Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency

Seth Nowak, Brendon Baatz, Annie Gilleo, Martin Kushler, Maggie Molina, and Dan York

May 2015

Report U1504

529 14th Street NW, Suite 600, Washington, DC 20045

Phone: (202) 507-4000 • Twitter: @ACEEEDC

Facebook.com/myACEEE • aceee.org

Contents

About the Authors

Seth Nowak conducts analysis and writes reports on energy efficiency programs and policies in the electric and natural gas utility sector. Focus areas of his research include exemplary programs, best practices, and program evaluation, measurement, and verification. He joined ACEEE in 2010.

Brendon Baatz joined ACEEE in the fall of 2014. Brendon's research focuses on state energy efficiency policy, utility regulation, energy markets, utility resource planning, and utility-sector efficiency programs. Prior to joining ACEEE, Brendon worked for the Federal Energy Regulatory Commission, Maryland Public Service Commission, and Indiana Office of Utility Consumer Counselor.

Annie Gilleo joined ACEEE in 2013. She is the lead author for the *State Energy Efficiency Scorecard* and conducts research on energy efficiency resource standards and other state-level policies.

Martin Kushler is a senior fellow at ACEEE, where he previously served as director of the utilities program for 10 years. He has conducted numerous widely acclaimed national studies of utility-sector energy efficiency policies and programs and provided technical assistance to help advance energy efficiency policies in many states. He has been directing research and evaluation regarding energy efficiency and utilities for three decades, has been widely published, and has provided consultation to numerous states and the federal government. Prior to joining ACEEE in 1998, he directed the evaluation section at the Michigan Public Service Commission for 10 years.

Maggie Molina directs the Utilities, State, and Local Policy program at ACEEE. She conducts energy efficiency program and policy research and analysis and provides technical assistance on energy efficiency policy and programs to a wide variety of audiences, including state and local policymakers, regulators, utilities, and efficiency program administrators. Since joining ACEEE in 2005, she has authored numerous reports on state policy and utility-sector energy efficiency topics, including the first editions of the State Energy Efficiency Scorecard, state-level energy efficiency potential studies, utility business models, the cost of saved energy, and next-generation efficiency programs.

Dan York has more than 20 years of experience in researching, analyzing, and implementing energy efficiency policies and programs. He is widely recognized for his work tracking and analyzing trends and emerging issues in utility-sector energy efficiency programs. His entire educational and professional experience has focused on energy efficiency and conservation as the foundations for a sustainable economy. He joined ACEEE in 2001.

Acknowledgments

This report was made possible through the generous support of the Energy Foundation, N-Star, National Grid, United States Environmental Protection Agency, Pacific Gas and Electric Company, and Connecticut Light and Power/United Illuminating Company. The authors gratefully acknowledge external reviewers, internal reviewers, colleagues, and sponsors who supported this report. External expert reviewers included Janine Migden-Ostrander from Regulatory Assistance Project, Sierra Martinez from Natural Resources Defense Council, and Bryce Gilleland from Pacific Gas and Electric Company. Internal reviewers included Brendon Baatz, Jim Barrett, Neal Elliott, Annie Gilleo, Martin Kushler, Maggie Molina, Steven Nadel, and Dan York. External review and support does not imply affiliation or endorsement. The authors also gratefully acknowledge the assistance of dozens of commission, agency, and utility staff people who generously shared their expertise for interviews, questionnaires, and reviewing case studies. We would also like to thank Fred Grossberg for his assistance throughout the writing and editing process, Kate Hayes and Roxanna Usher for copy editing, and Patrick Kiker and Glee Murray for their help in launching this report.

Executive Summary

Performance incentives for gas and electric energy efficiency play an increasing role in the expansion of energy efficiency programs in the utility sector. These mechanisms address economic disincentives to energy efficiency traditionally faced by regulated utilities. Performance incentives provide financial rewards or earnings opportunities to program administrators, utilities, and shareholders in return for energy savings.

Incentive policies are ripe for examination as major shifts reshape the natural gas and electric utility industry and its regulation, and as efficiency performance incentive policies become more prevalent. This study accordingly updates and expands ACEEE's 2011 report, *Carrots for Utilities: Providing Financial Returns for Utility Investments for Energy Efficiency* (Hayes et al. 2011).

We asked states to submit qualitative information on energy efficiency performance incentives, as well as quantitative information on incentives in the two most recent program years. We analyzed data across all of these states, and also prepared several in-depth case studies. Our findings include the following:

- Twenty-seven states have now adopted incentives based on cost-effective achievement of energy savings targets, of which 25 are currently implementing them, and 2 states' implementation is pending. In 2011, there were 20.
- Fourteen states report having modified or fundamentally changed their incentive mechanisms in recent years.
- Regulated utilities and third-party administrators have achieved savings goals and earned incentive payments in all the states currently implementing incentive mechanisms for which we obtained complete data.
- States with performance incentives in place in 2013 budgeted $23.50 per capita on average for electric energy efficiency programs, 50% more than states with no incentive policy. We found positive correlation in 2011 as well.
- Interviewees indicated that performance incentives influence utility behavior and decision making regarding energy efficiency programs.

Based on our review, we identified four types of performance incentives:

1. *Shared net benefits incentives* provide utilities the opportunity to earn an amount equivalent to some portion of the benefits of a successful energy efficiency program. The amount is usually a percentage of the positive difference between program spending and the dollar valuation of energy savings achieved. (13 states)
2. *Energy savings-based incentives* reward utilities for achieving pre-established energy savings goals measured in kWh or therms. For example, if the utility energy efficiency programs save 100% of target, they are eligible for some particular amount of an incentive payment, often expressed as a percentage of total program spending or budget in a tiered structure. (6 states)
3. *Multifactor incentives* are those in which the calculation of performance incentive amounts include multiple metrics, not only energy savings or energy savings net benefits. For example, financial incentives may be tied to demand savings, job creation, or measures of customer service quality. (5 states)

4. *Rate of return incentives* allow utilities to earn a rate of return based on efficiency spending. This creates a correspondence between demand-side (energy efficiency) spending and supply-side (generation and transmission) investments. (1 state)

As it was in 2011, the trend continues to be for states to adopt mechanisms that incentivize cost-effective achievement of energy savings targets, and to encourage more comprehensive, longer-term performance criteria. The majority of new mechanisms adopted fall into the shared net benefits category. Among states that have modified their incentive mechanism policies, several have adjusted quantitative aspects. These include incremental changes to minimum savings levels and award amount percentages. Others have changed the type of mechanism altogether. The common intention of these changes is to enhance energy efficiency program performance by having the incentive mechanism do a better job of guiding utility and program administrator leadership to meet program goals.

The industry experts we interviewed generally agreed that performance incentives influence utility behavior and decision making regarding energy efficiency programs. Their views are in close alignment with ACEEE's 2011 findings that the ability to assign a dollar value to efficiency investments significantly contributes to utility management's commitment to pursuing energy efficiency.

Since multiple economic and policy factors influence the performance of energy efficiency programs, it can be challenging to isolate and measure the specific impacts of performance incentive mechanisms. This report shows how mechanisms have been effective in various contexts by including twelve case studies providing background, policy details, and performance results on state experience with performance incentives. We conclude that performance incentives are working in combination with other supportive regulatory policies to encourage effective energy efficiency program performance.

Introduction

Utility business models and their regulatory environment are in the midst of historic change. Performance incentives for energy efficiency are part of this change in a growing number of states. These important regulatory tools give financial rewards or earnings opportunities to program administrators, utility companies, and their shareholders for meeting energy efficiency goals.

Utility investments in energy efficiency have greatly increased since the mid-2000s. Whereas utilities invested slightly less than $1.5 billion in energy efficiency programs in 2004, investments had jumped to $7.7 billion per year by 2014 (Gilleo et al. 2014). A number of policy drivers and other factors spurred this investment. Consumers wanted to reduce their utility bills, utilities were being asked to find more economical ways to meet rising demand, and states were looking for cleaner options to meet the energy needs of businesses and residents. Investments in energy efficiency can also create jobs, put more control into the hands of consumers when it comes to how and when they use energy, and help utilities build better relationships with customers.

This increased push to include energy efficiency in utility portfolios did not happen in a vacuum. Many states have adopted regulatory mechanisms to encourage utilities to establish long-term energy efficiency programs. Replacing regulatory practices that impeded the use of energy efficiency as a resource, these new mechanisms have played a crucial role in the expansion of customer energy efficiency programs.

BACKGROUND FOR THIS RESEARCH

Effective regulatory business models are increasingly important as energy savings from utility program portfolios continue to grow. Under traditional business models, cost-effective energy savings involved negative financial impacts and lost opportunities. Now states are increasingly trying to remove the disincentive for utilities to invest in efficiency. As this report will discuss, performance incentive policies have been one of their most effective tools.

This study builds on prior ACEEE research reported in *Carrots for Utilities: Providing Financial Returns for Utility Investments for Energy Efficiency* (Hayes et al. 2011). Since the publication of that report, states providing incentives have gained more experience with them, several new states and utilities have implemented incentives, and many have refined incentive structures already in place. This new report is an updated look at performance incentive mechanisms in states that have implemented or enacted them. We set out to find answers to the following questions:

- What types of performance incentives are being used, and how many states are implementing each type?
- How much money is being invested in each type of mechanism, and how does this compare to total utility energy efficiency budgets and spending?
- Do they work? Do knowledgeable experts at commissions and in the field see the incentives influencing utility behavior?
- What elements should be considered in designing energy efficiency performance incentives in various circumstances?

In answering these questions, we describe incentive structures, report recent data on the dollar amounts awarded, and examine outcomes and lessons learned.[1] We also summarize the insights of regulatory staff and other stakeholders into how performance incentives motivate utilities and other program administrators to institute high-performing energy efficiency programs.

UTILITY ECONOMIC DISINCENTIVES REGARDING CUSTOMER ENERGY EFFICIENCY PROGRAMS

The objective of reducing sales through customer energy efficiency measures is in conflict with the traditional US utility business model. Under this model, regulators set revenue requirements for a utility by aggregating all of its costs of providing service. They then calculate the rates necessary to recover that amount plus some acceptable return to the utility. As noted by the Regulatory Assistance Project (RAP 2011), regulators traditionally rely on two formulas:

$$\textit{Revenue requirement} = \textit{Expenses} + \textit{Return} + \textit{Taxes}$$
$$\textit{Rate} = \textit{Revenue requirement} / \textit{Units sold}$$

In the first formula, "Expenses" refers to items such as fuel costs, operations, and maintenance. For the purposes of this explanation, "Return" may be thought of as the utility's profit. The utility is allowed to earn a set rate of return on its capital investments in assets including pipelines, electric generation facilities, and transmission lines.

The traditional business model linking cost recovery to volumetric sales of energy gives utilities the incentive to sell more electricity or gas, which increases revenues and associated profits. Rates are determined by a test year. If the utility can subsequently sell more units of energy than were used to calculate its rate in the test year, it can earn more than its revenue requirement.

This model has worked well for decades to meet its primary goal: to attract the enormous amount of capital needed to build the transmission, distribution, and generation infrastructure for a vast and growing system. Today, however, the model is being challenged by new realities such as slow or no growth in sales, competition from nonutility players, changing business models, and larger roles for energy efficiency and distributed generation (Nadel and Herndon 2014).

The traditional regulatory approach involves a number of disincentives to utility investment in energy efficiency (York et al. 2013). First, the costs of efficiency programs constitute financial losses to utilities unless they can recover those costs through rates or fees. Second, these programs drive down energy use and so reduce utility revenues without lowering the short-term fixed costs of providing service. This goes counter to utilities' incentive to sell more energy and earn more profits—often called the throughput incentive. Third, utilities normally realize a return on their investment when they fund capital assets like power

[1] Some state energy efficiency programs are run by third-party administrators, which we sometimes refer to as utilities. We also call Washington, DC a state for simplicity.

plants. Although efficiency programs reduce the need for this capital spending, they do not provide a comparable return.

REGULATORY APPROACHES TO ADDRESSING DISINCENTIVES

While there are clear disincentives for utilities to invest in energy efficiency under the traditional business model, there are strategies to address these disincentives as a means of encouraging more energy efficiency. Many states have adopted some or all of the following adjustments to the utility regulatory structure, thanks in part to a diverse set of stakeholders who can all agree that energy efficiency presents opportunities to both utilities and the public.

Program cost recovery allows utilities to recover the cost of energy efficiency programs through rates. It is widely accepted and not controversial. Typically, regulators allow utilities to treat efficiency program costs as expenses and to recover them through rate increases. Investments in energy efficiency program are also sometimes capitalized rather than treated as expenses. If capitalized, then the utility may raise rates to earn a return on the funds it invested in efficiency.

Finding a solution to the throughput incentive is a more complicated task. The most straightforward solution is *decoupling*.[2] Decoupling breaks the link between the amount of energy a utility sells and the revenue it can collect (RAP 2011). Rates are adjusted upward or downward as actual sales come in below or above forecast. Thus the utility is able to recover its investment and operating costs independent of actual electricity or gas sales. Conversely, the utility cannot exceed its revenue requirement no matter how much energy it sells. Its revenue is decoupled from the amount of energy its customers use.

Decoupling is in place in 24 states for electric or natural gas utilities or both (Morgan 2012). Three states have electric-only decoupling, 11 states only gas, and there are 10 states with decoupling for both (Gilleo et al. 2014). We count a state as having decoupling if at least one electric or gas utility is decoupled.

As an alternative to decoupling, many states have opted to address the throughput incentive with a slightly different regulatory tool—a *lost revenue adjustment mechanism (LRAM)*. Unlike decoupling, an LRAM does not completely break the link between a utility's sales and its revenues. Instead, an LRAM allows a utility to recover revenues that were reduced, not just due to any cause, but specifically as a result of energy efficiency programs.

There are two other distinctions between decoupling and LRAM. First, LRAM requires a calculation of energy efficiency program energy savings over a given period of time.[3] Decoupling does not require this calculation; it simply compares the volume of total sales to forecasted levels. Second, unlike decoupling, LRAM is generally not symmetrical. As

[2] Decoupling is recommended by ACEEE and numerous industry, nonprofit, and policy groups including the Natural Resources Defense Council, Regulatory Assistance Project, American Gas Association, and others.

[3] In practice, states estimate energy savings to varying degrees, with some putting greater focus on evaluated savings than others.

discussed above, decoupling can result in either refunds or surcharges, depending on whether actual sales are above or below forecast. With LRAM, a utility can recover lost revenues from efficiency programs (under the rationale that it is under-collecting revenues due to reduced sales). However rates are not adjusted downward if the utility experiences a higher volume of sales than predicted in the rate case forecast.[4] LRAM is addressed in detail in a companion report to this one, *Review of Lost Revenue Adjustment Mechanisms* (Gilleo et al. 2015).

While decoupling potentially removes the disincentive to pursue energy efficiency, utilities with only decoupling in place still lack a positive incentive for efficiency, something that utilities and their investors would prefer to have as well.[5] Decoupling may provide a financial benefit to utilities by reducing the risk that efficiency efforts will lower utility returns, and it may make utilities modestly safer investments and more secure borrowers. However benefits are less direct than the ones offered by the traditional model of selling electricity or natural gas for a guaranteed rate. For this reason, utilities, regulators, and other stakeholders have looked for a more direct way to incentivize efficiency investments. Performance incentives can provide that way.

Performance incentives, the subject of this report, offer a utility financial rewards for saving energy through efficiency programs. Incentives allow the utility's energy efficiency activity to be a source of earnings rather than just a pass-through expense. This puts energy efficiency investments on the same footing as other types of utility investments (e.g., in new power plants or transmission and distribution) that are allowed to earn a rate of return. Incentives help compensate the utility for the earnings opportunities it forgoes when it does not have to invest as much in its supply infrastructure because of reduced demand.

PERFORMANCE INCENTIVES

Four Ways to Calculate Incentives

While energy efficiency performance incentive mechanisms vary from state to state, they fall into four general categories of ways to calculate incentives: 1) as a share of net benefits, 2) energy savings-based incentives, 3) multifactor, and 4) rate of return.[6] Virtually all of these performance incentive mechanisms have a threshold level set as the achievement of a minimum amount of energy savings. Some incentive policies may fall under more than one category. Each incentive calculation type is described below.

Shared net benefits. Shared net benefits mechanisms provide utilities the opportunity to earn some portion of the benefits of a successful energy efficiency program that otherwise would all go to the ratepayers. The incentive payment amount is usually a percentage of the positive difference between the costs (efficiency program spending) and the benefits (the

[4] Some states do have requirements in place meant to prevent utilities from over-earning under an LRAM.

[5] Decoupling approaches vary from state to state, and sometimes differ by utility in the same state. For more information, see RAP 2011. The relationship between a utility's cost of capital and the rate of return allowed by regulators is a determining factor concerning whether the disincentive for efficiency has been effectively removed or not. Also see Kihm 2009.

[6] There are many ways to categorize incentive mechanisms. See also the similar but not identical categorization in Cappers et al. 2009.

dollar valuation of energy savings achieved as a result the program). This category has a savings-based element, in that most of them have a threshold level set as the achievement of a minimum percentage of the energy savings performance goal for the utility. We call it shared net benefits because the incentive amounts are driven by net benefits; the greater the net benefits, the higher the incentive payment amount.

Energy savings-based. Savings-based incentives reward utilities for achieving, and sometimes for exceeding, pre-established energy savings goals, measured in kWh or therms. Often, these energy savings targets for utilities may be tied to or derived from statewide energy efficiency resource standard (EERS) policies. For example, if the utility energy efficiency programs save 100% of target, they are eligible for some particular amount of an incentive payment. Five of the six states with savings-based incentives have EERS. The amount of the financial incentive the utility earns is often calculated as a percentage of total program spending or budget in a tiered structure (e.g., achieve 100% of the savings target, receive an amount equivalent to 6% of the program spending; achieve 110% and receive 8%; and so on), but driven by the program energy savings achieved.

Multifactor mechanisms are those in which the calculation of performance incentive amounts are more complex and include multiple metrics. Energy savings are just one of several metrics that are used to determine the amount of incentive earned. This type of approach is found in a handful of states where the mechanism is used to forward the achievement of several regulatory and public policy goals at the same time. For example, financial incentives may be tied to demand savings, job creation, or measures of customer service quality.

Rate of return incentives are a fourth approach and are far less common. Rate of return incentives allow utilities to earn a rate of return based on efficiency spending. This creates a correspondence between demand-side (energy efficiency) spending and supply-side (generation and transmission) investments. For example, a utility may earn a rate of return for efficiency investments equivalent to or comparable to the rate it earns for new energy supply capacity investments.[7]

The Special Case of Non-Utility Program Administrators

An additional special category of performance incentives applies to situations where states have non-utility program administrators for their utility ratepayer-funded energy efficiency programs. These companies are contracted third parties that administer and implement energy efficiency program portfolios. Many of the concerns about utility earnings opportunities do not apply in these circumstances. As a class, the contract administrators in these cases differ from investor-owned utilities in their organizational and financial structures and the regulatory and policy frameworks in which they operate.[8] Examples include Efficiency Vermont, Wisconsin Focus on Energy, and Hawaii Energy. The common

[7] Amortizing the recovery by the utility of the cost of programs over multiple years may also be considered a rate of return incentive in some instances, if the utility earns a return on the balance after the first year.

[8] Municipal utilities, a third category of energy efficiency program administrator in addition to investor-owned utilities and third-party administrators, will be the topic of upcoming ACEEE research.

element for the purposes of this study is the desire to incentivize good performance by whoever is administering the programs. Third-party administrators have argued that performance incentives motivate excellence and maximize savings and cost-effective performance.

Therefore we have included non-utility program administrators along with the investor-owned utilities in our discussion of the four ways of calculating incentives. As it turns out, all of the currently operating independent administrators that have incentive mechanisms also have multifactor performance incentives. However the structures and calculation methods of the incentive mechanisms vary substantially from state to state. We discuss the details later in this report.

Methodology

We sent research questionnaires to public utility commission staff in each state that our records indicated had implemented performance incentive policies or where policies were pending. We only reached out to states for which our previous research had identified energy efficiency performance incentives.[9] Commission staff were asked to submit both qualitative and quantitative data on the incentive structures in place for electric utilities, gas utilities, or both. In total, we emailed questionnaires to 43 individuals, almost all of whom are public service commission staff members, in 29 states. We found that in some states performance incentives were no longer in effect or had not yet been implemented. In those cases, we did not make any further attempts to include them in our analysis or discussion in this report.

The questionnaires requested qualitative and quantitative data. We asked respondents about the nature and structure of the performance incentive mechanism or mechanisms in their state, and requested them to provide citations and documentation. The quantitative data we asked for (on two utilities, for two program years, for up to two mechanisms) was the incentive amount, total energy efficiency program costs (spending or budget), and energy savings achieved in kWh or therms. See Appendix B for a copy of the questionnaire.

In instances where we did not obtain a completed research questionnaire, we collected some of the data through phone interviews, regulatory filings, or other documents. Some of our state contacts returned the questionnaire but indicated that at least some of the data we had requested was unavailable or unclear. In particular, some states did not have the numbers ready for recent program years due to the length of their regulatory processes. For example, procedures for estimating energy savings or conducting evaluation, measurement, and verification of those results, and then having finalizing the amounts of the performance incentive, may take years in some cases.

[9] Our previous research includes Hayes et al. 2011 and Gilleo et al. 2014. It is possible that we missed additional states with utility incentives policies in those projects, in particular if they use a rate of return approach to amortize program costs and may not have categorized it as a performance incentive. For a recent listing of performance incentive policies by state, see IEI 2014.

Next we identified states representing a diversity of types of incentive mechanisms for additional research, making an effort to include those states leading the nation with the most extensive or exemplary energy efficiency portfolios and policies, states with geographic diversity, and a diversity of program-administrator types. For these, we conducted more extensive phone interviews with our contacts to get a deeper understanding of how the incentives function in practice, how they were intended to work in those states, and lessons learned. We then chose a group of these states to examine more closely for case studies. Case studies of Arizona, Arkansas, California, Indiana, Massachusetts, Michigan, Minnesota, Missouri, Oklahoma, Rhode Island, Texas, and Vermont are in Appendix A. The last steps in the data-gathering process were telephone interviews with other key stakeholders in this smaller subset of states, including utility representatives, consumer counsels, and advocates, and follow-up documentary research for the case studies.

Results

Our research identified 27 states with performance incentives for electric energy efficiency and 16 for natural gas energy efficiency. All states with incentives for gas efficiency also have incentives for electric efficiency. A few state respondents indicated that their states have performance incentives established for all regulated utilities. In other cases incentives for energy efficiency only apply to a subset of utilities in the state. Many energy efficiency performance incentives have been in place for a decade or more; most have been revised or reformed via legislation or new regulation in a series of iterations. Mississippi and West Virginia have not implemented their mechanisms yet.

Figure 1 shows the primary incentive mechanism type by state.

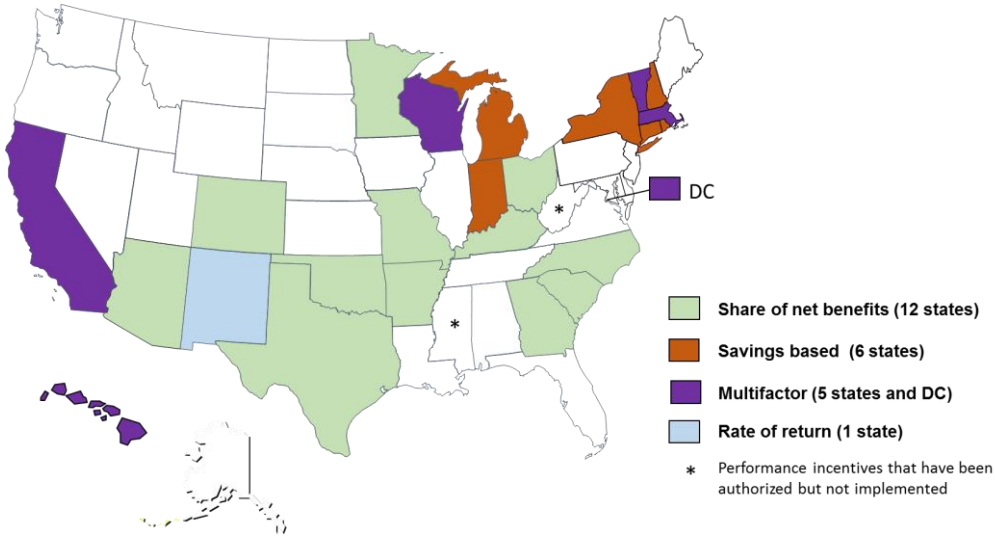

Figure 1. Primary incentive mechanism type by state. Incentive may apply to one or more regulated utilities, or to a statewide program implementer. Individual state information on performance incentives for electric and natural gas energy efficiency may be found on the ACEEE state energy efficiency policy database at http://aceee.org/sector/state-policy.

Shared net benefits energy efficiency performance incentives are the most common, seen in 13 states. We count Massachusetts in this group, although until the end of 2014 the calculation of incentives included additional performance indicators. Energy savings-based

incentives are the second-most prevalent mechanism type, with six states employing this approach. Washington, DC and four states use multifactor approaches. One state, New Mexico, pays a rate-of-return incentive on energy efficiency program investments paid by the utilities.

Of the 16 states with both gas and electric energy efficiency performance incentives available, none indicated that there are significant differences between the incentive mechanisms as applied to electric versus gas utilities.

Performance Incentives: Historical Background

The historical origins of performance incentives and their rationales vary from state to state. While there are some common themes, the regulatory, policy, and economic circumstances differ enough to defy generalization, as seen in these examples.

Massachusetts' first incentives were for New England Electric in the early 1990s. The state lowered the level of performance incentives and introduced decoupling during the mid-1990s. The primary motivation for having performance incentives has been to achieve energy savings goals. The ability of the utilities to earn a return on energy efficiency spending persuades them to align their goals with public policy goals.

Since the 1980s California had decoupling in place. However, in an effort to move toward deregulation during the late 1990s, California suspended decoupling. After the 2001 electricity crisis occurred, the state then reinstated decoupling over the next three years and moved to expand energy efficiency. In 2005, the California Public Utilities Commission added performance incentives in the form of the Risk Reward Incentive Mechanism to encourage greater efficiency. Unlike many states, the regulations at that time also included financial penalties if program performance results were not sufficiently in line with energy savings goals.

Oklahoma's utility performance incentives arose from an investor-owned utility approaching the Corporation Commission in a rate case, resulting in a commission order requiring the development of quick-start energy efficiency programs. The utility came back with a proposal including programs, a rider for cost recovery, lost revenue recovery, and a 25% shared-savings performance incentive mechanism. When it came time for full compliance programs, i.e., no longer only quick-start, the utilities were still allowed to seek lost revenues attributable to energy efficiency through an LRAM. The incentive was reduced from 25% to 15%. Oklahoma has decoupling for gas, but not electric utilities.

In Rhode Island, energy efficiency programs and utility performance incentives were both instituted years prior to decoupling. Performance incentives for energy efficiency were viewed at that time as one factor that allowed the utilities to support least-cost procurement.

Vermont's statewide energy efficiency utility, Efficiency Vermont, has had quantitative performance indicators to determine the financial incentives since 2000. Vermont Energy Investment Corporation (VEIC) was hired explicitly on a performance-based three-year contract basis, so having incentives was a logical element. In 2011 VEIC was engaged as an efficiency utility via a long-term order of appointment, but the performance incentive continued.

DESCRIPTIVE RESULTS

While the circumstances in which energy efficiency performance incentive mechanisms arose vary considerably from state to state, there are common aspects to how the mechanisms themselves are structured. Almost all have a threshold, or minimum percentage of an energy savings goal, which the utility must exceed in order to be eligible for earning any incentive. Similarly, almost all incentive mechanisms have a cap, or maximum limit, on the amount. Some caps are absolute dollar amounts, such as in those states that budget a set pool of funds from which incentives may be awarded. Other caps are

relative, expressed as a maximum percentage of program budgets or percentage of total net benefits. A third near-universal characteristic is that they all provide greater rewards for additional energy savings up to the level of the maximum incentive.

The following three tables summarize three aspects of the mechanisms: threshold, structure, and cap. The first table provides information on states with shared net benefits incentives, the second is for savings-based incentives, and the third is for multifactor incentives. Some of these state policies have elements of more than one type of incentive. In those cases, we list the state in the category with which it shares the main characteristics.

Reading the Tables

Threshold requirements. The left-hand column shows threshold requirements, i.e., minimum requirements for the incentive to be awarded. These are most frequently expressed as a minimum energy-savings performance measure that must be met for the utility or program administrator to be eligible, or potentially eligible, for financial incentives. For energy savings as a percentage of the utility goal or target, the minimum ranges from 50% to 100% of goal for those that have a minimum.

Overall incentive structure. The center column, overall incentive structure, briefly summarizes distinguishing elements of the incentive mechanism basis or calculation.

Cap or maximum incentive. The right-hand column, the cap or maximum incentive, indicates if there is a limit on how much a utility or administrator may earn for extraordinary energy efficiency program portfolio performance, and if so, how the limit is described or determined. Some of the caps are statewide or for all regulated utilities rather than on a by-utility basis. For example, a statewide pool of funds may be allocated to utilities based on their relative performance to each other, or their performance may be independently considered against a predetermined energy savings goal.

Shared Net Benefits

As shown in table 1, the most common thresholds for shared net benefits mechanisms are in the range of 70–85% of energy savings targets. Typically the amount of the incentive itself is calculated as percentage of the net benefits of energy savings achieved. The types of caps vary.

Table 1. Shared net benefits utility performance mechanisms overview: threshold, structure, and cap

State	Threshold requirements	Overall incentive structure	Cap or max incentive
AR	80% of net energy savings target	10% of net benefits with cap	Range from 4% to 8% program budgets
AZ	85% of gross savings goal	For 2013, 6–8 % of net benefits; capped based on percent of program costs. For 2014, $0.0125 per kWh saved.	$0.0125 per first-year kWh saved starting in 2014
CO	80% of net energy savings goal	1% net benefits for 80% of savings goals, 5% at 100%. 1% more for each 5% to max 15% at 150%. $5 million pretax disincentive offset for > 100% of electric savings goals; $3.2 million if 80-99%.	$30 million max performance incentive and disincentive offset
GA	50% of projected net energy savings	8.5% NPV actual net benefits of verified kWh savings. If annual incremental kWh savings is less than 50% of projected, will be 0.5% for demand response (DR) measures and 3% for energy efficiency (EE) measures.	No cap
KY	None	From 10% to 15% of net benefits for EE programs, excluding public education and pilot programs.	No cap
MN	Energy savings = lesser of 0.4% of retail sales or 50% of last five years' average gross savings	As energy savings levels increase to 1.5% of retail sales, utilities receive an increasing share of net benefits, up to an incentive level of and average of 7 cents per first year kWh saved. Varies by cost effectiveness of implemented projects.	Average incentive may not exceed $0.0875/first-year kWh saved or $6.875/MCF, nor exceed 20% of net benefits
MO	70% of approved three-year net savings target	Tiered or graduated scale, ranging from 70% to 130% of cumulative three-year savings target. Specifics vary by utility. For example, achieving 70% of savings goal pays 4.6% of net benefits, up to 6.19% for 130% or more, for Ameren Missouri. Others similar.	Percentage shared net benefits capped per utility; no cap on dollar amount
NC		Data not available	
OH		Data not available	
OK	2015 will be pass cost-effectiveness test and 80% of net goal savings	15% of net benefits	Previously no cap; in 2015 the cap will be 15% of net benefit
SC	Programs as a whole must pass the UCT	(6% SCE&G; 11.5% DEC) * [(net kWh and kW savings over measure life * avoided costs) -- program costs] Amortized over five years for SCE&G	No cap
TX	100% of gross savings goal	1% of the net benefits for every 2% that the demand reduction goal has been exceeded	Max of 10% of a utility's total net benefits

Source: Public utility commission staff responses to questionnaires

Savings-Based

For savings-based mechanisms, shown in table 2, all the threshold requirements include achieving a minimum percentage of energy savings goals. The most frequent method of calculating incentive amounts is a tiered percentage of energy efficiency spending that increases as energy savings performance does relative to savings targets. Caps are also typically calculated as a percentage of energy efficiency spending.

Table 2. Savings-based utility performance mechanisms overview: threshold, structure, and cap

State	Threshold requirements	Overall incentive structure	Cap or max incentive
CT[1]	75% of net savings goals for 2014; for 2015, threshold is 80%	In 2014, 2% of program spending at 75% of saving goals. At 135% or more of a goal, max is 8% of program spending. Awarded on a scale. 80% of savings goals earns 2.5%.	8% of program costs
IN	60% or 65% annual gross kWh savings target achieved	IPL, Vectren, and Duke have tiered structures tied to program costs. I&M has a shared savings mechanism. Structure ties level of kWh achieved relative to set target to a percentage of program costs that the utility may receive as performance incentive.	15% of program costs
MI[2]	Utility System Resource Cost Test (USRCT) of 1.25 and minimum 100% target savings	Sliding-scale incentive awarded when net savings exceed 100% of target, starting at 5% of spending; varies by utility. Highest rate of incentive for savings performance is 10%.	Lesser of 25% of net benefits or 15% of program costs
NH	Benefit-cost ratio of 1.0 and 55% of plan savings. Apply separately to residential and commercial and industrial sectors.	Electric utilities: 7.5% at and above 55% total lifetime energy savings; 6.0% applies below 55% total lifetime energy savings. Natural gas utilities: baseline incentive of 8%.	Electric: max 10% at 55% savings and up; 8% under 55%. 5% cap each on kWh and cost effectiveness components. Gas: 12% of costs
RI	75% of target net savings	Target incentive is 5% of spending budget.	Max incentive 6.25% of approved spending budget

State	Threshold requirements	Overall incentive structure	Cap or max incentive
NY[3]	80% of the utility's net savings goal	Linear increase from 80% to 100% of each utility's share of statewide total. Step 1 incentive: 90% of maximum possible award if utility achieves 100% of its savings goal. Step 2 incentive: remaining 10% share of statewide maximum as bonus if statewide savings goal achieved.	100% of utility share of statewide $50 million pool for gas and electric over four years based on percentage savings goals

[1] One respondent in Connecticut summarized its performance incentive mechanism type as rate of return, although many of its features are of the savings-based type. [2] Michigan performance incentives for energy efficiency vary by utility and may reward multiple performance outcomes including minimum numbers of low-income customers served, demand savings, and participation in certain multi-measure programs. While predominantly saving-based, they might also be reasonably grouped with multifactor incentives. [3] New York has expressed the maximum amount of the incentive pool both as a percentage of total program costs and in terms number of basis points of the return on equity of an investor-owned utility. *Source:* Public utility commission staff responses to questionnaires.

Multifactor

The multifactor mechanisms are more varied from state to state, as shown in table 3. Where the energy efficiency programs are run by third-party administrators, the performance incentives accrue to those companies, not the electric and gas utilities.

Table 3. Multifactor performance mechanisms overview: threshold, structure, and cap

State	Threshold requirements	Overall incentive structure	Cap or max incentive
CA	No minimum level of energy savings specified in the CPUC order. Incentive amounts are a linear function of net lifecycle savings in kWh, MW, and MMTherms multiplied by an earnings rate coefficient.	Energy savings performance award, 9% of resource program budget (minus codes and standards [C&S]) used to determine lifecycle savings coefficients; ex ante review performance award, 3% of budget times Engineering Compliance Score; C&S program management fee, 12% of C&S program budget spending; non-resource program management fee, 3% of non-resource program budget spending.	Now: up to percentages listed for each area. Was: risk/reward incentive mechanism, capped at $150 million/year for all IOUs.
DC	Reduce per-capita energy use, add renewable generating capacity, reduce peak electricity demand growth, improve low-income housing EE, reduce largest energy users' energy demand growth, add green jobs	Contractor gets 25% of at-risk compensation allocated per benchmark for electricity consumption reduction = 0.5% annual reduction in 2009 weather-normalized electricity consumption in DC. Each 0.25% beyond initial 0.5% contractor gets additional 12.5% of incentive allocated to this benchmark.	Maximum at-risk compensation in Year 1 of $300,000, increasing up to $800,000 in program years four through seven
HI	75% of target for each indicator, including first-year kWh savings, peak demand reduction, total resource benefit, inter-island equity, and others	The contract administrator proposes targets for each indicator (e.g., XX GWH in energy savings). Each target includes 75% minimum and 125% maximum achievement amount. Financial incentives are based on percentages allocated to each indicator.	Yes. Incentive amount is flat $700,000; may earn extra $133,000 for performance 25% above target.

State	Threshold requirements	Overall incentive structure	Cap or max incentive
MA *	Statewide threshold 76.72% of savings goal; adjustments for each program administrator.	Statewide incentive pool allocated to: (1) 56% savings mechanism, (2) 35% value mechanism, (3) 9% performance metrics; set payout rates for savings and value components, incentive thresholds, and caps	125% of incentive amount related to the achievement of target savings for each utility.
VT	Efficiency Vermont (EVT) has a number of quantifiable performance indicators (QPIs). Each has a different threshold. Some are minimums, where EVT loses some fraction of incentive if it fails to reach threshold. Others scale down, with no minimum.	EVT has QPIs. Some are minimums that result in reductions to EVT's compensation if not met. Others scale up with increased performance. Incentive structure was based on prior three-year performance period. QPIs for 2015–2017 period include performance indicators (PIs) and minimum performance requirements (MPRs).	For 2015–2017, cap is 4.5% of implementation budgets. Of that, split is 40% operations fee, 60% incentives. For some QPIs, cap varies by indicator.
WI	Based on annual gross life-cycle energy savings and demand reduction of 6 million MWh, 288,000 thousand therms, and 83.77 MW.	Set amounts (not sliding scale) available for performance more than 120% of annual savings goal and for customer service measures; includes penalties for under-achievement on all metrics.	$750,000 total maximum for the four-year period

*** Current Massachusetts regulation has removed the 9% for performance metrics, meaning that the performance incentive mechanism going forward may no longer be best categorized as multifactor incentive. The description here applies to the mechanism as it was in 2014. *Source:* Public utility commission staff responses to questionnaires.**

The diversity of incentive mechanism structures and methods of calculation in the multifactor incentive group reflects both the intended performance outcomes (i.e., those components in addition to cost-effective energy savings) and the types of organizations (i.e., not only utilities). See examples of multifactor incentives in table 4.

Table 4. Multifactor performance incentives components and type of program administrator by state

State	Administrator or program name	Multifactor mechanism components (abbreviated list, illustrative only)	Administrator organization type
DC	DC Sustainable Energy Utility	Contract includes benchmarks for per-capita energy consumption, renewable energy generating capacity, growth of peak electricity demand, energy efficiency of low-income housing, growth of the energy demand of DC's largest energy users; and the number of green-collar jobs	Third-party administrator: nonprofit energy services organization
HI	Hawaii Energy Efficiency Program	Energy savings, net benefit, demand reduction, island, and other factors	Third-party administrator: for-profit private contractor

State	Administrator or program name	Multifactor mechanism components (abbreviated list, illustrative only)	Administrator organization type
MA *	Regulated utilities	56% savings mechanism (total benefits), 35% value (net benefits) mechanism, and 9% to performance metrics. Metrics include number of correct installations, market penetration, and others.	For-profit investor-owned utilities
WI	Wisconsin Focus on Energy	Annual gross energy savings targets. Key performance indicators (KPIs), customer satisfaction measured versus baseline and days incentives outstanding (a measure of how quickly participants get financial incentive payments).	Third-party administrator: For-profit private contractor

*** Current Massachusetts regulation has removed the 9% for performance metrics, meaning that the performance incentive mechanism going forward may no longer be best categorized as multifactor incentive. The description here applies to the mechanism as it was in 2014. *Source:* Public utility commission staff responses to questionnaires.**

Rate of Return

We do not include a table displaying rate-of-return incentives, because New Mexico is the only state we surveyed to have a rate-of-return mechanism in place. We define rate-of-return mechanisms as those that provide a financial return on energy efficiency spending without tying the financial award directly to energy savings.[10] This is in marked contrast to other states that pay incentives for energy efficiency portfolio performance, whether as measured by energy savings, the net benefits of energy savings, or those metrics combined with additional quantified performance outcomes, as is the case with multifactor incentive mechanisms.

There is no minimum energy savings threshold for New Mexico's regulated investor-owned electric and gas utilities to be eligible for the financial incentive. However there is an indirect performance threshold because program spending is budgeted to be 3% of utility retail sales, evaluated programs must meet cost-effectiveness criteria, and there is a statewide energy efficiency resource standard. By stipulation, regulators have established an annual incentive for calendar years 2014–2016 that is equal to 7% of program expenditures; both efficiency spending and incentives are budgeted by utility and then trued up annually. Utilities must demonstrate that the energy efficiency programs they propose to the New Mexico Public Regulation Commission are cost effective using the total resource cost test (TRC) and the utility cost test (UCT).

[10] Kentucky statute also allows the commission to approve a financial return on efficiency spending; in practice, they have used a shared net benefits approach. Amortizing the recovery of the cost of programs over multiple years may also be considered a rate of return incentive in cases in which the utility earns a return on the balance after the first year. This is the case in Maryland. Vermont Gas Systems (VGS) receives a return on approved energy efficiency spending and their recovery of energy efficiency costs is amortized over three years. This was not considered to be a performance incentive by those we spoke with in Vermont.

COMPARATIVE RESULTS

To provide a quantifiable basis for analysis of these types of incentives, we examined incentive amounts relative to energy efficiency program costs. We recognize that there are many differences among jurisdictions in terms of policies and performance. Comparing ratios of incentive amounts to program costs is still a useful and straightforward means of comparison. Note that the following data are not normalized by the extent to which energy savings goals were achieved or exceeded, nor are these organized into tiers by the absolute levels of energy-efficiency spending or savings.

To make these comparisons, we collected data on the dollar amounts of performance incentive financial awards by utility for the two most recent program years or program cycles for which these amounts were readily available. Most states submitted data for the largest one or two regulated investor-owned utilities, as we had requested. In most cases these were electric utilities. As one means of normalizing the data across states, we calculated the ratio of incentive amount to energy efficiency program cost by utility or program administrator. For energy efficiency cost, we used either total annual program spending or budget, as provided by regulatory staff contacts.

Next we sorted the utilities into groups by type of incentive mechanism employed in their respective states applicable to the reported utilities. This provided us with data for the ratio of performance incentive amounts to annual energy efficiency costs. For years in which both data points were available, there were 24 instances of shared net benefits, 14 of utilities with savings-based incentives, 12 of administrators or utilities with multifactor incentives, and 1 rate of return mechanism, for a total of 51 data points. These data are presented as reported by respondents and therefore may vary in their methods of calculation across states. Our aim is to provide a relative basis for comparison and contrast, not to claim a definitive measure.

In figure 2, the gray boxes indicate the inter-quartile range of data around the median. The vertical lines indicate the full range from the lowest to highest.

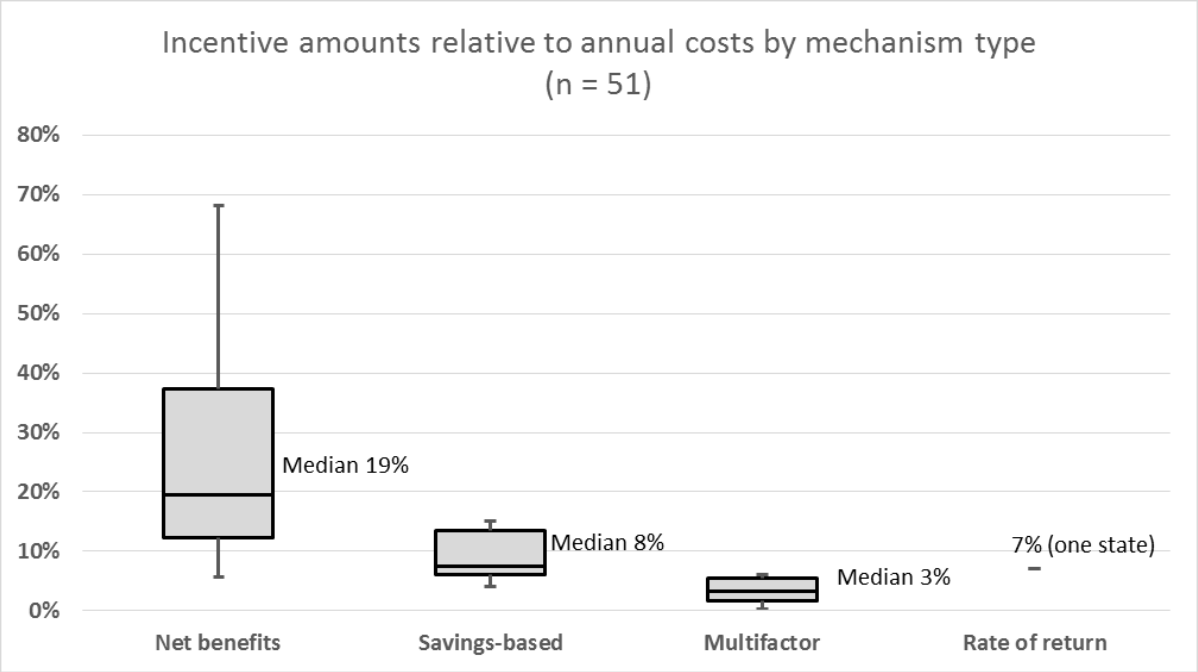

Figure 2. Incentive amounts relative to total annual energy efficiency costs by mechanism type. *Source:* Derived from public utility commission staff responses to questionnaires.

Shared Net Benefits

The eight states reporting performance incentives based on the net benefits provided by energy efficiency pay out, on average, the highest financial awards relative to annual costs. Often, the benefits are calculated over the full measure life and not just for one year. This means the incentive is front-loaded.[11] This may be one reason net benefit incentive amounts are often higher than is the case with other approaches. They are still generally lower than earnings on supply-side investments over the life of those investments, realized in net present value.[12] Of the 24 ratios reported here, the highest is 68%, the lowest is 6%, and the median is 19%. This is significantly higher than the ratios in states using other approaches to calculating incentives. Only 7 of the 26 award amounts reported from states using multifactor or energy savings-based incentive calculation methods were 8% of energy efficiency program costs or higher. The highest ratios in the data set in the chart are from 2011 and 2012 for two Minnesota electric utilities and are not representative of incentive amounts for the majority of shared net benefits mechanisms. These utilities had neither LRAM nor decoupling mechanisms in place during those years, which may partially explain the higher ratios. For further discussion, see the Minnesota case study in Appendix A.

[11] States have a variety of approaches to how they calculate net benefits and how many years constitute the measure lives. Often measure lives are determined in a technical reference manual (TRM).

[12] See https://www.pge.com/regulation/EnergyEfficiencyRisk-RewardIncentiveMechanismOIR/Pleadings/NRDC/2010/EnergyEfficiencyRisk-RewardIncentiveMechanismOIR_Plea_NRDC_20101206_203020.pdf.

Savings-Based

The savings-based award-to-cost ratios are generally in the middle of the dataset in terms of incentives as percentage of spending, though substantially below net benefits, as seen in figure 2. Of the 14 energy savings-based award amounts included here, relative to energy efficiency costs, the ratios ranged from a low of 4.2% to a high of 15%, with a median of 8%. As defined above, savings-based incentives reward utilities for achieving pre-established energy savings goals, measured in kWh or therms. These may be tied to or derived from statewide energy efficiency resource standards (EERS). For utilities that over-comply with energy savings goals, i.e., achieve more than 100% of their targets, the maximum incentive dollar amounts impose an upper limit on how much energy savings beyond target is eligible as well, since the two are tied together.

While the amount of the financial incentive the utility may be eligible for is generally expressed as a percent of total program spending or budget in a tiered structure or a proportionate scale, we have chosen not to describe these as spending-based incentives, since eligibility is based on savings, not spending. Also, the term "savings-based" distinguishes them from those we are calling rate-of-return incentives.

Multifactor

Multifactor incentive amounts are the lowest when compared per dollar of costs budgeted or spent on efficiency programs. The median for multifactor awards is 3% as a percentage of energy efficiency spending. The highest multifactor ratio is 6.5%. The lowest ratio included here is approximately two-tenths of 1%, for Wisconsin Focus on Energy, a third-party administered portfolio. This ratio is derived from the highest incentive payout possible to the contract administrator under the contract; the actual amount for the first four-year period has yet to be calculated and paid out and is contingent on both energy savings and customer service metrics.

Most multifactor energy efficiency performance incentives are for third-party administrators. This subcategory of multifactor incentives has the lowest awards as a percentage of program costs. The incentives they receive or may be eligible for, for meeting and exceeding energy savings goals, average just 1.8%, ranging from 0.2% up to 3.5%.

Performance incentives for non-utility program administrators generally are structured and perform differently than those for utilities. This is not surprising because third-party administrators are different economic entities than investor-owned utilities. For example, they do not have the revenue-loss disincentive that utilities face with regard to customer energy efficiency. Also, program administrators that are private firms typically would already have some profit margin built into their contract for services, and a performance incentive may simply be a bonus on top of that. These factors could justify a lower performance incentive percentage than might be received by a utility. Conditions and factors that influence setting incentive levels are reviewed in the Discussion section below.

Rate of Return

Since the New Mexico incentive mechanism is relatively new, we do not have data on amounts that will be paid out. However, since it is not dependent on performance outcomes

in the same manner as other states, we can predict that the payments will be 7% of actual energy efficiency spending for all the eligible regulated utilities.

In the Commission Order on case 12-00317-UT, *Final Order Partially Adopting Recommended Decision*, the commission determined the following:

> The financial incentive provided by the EUEA [Efficient Use of Energy Act] is the opportunity for a utility "to earn a profit on cost-effective energy efficiency and load management resource development that, with satisfactory program performance, is financially more attractive to the utility than developing supply-side utility resources." NMSA 1978, § 62-17-5(F) (PNM 2013)

With supply-side generation as the frame of reference, the design and description of the rate-of-return incentive follows naturally. The payment of the incentive to the utility may even be included in base rates similar to investments in supply-side resources. The commission states it plainly, citing and repeating state statute verbatim: "This incentive on energy efficiency resources—also referred to as 'demand-side resources'—may be recovered through an approved tariff rider or in base rates, or by a combination of the two."[13]

Some other states permit utilities to capitalize energy efficiency program costs. The difference is that New Mexico gives utilities the choice to recover incentive dollars through base rates, and that those fund amounts derive from spending, not energy savings. In contrast, Michigan utilities, for example, are allowed to request that energy efficiency program costs be capitalized and earn a normal rate of return, but while they may request a performance incentive for shareholders, it is only if the utilities exceed their annual energy savings targets.

HOW ARE PERFORMANCE INCENTIVES WORKING COMPARED TO FOUR YEARS AGO?

ACEEE's research in 2011 shared three key findings in the areas of state policy, utility performance, and expert opinions on the influence of incentives on utility behavior:

1. The states profiled in the report showed a strong preference for designing policy mechanisms that award incentives based on cost-effective achievement of energy savings targets, rather than other metrics such as program spending levels.
2. Where those targets had been established, utilities consistently met or exceeded target savings levels.
3. Industry experts interviewed agreed that shareholder incentives influence utility behavior and decision making. The report noted some of the industry stakeholder observations in that regard. (Hayes et al. 2011)

13 "A public utility that undertakes cost-effective energy efficiency and load management programs shall have the option of recovering its prudent and reasonable costs along with commission-approved incentives for demand-side resources and load management programs … through an approved tariff rider or in base rates, or by a combination of the two." NMSA 1978, § 62-17-6(A) (2008) (PNM 2013)

The report also charted the energy efficiency spending per capita for the average of the 18 profiled states, which all had performance incentive mechanisms in effect. That average was plotted relative to other states for four years, 2006 to 2009. As presented in table 5, states with incentives invested more per capita in energy efficiency than states with other policies (such as LRAM or decoupling) and more than those with no supportive regulatory policy. These results do not isolate the impact of other important policy drivers such as EERS. Later in this section we provide additional comparative analysis on states with and without performance incentives on energy efficiency impacts.

Table 5. Average per capita investment in energy efficiency programs by state, 2009 and 2013

2009 utility efficiency spending per capita	
Profiled states with energy efficiency performance incentives in effect (n =18)[1]	$15
Policies other[2]	$8
No mechanisms[3]	$5

2013 electric energy efficiency program spending per capita	
States with electric energy efficiency performance incentives in effect (n=25)	$23.5
States with no incentive policy (all other states)	$15.3

[1] Eighteen states identified in 2011 as having shareholder incentive mechanisms for IOUs active prior to 2009. Many of these states have additional mechanisms in place to align incentives such as decoupling or lost revenue recovery mechanisms. [2] These are the states that have made some effort to align utility incentives to encourage efficiency, excluding the profiled states. This group roughly approximates states that have only adopted decoupling or lost revenue recovery mechanisms for either gas or electric utilities. [3] These are the states that have been identified as having adopted no mechanisms for properly aligning incentives to encourage efficiency.

Developments since 2011 include the following:

- More states have adopted incentives based on cost-effective achievement of energy savings targets, and several have modified or fundamentally changed their mechanisms.
- Regulated utilities and third-party administrators have achieved savings goals and earned incentive payments in all states with incentive mechanisms for which we have current data.
- Industry experts continue to find that performance incentives influence utility behavior and decision making.[14]

Policy Design Trends

Over the past four years, performance incentive mechanisms have been spreading to more states. The trend continues to be for states to adopt mechanisms that incentivize cost-effective achievement of energy savings targets, and to encourage more comprehensive performance criteria. For example, five of the eight states that have authorized performance incentives in the past four years chose either multifactor mechanisms or shared net benefits.

[14] See York et al. 2013 for additional recent examples.

ACEEE's 2011 study found 18 states that had shareholder incentive mechanisms available to investor-owned utilities for at least a full year for which there was information available regarding performance results for the incentives in the field (Hayes et al. 2011). Today, there are 21 states meeting all of those criteria (including determination of incentive amounts and verification of energy savings). There are now 25 states with incentive policies in some phase of implementation and a total of 27 states with at least one authorized incentive mechanism for gas or electric utility energy efficiency.

Relatively recent states to have authorized performance incentives are shown in table 6.

Table 6. States authorizing new performance incentive mechanisms

Type of incentive	State	Year authorized or effective
Multifactor	DC	2011 authorized
Shared net benefits	Arkansas	2010 ordered
	Missouri	2013 effective
	North Carolina	2013 authorized
	South Carolina	2010 authorized
Rate of return	New Mexico	2013 effective
Savings-based	Indiana	2009 12 by utility
	New York	2011 authorized

Three states profiled in 2011, which had incentive mechanisms for individual utilities at that time, no longer have performance incentives in place. Washington had a pilot for Puget Sound Energy, Idaho had a savings-based pilot for Idaho Power,[15] and Nevada had a rate-of-return incentive for NV Energy. Puget Sound Energy did not request a continuation when the pilot expired; since then, the Washington Utilities and Transportation Commission (UTC) issued a package of orders on three different Puget Sound Energy cases including decoupling and others. The Idaho Power pilot was ordered discontinued because of declining returns and energy impacts. The Nevada policy allowed for increased rates for efficiency investments in addition to cost recovery, calculated as the utility's authorized return on equity (ROE) plus 5% applied to the rate-based demand-side management (DSM) costs.

Mississippi and West Virginia have authorized incentives but not yet implemented them. Michigan and Vermont both had (and continue to have) performance incentive mechanisms in place but were not selected to be profiled in our previous report. For detailed information on Michigan and Vermont, please see the case studies in Appendix A.

---

[15] *Performance-Based Demand-Side Management Incentive Pilot 2007 Performance Update.* Filed with the Idaho Public Utilities Commission March 14, 2008. http://www.puc.idaho.gov/internet/cases/elec/IPC/IPCE0632/company/20080317PB%20DSM%202007%20UPDATE.PDF

The majority of states that have incentive mechanisms have modified or fundamentally changed them over time. Fourteen states reported having authorized a new version more than a year after the initial incentives were established. A few examples in table 7 illustrate this evolution.

Table 7. Examples of evolving performance incentive mechanisms

State	Past practice	Today
Hawaii	Utility-administered programs Hawaiian Electric Company (HECO) eligible for earning incentives up to 5% of net benefits Received as much $4 million some years, which was over 20% of total program spending	Third-party administrator Multifactor incentive mechanism for public benefits fee administrator (PBFA) Average award 2% of total program spending
Massachusetts	From 2010 to 2012, increased percentage of incentive pool for energy savings, decreased for other metrics Total incentives averaged 8% of program costs	Continuing increase in percentage of incentive pool for energy savings and decrease for other metrics Total incentives now approximately 5% of program costs In 2014, eliminated financial incentives for meeting quantitative performance indicators
Rhode Island	2004 increased electric threshold from 45% to 60% Increased allowed incentive from 4.25% to 4.4% of eligible program costs	2012 increased electric threshold from 60% to 75% 2012 increased allowed incentive to 5%
Texas	2008 electric utilities may earn 1% of net benefits for every 2% they exceed goal with cap 20% total program costs	2011 changed cap to 10% net benefits, greatly increasing potential incentive payments
Wisconsin	For one utility only, same rate of return was earned on efficiency investments as for capital projects	Multifactor incentive for third-party administrator

Increasing Evidence Shows Savings Goals Achieved Where There Are Incentives

ACEEE research findings published in *Energy Efficiency Resource Standards: A New Progress Report on State Experience* (Downs and Cui 2014) identified 18 states with both utility performance incentives and EERS in place. A central finding of the research was that overall, states with EERS were substantially achieving their energy savings goals. One of the lessons learned was that those states hitting their targets also generally had complementary policies in place that supported the utility business model to give the utilities stronger motivation to pursue energy efficiency. These included lost revenue adjustment mechanisms (LRAM), revenue decoupling, and performance incentives such as those examined in this report.

The data we collected strongly point to the conclusion that in those states where there are incentives, utilities in each of them are meeting at least the minimum performance

thresholds and earning substantial economic incentives. Of the 25 states with performance incentives being implemented, we obtained complete questionnaire responses for 21. Of those, 18 reported performance incentive amounts paid or to be paid for at least 1 utility in the most recent program period; 17 had at least 1 utility for the most recent 2 program years or cycles. The other three states are still in the midst of their processes—the Wisconsin and Missouri performance incentives, for example, are only calculated at the end of a multiyear cycle. Wisconsin just completed a cycle at the end of 2014, and Missouri will at the end of 2016.

COMPARING EFFICIENCY PERFORMANCE AMONG STATES WITH AND WITHOUT INCENTIVES

From a public policy standpoint, the fundamental purpose of a policy for energy efficiency performance incentives for utilities (or third-party administrators) is to facilitate greater energy efficiency effort and achievements. Data available from ACEEE's annual *State Energy Efficiency Scorecard* research allow us to examine whether having an energy efficiency performance incentive policy in place in a state is associated with greater energy efficiency accomplishments.

For this analysis we focused on two key indicator variables regarding electric energy efficiency performance: energy efficiency spending as a percentage of total revenues, and energy efficiency kWh savings as a percentage of retail sales. We examined the most recent year for which complete data are available, i.e., 2013. We compared states that had an energy efficiency performance incentive policy implemented in 2013 with states that had no energy efficiency incentive policy in place on these average statewide metrics. We also compared subgroups of states, including those with EERS policies and those without EERS policies.

It is important to acknowledge that many unique factors in a state or utility will influence utility behavior regarding energy efficiency programs. Therefore this analysis requires several caveats. First, the year of implementation of an efficiency incentive or EERS policy, for example, may be a significant driver of that state's 2013 efficiency commitments. That variable was not controlled in this analysis and therefore is a limitation. Second, we present statewide averages, whereas sometimes efficiency incentive policies may only be implemented for one major utility. Other unique factors across states include historical experience with efficiency policies, electricity prices, and avoided costs, all of which have an indirect impact on the level of efficiency that is deemed cost effective.

Despite these caveats, it is useful to look at how patterns of performance vary across many states under different policy conditions. The results of our analysis are presented in table 8.

Table 8. Energy efficiency spending and energy savings in states with and without electricity performance incentive policies

	Average 2013 electric EE spending as a percentage of utility revenue	Average 2013 electricity EE savings as a percentage of sales
States with EE performance incentive (n=25)	2.0%	0.9%
States without EE performance incentive (n=25)	1.4%	0.5%

We included states that had incentive policies implemented in 2013. We did not include Mississippi and West Virginia because policies are authorized but not yet implemented.

These results showed that states with incentive policies had somewhat higher spending as a percentage of revenues (2.0%) than states without incentive policies (1.4%); and substantially higher savings (0.9%) than states without incentives (0.5%).

These results are a useful comparison. However they are complicated by the fact that the presence or absence of an EERS policy is such a dominant factor in the level of energy efficiency achieved in a state.[16] We went on to control for that factor by restricting the comparison of incentives to no incentives just to EERS states, and then doing a similar analysis just in states without an EERS. There was virtually no difference between states with or without a performance incentive policy in either of those subgroups.[17]

While these findings are obviously not determinative for every state or utility, (e.g., California's savings dramatically increased following the restoration of incentives in the late 2000s) the results indicate that, in aggregate, having an energy efficiency performance incentive policy appears to be at least somewhat associated with higher levels of energy efficiency effort (program spending) and achievement (energy savings) compared to states without an energy efficiency incentive policy.

Another approach to measuring the effectiveness of efficiency performance incentives is to compare an individual state's progress on efficiency over time after adoption of the policy. To account for the impact of an EERS policy, we could examine states with performance incentives but no EERS, which include Georgia, South Carolina, South Dakota, Kentucky, Missouri, New Hampshire, and Oklahoma. Two of these states, Missouri and Oklahoma, were included in case studies and therefore are good candidates for further examination. For more information and details on Missouri and Oklahoma, see Appendix A.

[16] See the ACEEE Blog post "IRP vs. EERS: There's one clear winner among state energy efficiency policies." December 16, 2014. http://aceee.org/blog/2014/12/irp-vs-eers-there%E2%80%99s-one-clear-winner-.

[17] By comparison, the EERS subgroup of states combined had three times the level of relative savings (savings as a percentage of sales) as the non-EERS subgroup of states, suggesting a very strong relationship between having an EERS policy and higher levels of energy efficiency spending and savings.

Prior to adoption of an incentive policy, one of Missouri's electric utilities, Ameren Missouri, had a portfolio of customer programs totaling about $70 million over a three-year period (2009–2011). A stipulation and agreement, among Ameren Missouri and parties to its 2012 efficiency plan (2013–2015) application, was approved by the commission in 2012. This agreement included both an incentive and LRAM policy. Ameren Missouri then launched a full portfolio of energy efficiency programs totaling $145 million over the three-year program period, more than twice the levels of the prior three-year plan. The story is similar for Kansas City Power & Light (KCP&L), which had limited energy efficiency programs and associated investment in place prior to establishing its own version of an incentive policy late in 2014. Once in place, KCP&L initiated a portfolio of energy efficiency programs totaling $28.6 million over 18 months; after that time the company is expected to file a full three-year plan. More recently, however, Ameren's proposed level of investment in energy efficiency program remains about the same as the existing three-year MEEIA program plan, but expected savings are about half.

In Oklahoma, the general consensus of stakeholders interviewed by ACEEE is that the incentive policy has been effective in encouraging utilities to achieve greater energy efficiency savings. Since the policy was adopted in 2008, statewide electric utility program energy savings have ramped up quickly from 0 to over 100,000 MWh per year. However some observed the utilities could be achieving much greater savings and would be doing so if the state had an energy efficiency resource standard. Others expressed concern that without the incentive policy in place, it is unlikely the utilities would offer any programs at all. Forthcoming changes will modify several aspects of gas and electric utility efficiency rules, which may have an impact on efficiency savings. For example, beginning in 2015, utilities will only be allowed to collect an incentive if the portfolio achieves 80% or more of the individual utility's goal and the portfolio has a TRC score higher than 1.0.

These state examples provide further evidence that efficiency performance incentive policies have been helpful in making the business case for utilities to invest in efficiency. They also demonstrate some key challenges when the policies are not coupled with specific energy efficiency target requirements. The Ameren example demonstrates large swings in savings from one program cycle to the next. It appears the incentive and LRAM alone were not sufficient to lead Ameren to increase its efficiency savings levels. The structure of the incentive may help by making sure its threshold aligns with a higher percentage of savings. In general, however, without clear and steady policy guidance from the commission through specific targets, energy efficiency as a cost-effective utility resource is vulnerable to large swings in commitments.

From our overall experience, we speculate that an important but less quantifiable effect of a performance incentive policy may be in influencing utility management to cooperate with state policies to require energy efficiency programs (such as an EERS) rather than to seek to block their enactment or challenge them in legal proceedings. If that is the case, that would also be an important function for a performance incentive policy.[18]

[18] Nearly three-quarters of states with an EERS policy also have a performance incentive policy in place.

To further refine this comparison among states with performance incentives for energy efficiency in the electric sector, we reviewed the 2013 *State Scorecard* budgets and energy savings data by type of incentive mechanism.

Table 9. Energy efficiency spending and energy savings in states with various types of incentive policy mechanisms

Type	Average 2013 electric EE spending as percentage of utility revenue	Average 2013 electricity EE savings as percentage of sales
Multifactor (CA, HI, MA, VT, WI)	3.4%	1.6%
Savings-based (CT, IN, MI, NH, NY, RI)	3.2%	1.2%
Share of net benefits (AR, AZ, CO, GA, KY, MN, MO, NC, OH, OK, SC, TX)	1.1%	0.6%
Share of net benefits with EERS or similar policy (AR, AZ, CO, MN, NC, OH, TX)	1.5%	0.8%
Share of net benefits, no EERS or similar policy (GA, KY, MO, OK, SC)	0.6%	0.4%

As shown in table 9, the average energy savings achieved as a percentage of energy sales for those states with performance incentive policies based on a share of net benefits approach are significantly lower than those for states with multifactor and savings-based mechanisms. The same basic difference is observed in terms of the relative level of energy efficiency program spending. This is not surprising, since one would expect the level of programs spending and the level of savings to be highly correlated.

Overall, the results suggest that the relative level of effort for energy efficiency appears to be lower in the group of states with a share of net benefits type of incentive mechanism. One possible explanation of the observed results would be that they may also be heavily influenced by the presence or absence, and the relative level, of EERS policies in the states in the various incentive category groups. As shown in the last two rows of table 9, the existence of an EERS policy continues to appear to be an important factor.

Of those states with shared net benefits performance incentives in place, seven of them have EERS and five do not. Those with EERS have twice the energy savings relative to sales, and more than double the electric energy efficiency budgets as a percentage of utility revenue than the states with no EERS or similar policy. In comparison, 10 of the 11 states listed in table 9 with multifactor and savings-based performance incentives also have EERS or similar policies in place, which may help account for the overall higher performance of those groups.

Discussion

Performance incentive mechanism design and implementation have evolved since ACEEE's 2011 report. The high quantitative correlation between energy efficiency budgets and the presence of performance incentive policies persists. However the correlation does not prove anything conclusive about cause and effect. There are too many factors and confounding variables, including differences across states, to isolate the specific effects of performance

incentive mechanisms on energy efficiency budgets and spending without significant additional analysis. Whether or not, and to what extent, it is the performance incentives driving utilities to expand programs and achieve greater cost-effective energy savings, is a research question that we discuss below and through the case studies in appendix A.

Incentives and Utility Behavior

ACEEE concluded in the 2011 report *Carrots for Utilities* that incentives influenced utility behavior, motivated utility management, and influenced energy efficiency planning. Specifically, we found the following:

> Utility industry regulators, staff, and stakeholders consistently indicated that shareholder incentives mechanisms implemented in the 18 Profiled States had influenced utility behavior. Respondents indicated that the ability to assign a dollar value to efficiency investments significantly contributed to "buy-in" by corporate management, making efficiency more appealing as an investment option and engaging senior management in efficiency planning and decision-making in a more significant way. Several utilities indicated that the incentive influenced planning at the utility, allowing treatment of efficiency as a long-term investment strategy (Hayes et al. 2011).

Similarly, in 2013, ACEEE published *Making the Business Case for Energy Efficiency: Case Studies of Supportive Utility Regulation* (York et al. 2013). The report considered six utilities that provide large customer energy efficiency programs in states with decoupling or shareholder incentives in effect. The research assessed financial and program impacts as well as organizational and managerial impacts, finding that supportive regulatory mechanisms have been critical in elevating the role of energy efficiency.

To update and expand upon our earlier research, we explored current views on the influence of incentives on utility and program administrator behavior through interviews with regulatory staff, utility program representatives, and nonprofit and environmental group contacts. There is broad consensus among those we interviewed that incentives can have a strong and positive affect on utility program performance. The degree of influence depends on the type and amount of incentive mechanism and how its influence is enhanced or restrained by other regulation, regulatory process and timing, and state policies.

Some interviewees relayed very successful experiences in which performance incentives, and the overall incentive process, directly influenced utility behavior regarding energy efficiency program planning, administration, and even measureable energy savings performance results. This is particularly the case for four leading energy efficiency states in New England. Common among each of these are that they have decoupling or LRAM for both gas and electric, have had performance incentives established for 10 years or longer, and have extensive energy efficiency investment and program portfolios.

Connecticut. Connecticut interviewees saw a correlation between incentives and electric and natural gas savings, as well as a diversification of the source of energy savings, reducing the (narrow) focus on energy savings from efficient lighting. Contacts pointed out that Connecticut officials agreed that performance incentives influence investor-owned utility behavior in a positive way. In particular, the 75% minimum energy savings threshold was

not an impediment in any way, and in fact, utilities were "always shooting for the moon" in terms of hitting their energy savings targets.

Massachusetts. Our contacts in Massachusetts noted in particular that the process of negotiating the most recent round of performance incentives was instrumental in gaining utility acceptance of increases to statewide annual energy saving requirements through the EERS. The EERS goals are among the highest in the nation and directly impact savings targets of individual utilities. A utility representative emphasized that the particular design of the incentives in Massachusetts plays a big role in how resources are allocated by utilities, including within energy efficiency portfolios. For a more thorough discussion, see the case study in appendix A.

Rhode Island. Everyone we spoke with regarding Rhode Island was unambiguous in their assessment that the incentives positively influenced utility behavior. National Grid, which serves most of the state, creates projections and program tracking in advance to make sure programs achieve 100% of their targets. The mechanism serves to focus utility attention on achieving their goals. When the incentive structure was changed in 2013 to raise the threshold of savings from 60% to 75% of the energy savings goal, and the slope of the increased incentive levels became much steeper, the utility responded. Now as it gets toward the end of the program year, it assesses savings compared to target and considers pushing to complete some projects that might otherwise lag into the next period. It stays aware of its pipeline of upcoming projects to see if it can work with vendors and distributors to acquire energy savings in those programs and measures where there is strong demand. It also aims for the internal flexibility to move budget money around to promote popular projects, measures, and technologies.

An observer outside of National Grid Rhode Island said the incentives influenced the utility in a very positive way, and described their dedicated program staff as "passionate, innovative, do a good job, and have a program to be proud of. With the implementation of decoupling, it made the utility even more willing to promote energy efficiency." These favorable comments describe the last two years since the changes have been made to the incentive mechanism. Prior to that, those interviewed said the utility had not been on a path to achieving savings goals and had undergone a restructuring and changes to middle management. Subsequent to the changes, they have not had problems achieving savings goals and now regularly achieve more than 100%. For more details, see the Rhode Island case study in Appendix A.

Vermont. Vermont experts we interviewed had consistent views on how performance incentives influenced and sometimes directly guided actions of the program administration contractor, Vermont Energy Investment Corporation (VEIC). VEIC runs the "energy efficiency utility" Efficiency Vermont. One expert observed that "they take seriously and respond strongly to the details of the [performance incentive mechanism] design. They . . . reallocate resources where the incentive structure directs them." In fact, the 2015–2017 period includes more challenging targets on many metrics, because almost all the time in the past all the goals had been met or exceeded, leading to the possible interpretation that "either it is working or the goals were too easy." For a more thorough discussion, see the case study in Appendix A.

New England states are not the only examples of incentives influencing utility behavior. Michigan presents a performance incentives success story from the Midwest. Its incentive mechanism was one of several regulations set forth in 2008 in accordance with the state's energy efficiency standard to support its full implementation. The commission has modified the incentive mechanism to incentivize comprehensiveness in addition to a short-term focus on first-year savings. The incentive attracted utility management support for energy efficiency programs and clearly played a key part in the state's overall performance success: every year since inception of the EERS, Michigan has exceeded energy savings goals.

In other states, those we interviewed had generally positive things to say, along with some caveats, and identified areas for improvement where incentives could be made more effective. In Arizona, incentives were viewed as impacting utility behavior, at least in terms of utility personnel effort. Regulatory staff were reluctant to comment on the overall effect on utility performance, relative to other factors (e.g., the general inclination to want to please the commission.) Other observers said the presence of incentives clearly motivated utility program managers and staff to deliver better performance. It helps internally in the company to see their activity as something that can benefit the company financially.

In a few states, incentives were needed to persuade utilities to accept energy efficiency requirements in the first place, and their subsequent implementation has not been as fine-tuned or closely monitored by regulators as in other states. Oklahoma is an illustrative example. The state had no established energy efficiency programs to begin with, so incentives for efficiency came along with them as part of the package. One observer shared that without the incentives, "programs were nonstarters for the utilities," adding that there is a strong pro-business environment in Oklahoma and that "the incentive rules certainly kept energy efficiency going" there.

Importance of Regulatory Process

California has had performance incentives in place for multiple three-year program cycles, and there is widespread support for some form of incentive. However the implementation in reality has taken longer than originally planned to go through the regulatory processes. Viewpoints from those interviewed about California mechanisms varied quite a bit. Since 2008, incentive amounts have generally not been set out until after the efficiency programs have been implemented. The performance incentive mechanism applicable to the 2010–2012 program cycle was not established until 2012. One stakeholder said that the incentive levels for 2015 had not been laid out yet as of the end of 2014. The delays were due to the uncertainty shareholders had about whether or not the utility would get the incentive payments, and if so, how much and when. One respondent stated that "Wall Street does not see it as income." Another expert explained that all along there had been an expectation of incentives, and that did influence utility behavior and cooperation. The fact that factors related to the program evaluation process delayed the incentive decisions did not change that reality.

The experience of regulators and utilities in Missouri is another example that demonstrates the importance of the process, and in particular, of how impact evaluation plays into it. In Missouri the previous lack of an existing strong, consensus-based evaluation approach has led to a contentious process with different parties' evaluation experts providing differing

views on which methods and estimates to use. Policymakers and regulators need to establish such strong evaluation frameworks and protocols that are integrated with the performance incentive mechanisms. Both savings-based incentives and shared net benefits incentives amounts are a direct function of impact evaluations, and whether net, gross, or lifetime energy savings are the basis of the amount matters. Those results, therefore, are critically important for their accuracy and acceptance.

How Should an Incentive Mechanism Be Structured?

Considerations for the effective design of performance incentives include the specific intended functions and purposes of the mechanism as well as the economic, policy, and regulatory context. Incentives are one regulatory tool among several under which utilities do business. The presence or absence of decoupling, LRAM, and EERS can have an impact on the effectiveness of the incentive mechanism in influencing utility behavior and program outcomes. Organizational structures matter, too. Vertically integrated utilities, such as an electric utility that owns electric generating plants, have a different economic and capital expense profile relative to distribution-only electric utilities. A high level of avoided costs can lead to greater net benefits of savings, which in turn could result in higher financial incentive payments, with implications for how high the incentive rate should be and whether there should be an upper limit or ceiling.

One area of priority consideration for designing energy efficiency performance incentives is the core characteristics that make them successful. In a presentation at the 2013 ACEEE National Conference on Energy Efficiency as a Resource, Toben Galvin of Navigant Consulting built upon the objectives set forth by California Public Utilities Commission in its 2013 decision adopting the Energy Savings and Performance Incentive Mechanism, highlighting the following five characteristics:

- Clear performance goals representing a short set of the most critical objectives
- Clarity with respect to how performance will be measured
- A timely and transparent process defined for independent measurement and verification of performance results
- Incentive earnings opportunities sufficient to motivate IOU performance, while providing cost-effective value to ratepayers
- Incentive structure that rewards value and results, not just spending (Galvin 2013)

With both contextual factors and these objectives in mind, another policy design choice for states considering performance incentive mechanisms is what type of mechanism to use. There are pros and cons to each. Examples are presented in table 10.

Table 10. Strengths and weaknesses of various types of performance incentive mechanisms

Type	Strengths	Weaknesses
Shared net benefits	Go further to incentivize by multiplying the financial rewards to the utility for the overall maximization of cost-effective energy savings. Higher financial incentives relative to energy efficiency spending (may also be considered a negative aspect).	Administrator could possibly allocate excessive resources to programs or customer classes with the most cost-effective savings opportunities, which could lead to "cream skimming" or potentially significant inequities among customers. May not promote deeper savings, as those tend to be more expensive and hence have fewer net benefits. May be more uncertainty in the measurements used to determine the award, such as measurement of avoided costs.
Savings-based	Ties dollar incentive amounts directly to energy savings achieved. Rewards effective program performance.	Although all states with energy efficiency programs require some minimum level of cost effectiveness, it may be argued that this approach only encourages meeting the minimum, rather than maximizing cost effectiveness for the energy efficiency portfolios as a whole. May lead to disproportionate investment in programs and technologies with largest energy savings opportunities, such as lighting.
Multifactor	Integrates the incentive mechanism more fully with policy goals beyond the bounds of energy efficiency. Can serve to focus utility and administrator attention on specific, targeted objectives.	Mechanism and process may become complicated to plan, administer, and regulate.
Rate of return	Address the fundamental economic interest of the utility to pursue energy efficiency. Conceptually mimic the basic incentive structure that appears on the supply side. Since energy efficiency program plans generally require commission approval and at least some degree of oversight and reporting, if not stringent measurement and verification of energy savings, rate-of-return mechanisms still may be considered to some degree to be performance incentives, rather than shareholder incentives.	Unless they are carefully structured to require savings performance as an eligibility requirement, they essentially reward spending rather than actual savings performance. Do not provide the same direct and focused motivation to achieve particular performance objectives as much as other options.

For a comprehensive look at designing performance incentives to encourage utility energy efficiency programs, see Whited, Woolf, and Napoleon 2015.

Issues and Potential Solutions

States have used varying approaches to address and mitigate the negative aspects of the incentive types described in table 10. One issue that can arise for any type is excessive focus on short-term savings. This may arise if the incentives are tied to first-year savings results, which is a common metric for program evaluation. The problem is that energy efficiency measure lives vary considerably, but what we really want is persistent, long-term energy savings. Some states have successfully dealt with this by incentivizing lifetime savings rather than first-year, or by including both metrics in the calculation of the incentive amounts.

The misallocation problem noted above for shared net benefits approaches, or the all eggs in one basket issue, could be addressed by regulators through the use of carve outs, requiring savings to be distributed more evenly, and by having a maximum incentive pool or amount for each subset (such as customer groups, geographic regions, or program sectors). Several incentive mechanism policies include elements that require or provide for additional incentive dollars for addressing these concerns. For example, Hawaii rewards inter-island equity. Michigan has potential financial incentives for multi-measure residential and multi-measure commercial and industrial sector performance.

A key concern for policymakers to consider is incentive amount. Incentive levels need to be high enough to motivate utility top management and address the basic economic elements of the regulatory business model, but not so high as to appear too rich and engender political opposition. States with demonstrated performance incentive success with broad support have modified the basic structures—minimum savings threshold requirements, percent incentive amounts (the slope of the increase), and caps—over multiple program cycles in order to reach consensus on a balance of the various goals. Perception is important. When Texas changed the mechanism from 20% of program cost to 10% of net benefits, although the percentage was half as much, the actual payments almost doubled. Texas utilities have been meeting and exceeding both demand and energy savings goals every year since 2008, with only one exception for a single year of energy savings.

Other considerations depend on the type of program administrator. Different approaches may be most appropriate for investor-owned utility, third-party administrator, or nonprofit program administrators. Motivations differ by organization. Investor-owned utilities have multiple financial objectives to advance the overall business interests of the company, including profitability, stock price, managing risk, and their long-term corporate strategy. A third-party administrator is likely to have a narrower concern: the contract must be profitable and achieve a high level of performance that will lead to continuation of the contract. Nonprofit administrators are motivated by financial incentives as well, though in the context of fulfilling their mission rather than only for the money. The purposes and specific objectives of the incentive mechanism also vary. For IOUs, the most basic is to persuade management to legitimately pursue energy efficiency. For third-party administrators, the mechanism may be designed to focus administrator attention on implementing programs to satisfy key performance criteria.

When asked for any suggestions they would make to another state that was thinking of adopting a utility energy efficiency performance incentive such as the mechanisms used in their state, respondents shared the points listed below. A frequent theme was the recommendation to adopt an incentive mechanism that balances motivating utilities and program administrators to achieve energy savings goals with achieving cost effectiveness.

Comments from respondents included the following:

- Keep the mechanism simple while fairly aligning the interests of ratepayers and shareholders.
- Choose a shared-benefits-type incentive that rewards the utility both for achieving higher energy savings levels and for doing so cost effectively.
- Establish clear definitions and a standard that applies to all utilities equally. Standardize the reports, how the savings are calculated and adjusted, and what embedded costs are to be included. Failing to do so may cause confusion and results that vary according to the way they are interpreted.
- Be aware of the size of the incentive. In a structure where the incentive is a function of savings or spending, the total incentive can grow quickly as the energy efficiency budget increases. This is particularly true in the current environment where more and more emphasis is being placed on energy efficiency.
- Inform all parties of what the range of potential incentive levels might be so that no one is surprised. Use incentives to encourage utilities to expand their successes beyond the status quo.
- Consider the potential for interactive effects between programs and the potential for competing priorities when implementing multiple programs with different incentive mechanisms. (This recommendation may be most relevant for multifactor performance incentive mechanisms.)

Conclusions

Over the past four years, performance incentives for utilities and administrators of energy efficiency programs have been playing a vital and growing role in supporting the expansion of energy efficiency. These incentives are a critical component of the package of regulatory policies that address and often overcome disincentives utilities face as part of the traditional regulatory model. As energy efficiency programs multiply and expand in terms of dollars invested and energy savings achieved, more states have enacted and are implementing incentive mechanisms. The supportive regulatory policies go hand-in-glove with higher energy efficiency standards and statewide goals.

States continue to favor those mechanisms that drive program administrators toward the longest-lasting and most cost-effective energy savings performance. This is shown by the number of new states adopting various incentive approaches and by the modifications regulators have been making to existing incentives. Simply rewarding IOUs for spending money on basic energy efficiency programs is only a starting point. Regulators now are aiming for the wisest possible use of ratepayer dollars to achieve maximum net benefits while maintaining equity among customer groups.

Incentive mechanisms are working in combination with other regulatory policies to encourage energy efficiency program performance. Experts agree that performance incentives are needed and that they are effective in influencing utility behavior. In states where they are eligible for financial incentives, utilities meet and frequently exceed energy savings targets.

References

Cappers, P., C. Goldman, M. Chait, G. Edgar, J. Schlegel, and W. Shirley. 2009. *Financial Analysis of Incentive Mechanisms to Promote Energy Efficiency: Case Study of a Prototypical Southwest Utility*. March. LBNL-1598E. Berkeley, CA: Lawrence Berkeley National Laboratory.

Downs, A., and C. Cui. 2014. *Energy Efficiency Resource Standards: A New Progress Report on State Experience*. Washington, DC: American Council for an Energy-Efficient Economy. http://www.aceee.org/research-report/u1403.

Galvin, T., and B. Kim. 2013. "Show Me the Money: A Review of Recent Utility Energy Efficiency Performance Incentive Designs." Presentation at the 2013 ACEEE National Conference on Energy Efficiency as a Resource. September. http://aceee.org/conferences/2013/eer/program.

Gilleo, A., A. Chittum, K. Farley, M. Neubauer, S. Nowak, D. Ribeiro, and S. Vaidyanathan. 2014. *The 2014 State Energy Efficiency Scorecard*. Washington, DC: ACEEE. http://www.aceee.org/research-report/u1408.

Gilleo, A., M. Kushler, M. Molina, and D. York. 2015. *Valuing Efficiency: A Review of Lost Revenue Adjustment Mechanisms*. May. Report U1503. Washington, DC: ACEEE.

Gold, R. 2014. *Penalties in Utility Incentive Mechanisms: A Necessary "Stick" to Encourage Utility Energy Efficiency?* Goldman School of Public Policy, University of California, Berkeley Energy Policy Research Conference, Energy Efficiency Policy Performance and Consumer Preferences panel.

Hayes, S., S. Nadel, M. Kushler, and D. York. 2011. *Carrots for Utilities: Providing Financial Returns for Utility Investments in Energy Efficiency*. Washington, DC: ACEEE. http://www.aceee.org/research-report/u111.

IEI (Edison Foundation Institute for Electric Innovation). 2014. *State Electric Efficiency Regulatory Frameworks*. December. http://www.edisonfoundation.net/iei/Documents/IEI_stateEEpolicyupdate_1214.pdf.

Kihm, S. 2009. "When Revenue Decoupling Will Work . . . And When It Won't." *Electricity Journal* 22 (8): 19–28.

Morgan, P. 2012. *A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations*. Lake Oswego, OR: Graceful Systems LLC.

Nadel, S., and G. Herndon. 2014. *The Future of the Utility Industry and the Role of Energy Efficiency*. Washington, DC: ACEEE. http://www.aceee.org/research-report/u1404.

PNM. 2013. Final Order filed 11/6/2013 in Case No. 12-00317-UT for Public Service Co of New Mexico.

RAP (Regulatory Assistance Project). 2011. *Revenue Regulation and Decoupling: A Guide to Theory and Application.* June. Montpelier, VT: Regulatory Assistance Project. file:///C:/Users/snowak/Downloads/RAP_RevenueRegulationandDecoupling_2011_04.pdf.

Satchwell, A., Cappers, P. and Goldman, C. 2011. *Carrots and Sticks: A Comprehensive Business Model for the Successful Achievement of Energy Efficiency Resource Standards.* Berkeley, CA: Lawrence Berkeley National Laboratory. March. LBNL-4399E.

Whited, M., T. Woolf, and A. Napoleon. 2015. *Utility Performance Incentive Mechanisms: A Handbook for Regulators*. Synapse Energy Economics. http://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf.

York, D., S. Kihm, M. Kushler, S. Hayes, S. Sienkowski, and C. Bell. 2013. *Making the Business Case for Energy Efficiency: Case Studies of Supportive Utility Regulation*. Washington, DC: ACEEE. http://aceee.org/sites/default/files/publications/researchreports/u133.pdf.

Appendix A. Case Studies

ARIZONA

Background

Arizona's entry into the arena of large-scale utility energy efficiency programs is relatively recent, precipitated by orders from the Arizona Corporation Commission (ACC) in 2009 and 2010 that created a utility Energy Efficiency Standard (Docket No. RE-00000C-09-0427, Decision No. 71436 and Decision No. 71819). The commission ordered that by 2020, each investor-owned utility must achieve cumulative annual electricity savings of at least 22% of its retail electric sales in calendar year 2019 through cost-effective energy efficiency programs.

Although Arizona is most noteworthy for that Energy Efficiency Standard, the state has actually allowed utility incentives for energy efficiency programs since 2005. The first approach was adopted in a settlement agreement and was designed as an incentive based on a share of net benefits, with a cap equivalent to 10% of energy efficiency program spending. Later that was modified to a sliding scale cap on program spending (up to 16%). For 2014 that was modified to a flat amount per kWh saved. The structure and timing of these changes varied somewhat for the two major investor-owned electric utilities in Arizona (Arizona Public Service and Tucson Electric Power), which accounts for some of the differences observed in the outcomes table.

Incentive Policy Details

After the policy evolution described above, the current incentive policy for each of the two major utilities is very simple. Once a threshold of 85% of the energy efficiency savings goal is reached, the utility qualifies to receive a cash incentive of $0.0125/kWh times the first-year annual kWh saved. There is no cap on the amount of incentive that could be earned based on that incentive per kWh formula.

Other Relevant Regulatory Features

Arizona currently has an EERS requiring investor-owned electric utilities to achieve cumulative annual electricity savings of at least 22% of its retail electric sales by 2020. The state also requires natural gas utilities to obtain 6% cumulative savings by 2020. Lost revenue recovery mechanisms (LRAMs) were approved for both Arizona Public Service Company (APS) in 2012 and Tucson Electric Power Company (TEP) in 2013. Southwest Gas received authorization for full revenue decoupling in 2011.[19]

Energy Savings Outcomes

Figure A1 illustrates the increase in Arizona electric energy efficiency program savings.

[19] Analysis of Arizona Public Service data by Lawrence Berkeley National Lab considered the potential impacts of incentives combined with decoupling on utility ROE (Satchwell, Cappers, and Goldman 2011).

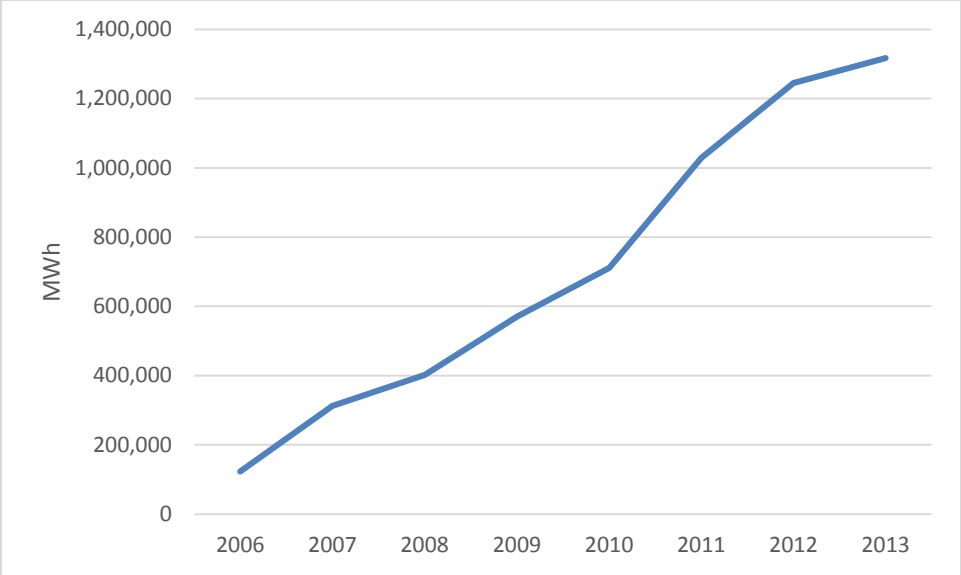

Figure A1. Arizona energy savings 2006–2013. *Source:* ACEEE *State Scorecard* 2007–2014.

Financial Outcomes

Table A1 shows 2012–2013 Arizona performance incentives and savings.

Table A1. Arizona performance incentives and savings 2012–2013

Company	Incentive	Program Cost	Total annual energy savings (MWh)	PI as percentage of program cost
		2013		
Arizona Public Service	$4,529,373	$50,962,754	485,791	8.89%
Tucson Electric Power	$1,879,095	$11,869,205	177,425	15.83%
		2012		
Arizona Public Service	$8,631,364	$61,652,601	551,639	14.00%
Tucson Electric Power	$559,737	$6,224,345	105,655	8.99%

Source: Arizona Corporate Commission

Discussion

The amounts of incentives earned for the most recent two years, under the evolving incentive mechanisms, have been within the mid-range to upper mid-range of typical incentives around the nation (i.e., incentive equivalent to approximately 9–16% of program spending). It is too soon to know how the results of the recently established mechanism ($0.0125/kWh) will compare to those figures.

In general, the basic concept of having some kind of financial incentive for the utility, tied to energy efficiency program performance, has not been particularly controversial. Disagreements have focused on the mechanism and the amounts, rather than the basic principle that the utility could earn an incentive. The most recent change (to move to a flat

$0.0125 per kWh saved) was made because there was some concern that the prior mechanism (capped at a percentage of program spending) might incent the utilities to spend more money than necessary. As noted above, it is too soon to know how the incentive amounts under the new mechanism will compare to the previous approach.

Evaluation

Energy efficiency programs are evaluated by contractors hired by the individual utilities. There is no public process or collaborative oversight of the evaluations, and the ACC does not hold a contested case review of the evaluation process or outcomes. Arizona uses gross savings as the metric for estimating lost revenues.

Looking Forward

There is a docket currently open (Docket No. E-00000XX-13-0214), under which the ACC has a draft proposal that would substantially change the existing utility Energy Efficiency Standard that the ACC created in 2009 and 2010. Depending upon the outcome of this docket, the approach to utility incentives could change. The draft proposal issued by the ACC would eliminate the policy that allows the current incentive mechanism and switch to an approach of allowing the utility to earn a rate of return on energy efficiency program expenditures.

ARKANSAS

Background

Utilities in Arkansas had very little involvement in providing customer energy efficiency programs until 2007, when the Arkansas Public Service Commission (APSC) approved Rules for Conservation and Energy Efficiency Programs requiring electric and gas utilities to propose and administer energy efficiency programs (Docket No. 06-004-R, Orders No. 1, 12, 18). The state's jurisdictional utilities filed Energy Efficiency Plans in July 2007 containing proposed Quick Start efficiency programs. The utility response was still relatively small, and they expressed concern about the adverse financial impact of customer energy efficiency on the utilities. In response, in 2010 the commission took several actions to increase the energy efficiency efforts.

In 2010, the APSC adopted an EERS for both electricity and natural gas, guidelines for efficiency program cost recovery, and a shareholder performance incentive. The EERS targets set by the commission were moderate, rising from an annual reduction of 0.25% of total electric kWh sales in 2011, to 0.5% in 2012, and 0.75% in 2013. In 2013 the APSC extended the 0.75% target to 2014 and then set a target of 0.9% for 2015. The PSC deferred the ruling on 2016-2017 targets pending completion of a thorough potential study aimed at improving programs.

In December 2010 the Arkansas PSC approved a joint electric and gas utility motion to allow the awarding of lost contributions to fixed costs that result from future utility energy efficiency programs. All investor-owned utilities are approved to recover lost revenues as part of the annual energy efficiency program tariff docket (Order No. 14 Docket 08-137-U). In 2007 the APSC approved a decoupling mechanism for the three major natural gas distribution companies in the state, but no decoupling has been approved for electric utilities.

In December 2010 the APSC issued an Order approving a general policy under which the commission outlined steps to approve incentives to reward achievement in the delivery of essential energy conservation services by investor-owned utilities (Order No. 15 Docket 08-137-U). Incentives were approved for all three gas utilities in the state and the two largest electric utilities in 2012 and 2013.

Incentive Policy Details

The APSC announced the general policy for utility performance incentives for energy efficiency achievements in December 2010. The basic mechanism approved is a share of net benefits approach. A utility must first meet 80% of the energy savings target for a given year to qualify for incentives. If the annual savings are between 80% and 100% of the target, the utility can receive an amount equivalent to 10% of the net benefits, capped at 5% of the program spending amount. For savings above 100% of target, the 10% of net benefits is capped at 7% of program spending. Any incentive awards are rolled into the single energy efficiency charge to customers, along with LRAM adjustments and program costs. There are no penalties, although the commission has reserved the right to issue penalties for nonperformance.

As with the LRAM mechanism, incentives are calculated based on net savings. One distinction is that under the LRAM policy, lost revenue compensation is done contemporaneously based on projected savings, and then trued up with evaluation, measurement, and verification (EM&V), whereas incentive awards are not approved until the EM&V documentation is in hand. The process involves the utility's filing an annual report, followed by a contested case process and then a commission order.

Other Relevant Regulatory Features

Arkansas has had an EERS in place since 2010 for both gas and electric utilities. The energy savings targets are established by the Arkansas Public Service Commission in three-year cycles. The three largest natural gas distribution companies in Arkansas are decoupled, while no electric companies are decoupled in Arkansas. Electric utilities in Arkansas are able to collect lost revenues associated with declining sales resulting from energy efficiency programs, as well as earn an incentive based on energy efficiency savings results. Note that the commission issued an order inviting electric utilities to file decoupling but none has done so.

Energy Savings Outcomes

Figure A2 illustrates the increase in Arkansas electric energy efficiency program savings.

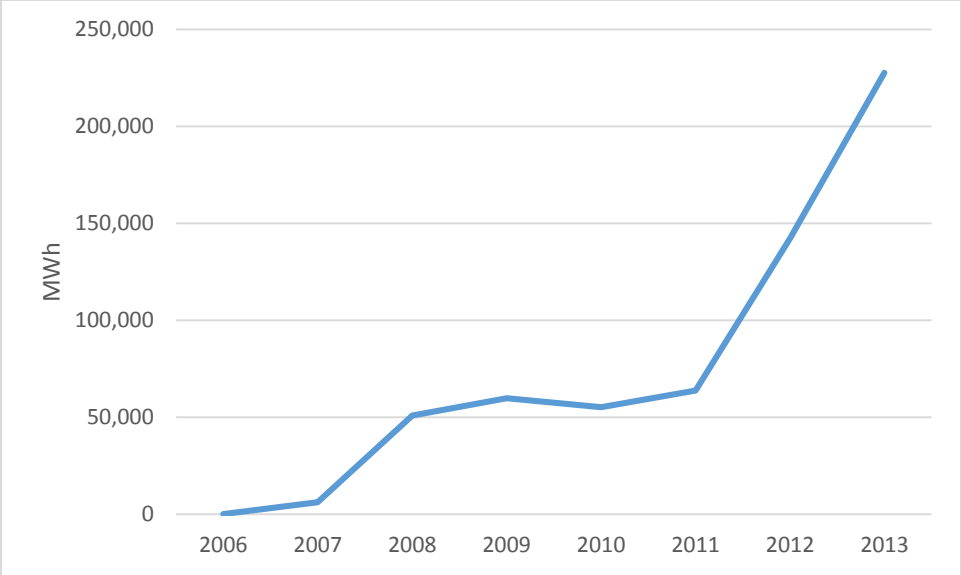

Figure A2. Arkansas energy efficiency program savings 2006–2013. *Source:* ACEEE *State Scorecard* 2007–2014.

Financial Outcomes

Table A2 shows 2012–2013 Arkansas performance incentives and savings.

Table A2. Arkansas electric utility performance incentives 2012-2013

Company	Incentive	Program cost	Total annual energy savings (MWh)	PI as percentage of program cost
		2013		
Entergy Arkansas	$3,712,268	$52,285,262	188,468	7.10%
SWEPCo	$574,225	$6,803,249	25,387	8.44%
		2012		
Entergy Arkansas	$1,743,700	$28,515,019	107,627	6.12%
SWEPCo	$413,131	$5,289,095	17,767	7.81%

Source: Arkansas Public Service Commission

Discussion

The major electric utilities in Arkansas have definitely ramped up their energy efficiency efforts and achievements in response to the various commission orders and policies that have been established since 2007. How much of that might be attributable to the incentive policy is difficult to say.

In aggregate, it does appear that the package of policies adopted in 2010 (i.e., EERS, LRAM, and performance incentives) have had a very notable effect. In the words of a commission staff person: "The commission took away every excuse, and the utilities have found it's not so bad." Whereas there has been some discomfort with the LRAM policy by the commission

and other parties, the concept of having a shareholder incentive tied to good performance has not been particularly controversial for most parties.

Evaluation

The evaluation process is overseen by the APSC. The commission requires each utility to hire its own independent EM&V contractor to perform evaluations, and to jointly fund an Independent EM&V Monitor that provides overall oversight and guidance, and operates under the direction of the commission staff. The commission established an EM&V collaborative called Parties Working Collaboratively (PWC) to develop a technical resource manual that is updated annually and approved by the commission. Arkansas uses net savings as its evaluation metric.

Looking Forward

The incentive structure has been slightly modified to take effect for the next three-year planning cycle. Within a range of 80—120% of savings target, the 10% net benefits will be capped at a sliding scale of 4—8% of program spending. The new system will provide somewhat lower rewards for performance at the low end of the scale, and somewhat higher rewards for performance at the upper end of the scale.[20] Other aspects are expected to remain the same. Looking ahead in general, there will be substantial turnover of Commissioners during 2015, so there is understandably some uncertainty about future decisions.

CALIFORNIA

Background

California has had a long history with performance incentives for utility energy efficiency programs spanning three decades. We focus on the more recent history here that provides the most relevant context for the current issues.[21] Since 2006, there have been, broadly speaking, three main versions of incentives over this time period.

The first was the Risk Reward Incentive Mechanism (RRIM), which was in place for the energy efficiency program cycle from 2006 to 2008 and continued for the bridge year, 2009. RRIM applied to all the investor-owned gas and electric utilities: Pacific Gas and Electric, San Diego Gas and Electric, Southern California Edison, and Southern California Gas. Under the RRIM, the utilities would be eligible to earn an incentive payment of up to 12% of the net benefits of their energy efficiency programs if they achieved 100% of targeted energy savings. If they achieved between 85% and 100% of the savings goal, the highest incentive payment would be 9% of the net benefits. For the range between 65% and 85% of target, no incentives would be available. Below 65%, utilities could end up paying a financial penalty

[20] A similar adjustment, to a steeper slope to the incentives for higher savings relative to targets, has been done in Rhode Island with apparently favorable results. See the Rhode Island case study for more details.

[21] The state had incentives for utility energy efficiency from 1990 to 2001, with modifications every four-year program cycle, including performance incentives of varying percentages and amounts that were in place from 1990 to 1997. From 1998 to 2001, there were milestone-based incentives. From 2002 to 2005, following deregulation and the electricity crisis, there were no performance incentives.

of 5 cents per kWh, 45 cents per therm and $25 per kW for each unit below the savings goal (Gold 2014). These thresholds were referred to as earnings cliffs.

Expectations for energy efficiency program performance were high at this time, with the California Public Utilities Commission (CPUC) predicting an estimated $2.7 billion in net ratepayer benefits (resource savings minus investment costs)[22] from the 2006–2008 program cycle. The statewide incentives ceiling, or maximum incentive funding available, was $450 million, or $150 million per year. This represented the low end of comparable supply-side earnings and was below the average percentage of net benefits awarded through national shared savings mechanisms, but some found it controversial that the potential incentive payments were that high.[23] The mechanism as a whole was found by the CPUC to require improvements to make the earnings process more transparent, streamlined, and less controversial while still achieving the CPUC's policy goals.[24] Ultimately, near the end of the program cycle, the CPUC changed the mechanism to be a "flat" 7% of net benefits. This was at least in part to streamline the overall process and remove the "earnings cliffs".

The second period lasted from 2010 to 2012. The CPUC described this as a reform of the RRIM, though it was substantially different. During this period, the mechanism in place was a "management fee" of 5% of energy efficiency program spending, with the potential for an additional 1%, based on how well savings were calculated. This era was still dynamic, if not as contentious as the period leading up to it. Not only were the amounts established, again, toward the end of the program cycle, in November of 2012, but so was the mechanism itself.

The third recent evolution of performance incentives began with the Efficiency Savings Performance Incentive (ESPI). ESPI applied to energy efficiency programs beginning in 2013. The primary stakeholders had been part of the process for previous performance incentives as well. In general, the investor-owned utilities supported the mechanisms and the ESPI in particular, with some supporting it very strongly. The Natural Resources Defense Council (NRDC) was another stakeholder involved in the process. NRDC supported robust and effective policies to support energy efficiency programs, including well-designed utility performance incentive mechanisms. Other organizations engaged in the process through filing comments or other means included the Division of Ratepayer Advocates (DRA) and the Utility Reform Network (TURN). DRA and TURN consistently opposed the performance incentives, but TURN ultimately did not oppose the ESPI incentive mechanism itself.[25]

---

[22] CPUC (California Public Utilities Commission). 2007. Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs. Decision 07-09-043. Rulemaking 06-04-010.

[23] For comparison with California supply-side, see CPUC's "Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs." http://www.cpuc.ca.gov/NR/rdonlyres/33471B66-CCCB-4999-B727-CB02CBAB8734/0/D0709043.pdf.

[24] For specifics about the areas of the mechanism that were not working as intended, and proposed remedies, see "White Paper on Proposed Energy Efficiency Risk-Reward Incentive Mechanism and Evaluation, Measurement, and Verification Activities," CPUC Energy Division, April 1, 2009.

[25] See TURN comments filed with CPUC dated July 16, 2012, on RRIM reform and April 26, 2013, on ESPI feedback.

When the ESPI was adopted by the CPUC in September 2013, it was designed to incorporate four fundamental objectives. These principles both addressed lessons learned from experience with prior incentive mechanisms and struck a relative balance or consensus among the priorities among major stakeholders. The CPUC asserted that "an effective incentive mechanism should incorporate:

> (1) Clear performance goals;
> (2) A clear understanding of how performance will be measured in relation to those goals;
> (3) A timely and transparent process for independent measurement and verification of performance results; and
> (4) Incentive earnings opportunities sufficient to motivate IOU performance, while providing cost-effective value to ratepayers."[26]

The relative values placed on these attributes is apparent in the structure of the ESPI, described below.

Incentive Policy Details

The ESPI is a multifactor incentive. It is predominantly an energy savings-based incentive mechanism that also features management fees for non-resource efforts (see explanation below) and codes and standards programs. Specifically, there are four paths for utilities to earn financial incentives:

1. *Lifecycle savings performance award*. Potential earnings are based on the programs' energy lifecycle savings achievements. Lifecycle energy savings include the kWh or therm energy savings over the full lives of the installed energy efficiency measures. This is a fundamentally different approach than the traditional first-year savings, which in comparison leads to a shorter-term focus. This breaks out to 85% for electric program performance (kWh and kW) and 15% for natural gas (therms). Within the electric, the potential award is weighted two-thirds for kWh (energy) savings and one-third for kW (demand) reductions. The maximum incentive for the savings component is 9% of total resource program spending.[27]

2. *Ex ante review and compliance*. This component awards earnings for demonstrated compliance with CPUC-set calculation standards. Ex ante are forward-looking energy savings estimates, in contrast to ex post, which are arrived at by conducting EM&V after the programs have been implemented, with the intent to estimate actual gross and net

---

[26] CPUC (California Public Utilities Commission). 2013. Order Instituting Rulemaking to Reform the Commission's Energy Efficiency Risk/Reward Incentive Mechanism. Decision Adopting Efficiency Savings and Performance Incentive Mechanism. Decision 13-09-023 Rulemaking 12-01-005

[27] "Resource programs" are what we traditionally think of as utility energy efficiency programs: those energy efficiency programs that aim to directly save energy. "Non-resource" programs, including energy efficiency research, education-only, or market transformation programs, have other primary purposes in addition to energy efficiency savings.

savings. Three percent of resource program spending, less certain administrative expenses such as EM&V, is the upper limit for this component.

3. *Non-resource management fee.* Earnings are a factor of the non-resource program spending levels for the utility. Non-resource programs include education, training, pilot programs, and new technologies. Three percent of non-resource program budget is the upper limit for this component. The fee is calculated as 3% of non-resource expenditures by utility, less administrative spending, as verified by commission audit reports.

4. *Codes and standards management fee*. This fee provides an earning opportunity for the utility based on the amount of codes and standards (C&S) program budget spent, capped at 12% of that budget. The fee is calculated as 12% of C&S spending by utility, less administrative costs.[28]

The largest of these four is the lifecycle savings performance award, which comprises 73% of the total dollar amount. The earnings amount is calculated in three steps. First, utilities must determine the ceiling, or maximum possible incentive. This is 9% of the total (statewide) resource program budget, less administrative costs. Second, utilities calculate what the dollar amount of the maximum award will be on a per-unit, lifecycle basis. This is done by multiplying the statewide first-year savings goal (such as the GWh goal) by the estimated portfolio average useful life of energy efficiency measures (for example, 12 years), and then adjusting the result by the portfolio average net-to-gross ratio and dividing the maximum possible incentive by the number of units, such as GWh. After actual energy savings achievements have been quantified, the third step is to multiply the amount of savings by the incentive award amount per unit. If, for example, the EE programs achieve 75% of that utility's savings goal, they will earn 75% of the maximum incentive.

There is no minimum savings threshold for the ESPI. The more savings, the better, in a linear progression toward the ceiling level, determined by the budget.

Other Relevant Regulatory Features

Performance incentives are one regulatory tool among many state policies that work together supporting gas and electric energy efficiency programs. While overall this is a reflection of commitment to energy efficiency achievements to meet public policy goals, it does make it difficult to isolate with much precision the specific impacts of the various performance incentive mechanisms on energy savings performance over time.

California has for many years had the largest and most extensive energy efficiency programs in the country, which is a direct result of its policy framework. In addition to performance incentive mechanisms, strong utility goals, and decoupling, California state

[28] For the language describing these calculations as ordered by CPUC, see Decision 13-09-023 *Decision Adopting Efficiency Savings and Performance Incentive Mechanism*

laws and regulations mandate the acquisition of all cost-effective energy resources, ahead of all supply-side resources.[29]

The energy savings goals are a particularly important part of the package of policies encouraging strong utility energy efficiency program performance.[30] The CPUC established electric and natural gas goals in 2008 for years 2012 through 2020, aiming for 16,300 GWh of gross electric savings over the nine-year period (see CPUC Decision 08-07-047). (For 2010–2012 energy efficiency portfolios, see Decision 09-09-047.) More recent targets under the ESPI are included in the approved 2013–2014 program portfolios and budgets for the state's IOUs. The targets call for gross electricity savings of almost 4,000 GWh and natural gas savings of approximately 94 MMTh for those two years (see CPUC Decision 12-11-015).

All the major investor-owned utilities have had decoupling in place since 2004. As with performance incentives, California has been implementing decoupling in various forms for decades. See more in the ACEEE state policy database.

California Performance Incentive Outcomes

During the 2006–2014 period (including the RRIM, the modified RRIM, and the ESPI), California utilities have generally been increasing electric energy efficiency program budgets (see figure A3). Utilities also achieved higher levels of energy savings in 2012 compared to 2006. However, their savings results showed more fluctuation from year to year.

---

[29] Assembly Bill 1890 (1996) http://www.leginfo.ca.gov/pub/95-96/bill/asm/ab_1851-1900/ab_1890_bill_960924_chaptered.html and Assembly Bill 995 (2000) http://www.energy.ca.gov/renewables/documents/ab995_bill_20000930_chap.html

30 For a history of the CPUC goal setting process by utility through 2010, see http://www.cpuc.ca.gov/NR/rdonlyres/E1E38C4A-5E56-4ACB-B0C9-AFD69656BFA0/0/goalsdecisionssummary.pdf.

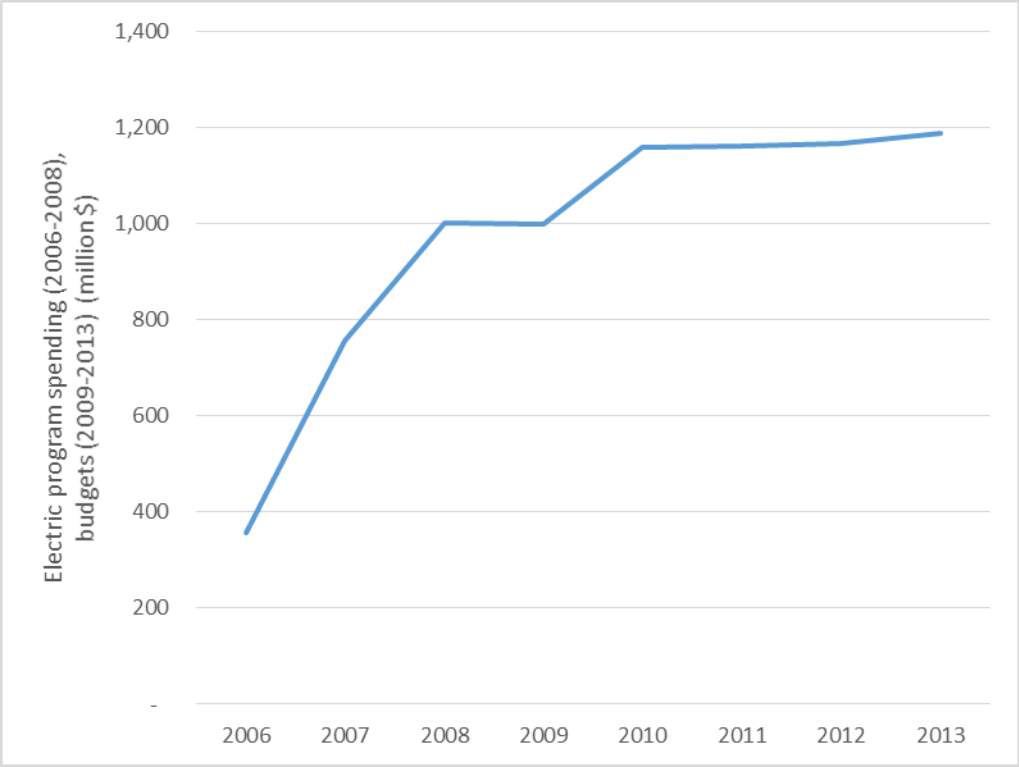

Figure A3. California electric program spending (2006–2008) and budgets (2009–2013). *Source:* ACEEE *State Scorecard* 2007–2013.

Figure A4 illustrates the increase in California electric energy efficiency program savings.

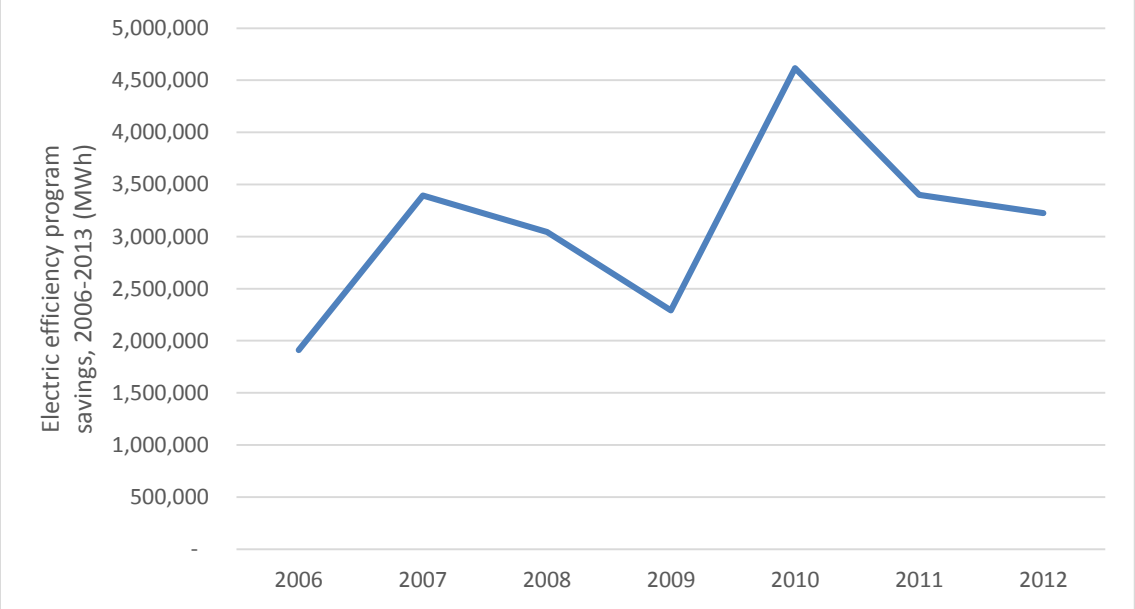

Figure A4. California energy savings 2006–2012. *Source: ACEEE State Scorecard* 2007–2013. Savings from *State Scorecard* are net incremental annual savings from Energy Information Administration Form 861 supplemented with addition data. Some year-to-year variation may be due to in part to net savings calculations methodologies and reporting. For additional data, see California Energy Statistics Portal, http://eestats.cpuc.ca.gov/Views/EEDataPortal.aspx.

Table A3. California energy savings results and performance incentive awards

Actual earnings/award (million $)	DSM total cost (million $)	Energy saved (annual)	Award as percentage of cost
Disbursed actual, 2010: 42.2	2010–2012: 2,508	2010–2012 (gross reported): 9,167 GWh, 155 MMTh 2010–2012 (net evaluated): 4,923 GWh, 94 MMTh	Actual, 2010: 6% 2010-2012, based on policy: 6%
2008 (first progress payment): 82.2 2009 (second progress payment): 61.5 2010 (final installment): 29	2006–2008: 1,929	2006–2008 (reported using ex-ante values): 9,999 GWh, 140 MMTh 2006–2008 (CPUC staff estimate based on evaluation reports): 4,097 GWh, 44 MMTh.	2006–2008: 9%

Sources: CPUC Decision 12-12-032 December 20, 2012. Alternate Decision Approving 2010-2012 Energy Efficiency Incentive Mechanism and Disbursing 2010 Incentive Awards; California Energy Statistics Portal; http://eestats.cpuc.ca.gov/Views/EEDataPortal.aspx ; CPUC staff estimate; Hayes et al. 2011.

Discussion

As a percentage of total energy efficiency spending, performance incentive award amounts for California utilities have ranged approximately from 5% to 9% during the 2006–2014 period. This is in the middle range relative to what other states' performance incentives were averaging during the latter half of this period.

To place these amounts in the context of the evolution of incentives in California, three considerations should be noted. First, the RRIM (2006–2008) started as a shared net benefits mechanism. If it had functioned as originally designed, it is reasonable to expect that actual incentive payments would have provided a substantially higher rate of earnings on EE than what happened. Second, during the 2010–2012 cycle, the amounts were calculated predominantly based on spending, which, compared to a shared net benefits approach, reduces performance risk for the utilities and therefore lower awards may be justified from that perspective. Third, the shift to the ESPI not only represents potential for increasing the incentive payments relative to EE budgets, but also the opportunity for improved regulatory certainty through greater clarity of goals, energy savings measurement, and processes. These improvements will fulfill the CPUC's criteria for an effective mechanism presented in the background section of this case study.

Those we interviewed emphasized the importance of clarity and timeliness in the process leading to EE performance incentive earnings in order for the mechanism to have the optimal, and intended, impacts on utility behavior. In particular they noted that the delays in setting out performance incentives after the efficiency programs have been run has had an adverse effect. Other than the first RRIM for the 2006–2008 program cycle, the mechanism has not been implemented on time. One observer explained that "the [incentive] dollars are not as valuable as if the mechanism and clear expectations were in place on time."

There was support for the ESPI and the current direction of the process. The 2013–2014 mechanism aligns with other CPUC policies to support long-term savings, giving IOUs more opportunity to optimize their energy efficiency portfolio to achieve the greatest returns. Another observer noted that for the utility role in supporting C&S, their investment returns 12% guaranteed, which is attractive. The incentive mechanism is viewed by some on the utility side as helping them to focus on their demand-side management efforts.

Program Evaluation and Regulatory Process

An energy efficiency expert in California summed up how the history of energy savings estimation has figured into performance incentive amounts, saying, "There have been challenges in California in terms of looking at ex ante and ex post savings values and the uncertainty that created for the utilities." There have been a variety of specific concerns over the years leading to conflicts and protracted non-resolution, a full discussion of which is beyond the scope of this case study. One of the many related issues has been how the energy savings that form the basis of the performance incentives should be counted.[31]

Looking Forward

Among those we interviewed in California, their outlook on the design and functioning of the ESPI is positive, considering it to be win-win approach. The CPUC has granted an extension to the Energy Division for complying with the schedule contained in the ESPI for when earnings awards shall be approved. While this is due to the process for evaluation contractors to be hired, get the needed data from the IOUs, and complete their work related to ex post savings—an important determinant of earnings award amounts—the extension is for 90 days only. This is a substantial improvement over the pace of past proceedings as discussed above.

Another shift that is cause for optimism is the move to rolling portfolios and evergreen programs. These create a longer-term framework for energy efficiency program planning. Energy efficiency funding was granted for 2015 and will continue unless changed for 10 years. The traditional program-year- or program-cycle-based approach, in comparison, leaves decision makers—at the utilities, program implementers, contractors, and trade allies—with an incentive to make decisions based on the short term. In conjunction with a predominantly lifecycle-savings-based performance incentive that contributes to utility earnings, the current mix of supportive regulatory policies addresses multiple concerns that impact energy efficiency performance.

INDIANA

Background

Indiana was one of the first states to enact a Certificate of Convenience and Public Necessity statute, back in 1983, requiring utilities to demonstrate need before constructing or

[31] Under the RRIM, the combination of sharp financial penalties for failure to achieve at least 65% of the energy savings goal, with differing estimates of net savings, can make the difference between millions in penalties or millions of dollars in awards. This was the case with PG&E. For a case study of how these two elements influenced California regulation, see Gold 2014.

purchasing new generation facilities. In 1995, Indiana adopted an Integrated Resource Planning (IRP) rule (170 IAC 4-7), requiring electric utilities to develop an IRP that evaluated demand-side and supply-side resources on a comparable basis.

In spite of that framework, the fact that Indiana utilities were achieving very little energy efficiency savings led to a series of hearings and investigations by the Indiana Utility Regulatory Commission (IURC) beginning in 2004, culminating in a landmark order in 2009 (Cause 42693, December 9, 2009). The order established a two-part approach, with utilities contracting with a single independent third-party administrator for a basic set of statewide programs (core programs), and utilities individually administering additional energy efficiency programs (Core Plus programs) in their own service territories, to address aspects not covered by the Core programs. The order also established an EERS, requiring utilities to meet annual savings goals. The goals began at 0.3% of annual sales in 2010, increasing to 1.1% in 2014, and leveling off at 2.0% in 2019.

With regard to the issue of utility performance incentives for energy efficiency, Indiana had actually established a performance incentive rule in 1995 (170 IAC 4-8-6) as part of its guidelines for DSM cost recovery. However, as noted above, very little DSM was taking place. Now, subsequent to the 2009 order, four out of the five major electric utilities (Indiana Michigan Power [I&M], Indianapolis Power and Light [IPL], Vectren Indiana, and Duke Energy Indiana) have approved mechanisms. (Per the IURC 2009 order, utilities are eligible to apply for shareholder incentives relating to their Core Plus programs.) Table A5 provides summary data for three of the utilities.

In March 2014 the Indiana legislature voted (SB 340) to end many of the aspects of the IURC 2009 order, effectively eliminating both the Core program requirement and the annual savings goals that had been established by the IURC. Governor Mike Pence neither signed nor vetoed the bill, and it became law in April 2014. While the legislation did not alter the state's policy regarding utility incentives for energy efficiency, the entire framework for utility energy efficiency programs in Indiana is somewhat uncertain at this point.

Policy Details

In the first phase of incentives after the 2009 order, three utilities (IPL, Vectren, and Duke) originally had similar tiered-savings mechanisms, where the incentive is calculated as a percentage of program costs, and the percentage to apply is determined by the level of savings achieved relative to the savings goal for that year. There is also the potential for a penalty, if savings achieved are less than 50% of the goal. Vectren subsequently had its incentive modified to a share of net benefits approach (see description below), and Duke's tiered structure has been updated per settlement agreement included in an order issued under 43955 DSM-2. Duke now has additional constraints such as a higher floor, no penalty, a lower ceiling, and an overall cap on incentive earnings. We provide the most recent incentive structure for Duke Energy as an example in table A4.

Table A4. Duke incentive structure

Percentage of annual kWh target achieved	Incentive as percentage of EE program cost
0–74.99%	0%
75–79.99%	6%
80–89.99%	8%
90–99.99%	10%
100–109.99%	12%
≥ 110%	12.13%

Source: Cause No. 43955 DSM 02 Final Order

Savings for these tiered-savings mechanisms are calculated on a gross-savings basis.

For more details, see the most recent orders for each utility addressing the mechanism (IPL; Cause No. 44497; Vectren: Cause No. 44495; Duke: Cause No. 43955).

Two utilities (I&M and Vectren) now have an incentive mechanism designed as a share of net benefits. The mechanism calculates net benefits using the utility-cost approach (i.e., total utility EE program costs compared to utility system benefits in the form of avoided capacity and energy costs). The incentive that may be earned is capped at an amount equivalent to a certain percentage of program costs (Vectren 10%, I&M 15%). For those utilities with authority to receive an incentive, all must achieve some minimum percentage level of the savings goal in order to qualify for an incentive.

For more details on the I&M mechanism, see Cause No. 44486, December 3, 2014.

To illustrate the results of these mechanisms, the table provides the energy savings and incentive results for the most recent two years for two largest tiered-savings utilities and one share of net benefits utility.

Other Relevant Regulatory Features

Indiana previously had an EERS in place, but this policy was eliminated by the 2014 Indiana General Assembly. Four of the five largest IOUs in Indiana currently collect lost margins for sales lost because of efficiency programs. The fifth utility, Indianapolis Power and Light, is awaiting a commission order to recover lost margin. There are no electric companies in Indiana with decoupled rates. However, of the three largest natural gas distribution companies operating in the states, two of them have decoupled rates for most rate classes. Finally, Indiana offers companies the opportunity to participate in a voluntary renewable portfolio standard to earn a higher return on equity for rate base facilities. Energy efficiency savings are one means of a company meeting the voluntary standard. However no company has formally requested commission approval to participate in the standard.

Energy Savings Outcomes

Figure A5 illustrates the increase in Indiana's electric energy efficiency program savings.

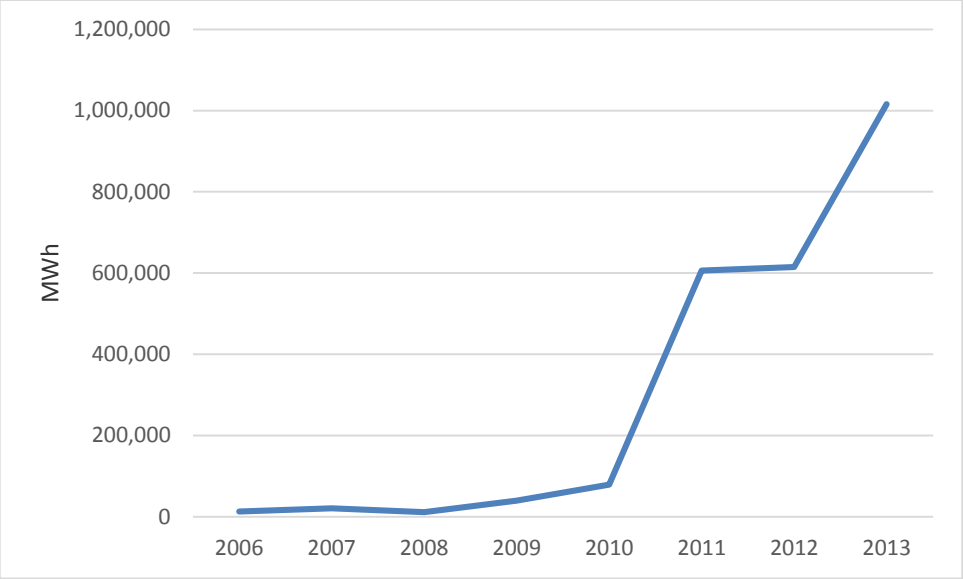

Figure A5. Indiana's energy savings 2006–2013. *Source:* ACEEE *State Scorecard* 2007–2014.

Financial Outcomes

Table A5 shows utility incentives and program costs.

Table A5. Utility energy efficiency program cost and performance incentive amounts

Company	Incentive	Program cost	Total annual energy savings (MWh)	PI as percentage of program cost
		2013		
Duke Energy	$981,232	$9,035,050	78,472	10.86%
Indianapolis Power and Light	$463,760	$5,797,000	43,902	8.00%
Indiana Michigan Power	$826,646	$8,336,021	21,981	9.92%
		2012		
Duke Energy	$757,080	$5,047,198	51,288	15.00%
Indianapolis Power and Light	$362,640	$6,521,640	18,572	5.56%
Indiana Michigan Power	$0	$949,178	3,311	0.00%

Source: Indiana Utility Regulatory Commission

Discussion

As noted above, Indiana had established the possibility of utility performance incentives (as well as lost revenue recovery) in 1995, in connection with its integrated resource planning rule and guidelines for DSM cost recovery (170 IAC 4-8-6). The utility response in terms of energy efficiency programs prior to the 2009 IURC order was very minimal and deficient in many respects (e.g., lacking evaluation plans and protocols). Therefore there was little impetus to move forward with things like performance incentives and LRAM.

Consequently, a key objective in approving the shareholder incentives mechanisms in 2009 and 2010 was to support achievement of the energy efficiency goals established in the 2009 order. The results have been fairly successful. Three out of the five utilities met their targets for 2012. Four out of five met them for 2013, and all but one met their cumulative targets for the three-year time frame 2011–2013. In the opinion of staff interviewed, the incentives did significantly affect utility behavior—in terms of both utility energy efficiency budgets and savings—but this was particularly in the context of the 2009 order requiring energy efficiency programs. In the words of one staff member,

> The primary thing that affected utility behavior is that DSM was no longer voluntary with the issuance of the 2009 order. It was mandatory. It was structured. It had compliance deadlines and oversight boards. At that point the LRAM and incentives became a huge focus for utilities.

From the Indiana experience, an overarching observation is that the existence of a policy allowing performance incentives (and also lost revenue recovery) was apparently not sufficient to generate meaningful utility energy efficiency programs in the decade preceding the 2009 IURC order. In the opinion of both Staff and advocate organizations, the key factor was the 2009 order creating the annual energy savings requirements (i.e., essentially an EERS).

It remains to be seen how utility performance will fare now that the annual savings requirement has been terminated. At this point the Indiana utilities have all filed and had approved one-year plans to continue some energy efficiency programs during 2015. Early indications suggest that while programs will continue, they will deliver lower savings than in previous years.

Evaluation

For the Core Plus programs, the programs for which a performance incentive is possible, each individual utility is responsible for hiring an independent evaluator to evaluate its programs. Although there is no formal central oversight process such as there was with the DSM Coordinating Committee for the statewide Core programs, each utility has an oversight committee with, at a minimum, representatives from the OUCC, and most also have participation from other stakeholders. The committees are involved in reviewing the work and reports prepared by the evaluator.

For the utilities using the simple tiered-incentive approach described earlier, gross savings are used as the indicator of program impact. For the utilities using a share of net benefits approach, savings are determined using net savings (i.e., adjusted for free-riders).

Process

The experience with the performance incentive mechanisms is fairly limited thus far, and it is too soon to draw conclusions about the process. Staff felt that as utilities utilize and incorporate program evaluation results into the calculations the utilities use to determine their requested incentives, important experience will be gained and the process improved. The OUCC is theoretically in a position to audit the process utilities use and their reported numbers, although the limited time and resources available to the OUCC limits their ability

to audit. This need is partially offset by the participation of the OUCC in the utility-specific oversight boards.

Looking Forward

Interestingly, all three utilities that originally had a tiered incentive structure have requested a shared net benefits approach, such as the structure used for I&M. More broadly, however, the policy landscape for utility energy efficiency in Indiana is fairly uncertain at this point. In the governor's letter to the legislature after the enactment of SB 340 he stated,

> I have requested the Indiana Utility Regulatory Commission to immediately begin to develop recommendations that can inform a new legislative framework for consideration during the 2015 session of the Indiana General Assembly.

This suggests that the entire framework for utility energy efficiency programs in Indiana is up for revision. It is yet to be determined whether there will be any type of utility energy efficiency requirements at all (much less annual savings targets), and what associated policies (e.g., LRAM, decoupling, performance incentives) will remain or will be put in place.

At this point the Indiana utilities have all filed one-year plans to continue some energy efficiency programs during 2015. It is noteworthy that now that the IURC annual savings targets have been struck down by SB 340, the projected savings from the voluntary utility plans are, in aggregate, about half of what would have been required under the previous IURC standard.

MASSACHUSETTS

Background

Performance incentives for energy efficiency have existed in Massachusetts for electric companies since the early 1990s. The current performance incentive policy was established in the Green Communities Act of 2008. The act required gas and electric companies to file energy efficiency investment plans with the Department of Public Utilities (DPU). The three-year plans required detailed acquisition strategies for all cost-effective energy efficiency. The plans also were to include a proposal for a mechanism to recover a performance incentive based on meeting or exceeding goals proposed in the plan.[32] There have been two cycles of three-year plans filed since the enactment of the Green Communities Act. The first plan laid the foundation for a performance incentive based on DPU precedent and guidelines included in the Green Communities Act of 2008.

The first three-year plan was filed in 2009 for program years 2010 through 2012. The performance incentive mechanism approved with this plan was made up of three components: a savings mechanism, a value mechanism, and a performance metric mechanism. Both the savings and value mechanism incentive payments are based on benefits for the energy efficiency programs. The savings mechanism focused on total benefits, while the value mechanism focused on net benefits. The payout rate for both

[32] Green Communities Act 2008. Sec 21 (b)(2)

incentives is applied uniformly across all program administrators including investor-owned utilities (PAs) and determines the incentive amount a PA can receive for each dollar of benefit achieved through the implementation of a program.[33] The payout rates were calculated based on projected benefits and a statewide available incentive pool of $65 million. The allocation of the incentive pool to individual PAs is based on the PA contribution to the statewide savings goals.

The performance metric incentive created both overall targets and targets for specific customer sectors. An incentive amount was allocated for individual PAs after meeting targets specific to each metric. The DPU required PAs to demonstrate annually how each metric was fulfilled. Some metrics, such as CoolSmart: Increase Percent of Correct Installations were easy to quantify.[34] Others, such as the MassSAVE/Weatherization: Increase Direct Installation (DI) bulb penetration, were more difficult to quantify. For the metrics that were more difficult to quantify, the DPU required PAs to make a showing on how necessary steps were taken to meet the specific goal.

Table A6 shows the features and details of the three components of the incentive mechanism.

Table A6. Massachusetts performance incentive structure 2010–2012 three-year plan

Component	Percentage of incentive pool	Purpose	Threshold/limit	Calculation of incentive
Savings mechanism	2010: 45% 2011: 50% 2012: 52%	Encourage maximum total benefits	75% of MWh goal, no limit	Payout equal to percentage of the statewide incentive pool allocated to the savings mechanism divided by the projected statewide benefits multiplied by actual benefits
Value mechanism	35%	Encourage maximum net benefits and cost-effectiveness	75% of MWh goal, no limit	Same as savings mechanism, but instead of total benefits, net benefits are used
Performance metrics	2010: 20% 2011: 15% 2012: 13%	Encourage benefits not included in value and savings mechanism	75% – Threshold 100% – Design 125% – Exemplary	Varies by metric

*** Performance metric incentive specifics were approved in Orders in DPU 09-116B through DPU 09-118B and DPU 09-120 through DPU 09-127B. *Source:* DPU 09-116 through DPU 120 January 28, 2010 Order.**

[33] Order on DPU 09-116 through DPU 09-120.

[34] This performance metric required electric utilities to increase the percentage of quality installs and properly sized installs in homes that receive a CoolSmart rebate. The goal is based on the increase in percentage over the baseline.

The most recent performance incentive mechanism was approved for the 2013 through 2015 three-year plans.[35] There were several changes in the performance incentive mechanism from the 2010 through 2012 three-year plan. The total statewide performance incentive pool is $80,056,269 for electric program administrators and $16,002,485 for gas. This was an increase in the electric pool and a decrease in the gas pool. Instead of a 75% threshold for PAs to earn the savings and value incentives, each PA has a different energy savings threshold required to begin earning a performance incentive. For example, Unitil Electric must meet 76.72% of its goals before earning an incentive, while Columbia Gas only needs to meet 70.78%. The allocation of the incentive pool also changed. Instead of an annual change in the savings mechanism and performance metric allocation of the pool, fixed percentages were used for all three years. These allocations are listed below under the policy details section. Finally, the performance metric goals were updated and some metrics were eliminated.

Other Relevant Regulatory Features

The Massachusetts Green Communities Act of 2008 requires electric and gas utilities to obtain all cost-effective energy efficiency. Three-year goals are established in triennial plans filed by electric and gas utilities. Electric and gas utilities in Massachusetts have also been fully decoupled since 2008.

Policy Details

Currently, the structure of the incentive mechanism for the 2013–2015 three-year program plans includes two components: the savings and value mechanisms. The performance incentive for each utility is the sum of these two components. The calculation of the savings component payout is the adjusted statewide incentive pool divided by the projected dollar value of statewide benefits. The calculation produces a payout rate per dollar of total benefits. The payout rate for the value mechanism is determined in the same manner except net benefits are used instead of total benefits.

The approved incentive pool available for the 2013–2015 period is $80,056,269 for electric program administrators and $16,002,485 for gas. This pool is equal to approximately 5% of the statewide electric budgets and 3% of the statewide gas program budget. The allocation of the statewide incentive pool is as follows: 61.5% to savings mechanism and 38.5% to value mechanism. The thresholds for both savings and value mechanisms, shown in table A7, vary by utility.

Table A7. Massachusetts performance incentive savings and thresholds by utility 2013–2015

Program administrator	Threshold (%)
Unitil (electric)	76.72
Berkshire Gas	76.72
NEGC	76.72

[35] *See* Massachusetts Three Year Efficiency Plans Order DPU 12-100 through DPU 12-111. 1/31/13.

Program administrator	Threshold (%)
Unitil (gas)	76.72
NSTAR Electric	76.32
NSTAR Gas	76.25
National Grid (electric)	75.65
National Grid (gas)	75.16
WMECo	72.46
Columbia Gas	70.78

Source: Massachusetts Three-Year Efficiency Plans Order DPU 12-100 through DPU 12-111, 1/31/13

Outcomes

Table A8 shows program costs, energy savings, and incentives for electric and gas. companies.

Table A8. Massachusetts statewide energy efficiency program cost and performance incentives, 2003–2013

Year	Program cost	Energy savings	Performance incentive	Percentage of program costs
Electric (MWh)				
2003	$107,980,774	317,571	$8,313,920	7.70%
2004	$122,694,191	442,164	$9,625,058	7.84%
2005	$113,875,666	454,726	$9,607,335	8.44%
2006	$120,352,651	417,031	$10,128,897	8.42%
2007	$110,976,339	489,622	$9,181,020	8.27%
2008	$115,103,427	388,254	$9,281,413	8.06%
2009	$175,526,256	424,617	$12,904,615	7.35%
2010	$221,090,179	603,460	$17,577,689	7.95%
2011	$254,692,915	765,226	$20,478,218	8.04%
2012	$361,392,739	950,887	$24,145,526	6.68%
2013*	$466,748,563	1,026,520	$27,379,880	5.87%
Gas (MMBtu)				
2010	$62,657,153	1,123,915	$4,075,030	6.50%
2011	$97,247,817	1,518,116	$4,213,081	4.33%
2012	$135,120,261	2,262,716	$5,165,768	3.82%
2013*	$171,403,031	2,466,798	$5,413,645	3.16%

* 2013 data not yet approved. *Source:* DPU.

The data show a consistent recovery of approximately 8% of program cost as a performance incentive since 2003. Performance incentives paid have declined in recent years as the total amount available for performance incentives has declined relative to program costs. The

total dollar amounts of incentives have still been increasing and are projected to continue to increase as program costs continue to increase. While the performance incentive pool has been limited to approximately 5% of total program cost since 2010 for electric utilities, program administrators are able to earn additional incentives for exceeding planned total benefits, net benefits, and performance metric goals. This is the reason the percentage of program costs has exceeded 5% since 2010. Overall, program administrators in Massachusetts have been exceeding planned performance goals to earn performance incentives greater than 5% of program cost.

Discussion

Massachusetts' newest performance incentive structure is still being refined after going through two approval processes in 2009 and 2012. The consensus of the stakeholders interviewed by ACEEE staff for this report is that performance incentives have been successful in encouraging higher levels of performance. This may be due to the combined effect of multiple policies creating an overall environment that addresses disincentives and pulls for higher savings: all cost-effective energy efficiency, decoupling, savings goals, high program budgets, etc. The performance incentive mechanism is designed to incentivize program administrators to meet savings goals in the most cost-effective manner. The performance metric mechanism is designed to achieve other policy objectives for specific programs. The debate in Massachusetts regarding the performance incentive has focused on the total incentive pool, not the existence or nonexistence of an incentive.

Looking Forward

Currently, Massachusetts is in the middle of a three-year energy efficiency plan cycle. New three-year plans for 2016 through 2018 will be filed next year. Within those plans, it is likely program administrators and other stakeholders will file requested changes to existing performance incentives. However Massachusetts operates some of the most successful utility-sponsored programs in the country. Major changes to the incentive structure or elimination of incentives entirely is not expected in the near future.

MICHIGAN

Background

Michigan had a history of fairly aggressive energy efficiency programs until 1995, when energy efficiency programs and integrated resource planning were discontinued during the move toward electric restructuring. Michigan had essentially no utility-sector energy efficiency programs from 1996 until 2008.

Public Act 295 of 2008 (enrolled SB 213) brought energy efficiency programs back to Michigan in the form of an EERS that requires all electric utilities and all natural gas utilities to file energy optimization (efficiency) programs with the Michigan Public Service Commission (MPSC). Public Act 295 offers multiple options for utilities for energy efficiency program administration, including administration by the utility itself, or through an independent administrator selected by the MPSC. In practice, the largest utilities in the state have chosen to administer their own energy efficiency programs.

PA 295 established an EERS with annual savings requirements for electric utilities of 0.3% in 2009, 0.5% in 2010, 0.75% in 2011, and 1.0% per year for 2012 through 2015 and each year

thereafter. For natural gas utilities, the EERS savings was 0.1% in 2009, 0.25% in 2010, 0.5% in 2011, and 0.75% per year for 2012 through 2015 and each year thereafter. Spending for each utility was capped at 0.75% of total retail revenues in 2009, 1.0% in 2010, 1.5% in 2011, and 2.0% in 2012 and each year thereafter.

PA 295 (2008) contains two provisions whereby utilities can receive an economic incentives for implementing energy efficiency programs. First, they are allowed to request that energy efficiency program costs be capitalized and earn a normal rate of return. Second, they are allowed to request a performance incentive for shareholders if the utilities exceed the annual energy savings target. Performance incentives cannot exceed 15% of the total cost of the energy efficiency programs, or 25% of net benefits, whichever is less.

Act 295 also authorized natural gas decoupling, which has been implemented in a series of commission orders. The MPSC subsequently approved decoupling proposals for electric utilities Consumers Energy and Detroit Edison (U-15768 and U-15751), but commission decoupling orders for electric utilities were overturned in court on the basis of lack of specific statutory authority. (See Michigan Court of Appeals *Association of Businesses Advocating Tariff Equity v. Michigan Public Service Commission*, April 10, 2012). In light of the court's determination, the commission dismissed all pending cases involving electric revenue decoupling.

Incentive Policy Details

The utility energy efficiency performance incentive mechanism in Michigan has evolved somewhat over time. Initially it was a fairly simple sliding scale of incentive (defined in terms of percentages of energy efficiency program spending), tied to meeting or exceeding the energy savings annual target. The maximum incentive that could be earned was an amount equivalent to 15% of program spending or 25% of net benefits, whichever was smaller.

The current mechanism is a performance-based incentive with multiple criteria (one of which is still the amount of savings relative to the goal, but others include things like meeting minimum levels of low-income customer participation, the percentage of participating customers that install multiple measures, etc.). The current mechanism for the two largest utilities was established in 2012 and implemented for program year 2013.

The amount of incentive is still capped at the statutory level (15% of spending or 25% of net benefits). Additional threshold requirements are an overall portfolio benefit-cost ratio (using the Utility System Resource Cost Test, i.e., a utility cost test) of 1.25, and meeting 100% of the annual energy savings goal. There are no penalties in the incentive mechanism. Savings are determined using net savings.

Other Relevant Regulatory Features

Michigan adopted an EERS in 2008 with the passage of the Clean, Renewable, and Efficient Energy Act (PA 295). The EERS has both electric and gas savings targets that increase annually. The Michigan Public Service Commission previously approved decoupling for the state's two largest investor-owned electric utilities, Consumers Energy and DTE Energy, but the ruling was overturned by the state appellate court. Natural gas companies in Michigan

have implemented a decoupled rate structure as natural gas distribution companies were not affected by the appellate ruling overturning electric decoupling.

Energy Savings Outcomes

Figure A6 illustrates the increase in Michigan electric energy efficiency program savings.

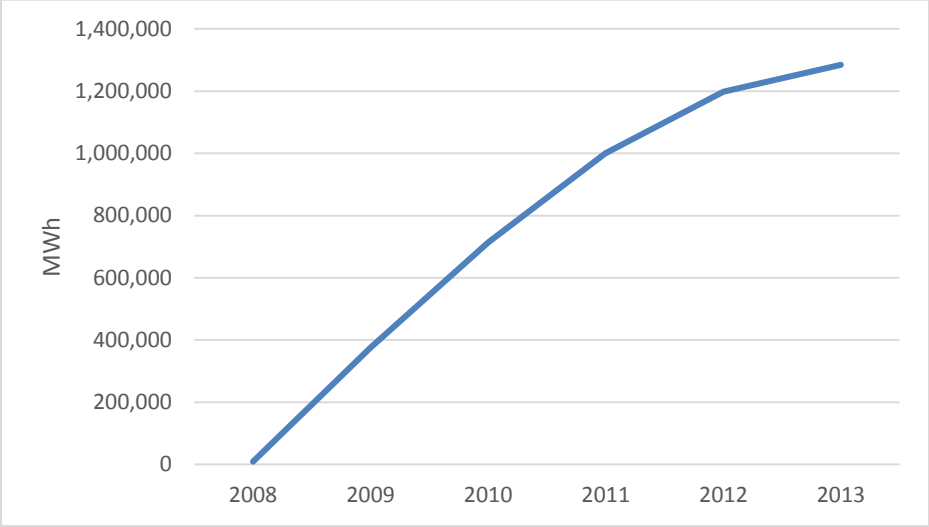

Figure A6. Michigan energy efficiency savings 2008–2013. *Source:* ACEEE *State Scorecard* 2009–2014.

Financial Outcomes

Table A9 shows 2012-2013 Michigan performance incentives and savings.

Table A9. Michigan energy efficiency performance incentives and savings, 2012–2013

Company	Incentive	Fuel	Program cost	Total annual energy savings	PI as percentage of program cost
2013					
Consumers Energy	$17,530,000	Gas	$47,776,949	2,173,124 MCF	15.00%
		Electric	$69,097,040	473,045 MWh	
DTE Energy	$15,085,266	Gas	$25,600,000	1,436,000 MCF	15.00%
		Electric	$74,900,000	614,000 MWH	
2012					
Consumers Energy	$17,327,620	Gas	$48,148,786	2,378,978 MCF	15.00%
		Electric	$67,369,007	409,353 MWh	
DTE Energy	$14,732,686	Gas	$28,600,000	1,186,000 MCF	15.00%
		Electric	$69,600,000	611,000 MWH	

Source: Michigan Public Service Commission

Discussion

The regulatory package established in Michigan in 2008 through PA 295 appears to have worked very well. Michigan utilities went from essentially no-customer energy efficiency programs prior to the legislation, to meeting and exceeding the EERS savings goals every year since the legislation. By all accounts the existence of the utility performance incentive has been a major factor in securing utility management support for the energy efficiency programs. As shown in table A9, the major utilities have generally succeeded in earning the maximum incentive each year.

One concern that has been identified is the tendency for EERS goals established in terms of annual savings to motivate the use of quick, short-term savings measures and programs rather than more comprehensive and longer-term measures. That is one reason the MPSC staff modified the incentive mechanism structure to include elements of comprehensiveness, and not just first-year annual savings.

Evaluation

Utilities are responsible for hiring independent evaluation consultants to evaluate their programs. For key assumptions and technical inputs, the evaluators must use the technical reference manual that is established and overseen by the MPSC through a multiparty energy optimization collaborative process. Utilities submit evaluation results and incentive claims that are reviewed and decided upon in a contested-case process.

Michigan uses net savings for determining any incentive awards.

Looking Forward

Michigan's legislation (PA 295) called for a review of the utility energy efficiency policy in 2015. By all accounts, the policy has been very successful to date, so one might not expect major changes. Two areas for improvement that have been discussed are eliminating the spending cap on energy efficiency programs (currently 2% of utility revenues) and clarifying that electric utilities are eligible for decoupling.

MINNESOTA

Background

Minnesota has a long history of utility energy efficiency programs, dating back well over two decades. In the mid-1990s, Minnesota tried out an LRAM policy, but the cumulative amounts of lost revenue recovery over time became excessive and controversial. The LRAM policy was ended in 1999, and the state shifted to a shareholder incentive approach. Minnesota has maintained substantial utility energy efficiency programs throughout that time period to the present.

In 2007, the Minnesota Legislature passed the Next Generation Energy Act of 2007 (Minnesota Statutes 2008 § 216B.241). Among its provisions is an EERS that sets energy-saving goals for utilities of 1.5% of retail sales each year. This act also directed the Public Utilities Commission 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. Although no decoupling mechanism had yet been adopted for an electric utility as of February, 2015, two gas utilities do have decoupling in place. The commission continues to examine

decoupling and has established criteria and standards to be used when considering proposals from utilities. A decoupling proposal for Xcel is before the commission.

Minnesota has had a shared benefit incentive mechanism in place since 1999. The details have been modified at various times. The current version is described below. Also, Minnesota's regulated utilities are required to file integrated resource plans with the Public Utilities Commission.

Policy Details

Minnesota's utility performance incentive for energy efficiency is based on a shared net benefits approach. The most recent version was approved on December 12, 2012. The incentive mechanism starts at a threshold of energy savings achieved equal to the lesser of 0.4% of retail sales or 50% of an average of the last five years' achievement levels. As energy savings levels increase to 1.5% of retail sales, utilities are awarded an increasing share of net benefits created. The mechanism is calibrated so that when electric utilities achieve energy savings approximating 1.5% of retail sales, the utility is rewarded with an incentive equal to an average of 7 cents per first year kWh saved. The amount of the incentive varies with the actual cost effectiveness of the implemented projects. There are two caps on the amount of incentives: the average incentive may not exceed 8.75 cents per first year kWh and may not exceed 20% of net benefits. That is the case for Xcel Energy, Interstate Power and Light, and Otter Tail Power. For Minnesota Power, the caps are 8.75 cents per first year kWh and 30% of net benefits.

Incentive payments are based on gross savings. There is no penalty component to the mechanism.

Natural gas utilities have a very similar incentive mechanism, except that the incentive structure is calibrated around a 1% annual savings target, instead of the 1.5% for electric utilities.

Other Relevant Regulatory Features

In 2007, the Minnesota legislature passed an EERS setting savings targets for electric and gas utilities. Minnesota does not allow electric companies to collect lost revenue associated with energy efficiency but has approved decoupling for two natural gas distribution companies, Minnesota Energy Resources Corporation and Center Point Energy.

Energy Savings Outcomes

Figure A7 illustrates the increase in Minnesota electric energy efficiency program savings.

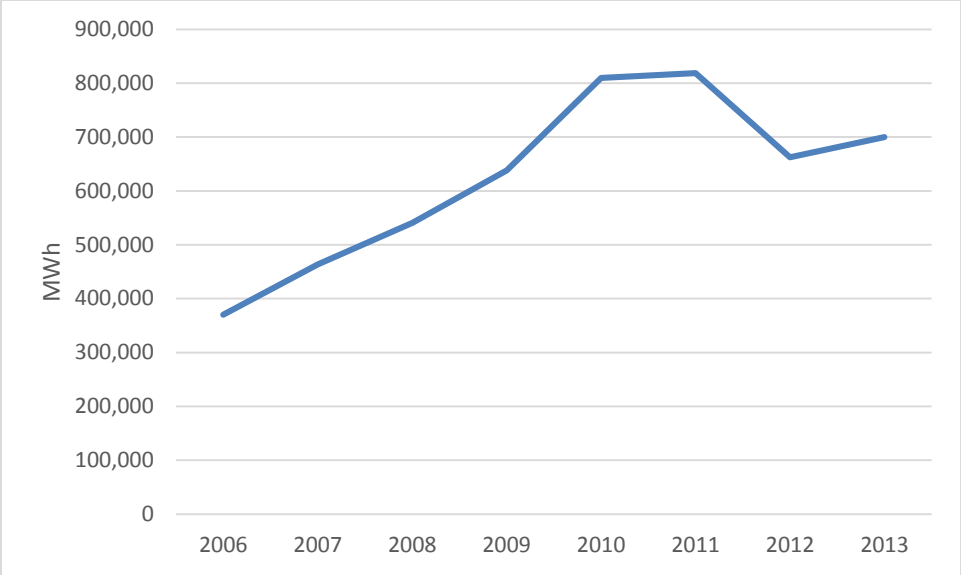

Figure A7. Minnesota energy efficiency savings 2006–2013. *Source:* ACEEE *State Scorecard* 2007–2014

Outcomes

Table A10 shows 2011–2012 Minnesota performance incentives and savings.

Table A10. Minnesota gas and electric energy efficiency program cost, savings, and performance incentives, 2011–2012

Company	Incentive	Program cost	Total annual energy savings	PI as percentage of program cost
		2012		
Xcel Electric	$53,911,925	$87,071,903	533,478 MWh	61.92%
Otter Tail Power	$2,681,575	$4,816,994	30,794 MWh	55.67%
Center Point Energy	$3,207,411	$19,226,405	13,664 Dth	16.68%
Xcel Gas	$2,682,879	$13,040,587	7,671 Dth	20.57%
		2011		
Xcel Electric	$52,004,975	$76,302,262	465,444 MWh	68.16%
Otter Tail Power	$2,608,094	$4,344,581	27,958 MWh	60.03%
Center Point Energy	$4,950,392	$18,990,010	15,284 Dth	26.07%
Xcel Gas	$2,833,202	$11,359,730	7,471 Dth	24.94%

Source: Minnesota Public Service Commission

Discussion

Minnesota's current utility performance incentive approach may well be providing the highest level of energy efficiency performance incentives as a percentage of program costs in the nation. As shown in table A10, over the most recent two years for which data are available, the incentives have been equivalent to well over half to as much as two-thirds of

program costs for the electric utilities. This has been a source of concern for many parties, including the attorney general, industrial customer representatives, and the staff of the Minnesota Department of Commerce.

It should be noted that Minnesota's electric utilities had neither LRAM nor decoupling mechanisms in place during this time period. In the absence of a decoupling mechanism, it is possible that the performance incentive may have functioned in part as a way to mitigate utility concerns about the impact of energy efficiency on the recovery of its authorized revenue requirement. Natural gas utilities do have decoupling, and their incentive amounts relative to program spending are much lower. Nevertheless, the question has been raised as to whether that high level of incentive is really necessary to sustain a high level of electric energy efficiency program effort.

Evaluation

Energy savings for prescriptive rebates are based on energy savings found in the Minnesota Technical Reference Manual and customized savings algorithms approved by the Department of Commerce as part of a utility's DSM plan.[36] A measurement and verification protocol exists for larger projects, including billing analysis and submetering.

Utilities analyze their programs using the above protocols and submit the results to the commission in a docket to claim the incentive. Other parties can weigh in on the calculation of the incentive and the timing. The commission then issues an order for an approved incentive amount, and these amounts are rolled into the energy efficiency charge to customers (along with program costs).

Looking Forward

The largest electric utility in the state, Xcel Energy, has a pending proposal to adopt decoupling, and that may change the dynamics around the amount of performance incentive allowed. Also, the Department of Commerce is conducting a review and is due to release a report in July 2015, to include recommendations on these issues.

MISSOURI

Major legislation was enacted in 2009 that marked a major turning point for utility energy efficiency programs in Missouri. The Missouri Energy Efficiency Investment Act (MEEIA, SB 376), passed and signed into law in 2009, established a regulatory framework for utility energy efficiency programs to value demand-side investments equal to traditional investments in supply and delivery infrastructure. Prior to passage of MEEIA, Missouri had limited energy efficiency programs for utility customers even though utilities were required to file and implement electric utility integrated resource plans.

Key provisions of MEEIA specifically address the utility business model. Under MEEIA the Public Service Commission is to

[36] http://mn.gov/commerce/energy/topics/conservation/Design-Resources/Technical-Reference-Manual.jsp.

- provide timely cost recovery for utilities
- ensure that utility financial incentives are aligned with helping customers use energy more efficiently
- provide timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings

MEEIA opened the door for electric utilities to propose and establish demand-side program investment cost-recovery mechanisms (DSIM) for demand-side management energy efficiency programs. Addressing the utility business model was critical for Missouri's utilities to move ahead with such programs. One of Missouri's utilities, in fact, had established a fairly large portfolio of programs at the time MEEIA was enacted. Ameren Missouri had launched a portfolio of customer programs totaling about $70 million over a three-year period (2009–2011). However the company rolled back this level of program spending and associated activity when efforts to establish cost recovery and incentive mechanisms meeting the above objectives were not approved in the company's 2011 general rate case. When the commission and utility reached an agreement that established a DSIM, the impact was significant. The stipulation and agreement was between Ameren Missouri and parties to its 2012 MEEIA (2013–2015 plan) application; the agreement was approved by the commission on August 12, 2012. Ameren soon launched a full portfolio of energy efficiency programs totaling $145 million over the three-year program period.

The story is similar for Kansas City Power & Light (KCP&L), which had limited energy efficiency programs and associated investment prior to establishing its own version of a DSIM late in 2014. Once in place KCP&L initiated a portfolio of energy efficiency programs totaling $28.6 million over 18 months, after which time the company is expected to implement a full three-year plan. KCP&L Greater Missouri Operations (GMO), a utility-operating company owned by the same corporation as KCP&L and that serves an area surrounding Kansas City, has followed a similar path as KCP&L. GMO had in place a small set of programs prior to establishing a DSIM; with this in place the company is proceeding with a greatly expanded set of programs.

Other Relevant Regulatory Features

The DSIMs in place for Missouri's utilities contain provisions both for recovery of programs' costs and lost revenues resulting from the programs and the opportunity for incentive awards. The incentive mechanisms are based on receiving a percentage of net shared benefits as determined by deemed savings for lost revenues recovery and by program evaluations for incentive awards. MEEIA's provisions supporting energy efficiency are not mandatory. MEEIA enables utilities to propose and implement such programs but does not require them. The specific language from the statute is the following:

> The Commission shall permit electric corporations to implement Commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side savings.

Decoupling requires periodic adjustments to true up rates and allowed revenues; these adjustments are viewed as rate-making outside of general rate cases. Some parties believe Missouri's existing statutes could be interpreted so as to allow decoupling. To date there

have been no decoupling proposals associated with DSM programs submitted to or considered by the commission.

Policy Details

The basic structure of the demand-side incentive mechanisms (DSIMs) established for Ameren MO, KCP&L, and GMO is the same, but details differ.

Ameren Missouri's DSIM was established by a unanimous stipulation and agreement resolving Ameren Missouri's MEEIA Filing (Case No. E0-2012-142) among Ameren Missouri, the staff of the Missouri Public Service Commission, the Office of Public Counsel, the Missouri Department of Natural Resources, the Natural Resources Defense Council, Sierra Club, Renew Missouri (Earth Island Institute), the Missouri Industrial Energy Consumers, and Barnes-Jewish Hospital. The DSIM agreed to by these parties and approved by the Commission addresses program cost recovery, net shared benefits relating to the throughput disincentive, and net shared benefits relating to the performance incentive. The provision addressing net shared benefits relating to the performance incentive is structured this way:

- After the conclusion of the three-year MEEIA plan period and using final EM&V results, Ameren Missouri will be allowed to recover the performance incentive, which is a percentage of net shared benefits (NSB) according to the graduated or sliding scale (shown in the schedule below). The cumulative annual net megawatt-hours determined through EM&V to have been saved as a result of the MEEIA programs will be used to determine the amount of the performance incentive. The sliding scale established determines the amount of the performance incentive award amount for the three-year MEEIA plan.
- The savings metric used to determine the performance incentive is equal to the cumulative net MWh savings determined through EM&V divided by Ameren Missouri's total targeted 793,100 MWh, which is the cumulative annual net MWh savings in the third year of the three-year MEEIA Plan period.
- The targeted net energy savings are adjusted annually for full program-year impacts on targeted net energy savings caused by actual opt-out.
- Actual net energy savings for each program year are determined through the EM&V, including full retrospective application of net-to-gross ratios at the program level using EM&V results from each of the three program years. The sum of these three program years' annual net energy savings is used to determine the amount of the performance incentive award, following the schedule presented in table A11 and figures A8 and A9.

Table A11. Ameren Missouri performance incentive schedule

% of MWh target	Three-year total ($MM)	% of net benefits*
<70	$0.00	0.00%
70	$12.00	4.60%
80	$14.25	4.78%
90	$16.50	4.92%
100	$18.75	5.03%
110	$22.50	5.49%
120	$26.25	5.87%
130	$30.00	6.19%
>130		6.19%

* Includes income taxes (i.e., results in revenue requirement without adding income taxes). The performance incentive awarded will be based on percentage of net benefits. The percentages are interpolated linearly between the performance levels. *Source:* Missouri Public Service Commission

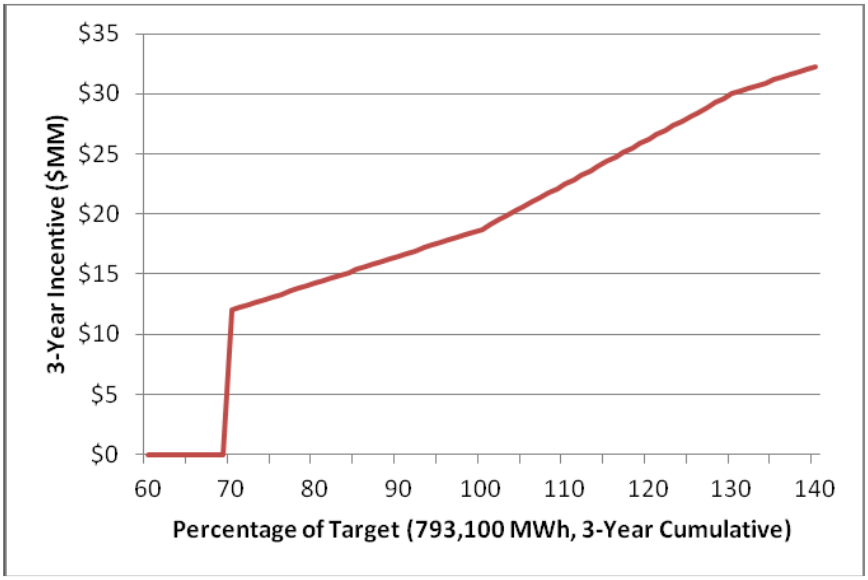

Figure A8. Ameren Missouri performance incentive schedule in dollars. *Source:* Missouri Public Service Commission.

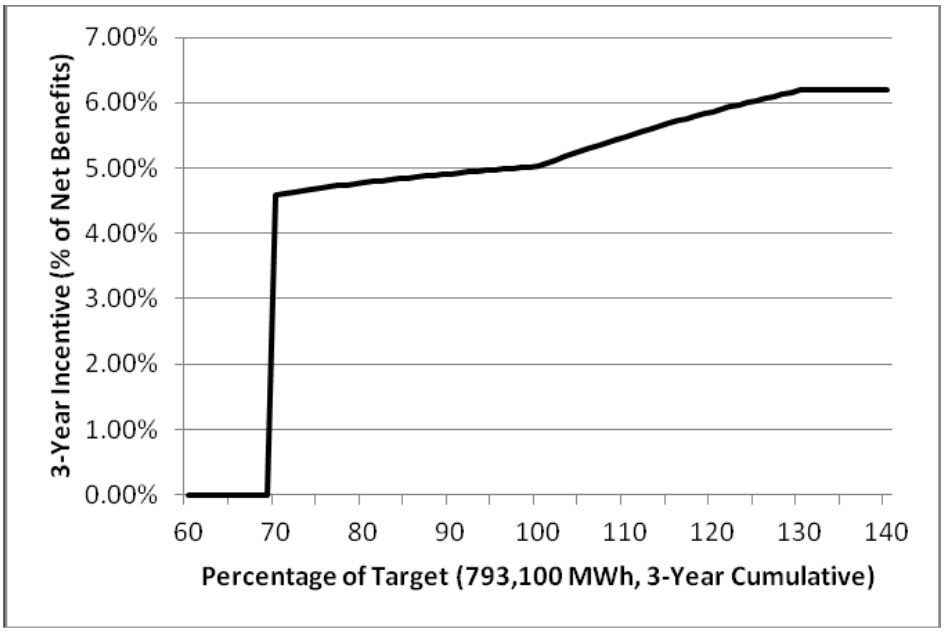

Figure A9. Ameren Missouri performance incentive schedule as percentage of net benefits. *Source:* Missouri Public Service Commission.

The agreement includes a provision for final recovery true up of any performance incentive award amount.

Outcomes

It may be too early in the initial program plan periods for the utilities with DSIMs in place to assess the full impacts and associated financial outcomes, particularly as they apply to the performance incentives, as these are not determined until full EM&V results are determined after the applicable full program plan periods (3 years for Ameren Missouri and GMO, 18 months for KCP&L's initial plan). Ameren Missouri is exceeding program savings targets and is on track to receive full incentive amounts.

Missouri's DSIMs (addressing both the throughput disincentive and shareholder performance incentive) are very new. Ameren Missouri's and GMO's mechanisms each have completed the first full program years (2013 data are complete; 2014 data are not yet final) associated with the mechanisms. KP&L's mechanism was enacted in July 2014.

While early in the process associated with determining and awarding these incentives, the impact of having these mechanisms in place is dramatic. It is clear from discussions with Missouri stakeholders that establishing these mechanisms has enabled affected utilities to initiate and fund large portfolios of customer energy efficiency programs.

Ameren Missouri's recent history with energy efficiency program funding well illustrates the dramatic impact that MEEIA and authorization of DSIMs have had. Prior to MEEIA's passage, Ameren Missouri had energy efficiency programs in place representing total utility investment of about $70 million for the three-year period of 2009–2011. During this time Ameren Missouri received only program cost recovery—no lost revenue recovery or shareholder incentive amounts. Ameren Missouri executives viewed this business model for

energy efficiency as unsustainable. As a result Ameren Missouri "put on the brakes" to its programs and reduced its program funding from $30 million in 2011 to a bridge funding of $8 million in 2012. MEEIA had just passed in 2012, and Ameren Missouri sought to retain the basic foundations of its energy efficiency programs in place in anticipation of getting regulatory treatment of costs and incentives to allow it to return to a much higher level of investment. With the commission's approval of its DSIM, Ameren Missouri's planned investment did indeed jump—up to $35 million in 2013, $45 million in 2014, and as much as $65 million in 2015. As viewed by the director of Ameren Missouri's programs, accounting for all three legs of the financial stool "had a profound impact on Ameren Missouri's investments in energy efficiency." A clean energy advocate echoed this conclusion, commenting that such action "definitely changed Ameren Missouri's behavior" regarding its energy efficiency programs.

As noted earlier, MEEIA does not require utilities to fund and provide energy efficiency programs. They are voluntary. Consequently, there needed to be incentives for the utilities to engage fully and provide energy efficiency programs and services. To date, three out of four regulated electric utilities in Missouri have established energy efficiency programs in response to MEEIA. The remaining utility, Empire Electric, is developing proposals and initiated a MEEIA filing in late 2013.

Evaluation

MEEIA established guidelines and specific requirements for EM&V. Determination of the performance incentive is based on ex-post program evaluations. Consequently, annual impact evaluations are required to determine net energy and demand savings.

Process

The performance incentives are determined from the savings impacts as quantified from program evaluations completed by independent third-party contractors for the utilities. The Public Service Commission of Missouri contracts with an evaluation auditor to review the evaluations completed by the utilities' contractors in order to help ensure their accuracy. The parties filed a stipulation and agreement on February 11, 2015, to settle all issues related to final EM&V for 2013 and to put into place a process to address EM&V issues for 2014 and 2015.

Commission staff commented that the learning curve is very steep for utility energy efficiency programs; it is taking time for all parties involved to work through the processes and issues associated with the development, implementation, and evaluation of programs, including determination of utility incentives.

Looking Ahead

The rules established for MEEIA are undergoing a required review that began in 2015. Missouri's regulations requiring integrated resource planning remain in place; such proceedings occur separately from MEEIA program filings.

Ameren Missouri filed its next three-year MEEIA program plan in December 2014. The existing DSIM is part of this plan. The proposed level of investment in energy efficiency

programs remains about the same as the existing three-year MEEIA program plan, but expected savings are about half.

Missouri's DSIMs in place are too new to be able to assess their full impact and effectiveness. It is clear that having these in place has been a catalyst for Missouri's electric utilities to move ahead with portfolios of customer energy efficiency programs representing significant utility investment.

While more time and analysis will be needed before a full assessment of the effectiveness of Missouri's DSIMs have been, it already is clear, in the words of one Missouri observer, that having mechanisms in place to address the utility business model "has been effective in moving the need in a positive direction in a state where there had been no incentives for utility energy efficiency."

OKLAHOMA

Background

Utility performance incentives for energy efficiency programs were first approved in Oklahoma for Public Service Company of Oklahoma (PSO) in 2008.[37] The incentive structure approved for PSO was a shared savings approach that allowed PSO to recover 25% of the net benefits for those programs that achieve measurable benefits. The total resource cost test was to be used in calculating the net benefits of the programs. The mechanism also allowed PSO to recover 15% of program costs as an incentive for programs in which savings cannot be determined. The projected savings benefit was then trued up to the actual savings benefit following completion of the program year.

Oklahoma Gas and Electric (OGE) was first approved to receive performance incentives in 2009.[38] OGE's approved performance incentive structure was similar to the PSO approved shared benefit structure. However the OGE performance incentive was limited to 15% of the net shared benefits for eligible programs with a TRC score higher than 1.0 and capped at $2.7 million in the first year. OGE's request to earn a performance incentive on education programs was denied by the Oklahoma Corporate Commission (OCC).[39] As part of the settlement agreement approved by the OCC, OGE was also allowed to earn an incentive of 15% of program costs on programs that scored less than 1.0 on the TRC test.

In 2012, the OCC approved a settlement agreement for PSO to continue offering demand response and energy efficiency programs for an additional three years. The settlement agreement contained a reduced performance incentive for PSO, allowing the company to recover 15% of shared benefits instead of the previously approved 25%. The settlement agreement also allowed PSO to recover an incentive of 15% of program costs on education programs.

---

[37] Cause No. 200700449. Order No. 555302 issued June 13, 2008.

[38] Cause No. 200900200. Order No. 573419 issued January 21, 2010.

[39] Education programs represented 7.5% of the total DSM program budgets and included home energy reports.

In 2012, OGE received approval from OCC to offer programs for 2013–2015.[40] As part of the approved settlement agreement, OGE is allowed to continue the approved performance incentive structure from Cause No. 200900200. For the new three-year program cycle, OGE added two programs focused on decreasing peak demand, the SmartHours program and integrated volt var control (IVVC). These two programs are not eligible for any performance incentives.

In 2010, Oklahoma Natural Gas and CenterPoint Energy Resources received authorization to offer efficiency programs.[41] As part of this authorization, both companies received approval to collect a performance incentive of 15% of the net benefits for programs passing the TRC. The mechanism was similar to electric program performance incentives at the time. An incentive of 15% of the net benefits was awarded for programs passing the TRC and 15% of program costs for programs not passing the TRC. Program budgets for both companies were fixed for proposed three-year cycles.

Other Relevant Regulatory Features

Oklahoma does not have an energy efficiency resource standard at this time. The OCC also has yet to approve decoupling for any electric utility in the state.

Policy Details

The details of the current performance incentives for OGE and PSO are detailed in table A12 below. Both current incentive structures were approved by the OCC in 2012. Both companies collect a projected shared savings incentive and then true up the results following the end of the program year. The shared savings mechanisms for PSO and OGE are similar but have significant differences. For example, while PSO and OGE both collect 15% of the net benefits of energy efficiency programs, the net benefits are calculated in different ways. OGE calculates the incentive as 15% of the net benefits of the total resource cost test for programs with a score over 1.0. PSO calculates net benefits using the Program Administrator Cost Test. This difference allows PSO to collect a higher level of incentives because the costs included in the total resource cost test are greater than the costs included in the Program Administrator Cost Test. Both companies collect 15% of program costs for programs failing to meet a 1.0 score on the PACT or TRC. PSO also collects an incentive on demand response programs while OGE does not. Finally, PSO collects an incentive of 15% of program costs for education programs while OGE does not.

Outcomes

Table A12 outlines recent performance for electric utilities in Oklahoma and the associated incentives.

[40] Cause No. 201200134. Order No. 605737 issued December 20, 2012.

[41] Cause Nos. 201000143 and 201000148. Order Nos. 585366 issued May 12, 2010 and 583869 issued March 25, 2011.

Table A12. OGE and PSO recent performance

Year	Program cost	Annual savings (MWh)	Performance incentive	Percentage of total program costs
Oklahoma Gas and Electric				
2011	$18,200,806	64,743	$3,105,699	17%
2012	$14,662,068	34,406	$2,609,501	18%
Public Service Company of Oklahoma				
2012	$21,963,690	75,629	$5,526,804	25%
2013	$22,335,179	67,901	$4,691,690	21%

Source: Oklahoma Corporate Commission

The data show utilities have performed well in regard to offering cost-effective programs with sizable net benefits. However it should be noted the incentives are calculated differently for OGE and PSO, thereby making direct comparisons between the two companies difficult. It is also important to note that the true-up data for companies in Oklahoma is not filed publicly, making it difficult to determine how actual results and spending compare with projected results and spending.

Figure A10 illustrates the increase in Oklahoma electric energy efficiency program savings.

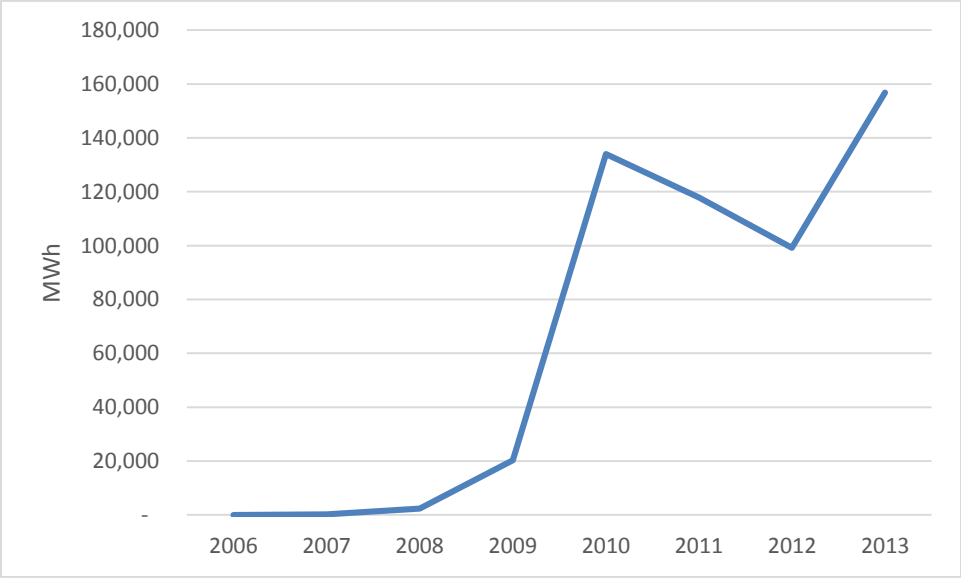

Figure A10. Oklahoma Energy Savings 2006–2013. *Source:* ACEEE 2014 *State Scorecard.*

Discussion

Oklahoma has a very favorable performance incentive policy in place for electric and gas utilities. The shared savings approach has allowed utilities in Oklahoma to earn as much as 25% of total program costs as an incentive since the inception of the policy. The general

consensus of stakeholders interviewed by ACEEE is that the policy has been effective in encouraging utilities to achieve greater energy efficiency savings. Some stakeholders expressed happiness with the progress made in Oklahoma but stated that the utilities could be achieving much greater savings and would be doing so if the state had an energy efficiency resource standard. Other stakeholders expressed concern that without the incentive policy in place, it is unlikely the utilities would offer any programs at all.

Looking Forward

The performance incentive structure in Oklahoma will be modified following the current three-year program plans (2015). The changes are a result of a 2013 rulemaking proceeding to modify several aspects of gas and electric utility rules. Beginning in 2015, utilities will only be allowed to collect an incentive if the portfolio achieves 80% of the individual utility's goal and the portfolio has a TRC score higher than 1.0. Utilities will still be able to earn an incentive on programs with a TRC result of less than 1.0, but only if the portfolio as a whole passes the test. If savings beyond 100% of the utility savings goal are achieved, 15% of net benefits will be paid. The rule is not explicit in a maximum threshold for the total incentive, only the minimum. Finally, the new rule does not have explicit penalties but does have language giving the commission the ability to reduce the incentive if the utility exceeds spending targets. The new changes are expected to simplify the process and level the playing field as all utilities will have the opportunity to earn the same incentive.

RHODE ISLAND

Background

Rhode Island has had performance incentives in place for Narragansett Electric Company (National Grid) since 1990. The electric performance incentive has changed over time. Initially, the Rhode Island Public Utility Commission (RIPUC) allowed National Grid to earn a total 4.25% of the energy efficiency budget, excluding evaluation costs. The company was required to reach 45% of the targeted annual energy savings goal for a specific sector to begin earning a performance incentive. In 2004, the RIPUC approved changes to the mechanism to increase the allowed incentive from 4.25% to 4.4% of eligible program costs.[42] In addition to the energy savings goal, National Grid was also allowed to earn an incentive for achieving goals in five performance metric categories for specific programs. The threshold to earn the incentive for each sector was also increased from 45% to 60%.

In 2007, RIPUC also approved a performance incentive for National Grid's gas efficiency programs. The target incentive rate was 4.4% of eligible program costs, just as it was for electric programs. The threshold and maximum incentive structure were also the same as the electric model. The sector categories for incentives for natural gas energy efficiency performance were initially residential and commercial and industrial (C&I). The savings targets are measured in annual MMBtu.

In 2009, the sectors for which the incentive targets are measured for electric performance incentives were changed from residential, small C&I, and large C&I to low-income residential, non-low-income residential, and large C&I. The gas incentive sectors were also

[42] See Rhode Island Public Service Commission Order 18152.

changed by splitting the residential sector into low-income residential and non-low-income residential. Also in 2009, a provision was introduced to adjust the goals for efficiency in actual spending relative to budget in the achievement of savings goals. In 2010, the performance metric incentives for five separate categories related to specific programs were eliminated to simplify awarding the incentive. In 2012, the gas and electric performance incentive underwent significant changes as the savings target incentive rate was increased to 5% and the threshold to earn the incentive was increased from 60% to 75%. In the company's settlement agreement for 2015, additional changes were made, as described in the section on looking ahead.

Other Relevant Regulatory Features

The Comprehensive Energy Conservation, Efficiency and Affordability Act of 2006 requires utilities to acquire all cost-effective energy efficiency.[43] The act also establishes requirements for strategic long-term planning and purchasing of least-cost supply and demand resources, and three-year energy saving targets. The energy savings targets are proposed by the Rhode Island Energy Efficiency and Resources Management Council. High-level strategies and illustrative budgets to reach those targets are developed in three-year plans filed by National Grid. Within the three-year plan time frame, National Grid then files annual plans containing detailed goals, budgets, and program plans for PUC approval. Revenue decoupling is also fully implemented by National Grid electric and gas in Rhode Island.

Policy Details

As of 2014, the company may earn a target-based incentive rate equal to 5% of the eligible spending budget in a program year for achieving electric and gas energy savings goals. The incentive mechanism establishes an incentive of 1.25% of the annual budget for achieving 75% of the savings goals in a sector. This increases linearly to 5% of the annual budget for achievement of 100%, and increase linearly from that point to 6.25% of the annual budget for achieving 125% of the savings goals. The company must achieve at least 75% of the targeted performance to begin earning any incentive. Figure A11 illustrates the current incentive mechanism and how it differs from the 2012 mechanism.

[43] http://www.ripuc.org/eventsactions/docket/3759-RIAct.pdf

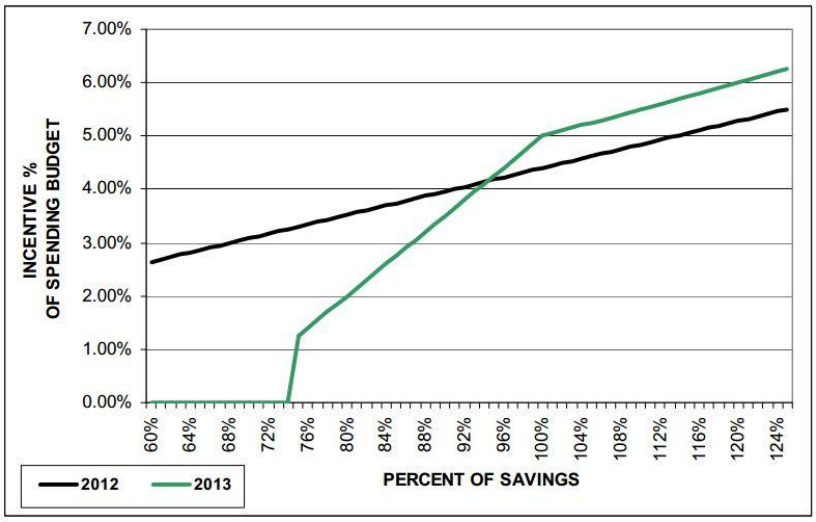

Figure A11. Shareholder incentive mechanism, 2012 and 2013. *Source:* National Grid 2013 EE Plan Docket No. 4366, page 24.

Outcomes

Table A13 details program spending, savings, and performance incentives earned since 2010 for electric and gas programs.

Table A13. Rhode Island performance incentives, 2010–2013

Year	Program cost	Annual savings	Incentive amounts	Percentage of incentive target*
		Electric (MWh)		
2010	$23,747,710	81,275	$1,333,996	107.1%
2011	$32,972,679	96,009	$1,929,273	93.5%
2012	$45,768,146	119,666	$2,469,411	93.%
2013	$62,372,290	157,121	$2,997,681	98.9%
		Gas (MMBtu)		
2010	$5,197,448	140,097	$231,310	126.8%
2011	$4,518,069	119,613	$239,863	117%
2012	$12,554,591	229,811	$586,036	99.2%
2013	$17,925,668	312,433	$968,229	108.6%

* The value in this column represents the total percentage of incentive target met. However the incentive is actually calculated at the sector level, and the company must meet sector-level thresholds to earn the incentive for each sector. *Source:* Rhode Island Public Service Commission.

The data show that the electric and gas programs have routinely performed within the bounds of 90% to 125% of the savings targets. It is also worth noting that the 2013 electric program performance increased following an increase in the target incentive rate following two years of declining performance.

Figure A12 illustrates the increase in Rhode Island electric energy efficiency program savings.

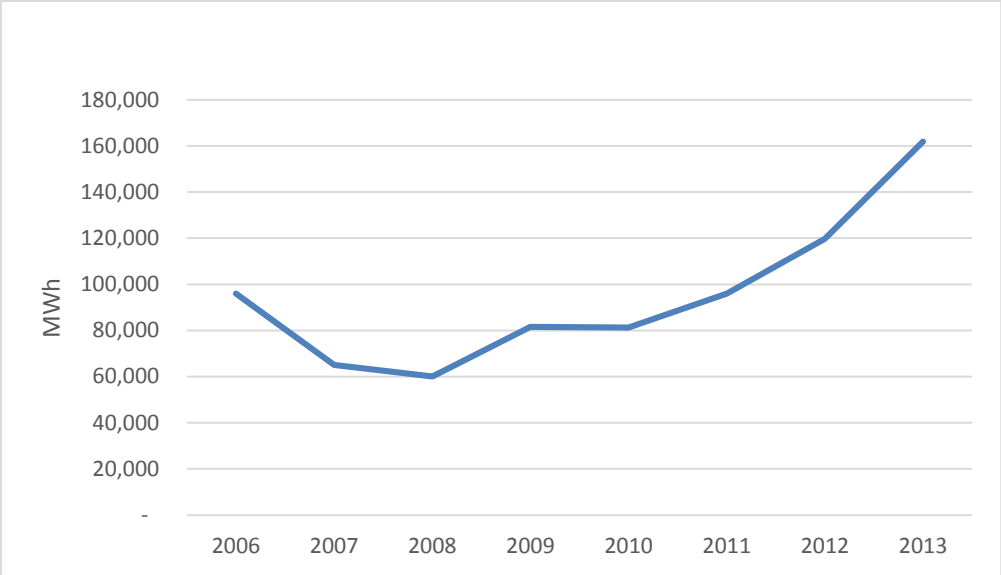

Figure A12. Rhode Island energy savings, 2006–2013. *Source:* 2014 *State Scorecard.*

Discussion

The unanimous response from the interviews conducted by ACEEE staff was that incentives have been effective in encouraging National Grid to achieve greater results with its energy efficiency programs. One of the strengths of the Rhode Island performance incentive mechanism is that the stakeholders have the opportunity to propose modifications to the incentive structure annually.[44] This allows for a nimble incentive that can change as circumstances change. For example, program performance declined in 2011 and 2012 as National Grid struggled to spend approved budgets and meet savings goals during a period of aggressive program ramping up and corporate restructuring. After the second straight year of performance below goals, the stakeholder group and National Grid agreed to increase the 4.4% award to 5% of the eligible program costs for achievement of 100% of the energy savings goals (with a maximum threshold of 125% for a 6.25% incentive). Since the change in incentive level, however, National Grid has stabilized its energy efficiency delivery efforts. At the same time, the minimum threshold was increased from 60% to 75% of performance targets to begin earning an incentive. This change has seemed to achieve the desired effect as program spending and performance increased to pre-2011 levels in 2013. The mechanism has served to focus utility attention on achieving their goals.

Looking Forward

The 2013–2014 winter was colder than average, and high natural gas demand caused significantly higher spot market prices. The result of these conditions is very high peak energy prices. To reduce peak demand and thus avoid higher prices, the stakeholder group

[44] While the stakeholder process can propose changes to the incentive mechanism and other aspects of National Grid's program plan, ultimately any modifications must be approved by the RIPUC.

and National Grid agreed upon a demand-reduction incentive. This incentive was designed and agreed upon to increase demand reduction in the summer and provide an increased focus on demand reduction throughout the year. This proposal, introduced as part of the 2015 Energy Efficiency Program Plan, was approved by the RIPUC.

The newly designed performance incentive only applies to electric program budgets. In order to promote the achievement of demand savings goals, the company proposes to set aside 30% of the current incentive to be available for the achievement of summer annual MW savings goals. This would allow the company to earn a target-based incentive rate equal to 3.5% of the eligible annual budget for achieving MWh savings goals and 1.5% of the annual spending budget for achieving MW savings goals.

TEXAS

Background

Texas first established a performance incentive mechanism for electric utilities in 2008. The performance incentive, or bonus as it is referred to in Texas, allowed electric utilities to earn 1% of net benefits for every 2% of a company's goal that it exceeded. In an effort to limit disproportionately high bonuses, the Public Utility Commission of Texas (PUCT) capped the bonus not to exceed 20% of total program costs for each utility. The established threshold for a utility to earn a bonus was 100% of the demand and energy goals as defined in Texas law. Net benefits were calculated by subtracting the net present value of the avoided cost of energy and capacity from the program costs. Program costs included all incentives and administrative and program evaluation costs. Demand and energy savings were gross values; that is, they are not adjusted for naturally occurring savings or free riders.[45] The rule also allowed utilities to earn an additional bonus for achieving at least 120% of its demand reduction goal with at least 10% of its savings met through hard-to-reach programs. This additional bonus was equal to 10% of the first bonus. Hard-to-reach programs were designed to target residential customers with an annual household income at or below 200% of the federal poverty guidelines.

The performance bonus was modified in 2011. Previously, a utility was awarded a bonus of 1% of net benefits for every 2% a company exceeded its goals, up to 20% of total program costs. This was modified to limit the bonus to 10% of net benefits instead of 20% of total program costs. This change has created the possibility for utilities to earn much more than 20% of program cost as a performance incentive. Companies in 2012 earned between 10% and 31% of total program costs as a performance incentive. In 2013, companies were earning between 31% and 46% of program costs as a performance incentive. The change was instituted to encourage utilities to achieve savings with greater net benefits.[46] The 2011 changes eliminated the additional bonus incentive previously awarded to utilities achieving

[45] Performance incentives first established in Order Adopting the Repeal of §25.181 and §25.184 and of new §25.181 as Approved at the March 26, 2008 Open Meeting. Project No. 33487.

[46] Modifications approved in Order Adopting Amendments to §25.181 as Approved at the September 28, 2012 Open Meeting.

120% of its demand reduction goal with at least 10% of its savings met through hard-to-reach programs.

Other Relevant Regulatory Features

Texas was the first state to adopt an Energy Efficiency Resource Standard in 1999. Currently, the annual goals mandate a 30% reduction of annual growth in demand for residential and commercial customers. However the structure of the goal allows a utility to meet the goals by reducing demand by 0.4% of its summer-weather-adjusted peak demand for the previous year. Texas does not currently allow electric utilities full decoupling or lost revenue recovery for offering energy efficiency programs.

Policy Details

Electric utilities may earn performance bonuses for achieving 100% of demand and energy savings targets prescribed in Texas law. The demand and energy goals require utilities to reduce annual growth in demand for residential and commercial customers by 30% for the previous year. If a 30% reduction is equivalent to at least 0.4% of summer-weather-adjusted peak demand for the combined residential and commercial customers for the previous year, 0.4% becomes the new goal.[47] Once a utility exceeds 100% of the approved goal and does not exceed spending limits, the utility will earn 1% of the net benefits for every 2% the goal is exceeded, with a maximum of 10% of the utility's total net benefits. Utilities must also spend at least 5% of the program budget on hard-to-reach savings to be eligible for a bonus.

Outcomes

Table A14 contains the aggregate results for energy efficiency programs and performance bonuses since 2008. Data were collected for all 10 electric utilities operating programs and receiving performance bonuses.

Table A14. Texas energy efficiency results and performance bonus, 2008–2013

Year	Total energy efficiency expenditures	Demand savings (MW)	Energy savings (GWh)	Performance bonus	Bonus as percentage of total expenditures
2008	$96,127,475	202	580	$19,238,502	20.01%
2009	$105,809,802	240	560	$21,148,220	19.99%
2010	$105,290,918	301	533	$20,432,317	19.41%
2011	$113,911,740	270	529	$21,487,140	18.86%
2012	$119,834,458	402	288	$28,736,107	23.98%
2013	$138,715,805	415	548	$53,678,151	38.70%

Source: Utility annual energy efficiency reports filed in Project Nos. 42264, 41196, 40194, 39105, and 37982

[47] §25.181—15. The establishment of demand and energy goals is far more complicated than described in this case study. For the purpose of brevity and focus on performance incentives, a detailed discussion of energy and demand goal setting has been withheld.

Utilities in Texas have rarely failed to earn an annual performance bonus since the policy began in 2008. Demand savings have increased annually, with the only exception being a slight drop in 2011. Following the modest decline in 2011, demand savings have increased to over 415 MW in 2013, almost as big as a typical power plant. Energy savings have experienced a decline since the 2008, with a notable drop in 2012. With modest goals, however, most utilities exceed annual energy savings goals necessary to earn performance bonuses.

Figure A13 depicts the results.

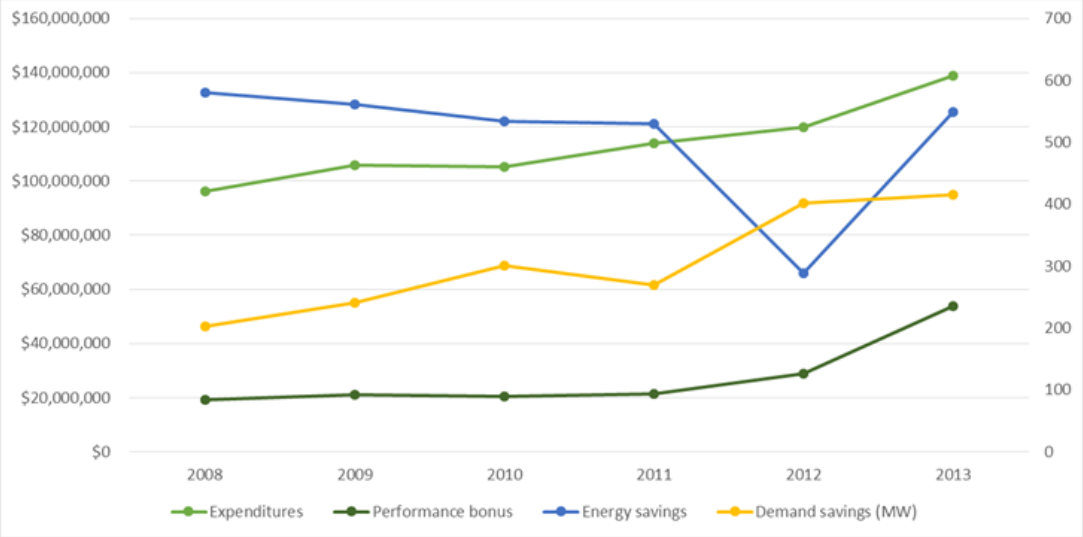

Figure A13. Texas energy efficiency results and performance bonus, 2008–2013. *Source:* Utility annual energy efficiency reports filed in Project Nos. 42264, 41196, 40194, 39105, and 37982.

Discussion

The performance bonus mechanism has been partially influential in increasing demand savings but has had a questionable effect on energy savings. Energy savings have declined since 2008, the year the performance bonus was first authorized. Demand savings have more than doubled during this same time and have increased markedly since 2011. While there were changes to the performance incentives structure at this time, the increase in demand savings can be attributed to the PUCT request to increase demand reductions from load management programs. However most utilities have exceeded energy savings targets since 2008. The spike in demand reduction performance coincided with the change in the performance incentive structure in 2011. Also in 2011, the Texas legislature adopted Senate Bill 1125 that modified the energy efficiency goal structure to include a peak demand component.

Many companies performed at levels significantly beyond goals and the maximum incentive level. As an example, Southwestern Electric Power Company met 194% of its energy goal and 238% of its demand goal in 2012. The calculated performance incentive for this level of achievement was $8,060,397. However SWEPCo only earned the maximum bonus based on 10% of net benefits, or $1,168,476. Many Texas utilities in 2012 and 2013 filed similar bonus calculations collecting a much lower bonus due to limits than what

would have been potentially available. In 2013, AEP Texas Central Company calculated a performance bonus of $38,212,549 but only collected $4,459,958, the maximum allowed as 10% of net benefits.

As the data above show, the performance incentives in Texas are substantial, exceeding 38% of program cost in 2013 in aggregate. The performance incentives in Texas are based on a net benefits approach. Net benefits are results of calculations based on the avoided cost of energy. The avoided cost of energy in Texas is updated annually. The frequent updates can have significant impacts on the calculation of net benefits and the performance incentive. In 2012, the avoided cost of energy was 6.4 cents per kWh. In 2013, the value increased to 10.4 cents per kWh but then declined to 4.6 cents per kWh in 2014. Large changes in avoided cost in Texas explain part of the increase in performance incentives awarded in 2013 from 2012.

In comments filed in both Project No. 33487, the establishment of the performance bonus, and in Project No. 39674, the modifications to the limits of the performance bonus, commenters expressed concern with the level of incentives allowed. However Texas does not allow lost revenue recovery or have a decoupled rate structure. Many utilities view the incentive structure as a way to allow a company to earn part of the lost revenues associated with energy efficiency.

During PUCT rule-making proceedings to modify the performance incentives and energy efficiency goals, commenters have objected to the use of gross savings for goal attainment and performance bonus calculation.[48] The PUCT specifically requires the performance bonus to be calculated using demand or energy savings from programs implemented to obtain goals.[49] By definition, this would only include net savings, but utility filing projections and results are in gross savings terms. Evaluations in Texas do not include net-to-gross analysis, making it difficult to determine if utilities are earning incentives on savings not attributable to specific programs.

Looking Forward

Currently, there are no changes expected to the performance bonus mechanism in the near future. Changes to the mechanism have historically been initiated in the Texas legislature and worked through the PUCT rule-making process. In both of the major rule makings associated with the performance bonus, parties have actively participated in shaping the final rules. However, without legislative action, it is unlikely any changes will happen soon.

Table A15 shows energy demand goals and performance.

[48] See comments of Cities in Project No. 39674.

[49] §25.181(h): Energy Efficiency Performance Bonus.

Table A15. Texas energy and demand goals and performance, 2008–2013

Year	Demand goal (MW)	Demand savings (MW)	Percentage of goal met	Energy savings goal (GWh)	Energy savings (GWh)	Percentage of goal met
2008	117	202	172%	375	580	155%
2009	134	240	179%	403	560	139%
2010	142	301	212%	391	533	137%
2011	147	270	183%	400	529	132%
2012	152	402	265%	366	288	79%
2013	175	415	237%	442	548	124%

Source: Utility annual energy efficiency reports filed in Project Nos. 42264, 41196, 40194, 39105, and 37982

VERMONT

Background

Performance incentives have existed in Vermont since the inception of Efficiency Vermont in 1999. Efficiency Vermont is the statewide energy efficiency program operated by Vermont Energy Investment Corporation (VEIC). VEIC was initially contracted through the Vermont Public Service Board (VPSB) to serve as the energy efficiency service provider under a contract agreement but has operated as a jurisdictional regulated utility under a long-term 12-year Order of Appointment since 2010. When VEIC first contracted with the VPSB in 1999, the contract allowed VEIC to earn a percentage of program cost for meeting performance targets in specific areas over the course of a three-year program plan. The performance targets are known as quantifiable performance indicators (QPIs). The initial contract and agreements for subsequent three-year performance periods have allowed VEIC to earn between 3.4% and 4.3% of program costs as compensation (guaranteed return and a performance incentive). Since 1999 a percentage of this compensation was guaranteed and is known as an operations fee.

The remaining compensation is the performance incentive and is at risk. The performance incentive-based compensation can only be earned if VEIC meets the QPIs. The percentage of compensation allocated to the operation fee and performance incentive has fluctuated some between three-year performance periods. In the most recent performance period, 2015–2017, the operations fee is 40% and the performance incentive is 60% of total compensation. VEIC's QPIs and compensation structure are revisited and modified prior to every three-year cycle through the Demand Resource Plan (DRP) proceeding before the VPSB, with the most recent QPIs established for the 2015–2017 performance period in 2014.

For the 2015–2017 performance period, VEIC proposed an increase in the compensation rate from 4.1% to 6% (margin rate), and to equally distribute compensation on a 50–50 basis between the operations fee and performance incentive, as opposed to the current 40–60 split as recommended by the Public Service Department (PSD). VEIC had first recommended an

increase from 4.1% to 6%.[50] In addition, VEIC recommended the calculation method for the compensation rate continue to be based on a margin approach (used to set the compensation rate for the 2012–2014 performance period). The margin approach is based on the total percentage of compensation above cost, as opposed to a markup rate as a percentage of the total program cost as recommended by the PSD. The VPSB approved an increase to 4.5% on a markup basis (equating to a 4.3% margin rate) while maintaining a 40–60 split between guaranteed compensation and at-risk performance incentives.[51]

The City of Burlington Electric Department (BED) operates electric energy efficiency programs with established performance targets. BED's energy efficiency costs are recovered dollar for dollar at no additional cost to ratepayers (no operations fee or performance incentive). Vermont Gas Systems (VGS) also operates gas efficiency programs. As an incentive to operate programs, VGS is allowed to earn a rate of return on efficiency investments. The rate of return VGS earns on efficiency investments is the same rate of return approved in the company's last rate case.

Other Relevant Regulatory Features

Vermont has a nontraditional energy efficiency resource standard. Vermont law requires energy efficiency budgets to be set at a level that would realize "all reasonably available, cost-effective energy efficiency." Every 3 years the DRP produces an annual electric budget and savings 20-year forecast. Vermont law required utilities in the state to perform least-cost integrated resource planning "to identify and evaluate on an ongoing basis, resources that will meet Vermont's energy service needs in accordance with the principles of least cost integrated planning, including efficiency, conservation and load management alternatives, wise use of renewable resources, and environmentally sound energy supply."[52] Resource planning requires comprehensive energy efficiency programs designed to acquire the full amount of cost-effective savings.[53] Vermont also encourages energy efficiency through innovative rate making including inclining block rates and decoupling approved for Green Mountain Power and Vermont Gas.

Policy Details

The current electric performance incentive allows VEIC to earn a percentage of total program costs as an incentive. The incentive amount earned is determined by VEIC's ability to meet specific targets and minimum requirements for 15 electric-efficiency and 4 thermal-energy-and-process-fuels (TEPF) QPIs. Each QPI focuses on different policy objectives of the statewide efficiency program.

Electric-efficiency QPIs 1-7 are positive incentives awarded to VEIC for meeting a target for specific tasks. For example, QPI 1 targets energy savings. VEIC can begin earning an

---

[50] VEIC April 6, 2014, compensation recommendation: http://psb.vermont.gov/docketsandprojects/eeu/drp2013.

[51] EEU-2013-01, Order Regarding Energy Efficiency Utility Budgets for Demand Resources Plan. Page 60. July 9, 2014.

[52] 30 VSA §202a(2).

[53] 30 VSA §218c(a)(2).

incentive when 90% of the target is reached. Reaching 100% of the target is known as a stretch goal because the targets for QPIs 1–4 are 20% higher than the expected results in these categories. VEIC is also able to earn an incentive for exceeding the target goal. For QPIs 1–4, there is no upper limit to this incentive, but it is capped at total incentive available ($4,442,682) for the three-year period.

Table A16 shows QPIs 1–7.

Table A16. Efficiency Vermont quantifiable performance indicator targets 1–7 for 2015–2017 program cycle

No.	QPI	Target	Cap	Threshold
1	Annual incremental savings	321,800 MWh	none	90%
2	Total resource benefits	$336,300,000	none	90%
3	Summer peak demand savings	41.3 MW	none	90%
4	Winter peak demand savings	53.7 MW	none	90%
5	Business comprehensiveness	11% increase in depth of savings	$196,000 or 5%	80%
6	Residential market transformation	42% of new homes above code	$117,000 or 3%	85%
7	Business market transformation	500 partners	$117,000 or 3%	80%

Source: Order in Case No. EEU-2013-01

QPIs 8-15 (table A17) set minimum performance levels for specific public policy objectives. If VEIC does not meet the minimum performance level, it can lose the opportunity to earn performance incentives earned in QPIs 1-7.

Table A17. Efficiency Vermont quantifiable performance indicator targets 8–15 for 2015–2017 program cycle

No.	QPI	Minimum requirement	Possible financial impact
8	Electric ratepayer equity	Benefit cost ratio greater than 1.2	$3,915,693
9	Residential ratepayer equity	Sector spending greater than $32,500,000	$614,825
10	Low-income ratepayer equity	Sector spending greater than $10,500,000	$614,825
11	Small business customer equity	2000 small business customers	$614,825
12	Geographic equity	Benefits goals for each geographic area	$204,942
13	Program implementation efficiency	Meet all schedule milestones	$68,314
14	Service quality	Achieve 92 or more metric points in the Service Quality and Reliability Plan	$150,000
15	Spending	103% of budgeted spending level	No limit

Source: Order in Case No. EEU-2013-01

VEIC has a total possible electric compensation of $6,526,155 for the 2015–2017 performance period. This figure includes $2,610,462 in guaranteed compensation (operations fee) and $3,915,693 at-risk. While VEIC is allowed a higher earning potential for some QPIs known as super stretch targets, the organization is not allowed to earn more than the total performance award incentive set aside.

Of the four TEPF QPIs, the first two have a positive performance award associated with target levels. The second two are minimum performance requirements, meaning if the requirements are not met, VEIC will lose the ability to lose all of the performance award associated with TEPF. VEIC has a total possible thermal compensation of $878,315 for the 2015–2017 performance period. This figure includes $351,326 in guaranteed compensation (operations fee) and $526,989 at risk.

Table A18 shows thermal efficiency initiatives.

Table A18. Vermont thermal efficiency incentives

No.	QPI	Goal	Possible award
1	Annual incremental MMBTu savings	100% = 246,000 MMBtu	$342,742
2	Residential single family comprehensiveness	Multi-component retrofit goal	$114,247
3	Residential sector spending	Greater than 62.5% of the total TEPF expenditures	If not met, opportunity to earn 10% of the 100% target level performance award is forfeited.
4	Low-income spending	Greater than 17% of the total TEPF expenditures	If not met, opportunity to earn 10% of the 100% target level performance award is forfeited.

Source: Order in Case No. EEU-2013-01

Outcomes

VEIC has been successful in earning a performance fee consistently throughout its tenure as the statewide program administrator. Table A19 shows VEIC performance for the two previous program cycles.

Table A19. VEIC performance 2006-2011

Period	Three-year budget	Three-year annual incremental net savings (MWh)	Operations fee	Performance fee	Total performance incentive
2009–2011	$95,274,004	292,406	$559,119	$2,693,748	$3,252,867
2006–2008	$66,179,500	287,442	$473,510	$2,347,510	$2,820,510

Source: End-of-cycle budget reports

In 2009–2011, VEIC outperformed expectations for some QPIs and earned a higher performance fee for these QPIs than what was originally expected. VEIC is also expected to

meet targets in all QPIs for the 2012–2014 time period to earn the full performance fee allowed.

Figure A14 illustrates Vermont annual electric energy efficiency program savings.

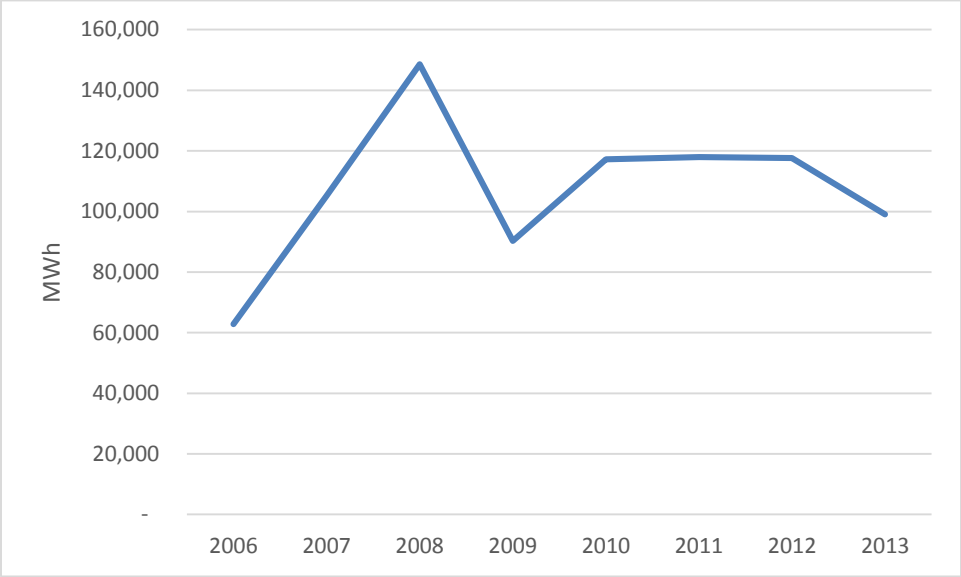

Figure A14. Vermont energy savings 2006–2013. *Source:* 2014 *State Scorecard*.

Discussion

The consensus among stakeholders interviewed in Vermont was that VEIC has done very well at balancing the goals contained in the QPI goal structure. VEIC's performance was recognized when it petitioned the VPSB to be the long-term statewide program administrator in Vermont. Subsequently, through a VPSB process, the company was awarded an 11-year order of appointment to continue working as the statewide administrator. Stakeholders also agreed the QPI structure provided a valuable mechanism to award VEIC for meeting specific policy objectives within the state. Instead of a traditional performance incentive awarding a company for meeting an energy or demand savings target, the QPI structure balances a suite of objectives and awards VEIC financially to ensure rate payer equity, spur market transformation, and achieve other state policy goals. In short, the structure is perceived as an effective mechanism for motivating performance Vermont.

Looking Forward

Under its order of appointment structure, VEIC will continue as the statewide program administrator in Vermont through 2021. Although small changes to the specific QPI and updates to the three-year performance period targets are expected, significant changes to the energy efficiency implementation structure are not expected in Vermont.

Appendix B. Questionnaire

Research Questionnaire: Financial Incentive Mechanism for Electric and Gas Utilities

The American Council for an Energy-Efficient Economy (ACEEE) is currently conducting national research on financial incentive mechanisms encouraging efficiency programs by utilities. We would greatly appreciate it if you would answer the following questions about the use of the utility-level shareholder incentive mechanism in your state. *Please note that ACEEE will report the information we gather as a general overall summary. We will not attribute specific answers or comments to specific individuals.* ACEEE will be happy to share the results of this research with the respondents to this survey.

Questions

Please answer the following questions about the financial incentive mechanism(s) in your state. Note that we leave space to answer the set of questions for up to two different incentive mechanisms. If different utilities have different types of incentive mechanisms, please answer the following items for each of two different utilities, beginning with the largest utility. If only one mechanism is used within the state, fill in all information under Mechanism One.

Mechanism One (e.g. for largest utility):

Applicable Utility(ies):

Indicate Mechanism Type (e.g. fixed incentive award, share of net benefits, performance-based incentive, increased rate of return, etc.):

1. When was it first authorized? When was the most recent version established?

2. Are there any threshold requirements that must be met to qualify for an incentive? If yes, what?

3. What is the overall incentive structure?

4. Is there a cap or ceiling on how much incentive can be earned? If yes, what?

5. Is the incentive payment based on net or gross savings?

6. Are there any related penalties? If yes, describe.

Please provide the following information for up to 2 utilities covered by Mechanism One (as described above) in your state. Please reference each of the two most recent program years for which data is available. Indicate program years and fill in information for each year in the table below.

	Utility 1: _____	Utility 2: _____
Program Year _____		
Actual earnings/award ($)		
Cost of energy efficiency programs to which incentive was applied ($)		
Total (1-year annual) energy savings achieved by the programs under the incentive mechanism (Please indicate kWh or therms)		
Program Year _____		
Actual earnings/award ($)		
Cost of energy efficiency programs to which incentive was applied ($)		
Total (1-year annual) energy savings achieved by the programs under the incentive mechanism (Please indicate kWh or therms)		

1. Please provide a citation or reference to the official documentation (e.g., statute, regulatory order, etc.) where this mechanism is established or described.

2. Is there a report, regulatory review, or other document that describes the mechanism and how it has worked in practice, and/or provides data on the actual award for the last two program years? If so, please provide link, contact person or reference where we may obtain a copy.

3. How are efficiency savings achieved under the incentive mechanism measured and verified?

4. Are there any significant differences between the incentive mechanisms as applied to electric versus gas utilities?

Mechanism Two:

Applicable Utility(ies):

Indicate Mechanism Type (e.g. fixed incentive award, share of net benefits, performance-based incentive, increased rate of return, etc.):

1. When was it first authorized? When was the most recent version established?

2. Are there any threshold requirements that must be met to qualify for an incentive? If yes, what?

3. What is the overall incentive structure?

4. Is there a cap or ceiling on how much incentive can be earned? If yes, what?

5. Is the incentive payment based on net or gross savings?

6. Are there any related penalties? If yes, describe.

Please provide the following information for up to 2 utilities covered by Mechanism Two (as described above) in your state. Please reference each of the two most recent program years for which data is available. Indicate program years and fill in information for each year in the table below.

	Utility 1: _____	Utility 2: _____
Program Year _____		
Actual earnings/award ($)		
Cost of energy efficiency programs to which incentive was applied ($)		

Total (1-year annual) energy savings achieved by the programs under the incentive mechanism (Please indicate kWh or therms)		
Program Year _____		
Actual earnings/award ($)		
Cost of energy efficiency programs to which incentive was applied ($)		
Total (1-year annual) energy savings achieved by the programs under the incentive mechanism (Please indicate kWh or therms)		

1. Please provide a citation or reference to the official documentation (e.g., statute, regulatory order, etc.) where this mechanism is established or described.

2. Is there a report, regulatory review, or other document that describes the mechanism and how it has worked in practice, and/or provides data on the actual award for the last two program years? If so, please provide link, contact person or reference where we may obtain a copy.

3. How are efficiency savings achieved under the mechanism measured and verified?

4. Are there any significant differences between the mechanisms as applied to electric versus gas utilities?

Overall Questions

We'd be interested in any thoughts you have on these last two questions. Again, we will NOT be quoting anyone by name.

1. Are there any suggestions you would make to another state who was thinking of adopting a utility energy efficiency performance incentive such as the mechanism(s) used in your state?

2. Please provide any additional insights or important information about efficiency incentives for utilities in your state that we have not covered above.

If you have any questions or comments about this survey, please contact Seth Nowak at the American Council for an Energy-Efficient Economy at (608)256-9155 or snowak@aceee.org

---

Please provide your preferred contact information:

Name _____

State_____

Phone_____

Email_____

THANK YOU VERY MUCH FOR YOUR ASSISTANCE!

Appendix C. Incentive Amounts as Percentage of Energy Efficiency Costs

Table C1. Incentive amounts relative to total costs by mechanism type by utility/administrator, state, and year

Net benefits		Multifactor		Savings-based	
Xcel electric (MN) 2011	68%	NSTAR (MA) 2013	6%	Consumers 2012 (MI)	15%
Xcel electric (MN) 2012	62%	NGRID (MA) 2013	6%	Consumers 2013 (MI)	15%
Otter Tail Power (MN) 2011	60%	NGRID (MA) 2012	6%	DTE Energy 2012 (MI)	15%
Georgia Power 2013	58%	Efficiency VT 2008	4%	DTE Energy 2013 (MI)	15%
Otter Tail Power (MN) 2012	56%	Efficiency VT 2011	3%	IPL (IN) 2013	8%
Georgia Power 2012	42%	PBFA (HI) 2014	2%	PSNH 2013	8%
AEP Texas Central 2013	36%	PBFA (HI) 2013	2%	PSNH 2012	9%
Xcel Energy (CO) 2012	29%	DC SEU 2012	1%	CT UI 2013	6%
SWEPCO (TX) 2012	26%	DC SEU 2013	1%	CT CL&P 2013	7%
PSO (OK) 2012	25%	WI FOE 2010-14	0.2%	CT UI 2012	6%
Xcel Energy (CO) 2013	22%			CT CL&P 2012	7%
PSO (OK) 2013	21%			RI NGRID 2013	5%
DEC (SC) 2014	18%			RI NGRID 2012	5%
OGE (OK) 2012	18%			NY all IOUs	4%
DEC (SC) 2013	18%				
OGE (OK) 2011	17%				
APS (AZ) 2012	14%				
SCE&G 2013	14%				
APS (AZ) 2013	9%				
SWEPCO AR	8%				
SWEPCO AR	8%				
Entergy Arkansas 2013	7%				
Entergy Arkansas 2012	6%				
SCE&G 2014	6%				

Source: Questionnaires completed by state commission staff