in establishing regulatory frameworks that addressed the utility business model for supporting customer energy efficiency programs. The state restructured its electricity industry in the 1990s; a key element of these sweeping changes was the establishment of public benefits funding to support customer energy efficiency programs to be offered by the regulated distribution companies. Massachusetts has continued to be a leader in its customer energy efficiency programs; it has been Number 1 in the annual ACEEE *State Energy Efficiency Scorecards* for the last three years, and it has consistently placed in the top ten in all the years when ACEEE has published the scorecard.

Massachusetts is currently implementing decoupling for all of its gas and electric utilities pursuant to DPU Docket 07-50-A (July 2008). Target revenues are determined on a utility-wide basis and can be adjusted for inflation or capital spending requirements if necessary. The Massachusetts DPU has approved decoupling plans for National Grid Electric Company (DPU 09-39), National Grid Gas Company (DPU 10-55), Bay State Gas Company (DPU 09-30), and Western Massachusetts Electric Company (DPU 10-70).

Shareholder incentives are in place for electric and gas utilities. They were established in the 1990s. The shareholder incentive provides an opportunity for companies to earn about 5% of program costs (after taxes) as an incentive for meeting program goals. The incentive is based on a combination of elements including energy savings, benefit-cost, and market transformation results. The order that approved the incentive is DTE Order 98-100 (DTE is now DPU). The incentive structure is developed on a program-by-program basis.

The table below gives the performance incentive amounts for 2009 and 2010 along with corresponding annual program budgets for National Grid in Massachusetts.

Table A-1. National Grid (Massachusetts Electric) Performance Incentive Amounts

	2009	2010
Performance incentive	\$6,095,715	\$8,191,032
Total program spending	\$90,051,000	\$90,051,000
Incentive as % of program spending	6.8%	9.1%

### THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY

National Grid’s electric and natural gas companies (and their predecessor companies) have a long history, 15-20 years or more, with customer energy efficiency programs. According to National Grid, the role of energy efficiency has changed over that time. While energy efficiency always has been important, the funding amount was fairly consistent from year to year with some fluctuations. With passage of the Green Communities Act in 2008, funding and associated program services have increased substantially. A DPU order issued in 2013 on the National Grid’s 2013-2015 plan for its electricity and natural gas programs approved a combined energy efficiency budget of just under a billion dollars for 3 years. Since the

Green Communities Act, 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, according to the utility contact interviewed. Energy savings goals have increased dramatically, and there is interest in all parts of the organization in its energy efficiency programs and services. It fits within the key objectives across many parts of the company and is viewed as part of the business at all levels of the company.

Energy efficiency program spending does not compete with other business units, company investments, and spending, and shareholders are not at risk for program costs. . Policymakers in Massachusetts have been "very smart," according to the utility interviewee. Utilities get preapproval for their energy efficiency program plans and are allowed concurrent recovery of program costs. Funding for programs is very clear and is guided by the preapproved budgets included in the plans and by program goals. The Massachusetts DPU has clear guidelines that provide companies certainty for what they can do in terms of program spending. As a result, National Grid is not concerned with recovering costs.

The incentive structure in place has resulted in energy efficiency programs being viewed as a core business unit capable of contributing to the overall business objectives of the company. National Grid has the opportunity to earn shareholder incentives for successfully meeting established program goals. The program goals are also tied to performance metrics for corporate objectives around customer satisfaction and sustainability. The company uses the program to build customer relationships, as it provides opportunities for positive interactions with customers.

Working with customer energy efficiency programs is viewed favorably within National Grid. Employees in these business units can advance and be promoted within the company in a way comparable to employees in other business units. Senior managers and executives at National Grid serve (or have served) on the boards of a variety of energy efficiency organizations, including the Alliance to Save Energy, the Association of Energy Service Professionals, TopTen USA, the Consortium for Energy Efficiency, the Northeast Energy Efficiency Alliance, and ACEEE. One senior executive served as the director of energy efficiency within the company before moving into his current position.

Stakeholders interviewed generally shared this outlook on the role of energy efficiency within National Grid. One stakeholder commented that energy efficiency did indeed seem to be a core part of the company business model and that executive officers and other staff were enthusiastic about it. Another stakeholder noted that enactment of decoupling in 2010 caused a further increase in the company's support of energy efficiency. At the same time, he pointed out that the company earns greater returns for its investments in other areas of operation such as transmission, where returns can be 11-13% compared to 4-6% for energy efficiency. He wanted to see comparable returns for energy efficiency to provide even stronger incentives for it.

Another stakeholder commented that National Grid indeed was an early leader in energy efficiency as a resource, but at times other corporate objectives and changes have affected programs. For example, at one point a major downsizing led to a decrease in program spending and staffing.

**IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS**

The Green Communities Act led to a significant increase in National Grid’s funding for energy efficiency programs; such funding has more than doubled. With such a large increase, it has been especially important to have financial incentives for energy efficiency and decoupling in place, according to utility staff interviewed. National Grid was involved in the discussions as this act was being considered and contributed to the development of the final provisions that were passed into law. One change that allowed the increase in energy efficiency program funding was the lifting of a spending cap that had existed prior to the act. The previous 2.5% public goods charge that supported energy efficiency had wound up turning into a cap on spending; the act lifted this de facto cap.

Table A-2 shows energy efficiency spending and program savings along with total revenues and electricity sales for 2005-2011.

**Table A-2. National Grid (Massachusetts Electric) Energy Efficiency Program Data, 2005-2011**

	2005	2006	2007	2008	2009	2010	2011
Total EE program spending (\$ million)	52.8	51.9	54.5	54.4	90.1	90.1	125.2
Total EE program savings (GWH)	199.4	257.0	195.4	110.7	239.8	NA	365.1
Total revenues from retail sales (\$ million)	1,932	2,033	1,951	2,019	1,714	1,584	1,530
Total retail energy sales (GWH)	15,491	12,990	12,544	11,882	10,973	12,522	11,391

**Source: Energy Information Administration, Form 861, annual series, 2005-2011. Note that the sales data is for retail (bundled) sales only; it does not include wholesale electricity sales (sales for delivery). Massachusetts has restructured markets; wholesale electricity sales comprise a significant share of National Grid’s total system sales.**

Stakeholders have witnessed dramatic changes in customer efficiency programs in response to the Green Communities Act and associated regulatory changes. One stakeholder commented, “Every dollar matters, which is so important to energy efficiency planners and implementers; this is one of the reasons that the utilities have done so well over the years.” A company contact observed that the regulatory framework “has transformed how the company looks at energy efficiency. Instead of being seen as revenue erosion, the company is neutral to sales and can profit from energy efficiency. Because of the ‘three-legged stool’ there is something in it for the company.”

Collaboration within a supportive regulatory environment has been a key to the success in Massachusetts, according to one stakeholder interviewed. The stakeholder went to say that the policies and regulatory framework in place reflect a long history of effective collaboration that began in the 1980s and 90s. Stakeholder collaboration results in better understanding of key issues. Parties are able to work out contentious issues and arrive at solutions with broad support. This has been a great advantage in Massachusetts over the years. Ongoing active involvement by stakeholders in various councils or advisory groups yields solutions that are much stronger and better in the end, even though this does require time and commitment. The utilities may fight certain issues within proceedings, but in the end they generally have supported the decisions that are made.

National Grid views the regulatory staff as generally supportive of company perspectives and objectives. They are seen as partners to National Grid who have been helpful in making the regulatory process less burdensome. They are well versed in energy efficiency and have been instrumental in setting up working groups to work through key issues, such as the group that was set up recently to address bill impacts of energy efficiency.

The regulatory framework in place effectively supports energy efficiency in National Grid. One interviewee commented that shareholder incentives could always be higher, but they are reasonable. In short, "DPU has been a good partner. They provide a good amount of flexibility and maintain sufficient reporting. There also are reasonable oversight provisions with the Energy Efficiency Advisory Council giving attention and oversight to what they [National Grid] are doing." This person also commented that Governor Patrick is a "huge supporter of energy efficiency," and his administration has worked hard to support utility programs. While regulatory proceedings tend to be long and involved, they generally are collaborative in nature. The long history of utility energy efficiency in Massachusetts usually means that the issues tend to be limited. Overall, the utility interviewee commented, "It tends to be a very supportive environment for energy efficiency."

The regulatory requirements in place in Massachusetts governing the financial incentives and decoupling are well viewed by National Grid. The financial mechanisms provide a good deal of certainty because the company collects incentives during the program year and then reconciles the exact amount of the incentives in the following year. Such certainty is important to management's attitudes toward the energy efficiency programs.

Stakeholders also view the regulatory framework as being effective. One noted that decoupling alone does not deliver excellent programs and does not change utility culture. It must function in conjunction with incentives structured to reward the desired quality and performance of programs. That structure should ensure that utilities are not rewarded financially for not meeting targets; rather, sufficient rewards should be in place to reward them for meeting or exceeding targets. Another stakeholder commented that Massachusetts "has a very good framework, probably the best or one of the best in the country."

One area for improvement suggested by a stakeholder was to include the cost of environmental compliance in cost-effectiveness screening for energy efficiency programs. Not including such costs reduces the amount of energy efficiency that passes screening tests. Another stakeholder noted the importance of structuring the financial incentives so that the metrics upon which they are based are not too complex. This had been the case earlier in Massachusetts; the more recent structures are simpler and less contentious.

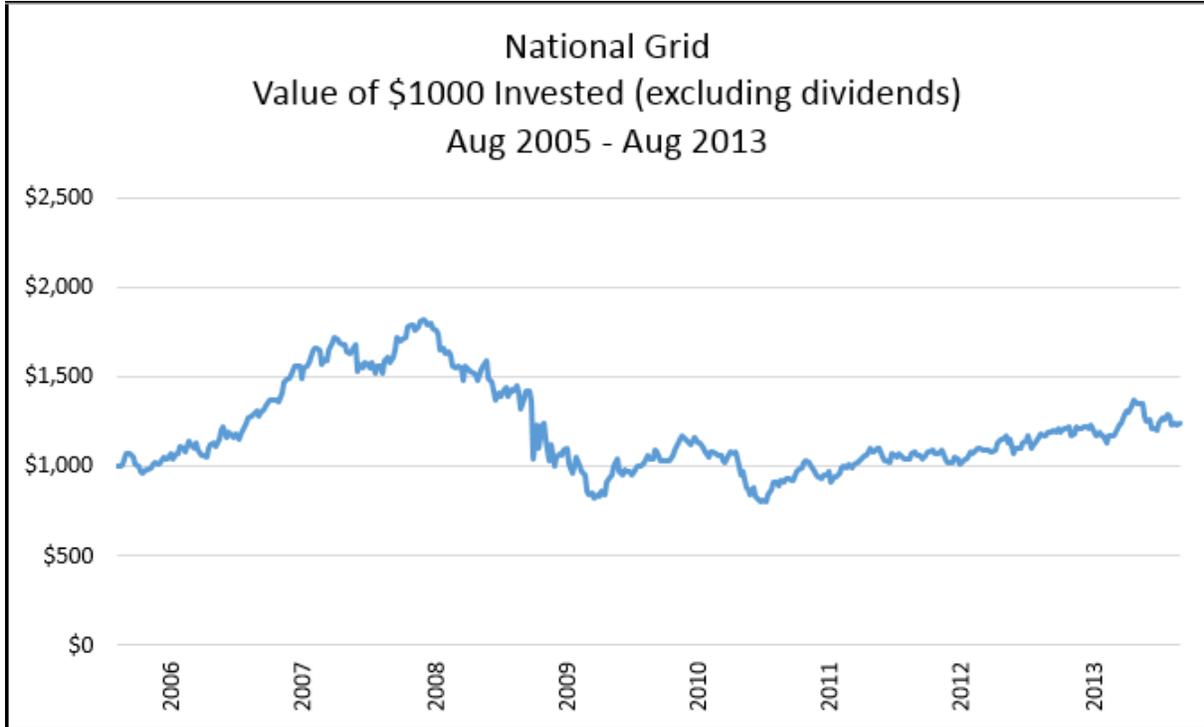
Overall our interviewees view the framework in Massachusetts as very good. It continues to evolve and improve through active and productive engagement of utilities and stakeholders. Regulatory oversight of processes and decisions provides reassurance for customers regarding the policies and programs.

### ***FINANCIAL IMPACTS AND PERFORMANCE***

National Grid is a British company with subsidiaries in the U.S. Approximately 56% of total sales are from the U.S., and the company is worth \$42.3 billion, making it the largest utility studied.

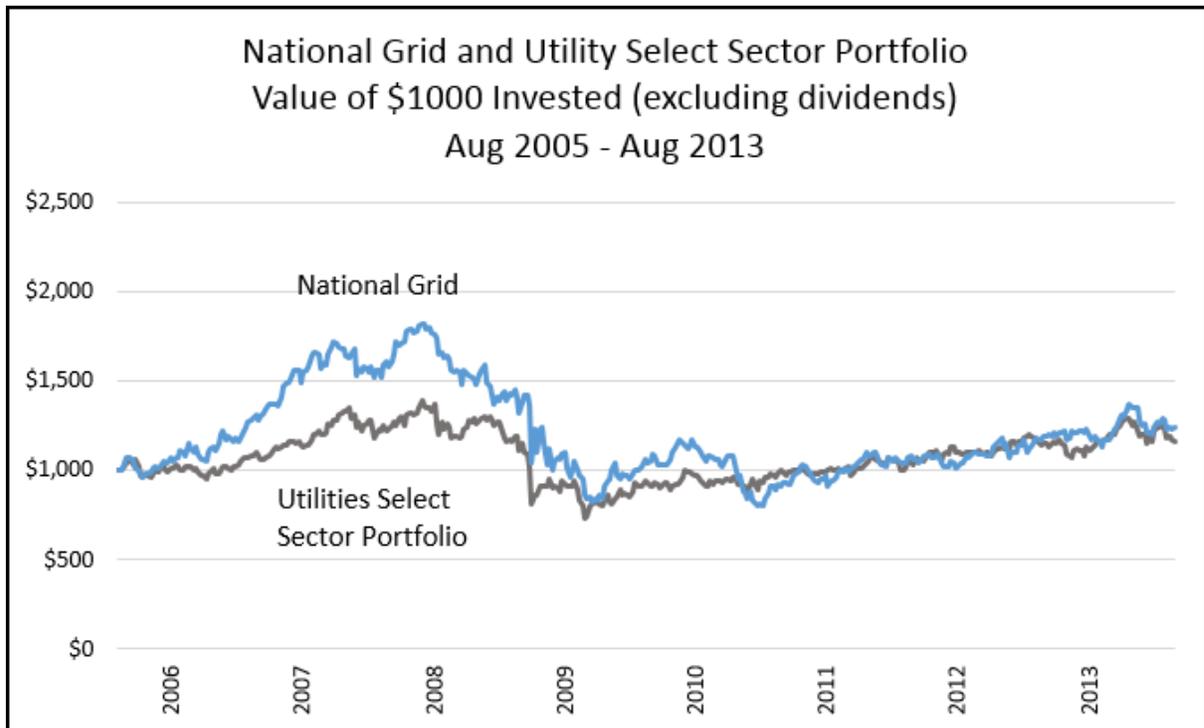
Figure A-1 below shows the value of an initial \$1,000 investment in National Grid stock made in August 2005 when the company started trading on the NYSE, and how that value has changed over the subsequent 8 years.

Figure A-1. Value of \$1000 Invested in National Grid



It is important to note that since National Grid operates in the UK, industry-wide and macroeconomic factors might affect the company somewhat differently than the U.S. benchmark and other U.S. utilities analyzed. Since international, industry-wide, and macroeconomic factors might be driving stock price, it is difficult to discern anything about corporate performance from analyzing National Grid stock price in isolation. Therefore we account for systematic risk by comparing National Grid's stock to the diversified Utilities Select Sector SPDR Portfolio. Though the portfolio consists of U.S. utilities, the portfolio composition is quite stable since it consists of 30 stocks, which makes it the best benchmark we have. Figure A-2 adds an additional line to the previous figure. The new line shows the value of an initial \$1,000 investment in the Utilities Select Sector Portfolio.

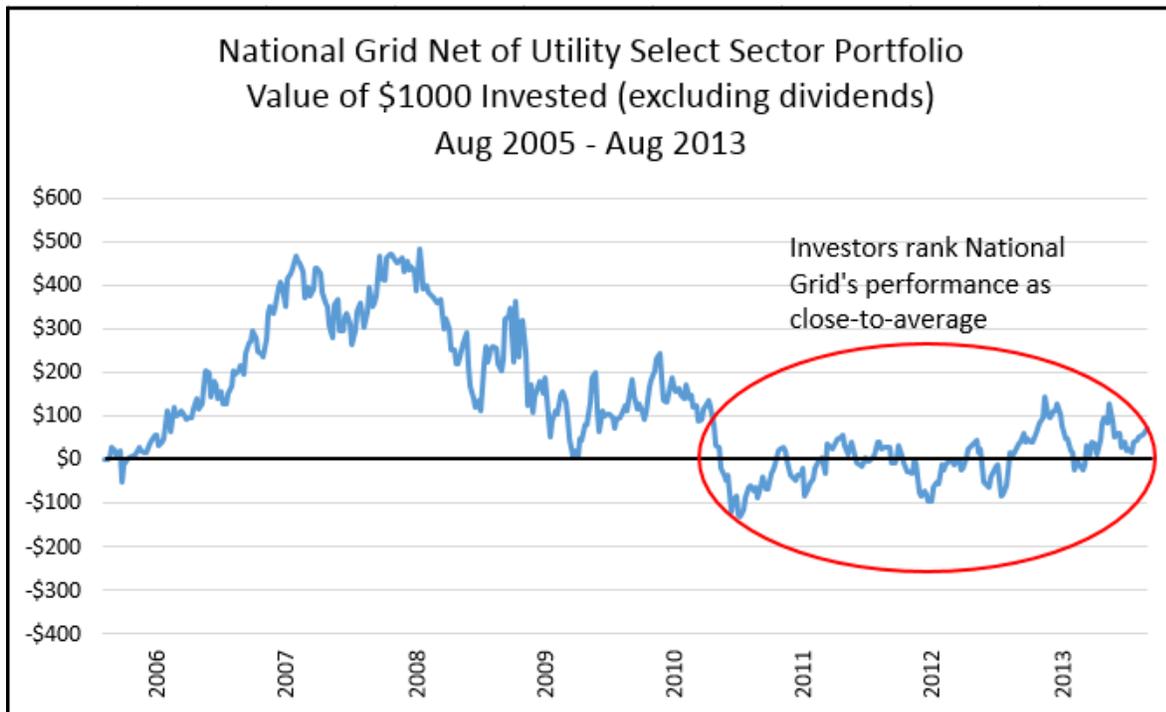
Figure A-2. National Grid and Utility Select Sector Portfolio, Value of \$1000 Invested



This figure shows that National Grid actually follows the Utilities Select Sector Portfolio very closely. Note that for the most part, National Grid stock appears to track the diversified portfolio beginning in 2010, after being slightly above the average the preceding years. We can see this even more clearly by netting the values of the two portfolios. We show that result in Figure A-3.

Here we can see that National Grid performed consistently above the industry average from 2006 through 2010. But note how many times the utility average and National Grid cross from 2010 to 2013. National Grid essentially follows the Utilities Select Sector Portfolio after 2010.

Figure A-3. National Grid Net of Utility Select Sector Portfolio, Value of \$1000 Invested



### LESSONS LEARNED AND OUTLOOK

National Grid and stakeholder interviewees all give Massachusetts a high overall grade ranging from A- to A+. It is clear that these different groups view the policies and regulatory framework for utility energy efficiency very favorably. One person noted that the Massachusetts model is yielding “huge” savings for customers and should be emulated by other states. A key element of this successful model is the organizational structure that has been established over time. This structure is marked by collaboration and ongoing active engagement with the planning, development, and implementation of energy efficiency programs and policies. Utilities in Massachusetts are responding to incentives, and companies and stakeholders are excited about energy efficiency programs.

Even after the advances made by the Green Communities Act for energy efficiency in Massachusetts, the state is still looking ahead at the possibility of even greater efforts to reduce greenhouse gas emissions through energy efficiency. Should the utilities be required to increase their savings through customer energy efficiency programs, our contacts at the utilities and stakeholders agree that it would likely be necessary to increase financial incentives for energy efficiency accordingly. Addressing the business model for energy efficiency has been critical for Massachusetts utilities to increase their investment in energy efficiency programs. This clearly would become even more critical if additional spending on energy efficiency were necessary to achieve even higher savings goals. One stakeholder wondered if public support would remain high should spending on programs be increased further, possibly leading to bill increases for customers. Another stakeholder suggested that if much more aggressive greenhouse gas reduction goals were established, it would likely would take a fundamental change to existing policies and regulatory frameworks to achieve them.

## **Appendix B: Northeast Utilities—Connecticut**

### ***REGULATORY FRAMEWORK***

Connecticut's 2007 Electricity and Energy Efficiency Act (Connecticut Public Act No. 07-242) requires the Department of Public Utility Control (DPUC) to order the state's electric and natural gas distribution companies to decouple distribution revenues from the volume of natural gas or electricity sales through one or more of three strategies:

1. a mechanism that adjusts actual distribution revenues to equal allowed distribution revenues
2. rate design changes that increase the amount of revenue recovered through fixed distribution charges
3. a sales adjustment clause

Currently, United Illuminating (UI) uses a full decoupling mechanism, adjusted annually, but Northeast Utilities (NU) does not. While NU has requested decoupling, the DPUC has not enacted decoupling for NU to date. The legislation requiring decoupling does not have a deadline. NU is likely to propose decoupling again in future rate cases.

Connecticut has had some type of utility performance incentives for DSM programs since 1988. The exact mechanism has changed over time. During annual hearings, the Energy Conservation Management Board (ECMB), a group of selected stakeholders, reviews the past year's results relative to the established goals and determines a performance incentive for the distribution utilities for achieving or exceeding the goals. Program costs are recovered through rates. The incentive, referred to as a management fee, can be from 1% to 8% of the program costs before taxes. The threshold for earning the minimum incentive (1%) is 70% of the goal. At 100% of the goal, the incentive would be 5%. At 130% of the goal, it would be 8%.

Anticipated incentives are built into the annual budgets. Over the course of several dockets, the Public Utilities Regulatory Authority has affirmed the value of the incentive. The expenditures used to calculate the incentive may include administrative and overhead costs, but not ECMB and incentive costs.

### ***THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY***

Energy efficiency plays a prominent role within NU. For example, it is one of 15 metrics that the corporation uses to review its CEO's performance. Energy efficiency has been identified as a corporate area of growth. As a result, NU has a corporate initiative in which the many distinct units within the company, including regulatory affairs, energy supply, and load forecasting, are tasked with integrating what they do with the company's energy efficiency programs and efforts. Program impacts are used throughout the corporation to guide key planning and decision making in other areas.

One of the utility contacts interviewed recalled that early in her career she was asked why she would want to do a good job at energy efficiency because it was eroding revenue. "Now everyone understands and is on the same page," she noted.

Energy efficiency is a growth engine within the company, commented one interviewee. NU has been investing in the existing energy efficiency team and acquiring outside talent to augment it. NU has brought on marketing and sales experts for energy efficiency, reflecting

the new business mode now in place that sees a financial incentive for these programs. The interviewee observed that the recent activity around energy efficiency at NU makes it seem more like a start-up company. Another staff person said, "For NU energy efficiency is a big business."

Working in the area of customer energy efficiency programs within NU is viewed favorably in terms of career opportunity and advancement. Staff working in energy efficiency have garnered a lot of good attention for the work they do. Customer programs are viewed as a dynamic and exciting area. As one contact noted, "It feels like its own little business."

The role of energy efficiency within NU (and its predecessor companies) has changed significantly over nearly 30 years. Originally energy efficiency was seen as a means of slowing load growth while plants were under construction so the plants would be in place in time to meet growth. Now energy efficiency is viewed as a business where the company can earn an incentive for implementing programs. It also provides value to customers as well as an effective way to build good public relations with them. One of the utility contacts noted that JD Power reports show that customers who can work with their utility and participate in utility energy efficiency programs and services tend to be more satisfied.

The company's view on expenditures and investments in customer energy efficiency programs is "a little complicated," according to a utility interviewee. While the base level of funding for energy efficiency programs has been legislated, NU does not yet have decoupling in place, so lost revenues are an issue. That creates tension within the company. Senior management is well aware of lost revenue recovery issues and the tension there. The utility has been an advocate for resolving this issue. They want to double the electricity energy efficiency budget, but they want to make sure the lost revenue issue is corrected.

NU is involved in other efforts to advance energy efficiency in Connecticut and beyond. NU staff are involved in national, state, and local organizations working on various energy efficiency issues and technologies, such as the Association of Energy Engineers and the Electric Power Research Institute (EPRI). A NU manager serves on the board of the Northeast Energy Efficiency Partnerships

NU considers policies and activities complementary to its energy efficiency programs as being very important. NU runs energy efficiency like a business, but staff also spend a good deal of time trying to serve harder-to-reach customers and to strategically address barriers to energy efficiency. NU staff also spend considerable time on building codes and are very engaged in other state energy efficiency efforts, such as building labeling and development of zero-net-energy buildings. In addition, NU is engaged in establishing and improving appliance efficiency standards.

Stakeholders have witnessed changes in the role of energy efficiency. One stakeholder commented that NU's acquisition of NSTAR (a Massachusetts company) has had a prominent, positive impact on NU's programs and corporate position on energy efficiency. The experience and perspectives from NSTAR in Massachusetts appears to have carried over and influenced NU's programs in Connecticut.

NU's shareholder incentive has been in place for more than ten years. As budgets and corresponding incentives have increased, energy efficiency has gained more attention because it now competes with other investments and has higher visibility as a viable

business operation. NU’s support for customer energy efficiency is not driven solely by financial incentives however. Customers like energy efficiency programs; it helps them lower their energy bills, and many of them are interested in energy efficiency for other reasons, such as the environment. Beyond individual customer value, energy efficiency also can benefit the economy. As an example, a Connecticut economic development group uses energy efficiency as an attraction to motivate companies to move to the state.

**IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS**

Enactment of regulations creating a positive business model for energy efficiency has had a significant impact on NU. According to one utility contact, it changed energy efficiency programs from just existing because of regulatory mandates to being a growth engine for the entire business. Energy efficiency now is one of three growth engines that NU has identified going forward as a corporate business strategy.

As shown in Table B-1, NU spending on energy efficiency programs has increased significantly overall, with some fluctuations from year to year. Efforts are underway to increase this spending further, possibly doubling the current level. The budget authorized by the relevant legislation sets the amount based on a charge of 3 mil per kWh, for a total of about \$65 million. This has remained unchanged since it was enacted around 1999. Additional funding from other sources brings the total program budgets to about \$100 million a year.

**Table B-1. Northeast Utilities (Connecticut Light and Power Company) Energy Efficiency Program Data, 2005-2011**

	2005	2006	2007	2008	2009	2010	2011
Total EE program spending (\$ million)	54.3	49.2	71.6	86.9	47.4	110.5	92.8
Total EE program savings (GWH)	236.8	264.9	281.4	280.8	161.5	310.7	290.8
Total revenues from retail sales (\$ million)	2,935	3,461	2,956	2,617	2,349	1,778	1,314
Total retail energy sales (GWH)	24,126	22,109	16,054	14,083	12,090	9,639	7,862

Source: Energy Information Administration, Form 861, annual series, 2005-2011. Note that the sales data is for retail (bundled) sales only; it does not include wholesale electricity sales (sales for delivery). Massachusetts has restructured markets; wholesale electricity sales comprise a significant share of NU’s total system sales.

NU’s regulatory framework is still evolving. A framework for implementing a comprehensive energy efficiency strategy has been proposed, part of which would address the throughput incentive through revenue decoupling. Decoupling is authorized but has not yet been enacted for NU due to the inability of regulators to reach an agreement on NU’s decoupling proposals. While decoupling has not yet been enacted, NU views the performance incentive in place as working well.

A stakeholder interviewed commented that the reward mechanism is lacking in a couple of areas, primarily the addressing of lost revenues. This person added that the incentives are not enough to prompt the utility to invest its own capital in energy efficiency. There has been some talk among state policymakers about “decoupling plus,” which would combine decoupling with an enhanced incentive structure similar to the mechanism used in the

transmission business. This would yield a fairly attractive return on investment; the transmission business currently earns 12-13%. As long as there were differentials in rates of return between energy efficiency and other options, such as transmission, the money would go to those other options.

The timing involved with the utility performance incentive poses some problem to NU. Because of a lag between the time end-of-year program reports are filed with the commission and the time that the incentives are approved (which could be about a year), there is some risk to the utility in not being authorized to receive the full incentive for which it files. Savings reported by the utility might be adjusted downward by the commission, which in turn could reduce the incentive amount. Longer program planning and program cycles are desirable; to this end NU submitted its first three-year plan in 2013; earlier plans were for two years. There is also a call for a much shortened true-up period or modification annually to allow the company to pursue longer term objectives. The commission has not yet ruled on these proposals.

Regulatory proceedings and related processes addressing energy efficiency policies and programs are marked by a high degree of collaboration, according to the contacts we interviewed. One person commented that there are certainly moments of tension, but participants tend to work out issues through settlements, which are faster and more productive than contested proceedings. The proceedings are public and decisions are made in the open, not behind closed doors. Not all stakeholder groups are strong supporters of utility energy efficiency, but overall the success of programs has prompted decision makers to sustain the level of funding and activity to date. The stakeholder collaborative established to serve in an advisory role for the utility programs is working well and is viewed as a strong attribute leading to more successful and energy efficiency programs in Connecticut.

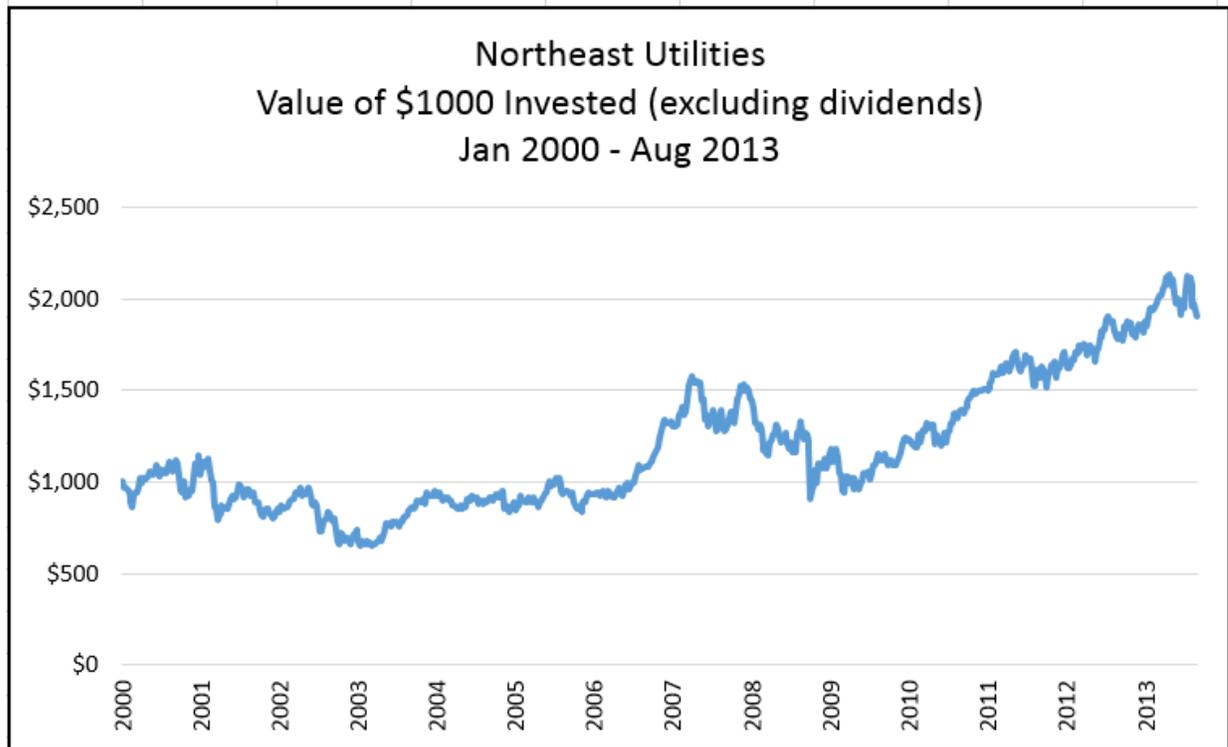
One stakeholder commented that "people working on energy efficiency [at NU] are committed and working as hard as they can." He added, however, that this commitment might not be shared by all top management. Some senior executives seem to have other priorities like building transmission lines, as these "achieve the best rate of return." This comment emphasizes how important it is that energy efficiency be a viable and competitive investment from a utility's point of view.

### ***FINANCIAL IMPACTS AND PERFORMANCE***

NU is a \$13.2 billion company and has four utility subsidiaries. Connecticut Light and Power Company holds 32% of NU's \$28.3 billion in assets.

The figure below shows the value of an initial \$1,000 investment in NU stock made in January 2000 and how that value changes over the subsequent 13 years.

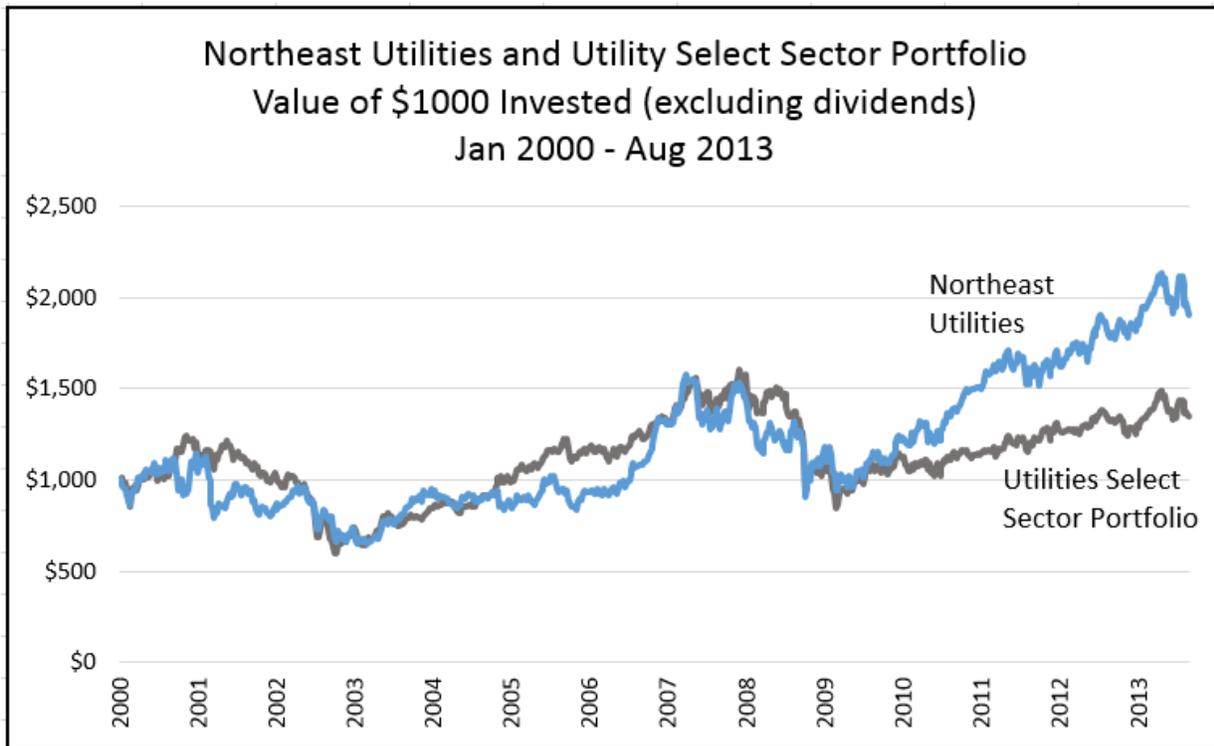
Figure B-1. Value of \$1000 Invested in Northeast Utilities



We see little net progress until 2010, at which point the stock begins an upward ascent. It may have risen over the 2010 to 2013 period simply because the entire stock market was rising. We also know that interest rates declined over this period, something that would cause all utility stocks to rise in value since they are bond substitutes.

Therefore we account for systematic risk by comparing NU stock to the diversified Utilities Select Sector SPDR Portfolio. Figure B-2 adds an additional line to the one shown in our previous figure, with the new line showing the value of an initial \$1,000 investment in the Utilities Select Sector Portfolio.

Figure B-2. Northeast Utilities and Utility Select Sector Portfolio, Value of \$1000 Invested.

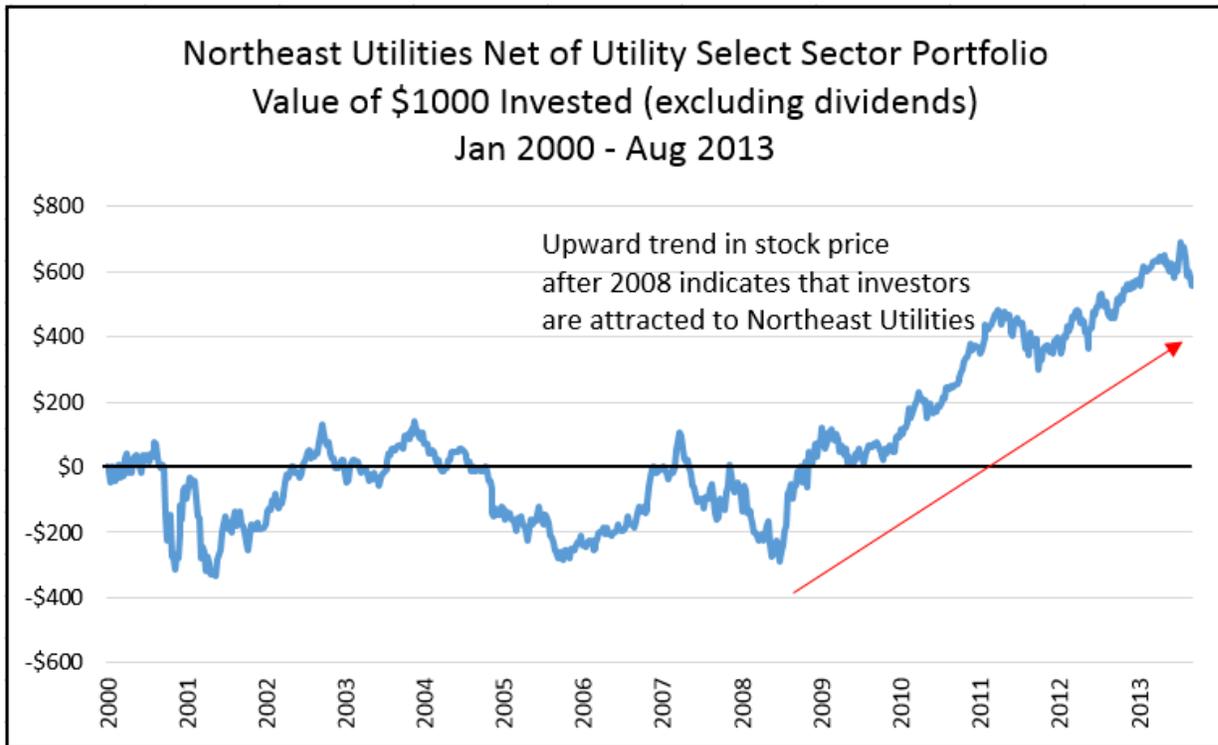


This figure reveals NU's performance relative to the diversified utility sector portfolio. Note that for the most part, NU stock appears to track the diversified portfolio until about 2010 when it breaks from the pack in an upward direction. We can see this divergence even more clearly by netting the values of the two portfolios. We show that result in Figure B-3, which reveals a deeper reality. NU stock actually began gaining traction sometime in 2008, earlier than our eye can discern by examining the stock prices themselves.

Beginning in 2008, NU stock began an impressive value-enhancing run, one that other utilities in general did not experience. This change must therefore be related to factors that are not industry-wide or macroeconomic in nature. The cause of this change is difficult to determine with specificity. However the *Value Line Investment Survey* attributes NU's high earnings to its significant investment in transmission assets, which boosted company profits since the allowed ROE for transmission is above the allowed ROE for the rest of its business.

Over the past five years, NU's stock price has significantly outpaced its utility peers. As we have discussed earlier, with so many factors affecting stock prices, perhaps the best we can say is that at least the company's aggressive portfolio of energy efficiency investments does not appear to have harmed the company's financial performance.

Figure B-3. National Grid Net of Utility Select Sector Portfolio, Value of \$1000 Invested



**LESSONS LEARNED AND OUTLOOK**

NU customer energy efficiency programs have a strong overall record. The regulatory framework has been enabled the company to pursue high savings through these programs and not be harmed financially. The shareholder incentive mechanisms in place have been effective in making a business case for energy efficiency within the company. While addressing possible returns to shareholders for successful programs, NU has not yet been able to enact decoupling, despite proposals it has presented as part of recent rate cases. NU sees the DPUC denial of this regulatory change as a major barrier preventing it from achieving higher cost-effective energy savings through its customer energy efficiency programs.

Stakeholder involvement and processes to involve them on an ongoing basis are not directly related to the financial performance of a utility. However, interviewees noted how important the Energy Conservation Management Board has been in guiding energy efficiency policies and programs to success in Connecticut. One stakeholder noted that the ECMB has been instrumental in helping to increase savings goals and that it takes a heavy burden off the regulatory staff.

Interviewees generally viewed NU efforts and the regulatory framework as very good, but still missing some key elements. To reach higher savings, a utility contact noted that the company would need a conservation adjustment mechanism to allow NU to collect funding for the incremental difference between sources already in place and what was needed in the plan. This mechanism also would address lost revenue recovery. This person thought that Connecticut’s policies on utility energy efficiency warranted an A- or maybe even an A. But while the state has done a good job on setting objectives, the policy efforts regarding

funding have fallen far short, maybe deserving a D or even F. The difference is that the state has not followed through on recommendations for meeting the established objectives. For example, NU has proposed an integrated resource plan that recommends pursuing all cost-effective energy efficiency with the increased budgets that would be required. This would meet the objectives established by legislation. However, regulators did not approve these budgets and allow additional spending as they felt NU already had enough funding and increases were not justified. On the other hand, another utility contact thought “the tide was changing” to “move things where they should be” in terms of higher program budgets in order to achieve higher savings.

Stakeholder perspectives on NU energy efficiency programs and efforts varied. One person interviewed summed up Connecticut’s experience this way, “The takeaway is that the policies [for energy efficiency] in Connecticut are being done well and logically; they show a clear direction that is beneficial for energy efficiency in the state. The last issue to be resolved is the disconnect of energy efficiency on the funding side, including decoupling, but that is heading in the right direction.” Another stakeholder noted more problems, saying it really was hard to give the state an overall grade on its performance because “too much is in flux.” This person saw many positives, such as the utility companies “being really dedicated to energy efficiency,” but at the same time it would be good if the strong support for customer energy efficiency programs also “spilled out to wider corporate culture.” This stakeholder felt that regulators had at times been too narrowly focused on rates and not on what was best for customers from a broader perspective. This person did not think that, overall, regulatory staff had been strong supporters of energy efficiency and associated regulatory reforms. Another stakeholder expressed similar mixed feelings about Connecticut’s approach to energy efficiency programs: “I don’t know how to rate it; there has been a lot of back and forth over the years, some good and some bad. It can be so confusing.” This “very involved” process has been ongoing over many years with extensive proceedings and analysis.

Connecticut’s experience illustrates how creating an effective regulatory framework for customer energy efficiency necessarily takes a good deal of time and effort. The state's programs have been successful, yet there are aspects of its regulatory framework that are not yet fully in place, notably decoupling for NU. But even without decoupling, NU has developed and implemented a strong portfolio of energy efficiency programs that have achieved large energy savings.

## Appendix C: Xcel Energy—Minnesota

### *REGULATORY FRAMEWORK*

Customer energy efficiency programs have been in place in Minnesota since the 1980s. Funding for such programs has been relatively consistent throughout this long period, and this funding largely determined the level of program activity and associated energy savings. Legislation passed in 2007, the Next Generation Energy Act, fundamentally changed how utilities were to approach energy efficiency programs. Instead of budgets being the primary determinant of savings, specific energy savings targets were to be met by investor-owned and publicly-owned utilities.

In 2007 the Minnesota legislature enacted Section 216B.2412, directing the Public Utilities Commission (PUC) to allow one or more rate-regulated utilities to participate in a pilot program (of up to three years) to assess the merits of a rate-decoupling strategy.<sup>6</sup>

CenterPoint Energy has decoupling in place for natural gas customers (Docket No. G-008/GR-08-1075), and MERC gas similarly has decoupling in place (Docket No. 10-977). In June 2009, the PUC issued an order adopting criteria and standards for pilot proposals for revenue decoupling (Docket No. E,G-999/CI-08-132, Issue date June 19, 2009).

Minnesota also has a long record of innovation with regulatory frameworks that support the utility business model for pursuing customer energy efficiency programs. In 1999 the PUC established a shared benefit incentive. While the specific details have changed, this mechanism remains in place. More recently Minnesota passed legislation that allows utilities to propose and establish revenue decoupling.

In early November 2013, Xcel Energy-Minnesota filed a multi-year electric rate case (E002/GR-13-868) for 2014 and 2015 which included revenue decoupling for specific customer segments.<sup>7</sup> The company proposed a partial decoupling mechanism for residential customers and a subset of small commercial and industrial customers (i.e., customers who do not pay a demand charge), but it excluded weather effects. The proposed mechanism is intended to remove the financial disincentive to promote conservation and energy efficiency to customers. Other utilities have not yet sought to establish decoupling, but they may do so as part of future rate cases.

Minnesota has had a shared benefit incentive in place since 1999. The incentive increases as the percentage of savings of retail sales increases. There is no cap on the incentive amount that may be earned. The incentive is set such that at savings of 1.5% of retail sales, electric utilities will earn \$0.09 per kWh saved, while gas utilities will earn between \$4.50 and \$6.50 per thousand cubic feet saved. The percentage of net benefits to be awarded to the utility at different energy savings levels is set at the beginning of each year. (See Minn. Stat. § 216B.241, subd. 1(c) and Docket No. E,G-999/CI-08-133.)

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<sup>6</sup> Report to the Legislature on Decoupling and Decoupling Pilot Programs under Minnesota Statutes §216B.2412

<sup>7</sup> For Xcel Energy 2014 electric rate case overview and filing details, see

[http://www.xcelenergy.com/about-us/rates & regulations/regulatory filings/mn 2014 electric rate case](http://www.xcelenergy.com/about-us/rates-&regulations/regulatory-filings/mn-2014-electric-rate-case)

## ***THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY***

Xcel Energy-Minnesota has a longstanding history of supporting energy efficiency within its Conservation Improvement Plan (CIP) for the state of Minnesota. Xcel Energy-Minnesota started demand-side management (DSM) in the late 1980s, and its programs were traditionally viewed as a customer engagement tool that provided some benefit to the company's resource plans. As goals expanded in the late 1990s and the DSM industry became more mature, energy efficiency became a central component of the company's resource plans, regulatory proceedings, and customer communications. In addition, these programs became more visible throughout the organization because of its noticeable impact on energy sales and summer peak demand days. Leadership engagement has steadily grown since the impact was realized.

Energy efficiency continues to play a significant role in Xcel Energy-Minnesota business plans. The company factors energy efficiency into the following efforts:

- Long-term electric 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 energy efficiency/DSM (EE/DSM) is a core business function within Xcel Energy-Minnesota. The programs are saving energy up to 1.5% of retail sales in recent years (based on customer eligibility rules) and play a prominent role in the company's resource plans. In addition, utility contacts noted the regulatory framework in Minnesota does a good job of protecting the financial impacts to utilities and gives Xcel-Energy Minnesota an opportunity to earn if the company performs well.

An example of Xcel Energy-Minnesota's commitment to EE/DSM is its inclusion in the performance scorecards used internally to assess the performance of the company's major business units. These scorecards also are used at the corporate level to identify top priorities and measure the company's success. In 2012 EE/DSM was one of seven priorities listed on the corporate scorecard, and it had the greatest weight of all measures.

Minnesota senior leadership is actively engaged in energy efficiency programs, policies, and filings. Some examples include:

- Monthly and annual performance toward regulated savings goals, budgets, and performance incentive projections
- Major shifts that impact current or future policy
- Oversight on major regulatory filings that incorporate energy efficiency

In addition to its customer programs, Xcel Energy-Minnesota has undertaken efforts to improve the energy efficiency of its own facilities, as well as its transmission and distribution systems. The company has at least 6 LEED-certified facilities across the Midwest, and it has performed various conservation activities on other company buildings. The company is also involved in a number of efforts that indicate its support for broader energy efficiency policies, programs, and markets. These include:

- Xcel Energy representatives are or have recently been on the board of directors for the following organizations (all with energy efficiency objectives): Midwest Energy Efficiency Alliance, Consortium for Energy Efficiency, Minnesota Blue Flame, and Pump System Matters.
- A senior employee chaired the Consortium for Energy Efficiency (CEE) until mid-2013 and is still on its board of directors. Xcel Energy has been actively engaged with CEE since the mid-1990s.
- The company is an active participant in the Minnesota Energy Services Coalition, which promotes increased energy efficiency throughout the state through energy savings performance contracting.
- A senior staff member was in the leadership group for the National Action Plan for Energy Efficiency (NAPEE). NAPEE's goal was to create a sustainable, aggressive national commitment to energy efficiency through utilities, utility regulators, and partner organizations.

The utility contacts we interviewed reported no evident impact on career opportunities for individuals who work on energy efficiency programs, but they added that that was primarily due to the unique skills required to manage such programs. While such narrow skills may limit transferability to more traditional utility jobs, there are numerous opportunities associated with the company's energy efficiency programs and other marketing and communication activities.

#### ***IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS***

Energy savings and spending have increased over time, particularly from 2007 onward, primarily due to the higher savings goals established by the Next Generation Act of 2007. The new goals took effect in 2010 and had large immediate impacts. Energy savings and spending from electric programs increased approximately 25% in 2010. Natural gas savings increased by nearly 25%, while spending increased by approximately 45%. The gas programs' spending increase was higher since most energy savings come from residential customers due to potential.

The regulatory changes enacted to support the utility business model for customer energy efficiency have largely achieved their desired results. According to one stakeholder, there was a dynamic shift in 2010 when the spending goals of the Conservation Improvement Program (CIP) were changed to savings requirements with the addition of financial incentives for program performance. With that change, the utilities now look at the financial incentive as another revenue stream or profit center and view it very favorably. This stakeholder cautioned that such regulations could also lead to gaming through claiming more savings than might actually be due to programs. To assure this did not happen (and the interviewee did not suggest that it had happened), regulators have had to ramp up their skills to assure savings are being realized. The overall impact of changed regulations concerning shareholder incentives is that "the company got more engaged in energy efficiency," according to this stakeholder. Because Xcel Energy Minnesota views the financial incentives favorably, it puts a greater emphasis on energy efficiency. The company also sees energy efficiency as an effective tool for building and managing good customer relationships

**Table C-1. Xcel Energy-Minnesota (Northern States Power Company) Energy Efficiency Program Data 2005-2011**

	2005	2006	2007	2008	2009	2010	2011
Total EE program spending (\$million)	31.9	32.8	32.0	39.2	46.4	56.0	62.9
Total EE program savings (GWH)	259.4	253.7	257.5	308.8	319.7	382.3	431.8
Total revenues from retail sales (\$million)	2,160	2,321	2,522	2,599	2,470	2,679	2,768
Total retail energy sales (GWH)	31,712	31,927	32,491	32,053	30,577	31,662	31,653
Program spending/total revenues	1.5%	1.4%	1.3%	1.5%	1.9%	2.1%	2.3%
Program savings/total energy Sales	0.8%	0.8%	0.8%	1.0%	1.0%	1.2%	1.4%

Source: Energy Information Administration, Form 861, annual series, 2005-2011

Xcel Energy-Minnesota treats EE/DSM funds internally as deferred expenses and not as operations and maintenance (O&M) or capital investments because of the regulatory framework. As a result, our utility contacts noted that energy efficiency funding is isolated and does not directly compete for budget dollars with other O&M or capital initiatives. They added, however, that if EE/DSM budgets were merged into rates, the programs would then be analyzed more broadly and compete with other business needs and investment opportunities.

One observation from Minnesota's experience is that creating supportive regulatory frameworks for utility energy efficiency is a process, not a one-time change. In Minnesota's case, the model for the financial incentive used in the 1990s was flawed in so far as it led to what many saw as overcompensating the utility with too high a reward. Regulators responded accordingly and dropped that approach. They applied what they learned from that experience when they revisited the issue more recently to create a different financial incentive for utility performance of customer energy efficiency programs.

Minnesota has demonstrated a willingness to innovate and try out new regulatory mechanisms associated with energy efficiency. When such innovations did not achieve the desired results, decision makers learned from the experience and crafted new and approaches to achieve those same objectives. Even when established, such mechanisms may need to be adjusted and modified. One stakeholder noted that while the current incentive structure is much better overall than the earlier structure, the new structure still initially caused a degree of overcompensation. Regulators adjusted the mechanism accordingly so that it yielded lower returns to the utility, but ones still high enough to provide an incentive for successful programs. The incentive is still viewed favorably among alternative utility investments. Yet one stakeholder commented that companies have relatively high financial incentives for doing energy efficiency programs. This person thought the incentives might not need to be so high to get the utilities to invest in energy efficiency.

Minnesota's experience in adjusting financial incentives for utilities illustrates the balancing needed to provide enough regulatory certainty and financial return for the utilities while not overcompensating them for their energy efficiency programs. Overcompensation

negates much of the programs' cost advantages compared to other utility energy resources and diminishes their value to utility customers.

As a stakeholder observed, the incentives “clearly get the job done for getting the utilities to want to do energy efficiency.” The result is that the utilities have sustained a strong commitment to customer energy efficiency programs. Spending on programs has increased, especially in response to the 2007 legislation. Such spending is balanced through cost-effectiveness tests, which all programs must pass on average. Spending has risen from earlier levels of about 1.5% of revenues when there was a spending requirement; under the new savings requirements, the spending is now about 2.5% and is projected to hold steady at about that level in the next three-year plan, which was just filed in 2013.

The way that the incentive is structured does not really distinguish between lost revenue and shareholder incentive. It is more an aggregate incentive that rewards the companies financially for their energy efficiency programs. The incentives have been modified to accommodate the higher savings goals. The companies are pushing hard to achieve high savings; some studies of the energy efficiency potential suggest that the programs are approaching certain limits and that there may not be large additional cost-effective savings available.

Xcel Energy-Minnesota believes the current mechanisms are well designed and administered. The company contacts noted that due to the long history of energy efficiency and DSM by utilities in Minnesota, parties have developed strong relationships and work collaboratively on advancing energy efficiency.

Shareholder incentives have “helped solidify the case for energy efficiency,” according to one of the stakeholders interviewed. Xcel Energy-Minnesota achieved high savings in the early 1990s as a spending requirement was established in 1992. Associated with the spending requirement was a lost revenue adjustment mechanism (LRAM). The structure of this LRAM, however, led to the amount of revenue recovered being too high. As a result, the mechanism was dropped.

Stakeholders agree on Xcel Energy-Minnesota's commitment to for customer energy efficiency. One interviewee commented that the financial incentive mechanism changed energy efficiency from something the company had to do to something it does as a business model. The company devotes a large amount of staff and other resources to assure that the programs meet goals and thereby also earn financial incentives. Similarly, a stakeholder with long experience in the state commented that Xcel Energy-Minnesota had been the “number-one advocate” for energy efficiency in Minnesota. When a group of legislators proposed to end utility energy efficiency programs a couple of years ago, Xcel Energy-Minnesota “showed up to say that this was something we really should be doing.”

Overall, “the basic [financial] mechanisms in place work well,” summarized one stakeholder. Yet these mechanisms and associated policies could be more coherent and strategic. This person added, “We have just been doing it on the fly; it works but is a hodgepodge of things that have been pulled together.” Possible changes and improvements were on the table in discussions among stakeholders in the summer of 2013.

The table below summarizes recent data on program spending and incentive amounts. Again, the incentive structure in Minnesota is actually an aggregate amount designed both to cover lost revenue and provide a shareholder incentive. The incentive structure does not

distinguish between these two as it does in other states. The incentives also have been modified to accommodate the higher savings goals.

**Table C-2. Xcel Energy-Minnesota Performance Incentive and Program Spending**

	2009	2010	2011	2012
Performance incentive (\$ million)	16.5	40.4	52.0	54.1
Total program spending (\$ million)	46.4	56.0	62.9	NA
Incentive as % of program spending	35.6%	72.1%	82.7%	NA

**FINANCIAL IMPACTS AND PERFORMANCE**

Xcel Energy is a \$14.4 billion company with 5 subsidiaries in states across the Midwest and Southwest. Northern States Power Company Minnesota (Xcel Energy’s Minnesota subsidiary) is responsible on average for 35-45% of Xcel Energy’s net income.

Figure C-1 below shows the value of an initial \$1,000 investment in Xcel Energy stock made in January 2000 and how that value changes over the subsequent 13 years. Note that this analysis considers only the change in the stock price and not any dividend-related impacts.

After a sharp drop in stock price in 2002, we see little net progress on our \$1,000 investment until late 2009, at which point the stock appears to steadily grow above \$1,000. The stock could have risen over the 2009 to 2013 period simply because the entire stock market was rising, which it was. We also know that interest rates declined over this period, which would cause all utility stocks to rise in value since they are bond substitutes. The adage, "A rising tide lifts all boats," would be apt in this case.

We account for systematic risk by comparing Xcel Energy’s stock to the diversified Utilities Select Sector SPDR Portfolio. Figure C-2 adds an additional line to the one in Figure C-1; the new line shows the value of an initial \$1,000 investment in the Utilities Select Sector Portfolio.

Figure C-1. Value of \$1000 Invested in Xcel Energy

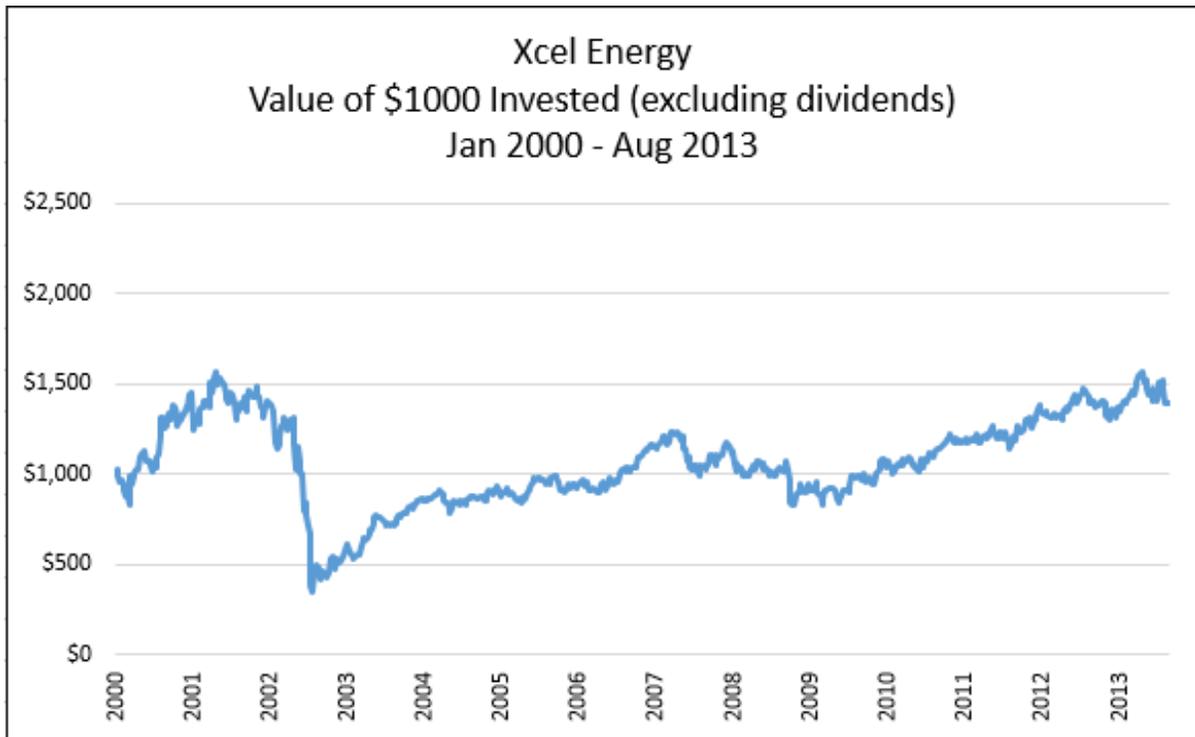
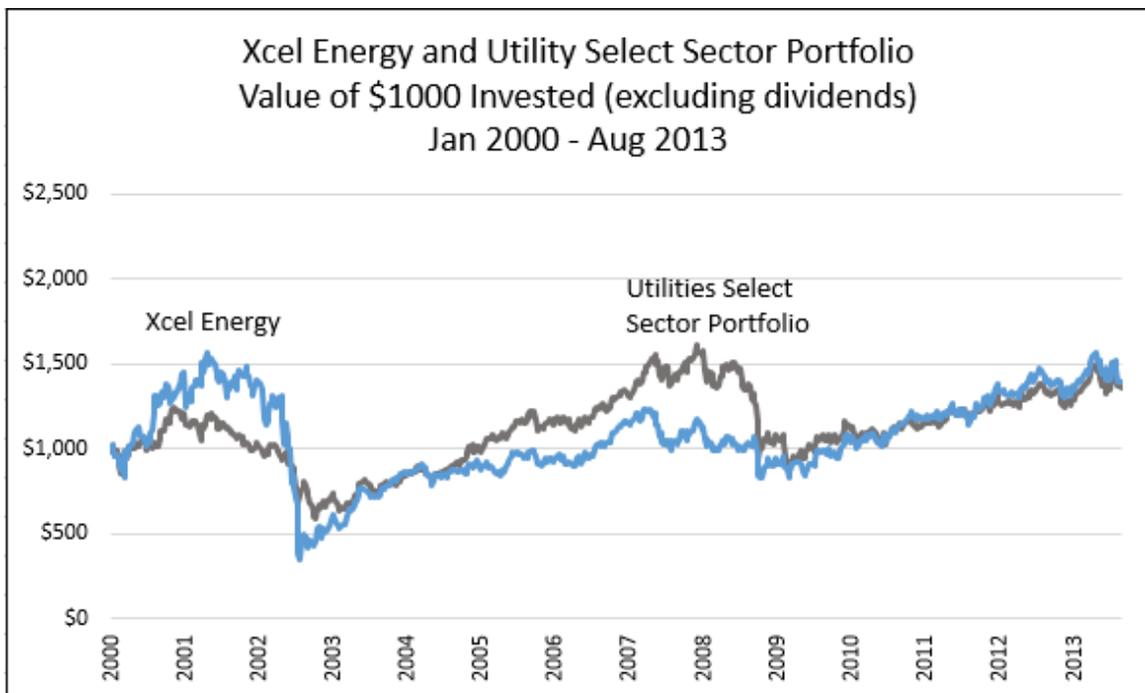


Figure C-2. Xcel Energy and Utility Select Sector Portfolio, Value of \$1000 Invested



This figure shows that this upward trend was present across the entire industry. Notice how closely the Xcel Energy line and Utilities Select Sector Portfolio follow each other in 2010. Over the past five years, Xcel Energy's stock price has caught up to and remained in line with the utility average.

## **LESSONS LEARNED AND OUTLOOK**

Xcel Energy-Minnesota summarizes its perspective on customer energy efficiency programs this way:

Our philosophy is that we are very supportive of environmental opportunities including energy efficiency when customers, shareholders, and the greater society benefit. With respect to the company's impact, we seek to make our shareholders whole through an incentive mechanism that offsets lost margins between rate cases and provides a small earnings opportunity for strong performance. (Personal communication, 2013)

If higher savings targets were to be established (an option that has been discussed in Minnesota), the company responded that the commission and all parties should reassess the existing framework.

Stakeholders interviewed largely agree with Xcel Energy-Minnesota's assessment of the regulatory framework and related progress with customer energy efficiency programs. A key ingredient to their success is the well-established collaborative nature of policy and program development and implementation. One stakeholder commented that generally it has been possible to reach consensus on all issues associated with customer programs. It is rare for any CIP issue to appear before the commission. Instead, the company and stakeholders reach consensus and thereby avoid the need for commission deliberation and action. "We get buy-in from both sides," as the stakeholder put it.

Another key ingredient has been the long history of research and development for various elements of customer programs. There is funding for research and development to look at new technologies and program designs. All parties are willing to try something new and learn from the experience, whether successful or not.

One stakeholder gave an overall grade of B+ to Minnesota's policy and program experience and regulatory framework for energy efficiency. This person commented that it is clear that "Most utilities, including the municipal and cooperative utilities, have embraced energy efficiency as something that we just do." Some issues yet to be resolved satisfactorily, according to this interviewee, include inclusion of combined heat and power into goals and associated credits as well as improvements to the electric utility infrastructure. Also, if higher savings targets are established, the financial incentive mechanism would likely need to be tweaked. Finally, the existing framework still does not address lost margins (decreased energy sales that result from successful energy efficiency and conservation improvements). However this may change pending the outcome of the decoupling proposal submitted by Xcel Energy-Minnesota to the Minnesota Public Utility Commission late in 2013.

## Appendix D: Xcel Energy—Colorado

### *REGULATORY FRAMEWORK*

House Bill 1037, passed in 2007, established the framework and requirements for Colorado's utilities to pursue high energy savings through customer energy efficiency programs. HB 1037 increased and refocused electric energy efficiency goals on energy savings, established savings goals for natural gas energy efficiency, and established a financial incentive mechanism that a utility could earn based on its performance. Prior to enactment of this statute, Colorado's electric utilities offered a relatively small slate of customer programs; budgets were correspondingly much lower than those in place today.

Rate structures and incentives are determined in individual DSM cases. Public Service Colorado (PSCo) is the operating company of Xcel Energy-Colorado. Their 2009-2010 DSM plan, approved in 2008, includes a three-part incentive package. This package has a \$2 million disincentive offset for each year that PSCo implements an approved DSM plan, a performance incentive and cost recovery via a rider on a prospective basis. A similar three-part package was approved for Black Hills. In each case performance incentives are available for achieving efficiency targets. The incentive (including the disincentive offset) is capped at 20% of PSCo's annual DSM expenditures. For natural gas utilities, the incentive bonus is capped at 25% of the expenditures or 20% of the net economic benefits of the DSM programs, whichever is lower.

The 2009-2010 DSM plan was intended to remove disincentives to efficiency, offset revenue and earnings erosion, and reward utility performance. The Public Utilities Commission (PUC) indicates that it is not appropriate and likely not feasible to define in a docket the lost margins resulting from DSM. Instead, it addresses the financial disincentives of DSM with a fixed payment of \$2 million after taxes (approximately \$3.2 million gross) for each year that 80% of the annual energy savings goal for an approved DSM plan is achieved. This amount is recovered over the 12-month period following the year in which the DSM plan is implemented. The PUC specifically notes that this disincentive offset should not be considered lost margin recovery but is an annual bonus for meeting approved DSM goals. The \$2 million disincentive offset can be adjusted downward in future years if the 80% target is not met.<sup>8</sup> Incentives are also included in the mechanism, and utilities achieving efficiency targets can earn a percentage of the net economic benefits generated by those savings. Combined total incentive payments are capped at 20% of PSCo's annual DSM expenditures.

Cost recovery and financial incentives for energy efficiency programs are tied to savings achieved relative to goals. The incentives are a function of net economic benefits. There is a graduated scale such that the incentive amount ranges from 0 to 12% of net benefits. The company must hit 80% of savings targets to receive any incentive; the graduated percentage scale reaches a maximum at 150% of goals. The incentive is also subject to a cap of \$30 million.

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<sup>8</sup> However it was reported that the 80% target is so easily achieved as to make the payment almost automatic upon DSM program implementation.

### ***THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY***

Energy efficiency plays a significant role in Xcel Energy-Colorado plans, similar to the role described in the case study of Xcel Energy-Minnesota. Energy efficiency has grown in importance in Colorado, especially since 2007. Xcel Energy-Colorado has offered a limited DSM portfolio of programs since the 1990s; they mostly targeted peak summer demand savings, not energy savings. Passage of HB1037 in 2007 greatly altered the prominence and associated funding for Colorado energy efficiency programs. As a result, Xcel Energy-Colorado senior leadership became more engaged in energy efficiency programs, policies, and filings. Some examples include:

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

As with Xcel Energy-Minnesota, company contacts also reported that there is no evident impact on career opportunities for individuals who work on energy efficiency programs, primarily due to their unique skill set. However these individuals can transfer to other marketing, communications, and outreach roles within the company.

While Xcel Energy-Colorado's primary focus is on effectively managing its energy efficiency programs, the company is involved in a variety of complementary energy efficiency efforts as described in the profile on Xcel Energy-Minnesota.

Stakeholders have witnessed a change in the role and scope of energy efficiency at Xcel Energy-Colorado. One stakeholder observed that energy efficiency has become a major area of operation, something that was not the case prior to passage of HB 1037 in 2007. Xcel Energy-Colorado worked with advocates to craft and refine this landmark law, including its provisions and bill language. The stakeholder thought the company saw an opportunity to structure rates and incentives so that it could earn profits from successfully reaching established savings goals,

Companies affected by HB 1037 are required to file DSM strategic plans with the commission approximately every three years. Associated major dockets, known as DSM Strategic Issues, came before the PUC in 2008 and another in 2011 that focused on long-term savings targets and major policy issues. The third such docket for Xcel Energy-Colorado was filed June 2013 and focuses on energy and demand savings targets through 2020, incentive mechanisms, gas DSM policy and direction, and other significant policies. Overall this three-year cycle and proceeding have been working well according to a stakeholder interviewed. One result of the most recent program docket (completed in 2011) was to increase goals compared to those established in 2008.

**IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS**

The framework established through HB1037 had a notable impact on making energy efficiency more attractive throughout Xcel Energy-Colorado. Key provisions contributing to this impact were a cost recovery mechanism for annual expenditures and a financial incentive that was intended to offset utility lost margins and provide a small bonus for strong performance. These regulatory changes supported Xcel Energy’s corporate commitment to the environment through expanded energy efficiency and renewable energy programs.

Prior to House Bill 1037, Xcel Energy-Colorado offered a smaller portfolio of programs that primarily targeted demand savings. The cumulative goal was to reach 124 MW (generator) avoided by 2006. Annual spending was just under \$20 million per year. Xcel Energy-Colorado did reach the 124MW goal, and the corresponding energy savings averaged 100 GWh per year.

Starting in 2009, after rulemaking for HB1037 was complete, spending increased significantly, more than doubling to \$44 million. Corresponding energy savings increased in concert with increased budgets. The primary reason for the large budget increase was the addition of programs focused on energy efficiency savings, such as business and residential lighting. As programs rapidly ramped up beginning in 2009, savings rose accordingly. While the savings targets were viewed as aggressive by many, Xcel Energy-Colorado has exceeded the goals every year so far for which data are available (2009 to 2012). For the latest year with final evaluation results available, the company has exceeded savings goals by 20%. Such performance is driven strongly by the incentive mechanism in place, according to a stakeholder interviewed. The structure of the mechanism, with an increasing percentage as energy savings increase, gives the company a strong motivation not just to meet but to exceed goals.

**Table D-1. Xcel Energy-Colorado (Public Service Company of Colorado) Energy Efficiency Program Data 2005-2011**

	2005	2006	2007	2008	2009	2010	2011
Total EE program spending (\$ million)	13.1	5.0	11.2	11.6	30.3	41.0	50.4
Total EE program savings (GWH)	101.3	46.6	126.8	254.7	149.0	235.3	279.1
Total revenues from retail sales (\$ million)	2,043	2,048	2,110	2,473	2,227	2,614	2,673
Total retail energy sales (GWH)	26,481	27,199	28,086	28,271	27,359	28,299	28,486
Program spending/total revenues	0.6%	0.2%	0.5%	0.5%	1.4%	1.6%	1.9%
Program savings/total energy sales	0.4%	0.2%	0.5%	0.9%	0.5%	0.8%	1.0%

Source: Energy Information Administration, Form 861, annual series, 2005-2011

The framework established in HB 1037 has made energy efficiency programs a core business function for Xcel Energy-Colorado. As described in the Xcel Energy-Minnesota case study,

Xcel Energy uses scorecards for major business units at the corporate level to identify the company’s top priorities and measure its success. In 2012 DSM was one of seven priorities listed on the corporate scorecard.

Internally Xcel Energy-Colorado treats incremental DSM funds as deferred expenses and not as O&M or capital because of the regulatory framework in place. As a result, funding for energy efficiency programs is isolated and does not directly compete for budget dollars with O&M spending or capital spending investments.

While the current performance incentive, in place since it was approved in 2011, strongly supports the Xcel Energy-Colorado energy efficiency programs, it does not always offset lost margins between rate cases for the company. Historically Xcel Energy-Colorado has requested either a lost margin recovery mechanism, which House Bill 1037 enabled, or a performance incentive mechanism that would make shareholders whole for active participation in energy efficiency and associated energy savings. The company views the current mechanism as an improvement on the past, but at this time, there is incomplete recognition of lost margins. The table below summarizes recent incentive and program data.

**Table D-2. Xcel Energy-Colorado Performance Incentive and Program Spending**

	2009	2010	2011	2012
Performance incentive (\$ million)	8.8	17.5	18.7	22.7
Total EE program spending (\$ million)	30.3	41.0	50.4	NA
Incentive as % of EE program spending	29.0%	42.7%	37.1%	NA

*Note: Data are for energy efficiency program spending only, not all DSM, which includes load management.*

Addressing lost margins (the throughput incentive) is a topic included in Xcel Energy-Colorado’s most recent DSM strategic issues filing before the Colorado PUC, which began in June 2013.

### **FINANCIAL IMPACTS AND PERFORMANCE**

Xcel Energy-Colorado is one of several individual utilities operating in different service territories. The overall corporate entity is Xcel Energy. It is only possible to examine the corporate financial performance of Xcel Energy, a topic which is covered in the case study of Xcel Energy-Minnesota.

### **LESSONS LEARNED AND OUTLOOK**

According to one stakeholder interviewed, the state of Colorado gets an A- for its policies and regulatory framework for utility energy efficiency. This person noted, “Programs are going well because of the policies and people involved, especially, the commission staff who have been pushing for aggressive, but not outrageous goals.” To date Xcel Energy-Colorado has not only met but consistently exceeded these goals. The company feels that Colorado's energy efficiency regulatory framework is improving, but further work is necessary to ensure full benefit to customers and utilities.

Effective collaboration among utilities and stakeholders is a hallmark of states with successful utility energy efficiency programs. This is true in Colorado. Xcel Energy-Colorado works to strengthen its relationships with external stakeholders and regulators.

The company holds quarterly EE/DSM roundtables with interested stakeholders and commission staff to share program results, discuss new product concepts, and receive feedback on specific issues identified by stakeholders. Xcel Energy-Colorado also meets with parties in advance of major EE/DSM filings in attempt to reach a compromise on topics prior to filing. A stakeholder characterized regulatory processes dealing with energy efficiency programs as generally collaborative, saying, "We do have a state where there isn't a lot of fighting, no matter what policy is in place." He added that the commission staff seem comfortable with how things are working and are not always challenging utility plans and implementation as happens in some states. "All parties tend to work through problems and accept whatever resolutions and outcomes occur. This helps establish and sustain trust along with improving regulatory certainty for utilities," concluded the stakeholder.

If higher savings goals are established, Xcel Energy-Colorado would suggest that the commission and all parties reassess the existing framework. A stakeholder agreed that tweaks would be necessary to ensure that the incentive was strong enough for the utilities to pursue and achieve such high savings. It would not be effective policy to cut back on incentives; that would likely result in the utilities' not having to try so hard to achieve savings targets. Ongoing utility program plans and filings are likely to yield some new policies or revisions to existing policies. Any such changes would become effective in 2015.

Colorado's experience clearly demonstrates how state policies can significantly and quickly lead to rapid growth in the size and resulting impact of utility energy efficiency programs. The state's policymakers and regulators not only established aggressive savings goals for programs, but also created incentive mechanisms to align utility financial interests with these energy savings goals. The results have been dramatic: Xcel Energy-Colorado has exceeded savings goals since the new rules became effective in 2009. The company and stakeholders interviewed agreed that a key to this success has been the financial incentive that rewards the company for the performance of its customer energy efficiency programs.

## **Appendix E: DTE Energy**

### ***REGULATORY FRAMEWORK***

Michigan has had an inconsistent record regarding utility energy efficiency programs. After rather modest levels of activity in the 1980s, the state emerged as one of the national leaders for a brief period in the early 1990s, only to essentially halt all utility energy efficiency programs in 1995.

Then in 2008 Michigan passed legislation (PA 295) creating a requirement for utility energy efficiency programs (termed “energy optimization”) and establishing annual energy savings requirements.<sup>9</sup> Utilities responded by implementing substantial energy efficiency programs and meeting or exceeding the annual savings requirements each year since the legislation passed.

For the first time in Michigan, PA 295 created a statutory requirement that utilities provide energy efficiency programs for their customers. It also established an energy efficiency resource standard (EERS) for both electric and natural gas utilities. The electric utility standard began at 0.3% of total sales in 2009 and ramped up to 1.0% of total sales per year for 2012 and beyond. The natural gas utility standard began at 0.25% for 2009 and ramped up to 0.75% per year for 2012 and beyond.

PA 295 also created for the first time a utility shareholder incentive mechanism for meeting or exceeding the annual energy savings targets. These incentives were individually tailored to a utility’s savings targets and are capped at an amount not to exceed 15% of the total energy efficiency program costs.

PA 295 also specified that natural gas utilities were entitled to implement a symmetrical revenue decoupling mechanism as long as the utility was spending at least 0.5% of revenues on energy efficiency programs. The legislation was silent on electric utility decoupling. The Michigan Public Service Commission (MPSC) subsequently applied decoupling to the two major electric utilities in the state, DTE Energy and Consumers Energy. However, in response to a challenge by an industrial customer organization, an appeals court struck down the orders approving decoupling for the electric utilities, so no electric decoupling is currently in place in Michigan.

### ***THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY***

From the mid-1990s until the passage of PA 295, energy efficiency programs for customers had virtually no role within DTE Energy. Although the company was free to propose ratepayer-funded energy efficiency programs during that time period (and even nominally encouraged to do so by the MPSC), no energy efficiency programs were ever proposed or implemented.<sup>10</sup> This is an example of how the inherent financial disincentives of customer

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<sup>9</sup> The Michigan Clean, Renewable and Efficient Energy Act (PA 295 of 2008) [http://www.legislature.mi.gov/\(S\(4aqwzdz5na42bfynvrmlr45\)\)/mileg.aspx?page=getObject&objectName=mc l-Act-295-of-2008](http://www.legislature.mi.gov/(S(4aqwzdz5na42bfynvrmlr45))/mileg.aspx?page=getObject&objectName=mc l-Act-295-of-2008). 2012 Report on the Implementation of P.A. 295 Energy Optimization Programs. [http://www.michigan.gov/documents/mpsc/2012\\_EO\\_Report\\_404891\\_7.pdf](http://www.michigan.gov/documents/mpsc/2012_EO_Report_404891_7.pdf)

<sup>10</sup> The one exception was that DTE Energy privately provided special energy efficiency advice and assistance to a few of its very largest industrial customers as part of a strategy to retain them in the face of retail competition threats. The company notes that these efforts were well received and produced significant savings.

energy efficiency dissuade a utility from voluntarily providing energy efficiency programs for its customers.<sup>11</sup>

With the passage of PA295 in 2008, the company had to build an entirely new unit. There were a few old-timers who were involved in energy efficiency in the early 1990s and who subsequently had been given other assignments within the company, but other than that, DTE had to assemble a new energy efficiency department from scratch. Since 2008 this area has grown to a current staff of 35-40 employees plus scores of contractors. The DTE Energy personnel we interviewed were consistent in their opinion that management highly values the energy optimization (energy efficiency) area within the company and that it is regarded as a desirable work assignment and an area where creativity and initiative are valued.

While DTE Energy initially undertook its energy efficiency programming primarily to comply with the new legislation, support (and even enthusiasm) for it has grown as experience has accumulated, particularly with regard to the customer satisfaction observed and the shareholder incentives received. The energy efficiency area has certainly come to be valued in terms of customer service and customer opinions of the company. DTE Energy regards energy efficiency activities as a key factor affecting customer ratings of the company, and it regularly tracks this variable in customer satisfaction surveys. This is an area of great pride and accomplishment; a key company goal is to have “all customers believe DTE Energy would like them to be energy efficient.” Our interviewees also candidly acknowledged that the ability to earn a fairly substantial shareholder incentive (and the track record thus far at earning that incentive<sup>12</sup>) has also greatly elevated the energy optimization department within the company. Staff feel they are contributing to the financial health of the company.

On the other hand, when asked about the extent to which energy efficiency is regarded within the company as an actual energy *resource* (i.e., like a power plant), the responses were much more restrained. DTE Energy executives acknowledged that energy efficiency was not really regarded yet as a resource for utility system supply. They did note that it is being studied internally for that possible role. At this point, however, it is fair to say that DTE Energy is pursuing its energy efficiency programs and activities for reasons other than its actual resource value.<sup>13</sup>

As a part of this project, we also interviewed a staff director at the MPSC and an energy program director of a major environmental organization in the state. Their perspective on the role of energy efficiency within DTE Energy conformed fairly closely to the viewpoints expressed by the DTE executives. They agreed that DTE has achieved a remarkable turnaround on energy efficiency and that it seems truly motivated to provide a highly

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<sup>11</sup> DTE notes that the uncertainty regarding customer load and retention resulting from the partial electric restructuring adopted in Michigan in 2000 was another factor that caused the company to be reluctant to provide customer energy efficiency programs. Legislation in 2008 helped resolve that issue by limiting customer choice to 10% of total load.

<sup>12</sup> DTE Energy has earned the maximum possible financial incentive each year to date.

<sup>13</sup> DTE also points out that the Midwest Independent System Operator (MISO) has not had any policies or structure to facilitate energy efficiency as a system resource, so that has not helped advance the use of energy efficiency as a resource by utilities such as DTE.

regarded customer service and achieve the maximum shareholder incentive. But the company has not yet shown that it truly regards energy efficiency as a system resource.

**IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS**

There is no question that the policies established in PA 295 resulted directly in a sea change regarding energy efficiency programs at DTE Energy. Subsequent to the passage of PA 295, the company has successfully ramped up a large and effective portfolio of energy efficiency programs. By 2012 DTE Energy was spending 2% of total revenues on energy optimization programs and achieving annual savings of just over 1% of total retail sales. Table E-1 shows the rapid changes that have occurred in terms of program spending as a result of PA 295.

**Table E-1. DTE Energy (Detroit Edison) Energy Efficiency Program Data 2009-2011**

	2009	2010	2011
Total EE program spending (\$ million)	20.1	41.2	56.3
Total EE program savings (GWH)	203.0	403.0	519.0
Total program savings (GWH)—targets	160.0	227.2	477.0
Percentage of actual/target savings	127%	177%	109%
Total revenues from retail sales (\$ million)	4,058	4,165	4,643
Total retail energy sales (GWH)	42,748	42,491	42,760
Program spending/total revenues	0.5%	1.0%	1.2%

Sources: Energy Information Administration, Form 861 Annual Data, 2005-2011; 2012 Report on the Implementation of P.A. 295 Utility Energy Optimization Programs, Michigan Public Service Commission, November 30, 2012

The regulatory framework in Michigan does a good job of addressing two of the three legs of the financial stool for facilitating significant utility energy efficiency programs. It has a simple and direct mechanism for providing the revenues to support the operation of the programs (i.e., specific rate surcharges), and it also has a specific mechanism to allow shareholder incentives for good performance.

For the third leg (addressing the throughput incentive), the framework is less sturdy. As noted previously, natural gas utilities are entitled to request and receive symmetrical revenue decoupling as long as they are spending over 0.5% of revenues on energy efficiency programs. However, there is currently no approved mechanism for revenue decoupling for electric utilities. This may be a significant obstacle to achieving larger energy efficiency program results.

Table E-2 below gives data on the shareholder incentive earned by DTE over the past few years.

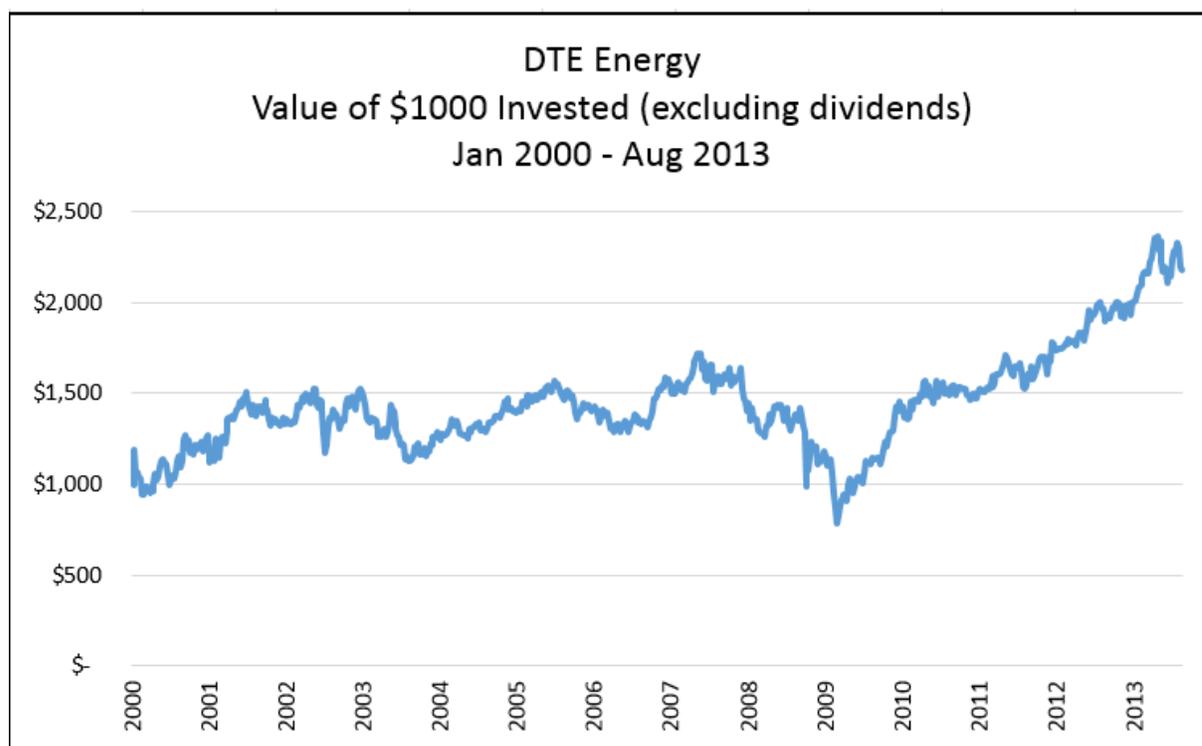
Table E-2. DTE Energy Performance Incentive and Program Spending

	2009	2010	2011	2012
Performance incentive (\$ million)	3.0	6.2	8.4	10.5
Total EE program spending (\$ million)	20.1	41.2	56.3	NA
Incentive as % of EE program spending	14.9%	15.0%	14.9%	NA

**FINANCIAL IMPACTS AND PERFORMANCE**

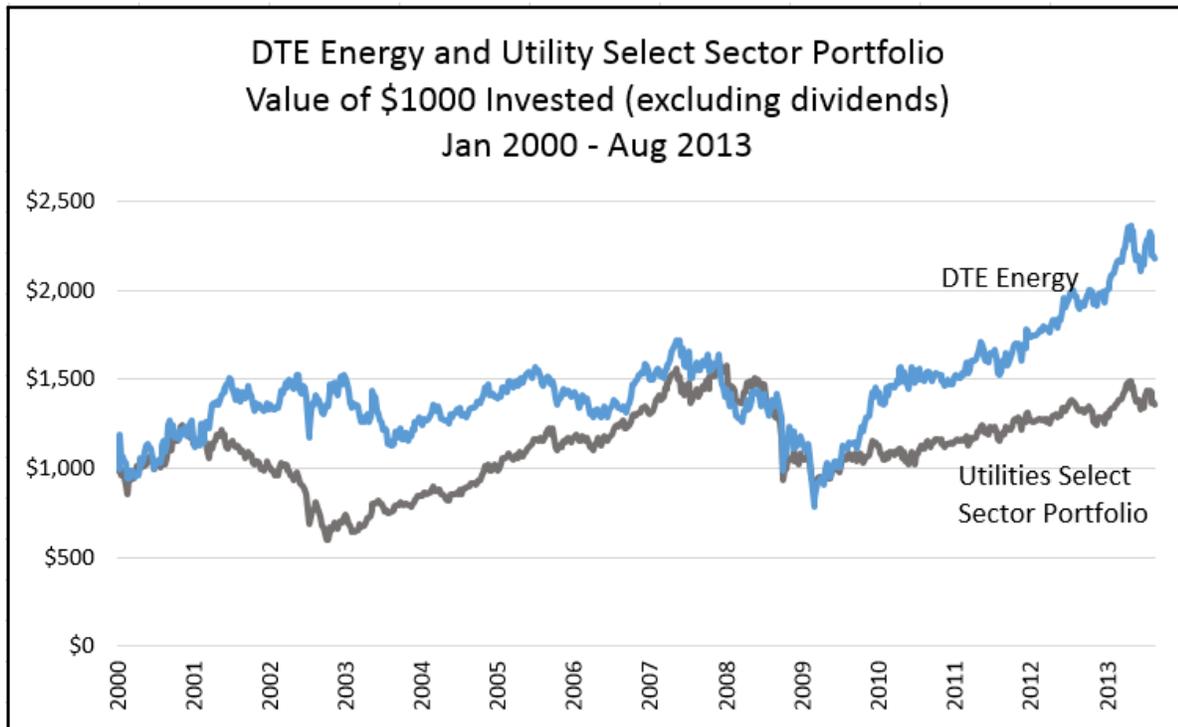
Operating in Michigan, DTE Energy is worth \$11.7 billion. The company is comprised of DTE Electric and DTE Gas. Figure 10 below shows the value of an initial \$1,000 investment in DTE Energy stock made in January 2000 and how that value changes over the subsequent 13 years. By 2013, such an investment would have grown to over \$2,000.

Figure E-1. Value of \$1000 Invested in DTE Energy



DTE stock took a dip in 2008 but began an aggressive growth trend beginning in 2009. The stock might have risen after 2009 simply because the entire stock market was rising. Again, we know that interest rates declined over this period, which would cause all utility stocks to rise in value since they are bond substitutes. We account for systematic risk by comparing DTE Energy stock to the diversified Utilities Select Sector SPDR Portfolio. Figure 11 adds an additional line to the line shown in Figure 10 to show the value of an initial \$1,000 investment in the Utilities Select Sector Portfolio.

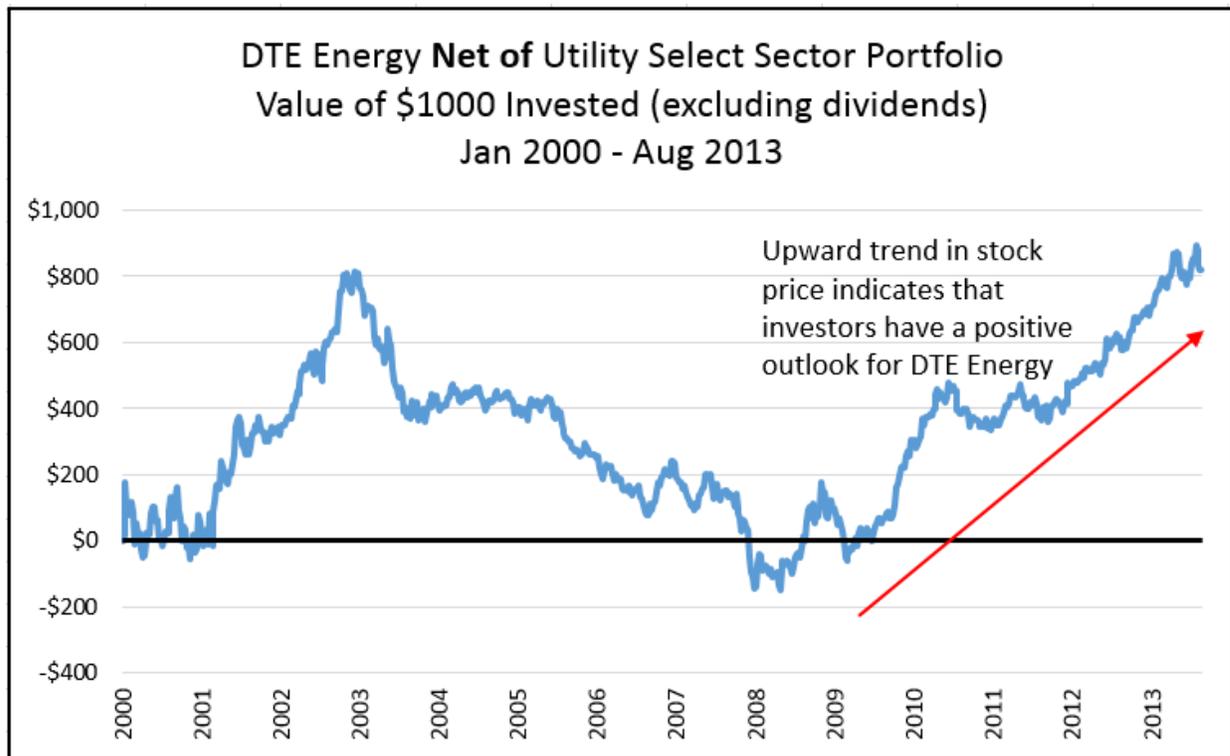
Figure E-2. DTE Energy and Utility Select Sector Portfolio, Value of \$1000 Invested



The results are clear. Apart from the dip in 2008, DTE Energy has been consistently outperforming the Utilities Select Sector Portfolio. In late 2009, it begins growing at a much faster rate than the average. We can see this even more clearly by netting the values of the two portfolios. The figure below makes it clear that DTE Energy stock began gaining traction in 2009.

Beginning in 2009, DTE Energy stock began an impressive value-enhancing run, one that other utilities in general did not experience. This change must therefore be related to factors that are company-specific, not industry-wide or macroeconomic. While we cannot determine what factors led to this performance, we can see that DTE performed well financially at the same time it ramped up and made significant investments in energy efficiency through its customer programs.

Figure E-3. DTE Energy Net of Utility Select Sector Portfolio, Value of \$1000 Invested



### LESSONS LEARNED AND OUTLOOK

With the passage of PA 295 in 2008, Michigan underwent a complete transformation of its policy regarding utility energy efficiency programs. For the previous 12 years, there had been essentially no state policy. Utilities were free to propose ratepayer-funded energy efficiency programs if they wished, but no utility (including DTE Energy) proposed any such programs. PA 295 established several key policies:

- A requirement that utilities provide energy efficiency programs for customers
- An EERS requiring annual energy savings achievements (ramping up from 0.3% to 1.0% per year over 4 years for electric savings)
- An explicit energy efficiency program cost-recovery mechanism
- A shareholder incentives mechanism for utilities that meet or exceed the annual energy savings goals
- A revenue decoupling mechanism for natural gas utilities

Without question, this package of policies achieved a dramatic turnaround in utility behavior. From energy efficiency budgets and savings of zero in 2007 (and the 10 years prior), Michigan utilities have ramped up to spend a total of over \$250 million on energy efficiency programs in 2012, and they have exceeded their energy savings goals every year.

Nevertheless it is difficult to separate out the importance of any of the individual policy elements of PA 295. It is clear that the statutory requirement to provide energy efficiency programs was fundamental in moving utilities from zero and prompting them to actually deliver programs. In addition, having a legislatively authorized cost-recovery mechanism was probably essential in getting the utilities to move forward rather than pursue court

challenges. It also likely deterred opponents of energy efficiency from pursuing regulatory and court challenges to utility expenditures on energy efficiency programs. Finally, all the key parties we interviewed (utility, regulatory, and advocate) noted that the shareholder incentive provision was a key factor in prompting utility management to embrace energy efficiency programs and strive to achieve the annual savings goals.<sup>14</sup>

Overall, it is certainly a fair conclusion that the policy package enacted in 2008 has been extremely successful in creating a regulatory structure that facilitates utility energy efficiency programs. It is clear that moderately aggressive energy efficiency programs and savings achievements are possible for DTE Energy and Michigan utilities in general. Unless the legislature weakens or eliminates the PA 295 framework, there is every reason to believe that DTE Energy and Michigan utilities in general will maintain current energy efficiency performance for the foreseeable future.

As noted previously, however, DTE Energy management, and Michigan utilities in general, have not yet embraced energy efficiency as a true resource that is able to functionally substitute for traditional electric generation resources. This hesitation is likely partially due to lack of experience with this resource within the company and the fact that in some ways energy efficiency challenges traditional thinking within a utility. It is certainly also true that the fundamental problem of reduced sales resulting from customer energy efficiency is an economic disincentive for a utility, especially in a period when sales growth has been stagnant due to a poor economy. These factors highlight the importance of true revenue decoupling as a part of the ultimate policy package for DTE Energy.

A reasonable assessment would be that Michigan has done quite a good job of creating a policy framework that facilitates utility energy efficiency programs, but that it is not yet perfected. All the DTE Energy executives, regulators, and advocates we interviewed gave Michigan's framework a grade ranging from B- to B+. Most significantly, Michigan and DTE Energy clearly show how it is possible to move from a situation of no utility energy efficiency programs to a successful energy efficiency portfolio in a relatively short time.

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<sup>14</sup> As noted previously, capping the amount of customer load that could migrate to competitive suppliers at 10% also likely helped facilitate DTE willingness to implement customer energy efficiency programs.

## Appendix F: Idaho Power Company

### *REGULATORY FRAMEWORK*

Idaho Power Company (IPC) began providing energy efficiency programs to its customers in the 1980s.<sup>15</sup> Due to concerns over potential stranded assets, the deregulation movement of the 1990s resulted in a moratorium on programs being enacted pending the outcomes of restructuring proposals. In the end Idaho did not restructure its utilities. With this issue resolved, IPC again moved ahead with customer energy efficiency programs. More recent policy decisions have helped bring about a rapid growth of such programs in Idaho.

After the power crisis that affected much of the West, especially California, in 2000-2001, the company began to ramp up its programs in response to the Idaho PUC order to pursue all cost-effective DSM. This expansion of the IPC DSM programs (including energy efficiency) has continued to the present. Spending on energy efficiency has gone from just over \$2 million in 2002 to almost \$50 million in 2012. IPC has had decoupling in place for its residential and small business customers beginning with a pilot in 2007 and in 2013 continuing as a permanent part of the rate structure for the next five-year period.

The IPC decoupling mechanism, called a fixed-cost adjustment (FCA), is designed to provide symmetry (a surcharge or credit) when fixed-cost recovery per customer varies above or below a commission-established base. The FCA was first implemented on a pilot basis from 2007 to 2009. The pilot was extended through 2012. In January 2013 the Idaho PUC extended the FCA indefinitely (Order No. 32731 in case No. IPC-E-11-19). The FCA decoupling mechanism applies to all residential and small commercial customers. It also incorporates a 3% cap on annual increases and carries over unrecovered deferred costs to subsequent years. Rate increases and credits resulting from the FCA have been distributed to residential and small general service customer classes equally on an energy use basis (See ID PUC Order No. 30267). As stated in IPC's initial application for FCA:

The FCA provides a "true-up" of the collection of fixed costs per customer to recover the difference between the level of fixed costs recovered by the Company through rates and the level of fixed costs authorized for recovery in the Company's most recent, applicable general rate case.

IPC was approved for a three-year pilot shareholder incentive program beginning in January 2007 and ending in December 2009 that covered only one small program and thus was modest in scale. During the pilot, IPC received an incentive if the market share of homes constructed under the ENERGY STAR Homes Northwest program exceeded a target percentage of new homes constructed. IPC earned an incentive if the program exceeded the market share goal (7% in 2007, 9.8% in 2008, and 11.7% in 2009). Incentives were capped at 10% of program net benefits. Penalties were levied if IPC did not meet a minimum market share percentage. On March 11, 2009, IPC requested that the pilot be discontinued retroactively as of January 1, 2009 due to current economic conditions. However IPC intends

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<sup>15</sup> This case study does not include information provided via interviews or other direct communications with Idaho Power Company. The company was interested in providing such information, but the timing of the ACEEE research coincided with an open regulatory docket on rates that covered many similar issues. ACEEE did complete interviews with two stakeholders and drew on publicly available reports and filed testimony by Idaho Power Company relevant to the utility business model.

to explore the development of an incentive mechanism that can be applied to the company's entire portfolio of energy efficiency programs.

### **THE ROLE OF ENERGY EFFICIENCY WITHIN THE COMPANY**

Energy efficiency plays a prominent role within Idaho Power. As the company states in its DSM 2012 Annual Report:

The pursuit of cost-effective energy efficiency is a primary objective for Idaho Power. Energy efficiency and demand response provide economic and operational benefits to the company and its customers. The enhancement of information and programs ensures customers' opportunities to learn about their energy use and participate in programs.

Idaho Power's main objectives for DSM programs are to achieve all prudent, cost-effective energy efficiency savings and provide an optimal amount of demand reduction from its demand response programs as determined through the Integrated Resource Plan (IRP) planning process. Idaho Power also strives to provide customers with programs and information to help them manage their energy usage.

Energy efficiency is central to recent corporate statements and plans:

Idaho Power's continued commitment toward promoting energy efficiency extends beyond encouraging, providing incentives, and educating its customers. At the annual shareholders meeting held in May 2012, IDACORP, Inc. and Idaho Power issued the inaugural sustainability report: *Balance*. This report highlighted the company's continuing efforts to operate in a manner that supports financial, environmental and social stewardship.

The stakeholders we interviewed confirmed that energy efficiency plays a central role at Idaho Power. One person observed that in just the past few years, energy efficiency has become an accepted part of the integrated resource portfolio: "The company is spending a lot of money [on energy efficiency programming] and is taking it seriously." This person added, "They are exhibiting a lot of personal ownership of the programs; they are excited about them and want them to succeed. There is commitment in the company to maintain them." However, despite the success of existing efforts, this person also remarked on the tension associated with the expansion of energy efficiency programs. Some perceive energy efficiency program as a potential "earnings drag."

Strong IPC support for customer energy efficiency at the corporate level extends beyond its portfolio of customer programs. IPC has actively participated in a number of complementary activities including:

- Collaboration with the City of Boise to finalize the Boise City Home Audit Project
- Funding to and collaboration with Integrate Design Lab (in Boise) and the NEEA Ductless Heat Pump (DHP) pilot
- Continued support for the Northwest Energy Efficiency Alliance and participation in its market transformation activities
- Active involvement in the Regional Technical Forum
- Leadership of the Energy Efficiency Advisory Group, which includes a cross-section of customers and stakeholders and helps formulate and implement energy efficiency and DSM programs within the IPC service territory

- Promotion of K-12 energy education, including providing Student Energy Efficiency Kits
- Active ongoing participation in building code improvement, including contributions to the 2012 NEEA Idaho Residential Energy Code Compliance study, and participation in meetings on implementing the International Energy Conservation Code

**IMPACTS OF REGULATIONS AND POLICIES ON ENERGY EFFICIENCY PROGRAMS**

In 2012 Idaho Power celebrated 10 years of energy efficiency and demand response activity funded under the Idaho Energy Efficiency Rider (Idaho Rider). In those 10 years, the company realized a cumulative annual savings of over 1 million MWh savings. This is enough energy to power a city of 85,000 average residences.

Table F-1 illustrates the rapid growth of IPC programs. Note that this table lists reported spending on energy efficiency programs only, not all DSM (which includes load management programs). Coincident with the rise in spending is a significant increase in customer satisfaction with the company from about 40% in 2003 to about 60% by 2012. Clearly Idaho Power’s customers view the programs favorably and, in turn, the company.

**Table F-1. Idaho Power Company Energy Efficiency Program Data 2005-2011**

	2005	2006	2007	2008	2009	2010	2011
Total EE program spending (\$1,000)	4.4	8.9	11.4	16.6	20.8	24.0	23.0
Total EE program savings (MWH)	41.3	70.8	91.1	138.6	147.5	172.3	163.2
Total revenues from retail sales (\$1000)	636	607	638	752	856	830	792
Total energy sales (MWH)	12,613	13,236	13,848	13,874	13,275	12,884	13,098
Program spending/total revenues	0.7%	1.5%	1.8%	2.2%	2.4%	2.9%	2.9%
Program savings/total energy sales	0.3%	0.5%	0.7%	1.0%	1.1%	1.3%	1.2%

Source: Energy Information Administration, Form 861, annual series, 2005-2011

Addressing the three legs of the financial stool clearly is important to IPC. Cost recovery through a rate rider makes the company more comfortable with paying for energy efficiency, according to one stakeholder. This was the first regulatory mechanism enacted to support energy efficiency programs in Idaho. Addressing the throughput incentive was the next step to create a more supportive regulatory framework for energy efficiency. As noted earlier, a fixed-cost adjustment mechanism was first enacted in 2007, and early in 2013 it became a permanent part of the IPC rate structure.

Another stakeholder observed that the Idaho PUC appears to be supportive of energy efficiency and has been nationally recognized for its efforts. This person noted, “The

commission has been willing to address various proposals at different utilities for how to change the paradigm to encourage energy efficiency." He added, "Decoupling is very significant. The strong track record on energy efficiency cost recovery is helpful."

As it expressed in a news release on the FCA, IPC views the FCA as critical to its ability to pursue customer energy efficiency through its programs:

The FCA helps the company pursue demand-side management programs and energy efficiency education," stated Greg Said, Idaho Power VP of Regulatory Affairs. "The mechanism allows for a robust energy efficiency portfolio, which is a key component in our ability to provide responsible, fair-priced electric service to our customers.

The news released concluded, "This [FCA] removes financial disincentives for the company to promote and invest in energy efficiency activities, which over the long run helps keep costs down for our customers."

During the initial pilot phase of the FCA, one stakeholder commented that the company "has definitely gotten way more comfortable about the impact energy efficiency was having on its fixed cost revenues. The mechanism has worked the way it was intended to. They [IPC] don't mention 'lost revenues' now. Sometimes they mention the 'lost opportunity for profit,' but they don't feel like they are losing money. They are just indifferent." This is in line with what numerous advocates for decoupling have argued, that decoupling only corrects a financial disincentive and makes a company neutral to reduced sales through energy efficiency.

Regulatory proceedings associated with IPC energy efficiency programs are generally characterized by strong collaboration, according to the stakeholders we interviewed. The commission staff are supportive of the programs overall, as are environmental and clean energy advocates. Low-income groups also generally have been supportive. Industrial customer groups are focused on least-cost resources but appear to be somewhat wary of expanding spending on energy efficiency programs. They want to be sure that customers do not pay for resources that are unnecessary. Healthy debates continue on certain issues, and strong consensus is not always achievable, but overall things have been able to move forward constructively.

The stakeholders we interviewed reported that the decoupling mechanism is well designed and administered effectively. Annual true-ups have been straightforward and have followed expectations. The cost recovery (via a rate rider) also has worked well. The only reservation we heard is that some stakeholders have shown concern over any increases to the amount of the rate rider.

The third leg of a supportive regulatory framework for utility energy efficiency programs is a financial incentive. One stakeholder commented that the pilot shareholder incentive that was established was too small and the timing was poor; it happened during an economic downturn and was tied to new home construction. IPC has proposed a new incentive mechanism that would provide a rate of return for demand-side investments comparable to supply-side investments. A decision on this proposal is pending.

Overall the regulatory framework in place has succeeded in making energy efficiency an integral and successful component of the IPC business model. One interviewee summed up the success this way:

There has been some talk that energy efficiency investments are more heavily scrutinized than other investments. There is a heavy burden on justifying energy efficiency investments, but they have always been successful. There is growing comfort with good results. They have come leaps and bounds in the last ten years. They have a very strong DSM portfolio.

#### ***FINANCIAL IMPACTS AND PERFORMANCE***

Operating in Idaho and Oregon, Idaho Power is 98% of IDACORP. The company is valued only at \$2.4 billion and is therefore by far the smallest utility we studied.

Figure F-1 shows the value of an initial \$1,000 investment in IDACORP stock made in January 2000 and the change in that value over the subsequent 13 years.

We see little net progress until 2010, at which point the stock begins an upward ascent. As with the other utilities we studied, IDACORP stock could have risen in 2010-13 simply because the entire stock market was rising. Again, we also know that interest rates declined over this period, something that would cause all utility stocks to rise in value since they are bond substitutes. Therefore we account for systematic risk by comparing IDACORP stock to the diversified Utilities Select Sector SPDR Portfolio. Figure F-2 adds an additional line to the one shown in Figure F-1, with the new line showing the value of an initial \$1,000 investment in the Utilities Select Sector Portfolio.

This figure shows that IDACORP and the Utilities Select Sector Portfolio follow each other closely for much of this period. IDACORP stock tracks the diversified portfolio until about 2010 when it breaks away slightly. We can see this even more clearly by netting the values of the two portfolios, as shown in Figure F-3.

Beginning in 2010, IDACORP stock begins a slow upward trend that utilities on average did not experience. This change must be related to factors that are not industry-wide or macroeconomic. Over the past five years, the IDACORP stock price has begun to outpace its utility peers. It seems that IDACORP has the upward trajectory above the average that all utilities seek.

Figure F-1. Value of \$1000 Invested in Idaho Power Company

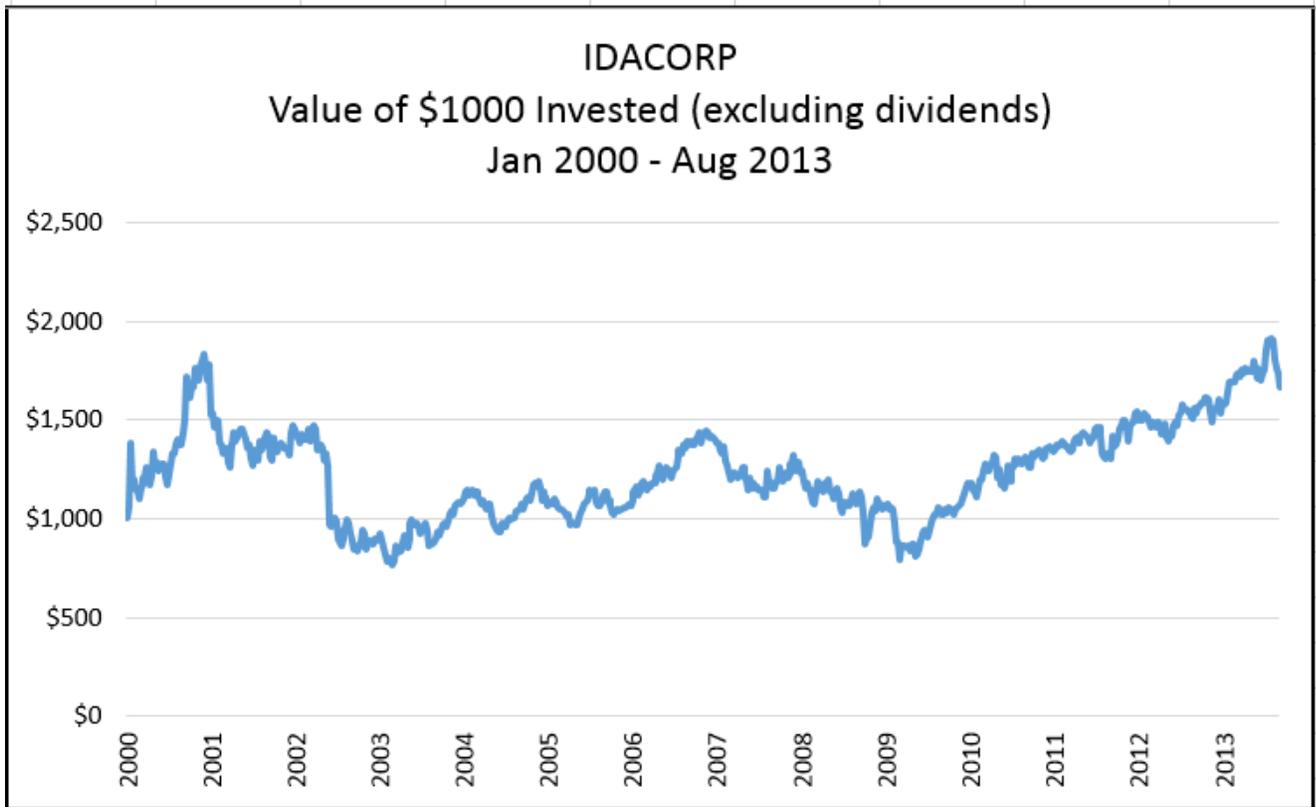


Figure F-2. Idaho Power Company and Utility Select Sector Portfolio, Value of \$1000 Invested

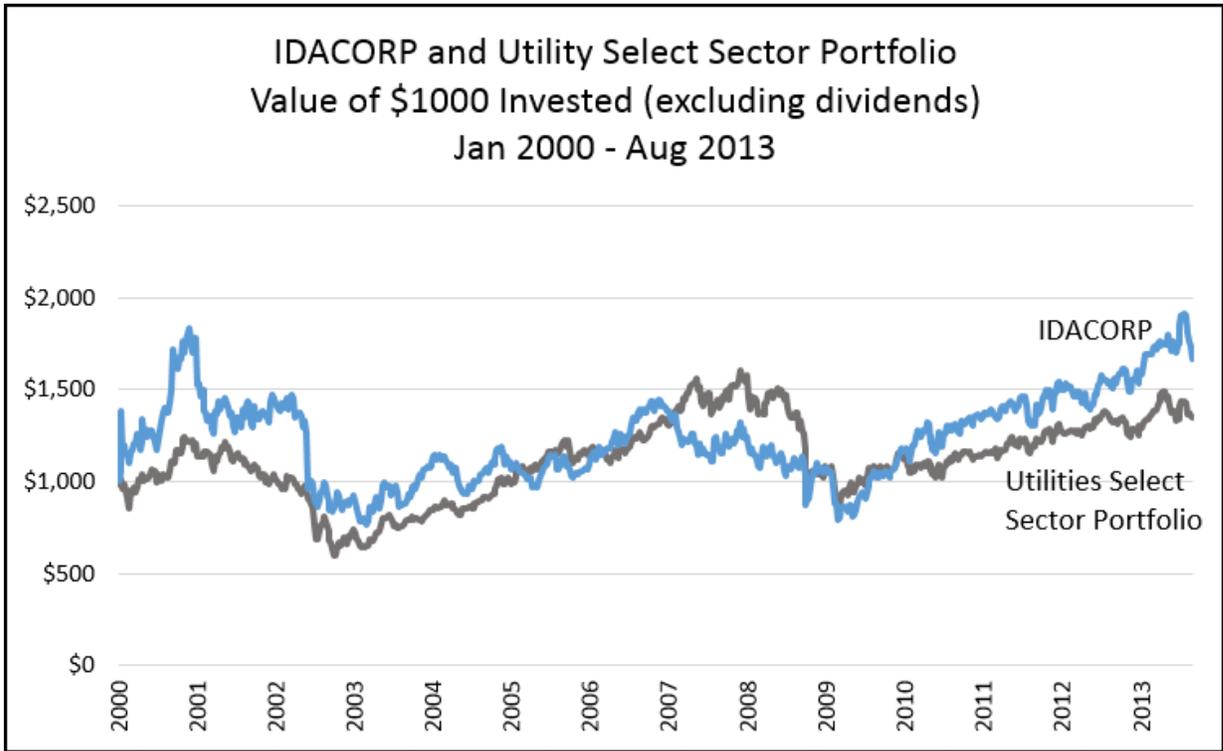
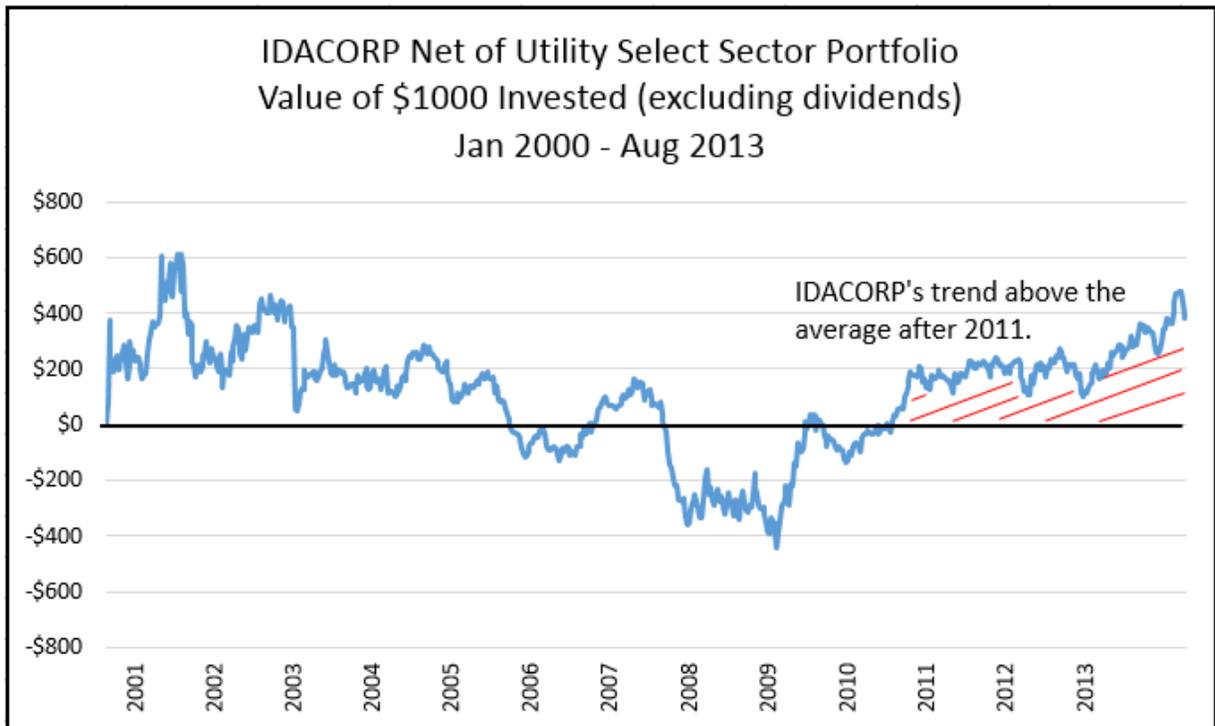


Figure F-3. Idaho Power Company Net of Utility Select Sector Portfolio, Value of \$1000 Invested



### ***LESSONS LEARNED AND OUTLOOK***

“The Idaho Public Utilities Commission has been very supportive and aggressive in their support for DSM in the state,” according to one stakeholder interviewed. Decoupling has been effective in enabling IPC to develop and implement a robust portfolio of programs, eliminating the throughput incentive that otherwise would put such programs at odds with recovery of fixed costs.

IPC support for energy efficiency remains strong. According to its 2012 annual report, the company plans to increase participation in its programs and boost energy savings accordingly. The stakeholders we interviewed shared this generally positive view of the IPC programs. One commented that a key area for improvement would be shareholder incentives so that energy efficiency investments could offer earnings opportunities as do supply-side resources.

Idaho’s experience clearly demonstrates that revenue decoupling removes a serious financial barrier to utility energy efficiency programs. Decoupling, regulatory requirements to pursue all cost-effective energy efficiency, and a rate rider that ensures timely cost recovery are policies that have enabled IPC to implement a robust portfolio of energy efficiency programs. With this supportive framework in place, IPC has risen in just a decade to become a leading utility in terms of its customer energy efficiency programs. The key improvement still to be made is enactment of a shareholder incentive, a perspective shared by stakeholders and the company.