

Energy Efficiency Resource Standards: A Progress Report on State Experience

**Michael Sciortino, Seth Nowak, Patti Witte,
Dan York, and Martin Kushler**

June 2011

Report Number U112

CONTENTS

Executive Summary	ii
Acknowledgments	iii
Energy Efficiency Resource Standards (EERS)	1
Key Distinctions of EERS Policies	1
Objectives and Methodology	2
Methodology	3
A Companion Report	3
A Note about Natural Gas	3
EERS Policy Status	3
Results	9
Overall Savings	9
Savings Compared to Targets	9
Observations	11
EERS Drives Savings for States of All Types	11
The Benefits of EERS Outweigh Costs	12
Clear and Fair Regulation	12
All Parties Must be Committed to Meeting Targets	13
Ramping-Up Savings Requires Programmatic Excellence	14
Conclusions and Recommendations	14
Case Studies	15
Texas	16
Vermont	18
California	20
Hawaii	22
Connecticut	24
Nevada	27
Rhode Island	28
Washington	31
Colorado	33
Illinois	35
Minnesota	37
North Carolina	39
Maryland	41
Michigan	44
New Mexico	45
New York	47
Ohio	50
Pennsylvania	52
Iowa	54
Massachusetts	55
Bibliography	59

EXECUTIVE SUMMARY

Inspired by the economic and environmental benefits of energy efficiency, over half the states now embrace specific energy efficiency savings goals, known as Energy Efficiency Resource Standards (EERS). An EERS requires utilities (or related organizations in states where the programs are administered by non-utility entities) to save a certain amount of energy each year, typically expressed as a percentage of annual retail energy sales or as specific energy savings amounts set over a long-term period. The first EERS passed in Texas over a decade ago and since then, utilities, regulators, and consumers across the country have embraced this type of policy to catalyze the implementation of energy efficiency programs to reduce electricity and natural gas consumption in homes and businesses.

The report includes legislative and regulatory background for every state where an EERS policy has been in place for over two years and examines the progress these states have made achieving their goals. Tracking actual energy savings and comparing these results with the required targets, the analysis develops a comprehensive portrait of the performance of twenty states, noting important trends influencing the outcomes thus far.

Across the country, state EERS policies are driving energy efficiency investments and energy cost savings to unprecedented levels, lowering utility bills, improving building comfort, and reducing strains on the utility grid. Overall, the performance of states in comparison to the targets set in EERS policies has been encouraging; most states are meeting or are on track to meet energy savings goals.

The report finds that states' performance meeting energy savings targets is driven by issues such as the clarity and appropriateness of the regulatory framework, the length of time allowed for program administrators to ramp-up programs, and the overall commitment of all parties to invest the proper resources to meet targets. States must overcome these barriers in order to successfully meet EERS targets and states considering the adoption of an EERS should carefully consider these issues in the policymaking process.

ACKNOWLEDGMENTS

The authors would like to thank their many contacts at utilities, commissions, state governments, and nonprofit organizations, as listed below. These contacts participated in interviews and shared their knowledge and insights on state performance meeting energy efficiency resource standards.

We are grateful for the thorough reviews given by Rebecca Stanfield, Natural Resources Defense Council; Sam Krasnow and Derek Murrow, Environment Northeast; and Greg Ehrendreich, Midwest Energy Efficiency Alliance.

Thank you also to ACEEE colleagues Steven Nadel, Glee Murray, Maggie Molina, Max Neubauer, Suzanne Watson, Patrick Kiker, and Eric Schwass for their assistance in the research, review, production, and release of the report. Finally, many thanks to Renee Nida for her work editing this report.

Carl Nelson	Center for Energy and Environment
Paul Caldara	Colorado Public Utilities Commission
Sam Krasnow Derek Murrow	Environment Northeast
Jay Zarnikau Amy Martin	Frontier Associates
Estrella Seese Christian Whitney	Hawaii Department of Business, Economic Development, and Tourism
Mike Messenger	Itron
Walt Auburn	Maryland Energy Administration
Rick Leuthauser	MidAmerican Energy
Greg Ehrendreich	Midwest Energy Efficiency Alliance
Jeff Haase	Minnesota Office of Energy Security
Rebecca Stanfield	Natural Resources Defense Council
Jeff Primm	New Mexico Public Regulatory Commission
Carlene Pacholczak	New York Department of Public Service
Sarah Osgood	New York Energy Research and Development Authority (NYSERDA)
Paul Quinlan	North Carolina Sustainable Energy Association
Jack Floyd	North Carolina Utilities Commission
Danielle Dixon Kim Drury	NW Energy Coalition
Daniel Sawmiller	Ohio Consumer Counsel
Nolan Moser	Ohio Environmental Council
Megan Good	Pennsylvania Public Utilities Commission
Nick Ucci	Rhode Island Public Utilities Commission
John Wilson	Southern Alliance for Clean Energy
Howard Geller	Southwest Energy Efficiency Project
George Twigg	Vermont Energy Investment Corporation
Deborah Reynolds	Washington Utilities and Transportation Commission

ENERGY EFFICIENCY RESOURCE STANDARDS (EERS)

A majority of states now have policies in place that establish specific energy savings targets that utilities or related organizations must meet through customer energy efficiency programs. These policies—called “energy efficiency resource standards” (EERS)—are analogous to “renewable portfolio standards,” also in place in a majority of the states. An EERS sets multi-year electric or natural gas efficiency targets (e.g., 2% incremental savings per year or 20% cumulative savings by 2020), measured against a baseline of retail sales.¹ Energy efficiency savings are typically measured by the first-year savings of energy-efficient measures installed. EERS policies accelerate and expand the scale of energy savings achieved through utility and related energy efficiency programs.

Historically, energy efficiency program requirements tended to focus on spending levels rather than specific energy savings levels. Energy savings amounts were more of an outcome of the process—a function of initial program budgets, cost-effectiveness screening of measures and programs, and finally the implementation of the programs. Rather than basing policy and program planning on the desired level of energy efficiency savings, the process of planning around budgets resulted in uncertain commitments to actual energy efficiency and often lower savings levels than might have been achievable.

The shift to EERS represents a significant evolution in the treatment of energy efficiency in the utility system. Rather than view energy efficiency in the context of spending requirements to meet some “customer service” obligation, the use of an EERS strategy—with its explicit focus on quantifiable energy savings results—helps directly reinforce the expectation that energy efficiency is a real utility system “resource,” and helps utility system planners more clearly anticipate and project the effect of energy efficiency programs on utility system loads and resource needs.

Moreover, EERS targets are generally set at levels that push programs to achieve higher savings than they would have targeted prior to enactment. EERS policies maintain strict requirements for cost-effectiveness so that programs are insured to provide overall benefits to customers. Not only does an EERS drive utilities and program administrators to achieve greater levels of savings, but it also helps ensure a long-term commitment to energy efficiency as a resource, building essential customer engagement as well as the workforce and market infrastructure necessary to sustain high savings levels.

Key Distinctions of EERS Policies

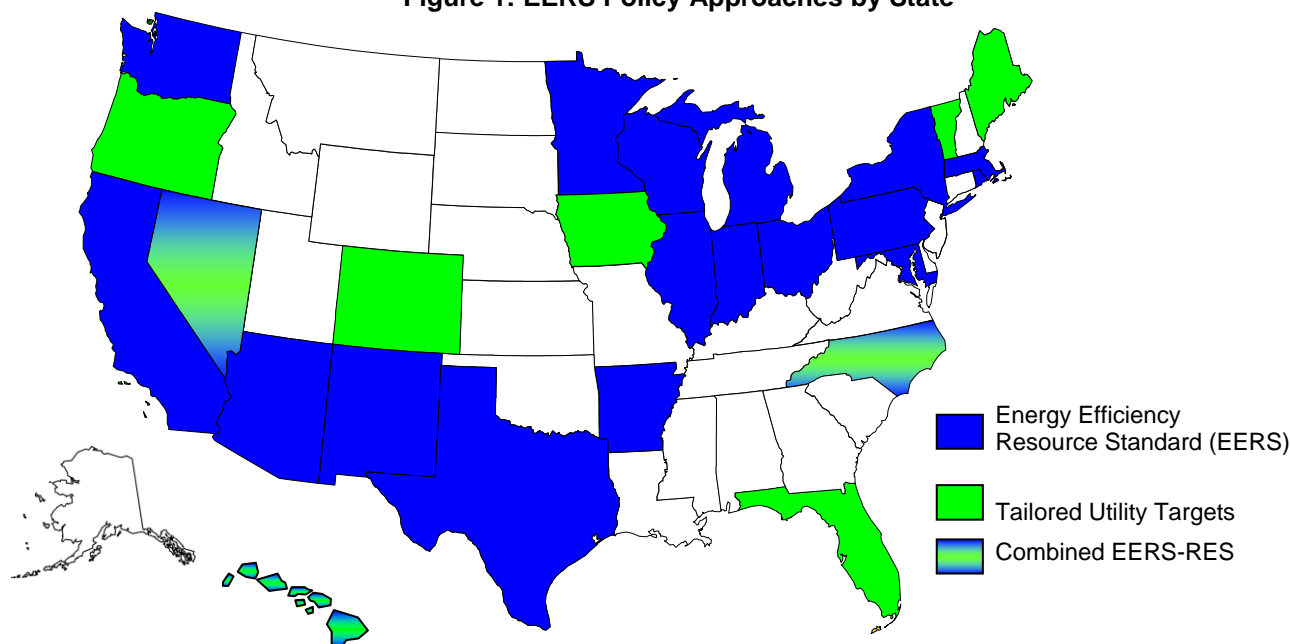
This review finds that EERS policies currently encompass three distinct types of policy approaches, all of which accomplish the same outcome—setting binding, long-term targets for energy efficiency savings from utility programs. The three approaches are a statewide Energy Efficiency Resource Standard, long-term energy savings targets set by utility commissions tailored to each utility and incorporating energy efficiency as an eligible resource in renewable portfolio standards (RPS). While the latter two options may not technically be considered a “standard” in the traditional sense, ACEEE has defined all three approaches as an EERS to avoid confusion and draw focus to the key similarity of all these policies—establishing binding, long-term energy savings targets. In practice, RPS policies that include efficiency have not thus far resulted in aggressive goals, but the policy approach itself has the potential to produce results comparable to the other two mechanisms if properly designed. Tailored utility targets and statewide EERS policies have each been very effective at driving aggressive energy efficiency savings in the states. In addition, certain states such as Massachusetts, Rhode Island, Washington, California, and others have a statewide EERS that operates in the following manner: (1) state law broadly requires utilities to procure all cost-effective efficiency resources (“an efficiency procurement requirement”); and (2) planning processes between the utilities, stakeholder efficiency councils, and public utility commissions (PUCs) then establish the specific percentage savings targets the utilities are required to meet to effectuate the all cost-effective

¹ “Multi-year” is defined as three or more years for the purpose of this report. EERS policies may also set specific gigawatt-hour (GWh) energy savings targets without consideration of percentage of prior-year sales, or as a percentage of load growth.

efficiency procurement requirement.² These states have set increasingly aggressive—and fully funded—efficiency savings targets.

Statewide EERS	Tailored Utility Target	Combined EERS–RPS
Typically set by state legislatures and codified by utility commissions, the statewide EERS calls for all eligible utilities to achieve a prescribed level of savings. In efficiency procurement states, the state legislatures have required utilities to invest in all cost-effective efficiency and the specific targets are then set by stakeholder councils and PUCs.	Initiated in a variety of ways, long-term energy efficiency targets in these states are tailored to each specific utility. In each case, law or regulation calls for the establishment of multi-year (3-year+) specific energy savings targets.	Energy efficiency may be accepted as an eligible resource in state renewable energy standards (RPS). In these cases, energy efficiency is measured on a cumulative, rather than annual, incremental basis.

Figure 1: EERS Policy Approaches by State



OBJECTIVES AND METHODOLOGY

Of the twenty-six states with an EERS, only seven were in effect before 2008. While the effects of an EERS have been estimated in numerous ACEEE state policy studies (Neubauer et al. 2011), and ACEEE has examined the results of energy efficiency programs and the potential for meeting aggressive targets (Molina et al. 2010; Kushler et al. 2009), ACEEE has not comprehensively examined states' performance meeting the energy savings targets since 2006 (Nadel 2007). The primary purpose of this report is to track the actual energy savings in states with EERS policies and compare these results with the required targets. The analysis covers every state with an EERS in effect for two or more years, or twenty of the twenty-six EERS states (see Figure 2 for list of states). The report provides a "progress report" profile for every state that includes legislative and regulatory background of the EERS policy, energy savings achieved, and a brief summary of the trends in the state influencing the outcomes thus far.

² In some cases, broad goals are set in stage 1 along with the efficiency procurement requirement. For example, Washington's EERS law requires utilities to base their targets on the Northwest Power and Conservation Council methodology, which aims for approximately 1.5% annual savings. The binding targets, however, are set in a separate planning process.

While the report does not detail the broader economic, environmental, and electricity reliability impacts of EERS policies, it should be noted that existing literature confirms that energy efficiency is a well-documented strategy to improve economic productivity, reduce harmful pollutant emissions, and strengthen energy reliability and security (Laitner et al. 2010; National Academy of Sciences 2010). Numerous studies have overwhelmingly portrayed a significant amount of cost savings and indirect economic benefit that would result through cost-effective improvements in energy efficiency of our buildings and industries (McKinsey & Company 2009). Properly implemented EERS policies drive states to realize this potential.

Methodology

The findings of this report are based on extensive primary research and interviews with stakeholders in the states. ACEEE made a good-faith effort to interview at least two stakeholders in each state with knowledge of utility targets and performance. Research was completed May 3, 2011, and while the peer review process did provide updates in some states, the findings of this report should be assumed to be accurate up to this date.

The savings data presented in this report is derived from publicly available utility and commission data, which is reported in varying ways across states. When available, verified net savings are presented, but in some cases, states report gross savings or unverified savings. Because they inhibit reliable comparisons of energy savings, the differences among states' EM&V protocols is an issue that deserves further research. A forthcoming ACEEE report will take on the issue.

A Companion Report

ACEEE is simultaneously releasing a new report, *Energy Efficiency Resource Standards: State and Utility Strategies for Higher Energy Savings*, which thoroughly examines how several states are ramping up energy efficiency programs and policies to achieve aggressive EERS targets. That report focuses on twelve states and offers insight into the policy and programmatic strategies states are implementing to achieve high savings levels. Aside from covering a broader range of states, this report's primary purpose is to track savings levels compared to targets and discuss general trends affecting states' performance. The two reports are complementary and can be separated by the primary research questions asked: Are states meeting EERS targets; how can states ramp-up to and sustain aggressive savings levels?

A Note about Natural Gas

While the primary focus of this report is on electricity EERS policies, general information is included on every state natural gas EERS in effect. When information is readily available, we have included progress meeting goals, but the main focus of the report is to track progress towards meeting electricity efficiency goals.

EERS POLICY STATUS

As of the writing of this report, twenty-six states have an electricity EERS in effect. Thirteen states have a natural gas EERS. The standards and their underlying authorities, listed in order of highest approximate electric annual savings goals to lowest, are summarized below:

Figure 2: Summary of State EERS Policies

States in grey rows have not been in effect for two or more years and are not examined in this report.

State Year Enacted Electric/Natural Gas Policy Type	Energy Efficiency Resource Standard	Reference
Massachusetts ³ 2009 Electric and Natural Gas EERS	Electric: 1.4% in 2010, 2.0% in 2011; 2.4% in 2012 Natural Gas: 0.63% in 2010, 0.83% in 2011; 1.15% in 2012	Electric: D.P.U. Order 09-116 through 09-120 Natural Gas: D.P.U. Order 09-121 through 09-128
Vermont 2000 Electric Tailored Utility Targets (Efficiency Vermont)	~6.75% cumulative savings from 2009 to 2011	30 V.S.A. § 209 ; VT PSB Docket 5980; PSB Contract ⁴
Arizona 2009 Electric EERS	2% annual savings beginning in 2014., 22% cumulative savings by 2020	Docket Nos. RE-00000C-09- 0427, Decision No. 71436
Illinois 2007 Electric and Natural Gas EERS	Electric: 0.2% annual savings in 2008, ramping up to 1% in 2012, 2% in 2015 and thereafter Natural Gas: 8.5% cumulative savings by 2020 (0.2% annual savings in 2011, ramping up to 1.5% in 2019)	S.B. 1918 Public Act 96-0033 § 220 ILCS 5/8-103
New York 2008 Electric and Natural Gas EERS	Electric: 15% Cumulative savings by 2015 Natural Gas: ~14.7% Cumulative savings by 2020	Electric: NY PSC Order, Case 07-M-0548 Natural Gas: NY PSC Order, Case 07-M-0748
Minnesota 2007 Electric and Natural Gas EERS	Electric: 1.5% annual savings beginning in 2010 Natural Gas: 0.75% annual savings from 2010-2012; 1.5% annual savings in 2013	Minn. Stat. § 216B.241
Iowa 2009 Electric and Natural Gas Tailored Utility Targets	Electric: Varies by utility from 1-1.5% annually by 2013 Natural Gas: Varies by utility from 0.74- 1.2% annually by 2013	Senate Bill 2386 and Iowa Code § 476

³ The underlying statute, Mass. General Laws c. 25 § 21, requires gas and electric efficiency program administrators to procure "all energy efficiency and demand reduction resources that are cost effective or less expensive than supply."

⁴ Goals for 2009 and 2010 were combined. Efficiency Vermont also set goals in previous years in three-year intervals.

State Year Enacted Electric/Natural Gas Policy Type	Energy Efficiency Resource Standard	Reference
Rhode Island 2006 Electric and Natural Gas Tailored Utility Targets	Electric: ~1.3% in 2010; 1.5% in 2011; Council proposed 1.7% in 2012, 2.1% in 2013, and 2.5% in 2014 Natural Gas: ~0.4% of sales in 2011; Council proposed 0.75% in 2012, 1.0% in 2013, and 1.2% in 2014	R.I.G.L. § 39-1-27.7
Ohio 2008 Electric EERS	22% by 2025 (0.3% annual savings in 2009, ramping up to 1% in 2014 and 2% in 2019)	ORC 4928.66 et seq. S.B. 221
Indiana 2009 Electric EERS	0.3% annual savings in 2010, increasing to 1.1% in 2014, and leveling at 2% in 2019.	Cause No. 42693, Phase II Order
Maryland⁵ 2008 Electric EERS	15% per-capita electricity use reduction goal by 2015 with targeted reductions of 5% by 2011 calculated against a 2007 baseline (10% by utilities, 5% achieved independently)	Md. Public Utility Companies Code § 7-211
Maine 2010 Electric and Natural Gas Tailored Utility Targets (Efficiency Maine)	Electricity: Annual energy savings of ~1% in FY2011, ramping up to 1.4% in FY2013. Natural Gas: 130 BBTu annually by FY2013	Efficiency Maine Trust: Triennial Plan
Colorado 2007 Electric and Natural Gas Tailored Utility Targets	Electric: PSCo and Black Hills Energy (BHE) both aim for 0.9% of sales in 2011 and increase to 1.35% (1.0% for BHE) of sales in 2015 and then 1.66% (1.2%) of sales in 2019 Natural Gas: Savings targets commensurate with spending targets (at least 0.5% of prior year's revenue)	Colorado Revised Statutes 40-3.2-101, et seq.; COPUC Docket No. 08A-518E; Docket 10A-554EG
Wisconsin 2010 Electric and Natural Gas EERS	Electric: 0.75% in 2011, ramping up to 1.5% in 2014. Natural Gas: 0.5% in 2011, ramping up to 1% in 2013	Order, Docket 5-GF-191
Connecticut⁶ 2005 Electric	~1% annual savings 2008-2011	Public Act 07-242 of 2007

⁵ The 15% per-capita electricity use reduction goal translates to around 17% cumulative savings over 2007 retail sales.

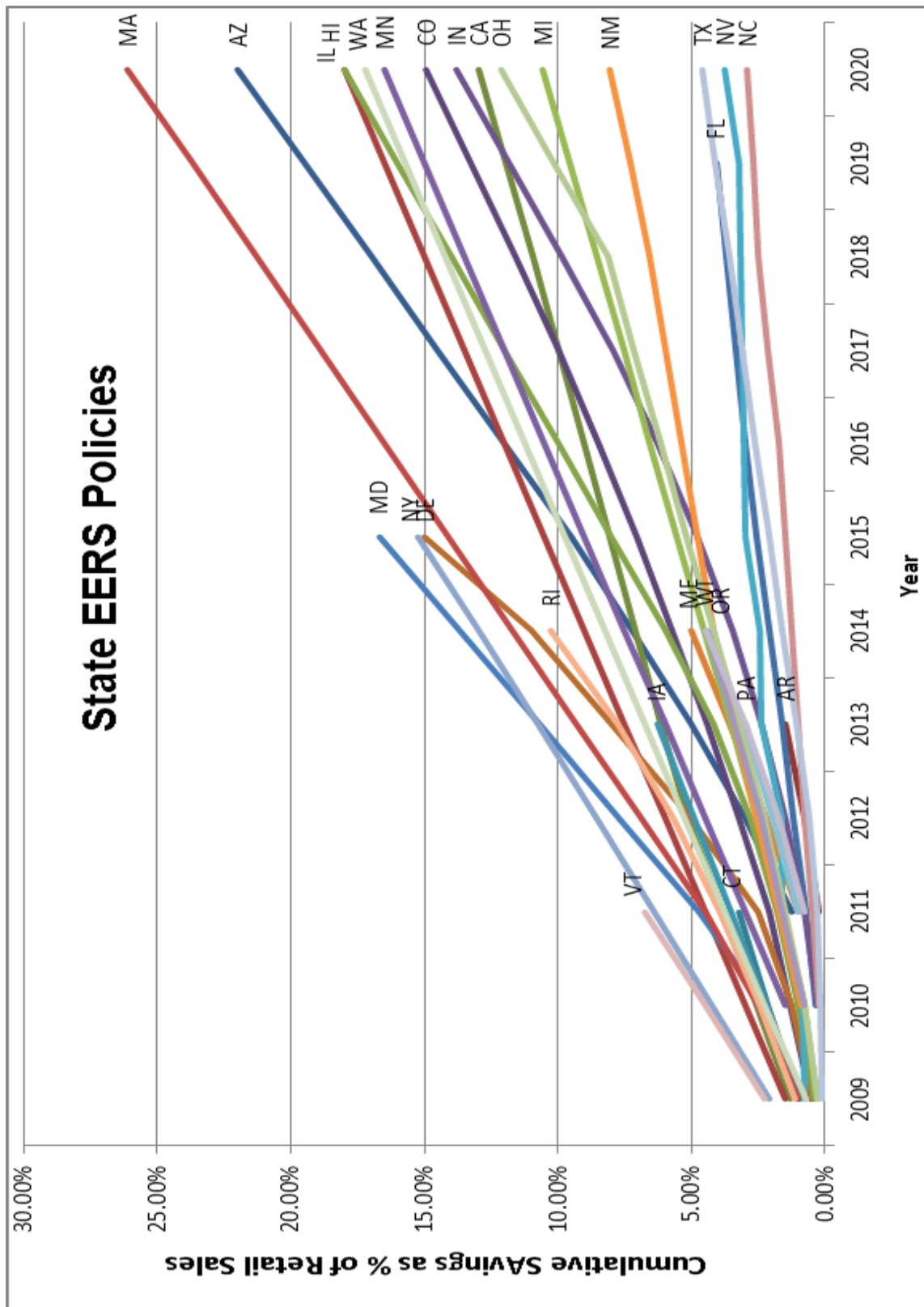
State Year Enacted Electric/Natural Gas Policy Type	Energy Efficiency Resource Standard	Reference
California ⁷ 2004 and 2009 Electric and Natural Gas EERS	Electric: ~1% annual savings through 2020 Natural Gas: 150 gross MMTB by 2012	CPUC Decision 04-09-060; CPUC Decision 08-07-047 ; CPUC Decision 09-09-047
Washington 2006 Electric EERS	Biennial and Ten-Year Goals vary by utility. Law requires savings targets to be based on the Northwest Power Plan, which estimates potential savings of about 1.5% savings annually through 2030 for Washington utilities.	Ballot Initiative I-937 WAC 480-109 WAC 194-37
Michigan 2008 Electric and Natural Gas EERS	Electric: 0.3% annual savings in 2009, ramping up to 1% in 2012 and thereafter Natural Gas: 0.10% annual savings in 2009, ramping up to 0.75% in 2012 and thereafter	M.G.L. ch. 25, § 21 ; Act 295 of 2008
Oregon 2010 Electric and Natural Gas Tailored Utility Targets (Energy Trust of Oregon)	Electric targets are equivalent to 0.8% of 2009 electric sales in 2010, ramping up to 1% in 2013 and 2014. Natural Gas: 0.2% of sales in 2010 ramping up to 0.4% in 2014	Energy Trust of Oregon 2009 Strategic Plan
Pennsylvania 2004 and 2008 Electric EERS	3% cumulative savings by 2013	66 Pa C.S. § 2806.1 ; PUC Order Docket No. M-2008-2069887
Arkansas 2010 Electric and Natural Gas EERS	Annual reduction of 0.25% of total electric kilowatt hour (kWh) sales to 0.75% of total electric kWh sales over the next three years (slightly less for natural gas).	Order No. 17, Docket No. 08-144-U ; Order No. 15, Docket No. 08-137-U
New Mexico 2008 Electric EERS	5% reduction from 2005 total retail electricity sales by 2014, and a 10% reduction by 2020	N.M. Stat. § 62-17-1 et seq.

⁶ Connecticut does not currently have long-term energy efficiency savings goals that can be defined as an EERS. It is included in this report because it has very recent experience with an EERS policy.

⁷ California's goals presented as gross savings. A rough estimate of California's goal as net savings can be achieved by converting gross savings to net savings using the 2009 net to gross conversion factor of 61% (CPUC 2011). Net goals are approximately 0.8% annual savings for the period 2010-2013, dropping to 0.55% from 2014-2020. California's evaluation and attribution methods are some of the strictest in the country, however, which partly explains the low net to gross conversion factor.

State Year Enacted Electric/Natural Gas Policy Type	Energy Efficiency Resource Standard	Reference
Nevada 2005 and 2009 Electric RPS - EERS	5% Renewable energy by 2025— energy efficiency may meet a quarter of the standard in any given year, or 6.25% cumulative savings by 2025.	NRS 704.7801 et seq.
Hawaii⁸ 2004 and 2009 Electric RPS - EERS and EERS	Renewable Portfolio Standards include 15% electrical energy savings through 2015. Starting in 2015 all electric utility savings will count towards Hawaii's Energy Efficiency Portfolio Standards (EEPS). EEPS long-term goal is 4,300 GWh reduction by 2030, or 30% of sales.	HRS §269-91, 92, 96
North Carolina 2007 Electric RPS - EEERS	Renewable Energy and Energy Efficiency Portfolio Standard (REPS). Investor-owned: 12.5% by 2021 and thereafter. Energy efficiency is capped at 25% of the 2012-2018 targets and at 40% of the 2021 target.	N.C. Gen. Stat. § 62-133.8 04 NCAC 11 R08-64, et seq.
Texas 1999 and 2007 Electric EERS	20% Incremental Load Growth in 2011 (equivalent to ~0.10% annual savings); 25% in 2012, 30% in 2013+	Senate Bill 7 ; House Bill 3693 ; Substantive Rule § 25.181
Florida 2009 Electric Tailored Utility Targets	3.5% energy savings over 10 years.	Docket Nos. 080407-EG – 080413-EG; Order No. PSC- 09-0855-FOF-EG
Delaware Pending Electric and Natural Gas EERS	Electricity: 15% electricity cumulative savings by 2015 Natural Gas: 10% cumulative savings by 2015.	SB 106

⁸ Although Hawaii does not currently have a mandated annual goal for energy efficiency, ACEEE estimates that the current 30% goal will result in 1.5% annual savings through utility programs.



As the figure above illustrates, eleven geographically dispersed states have committed to long-term targets to achieve over 10% cumulative annual savings by 2020. Because some state tailored utility targets are set in three-year intervals, the figure shows many states with EERS ramp-ups that only reach 2011, 2013, or 2015. While some states, such as Vermont, expect to extend EERS policies out to another three years, it is unclear whether Connecticut will re-establish long-term utility targets. Below, annual savings targets are drawn out to 2020 and presented as a cumulative total to demonstrate how current state policies, if maintained, would compare.

Table 1: Cumulative Electricity Savings of State EERS Policies Extrapolated to 2020⁹

State	Cumulative 2020 Target	State	Cumulative 2020 Target
Vermont*	27.00%	Wisconsin*	13.50%
Maryland*	26.70%	Maine*	13.40%
New York*	26.50%	Connecticut*	13.14%
Massachusetts	26.10%	California	12.94%
Rhode Island*	25.26%	Ohio	12.13%
Arizona	22.00%	Michigan	10.55%
Illinois	18.00%	Oregon*	10.40%
Hawaii*	18.00%	Pennsylvania*	9.98%
Washington	17.24%	New Mexico	8.06%
Minnesota	16.50%	Arkansas*	6.75%
Iowa*	16.10%	Texas	4.60%
Delaware	15.00%	Florida	4.06%
Colorado	14.93%	Nevada	3.76%
Indiana	13.81%	North Carolina	2.92%

*Savings beginning in 2009 extrapolated out to 2020 based on final year of annual savings required

RESULTS

Across the country, state EERS policies are driving energy efficiency investments and energy cost savings to unprecedented levels. State utility commissions, utilities, and other program administrators have made impressive progress over the last three years implementing EERS policies. This review finds that most states are meeting or on track to meet energy savings targets.

Overall Savings

States with an EERS are achieving significant energy efficiency savings from utility programs, benefitting electric and natural gas customers by lowering utility bills, improving building comfort, and reducing strains on the utility grid. Nine states achieved 1.2% of annual sales or more in their latest reporting year of either 2009 or 2010, an impressive accomplishment considering in 2006 only one state achieved over 1.2% (Molina et al. 2008).¹⁰ Following this group of leading states, an encouraging number of states with an EERS have climbed close to or above 0.5% savings, including states that only recently adopted full-scale utility energy efficiency programs in the Midwest and Southwest.

Savings Compared to Targets

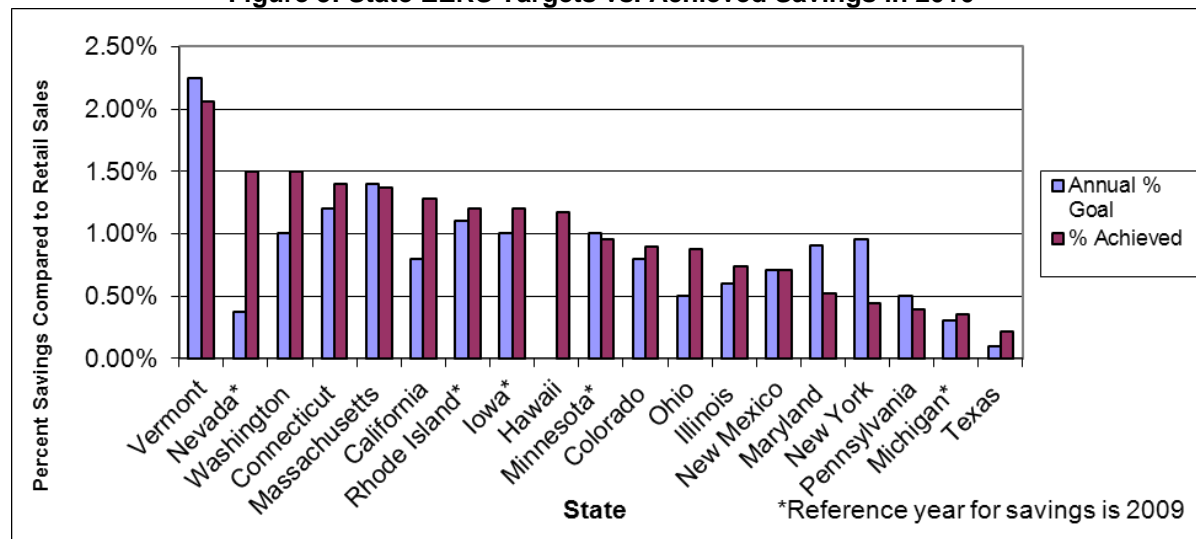
Overall, the performance of states in comparison to the targets set in EERS policies has been encouraging; most states are meeting or are on track to meet energy saving goals. Thirteen of the

⁹ Colorado savings for PSCo only. Delaware is in the process of formulating rules for its EERS. ACEEE does not extrapolate the goal out to 2020. Other assumptions noted in footnotes of EERS summary table.

¹⁰ Of the nine achieving >1.2%, Nevada, Iowa, and Rhode Island have a reference year of 2009.

twenty states with EERS policies in place for over two years are achieving 100% or more of their goals, three states are achieving over 90% of their goals, and only three states are realizing savings below 80% of their goals.¹¹

Figure 3: State EERS Targets vs. Achieved Savings in 2010¹²



While the figure above positively portrays states currently meeting goals, the hard work has yet to come. Targets in many states are still increasing and sustaining aggressive savings levels will be a challenge for states. In states where EERS policies are still ramping up and have low annual savings goals for 2010, such as Ohio, Illinois, and Michigan, meeting goals in the coming years will be challenging and deserves ongoing attention and analysis. Ramping up to high levels of savings in a short period of time is a difficult task, even for states with demonstrated success in energy efficiency program administration. States such as Massachusetts and Minnesota, which are achieving slightly less savings than their targeted goals, are in the midst of major program ramp-ups. Low savings levels during the program ramp-up period have also caused Pennsylvania to fall short of its goals thus far.

Another reason some states are falling below target levels in 2010 is that some EERS policies set long-term goals, which place emphasis on long-term, rather than annual achievements. Pennsylvania and Vermont, for example, set two- and three-year savings targets for 2011, respectively. Past experiences in Vermont and California have demonstrated that it is common for states to make a major push in the final year to make up for lower savings in prior years.¹³ This trend seems to be continuing in Pennsylvania, where savings in the first two quarters of its second program year far outpaced levels of its first.

In New York and Maryland, the only states currently achieving less than 80% of their near-term targets, shortfalls can be attributed both to new administrators ramping-up programs as well as the effect of long-term EERS. As explained in further detail below, the combination of delays in program approval and low savings as programs ramp-up has resulted in savings levels, which, if continued, would result in savings below the levels needed to meet long-term goals. New York has approved

¹¹ While its policy has been in place for over two years, North Carolina has not recorded energy efficiency savings and is thus not included in this tally. Currently, Hawaii's RPS goals allow electrical energy savings to count through 2014. Starting in 2015, electrical energy savings will count towards Hawaii's Energy Efficiency Portfolio Standards.

¹² California gross savings and targets adjusted to net savings using 61% of conversion factor. California savings include partial savings from advanced codes and standards adopted in the state. California, Iowa, and Washington savings and targets based on IOUs reporting savings as of 2010 only. New York based on NYSERDA and utility program administrators only. Colorado includes only PSCo. Ohio does not include First Energy.

¹³ Vermont exceeded three year targets for 2006-2008 due to 2008 savings that made up for shortfalls in the prior two years. California came close to meeting 2004-2008 goals due to 2008 savings that made up for shortfalls in the prior two years.

funding, expertise, and an established market that inspire confidence among stakeholders in the state that they can make up for the initial shortfall in the years between now and the long-term target year of 2015. In Maryland, it is less likely utilities will be able to make up the lost ground. The Maryland PSC has not approved utility targets or funding levels sufficient to meet goals set in the EmPOWER Maryland Act. Lacking a strong mandate from the PSC, Maryland utilities have shown uneven commitment to meeting the goals, failing to invest the necessary financial and human resources.

OBSERVATIONS

Aside from the most prominent observation of this report, that states are generally on track to meet or exceed EERS goals, a number of general trends have emerged as states gain experience with EERS policies, which may help states in the varying stages of the policy process.

- Establishing an EERS lays a foundation for increased levels of energy efficiency savings, regardless of prior experience with energy efficiency programs.
- Available data indicates the benefits of programs administered under an EERS substantially exceed the costs.¹⁴
- Meeting EERS targets requires fair and clear regulation, meaning targets for utilities unaccustomed to energy efficiency must be gradual and the evaluation method for savings clear.
- All parties must be committed to meeting targets. Utilities need to devote proper resources to ensure successful EE programs and Commissions should approve sufficient levels of funding and complementary policies such as cost recovery, performance incentives, and decoupling.
- Ramping-up savings to aggressive levels and sustaining these levels requires programmatic excellence. Tried and true program models work to meet lower goals, but innovative programs reaching all sectors are necessary to achieve deeper savings.

EERS Drives Savings for States of All Types

The EERS policy has driven higher levels of savings in states with established energy efficiency program infrastructure as well as in states without energy efficiency program experience. In Washington and Iowa, for instance, energy efficiency had long been recognized by the major utilities and customers as having significant value. The two states consistently scored well in the ACEEE Scorecard Report, and achieved energy efficiency savings of around 0.6–0.8% of sales from utility programs (Molina et al 2010). EERS policies went into effect in Iowa and Washington in 2009 and 2010, and both states realized a significant boost in savings over previous years. Iowa and Washington achieved 1.2% and ~1.5% savings in 2009 and 2010, respectively.¹⁵ Targets mandated by an EERS policy allow utilities to justify higher spending levels on cost-effective energy efficiency measures. The long-term nature of the goals also provides market certainty regarding the utility commitment to energy efficiency services and technologies, improving the business case for energy efficiency companies in the private sector. States with established energy efficiency programs may have utilities with varying commitment to energy efficiency. The EERS policy can serve to “raise the floor” and drive program development from utilities historically reluctant to offer robust efficiency programs.

States without significant existing energy efficiency programs also benefit from establishing savings targets. In states such as North Carolina, Michigan, and Illinois, the adoption of an EERS prompted utilities to develop and implement programs to benefit customers of all market segments. Without the strong mandate of an EERS, states that have yet to develop energy efficiency programs are less

¹⁴ This is not surprising, given that repeated analyses have shown that utility sector energy efficiency programs tend to be quite cost-effective. ACEEE’s most recent report on this subject found that energy efficiency programs saved electricity at an average cost of 2.5 cents/kWh (Friedrich et al. 2009), about one-third to one-fourth the cost of building, fueling and operating a new power plant.

¹⁵ Washington savings based only on IOUs.

likely to begin such an initiative, depriving utility customers of beneficial programs offered in every region in the country.

The Benefits of EERS Outweigh Costs

Ratepayer-funded energy efficiency programs must undergo cost-effectiveness tests that confirm positive benefit-cost ratios greater than one. The standards for cost-effectiveness as well as the types of tests use vary by state, but the presence of rigorous benefit-cost tests prior to program approval assures that efficiency programs and measures installed will likely be cost-effective.¹⁶

Available data thus far indicates that the benefits of efficiency programs driven by EERS policies have proven to substantially exceed administrator and customer costs. While this report does not comprehensively analyze the cost-effectiveness of energy efficiency programs, anecdotal evidence from a handful of states confirms that energy efficiency is a net beneficial investment.

- Hawaii Energy, the state's third-party Public Benefits Fee Administrator, collects a percent of each electric utilities' customer's bill and is responsible for carrying out Hawaii's energy efficiency and conservation programs. Hawaii Energy achieved net customer energy savings of 113,159 MWh, meeting 97% and 81% of its residential and commercial targets, respectively. Over the lifetime of these rebated and installed measures, cost savings will yield a 546% return on Hawaii's investment of \$46.9 million (\$17M/\$29.9M Ratepayer/Customer Investment) (Hawaii Energy 2010).
- In Illinois, independent analysis of ComEd's programs in its second program year found portfolio the benefit-cost ratio based on the Illinois Total Resource Cost (TRC) test to be 2.84 (Navigant Consulting 2010). Ameren Illinois met its goals in 2009 cost-effectively and its portfolio scored a 2.78 using a TRC test (Ameren Illinois Utilities 2010).
- In 2010, Efficiency Vermont saved 114 GWh at a cost of 4.1 cents per kilowatt-hour (over the life of the measures). Efficiency Vermont spent \$35.4 million on efficiency programs, participants spent \$21.7 million, and the overall lifetime benefits equaled \$136.1 million (Efficiency Vermont 2011).
- In Colorado, Xcel Energy reports that its electric DSM programs had an overall benefit-cost ratio of 3.3 while the gas DSM programs had a benefit-cost ratio of about 1.6. Xcel Energy spent \$54.7 million on electric DSM programs and \$16.9 million on gas DSM programs last year. The company estimates that electric programs alone will result in \$227 million in net economic benefits for customers over the lifetime of energy efficiency measures installed due to its 2010 DSM programs. Gas DSM programs will result in about \$15 million in net economic benefits (Xcel Energy 2010).

Clear and Fair Regulation

Critical to the success of states meeting goals is clear and comprehensive regulation of energy efficiency programs. EERS policies must be developed at a pace that allows all stakeholders to engage, submit comments, and adjust to the impending requirements. A methodical process ensures clarity from all parties on critical elements such as eligible technologies, EM&V requirements, and incentives or penalties for compliance and non-compliance. One particular issue that can cause friction is how Commissions decide to measure savings attributable to the EERS. Regardless of what method is chosen, whether on an annual, annualized, part-year, or life-time basis, clarity in the foundational legislative or regulatory authority is of utmost importance, as the cases in Texas and Ohio illustrate. In both cases, elaborated on in the case studies below, a lack of clarity in how energy

¹⁶ ACEEE will release a detailed analysis of utility cost-effectiveness tests later this year.

savings could qualify to meet EERS targets has led to confusion and contention among utilities on what the policy actually requires.

Regulatory lag inhibits utility program administrators from meeting goals. While state utility Commissions should take time approving programs and policies, there is a hazard in approving energy savings targets and assuming programs will be approved in time to meet initial targets. Utility commissions in Maryland and New York took almost a year to approve programs for utilities after their EERS policies were approved. The EERS legislation can hinder states' ability to properly ramp up programs and meet designated goals. Pennsylvania's EERS, for instance, did not require the Utilities Commission to approve programs until five months into the first of two program years. Rather than having the full two years to meet the 1% cumulative savings target, utilities only have 19 months. Setting realistic timeframes for policy and program approval, therefore, can help lay the groundwork for successful EERS performance.

For states without significant existing energy efficiency programs, a gradual ramp-up of programs has been a successful strategy to gain utility acceptance and achieve significant savings as a result. Particularly in states unfamiliar with energy efficiency program administration, gradual ramp-ups allow utilities to develop and manage program administration and implementation at a realistic pace, allowing time for these utilities to seek advice from experienced professionals in the field. While the targets may be low, utilities and states can tout success meeting targets to build momentum for programs, and if performance incentives are in place, allow utilities to understand the financial benefit of meeting goals.

All Parties Must be Committed to Meeting Targets

Energy efficiency targets can only be met in a sustained fashion if regulators, utilities, and program administrators sincerely pursue cost-effective energy efficiency and treat energy efficiency similarly to supply-side resources. For regulators, this means adopting policies complementary to an EERS that improve the business case for energy efficiency, such as cost recovery, mechanisms to address the link between utility sales and profits (e.g., decoupling or lost-revenue recovery), performance incentives, and loading orders calling for the pursuit of all cost-effective energy efficiency. Regulatory commitment to targets also entails adopting cost-effectiveness tests that accurately measure the full costs and benefits of energy efficiency programs. Commissions must permit utilities to fund energy efficiency programs at the levels necessary to achieve targeted savings levels as well.

Aside from failing to provide complementary policies to ensure success, regulators can also include provisions that inhibit states from achieving intended EERS targets. Rate impact caps, or budget caps, can prohibit utilities from making the necessary, cost-effective energy efficiency investments necessary to achieve EERS requirements. Such caps are present in Texas and North Carolina, where it is uncertain whether the caps will lower cost-effective energy efficiency investment, and in Illinois, where the cap will likely trigger a failure to meet the standard in the next few years unless the General Assembly takes action to raise or eliminate the caps (Nowak et al. 2011). Provisions known as "exit ramps," present in Ohio and New Mexico, allow utilities to request permission to lower goals, which may also limit the effectiveness of an EERS policy. EERS policies that include opt-out provisions for industrial customers, as opposed to provisions that allow industrial to conduct "self-direct" programs tied to spending or savings requirements, raise the chances that states will not achieve their cost-effective energy savings potential.

Regulation can only ensure the proper environment for energy efficiency programs to flourish—utilities or third-party administrators must do the work. Successful utilities and third-party programs administrators devote significant human and capital resources to energy efficiency programs. Regardless of how experienced an administrator is with energy efficiency programs, the importance placed on energy efficiency initiatives from corporate leadership is a critical indicator of how well the utility will perform. If energy efficiency targets are embraced by utility leadership, efforts by energy efficiency division staff to meet goals will be welcomed and rewarded, boosting chances of success.

Questionable commitment from utilities and third-party administrators can lead to delays, underperformance, and threats to the policy. Nowhere is this more clear than in states where utilities have publicly opposed EERS policies, seeking to undermine and repeal the authority. In Ohio, First Energy and Dayton Power and Light have mounted strong opposition to the statewide EERS, claiming that its goals will hinder the state's economic recovery. While other utilities in the state such as Duke Energy have met the goals cost-effectively with ease thus far and claim long-term goals, while challenging, are achievable. First Energy fell far short of its first year target and has received a waiver for targets until 2012. Instead of redoubling its efforts to meet targets, it seems First Energy has shifted to an adversarial stance, threatening to hold Ohio back from being a leader in energy efficiency.

Ramping-Up Savings Requires Programmatic Excellence

Demonstrating the will to succeed is important, but actual energy efficiency savings do not derive from organizational commitment alone, but from program implementation as well. Thus, a third critical element to success is programmatic excellence. An analysis of how utilities are ramping up savings to meet EERS targets will be presented in the forthcoming, companion ACEEE report (Nowak et. al. 2011), which will include discussion and examples of the following strategies:

- Increasing energy efficiency funding levels
- Adopting complementary regulatory policies such as decoupling, performance incentives, and loading orders requiring the consideration of cost-effective energy efficiency in resource planning
- Using non-utility program savings (i.e. building codes) to contribute to contribute towards meeting savings standards
- Creating and sustaining collaborative and stakeholder processes
- Capturing lighting savings early and adding new, higher- efficiency technologies to efficiency portfolios beyond CFL's
- Adopting new program design approaches and strategies, including "Deeper, Then Broader"
- Starting programs for new technologies and new customer market segments
- Promoting participation through upstream rebates, more rebates and enhanced advertising

Conclusions and Recommendations

Energy efficiency savings targets effectively advance the objective of increased, long-term energy savings from cost-effective efficiency programs. The findings of this study show that almost every state with an EERS is on track, meeting, or exceeding goals in 2010. This report finds that states' performance meeting energy savings targets is driven by broader issues such as the clarity and appropriateness of the regulatory framework, the length of time allowed for program administrators to ramp-up programs, and the overall commitment of all parties to invest the proper resources to meet targets. States must overcome these barriers in order to successfully meet EERS targets and states considering the adoption of an EERS should carefully consider these issues in the policymaking process.

CASE STUDIES

The following case studies are presented in chronological order based on the effective date of the EERS policy. Each case study provides a brief summary, regulatory and legislative backgrounds, energy savings vs. targets, and a section outlining factors affecting performance.

Texas

Summary

Electric EERS	20% Incremental Load Growth in 2011; 25% in 2012, 30% in 2013+
Applicable Sector	Investor-owned utilities
Natural Gas EERS	None
Authority 1	Senate Bill 7
Date Enacted	May 1999, subsequently amended
Authority 2	House Bill 3693
Date Enacted	May 2007
Authority 3	Substantive Rule § 25.181

Legislative and Regulatory Background

In 1999, Texas became the first state to establish an energy efficiency resource standard, requiring electric utilities to offset 10% of load growth through end-use energy efficiency.¹⁷ Demand growth is the average growth of the five previous weather adjusted peak demands for each utility. In 2007, after several years of meeting this goal at low costs, the legislature increased the standard to 15% of load growth by December 31, 2008 and 20% of load growth by December 31, 2009.¹⁸ The legislation also required utilities to submit energy savings goals. The Public Utility Commission of Texas (PUC) approved these rules in March 2008.

While the 2007 legislation required utilities to submit GWh savings goals to ensure they did not overly focus on load management, the PUC determined that utilities could convert their demand savings goals into corresponding energy savings goals each year using a 0.20 capacity factor.¹⁹ The current practice used by Texas utilities is to interpret the term “capacity factor” to be a direct estimate of the fraction of hours in a year when the average peak savings will occur. Thus, the peak to energy savings multiplier used in Texas is $0.20 \times 8760 / 1,000 \text{ MWh/GWh} = 1.75$. This implies a peak to energy use ratio of 0.575, which is much higher than the actual peak to energy use ratio typically in the range of 0.20 to 0.24, which translates to conversion factors ranging from 3-5.

A preferable alternative to setting goals as a percentage of load growth would be to set savings goals as a percentage of baseline electricity sales and demand, which would produce more achievable and equitable targets (Itron 2008).

Recent Developments

In 2010, the PUC approved Substantive Rule § 25.181, which increased the goals from 20% of electric demand growth to 25% growth in demand in 2012 and 30% in 2013 and beyond.²⁰ The rule also establishes customer cost caps to contain costs. Texas law requires all electric transmission and distribution utilities (TDUs) to meet energy efficiency goals. Utilities administer incentive programs and retail electric providers and energy efficiency service providers implement the programs. All programs are designed to reduce system peak demand, energy consumption, and/or energy costs and are available to customers in all customer classes.

Energy Savings Achieved vs. Targeted

While Texas has consistently met its energy efficiency goals, the energy efficiency goals have resulted in only modest electricity savings. Between 1999 and 2009, investor-owned utilities' programs in Texas produced 3,574 GWh of electricity savings, which amounts only to 1% of 2009 sales. The energy savings targets set by utilities are about half of the actual levels achieved.

¹⁷ Texas Senate Bill 7

¹⁸ House Bill 3693

¹⁹ Rule defines capacity factor as “The ratio of the annual energy savings goal, in kWh, to the peak demand goal for the year, measured in KW, multiplied by the number of hours in the year.”

²⁰ <http://www.puc.state.tx.us/rules/subrules/electric/25.181/25.181.pdf>

Table 2: Texas Energy Efficiency Goals vs. Achieved Savings

Year	Demand Goal (MW)	Demand Savings Achieved (MW)	Energy Savings Goal (GWh)	Energy Savings Achieved (GWh)	Energy Savings Goal as % of Energy Consumption of Nine IOUs	Energy Savings Achieved as % of Energy Consumption of Nine IOUs
2007	136	167	238	427.9	0.09%	0.16%
2008	115	202	201	581	0.08%	0.22%
2009	132	240	231	559.8	0.09%	0.21%
2010	142	301	249	548	0.10%	0.21%
2011 (projected)	143	298	251	539	0.10%	0.21%

Source: Texas utility energy efficiency plans and reports

If the load growth targets were to apply to forecast growth in electric retail sales, meaning utilities would have to offset 30% of growth in sales by 2013, this would amount to about 0.5% savings per year beginning in 2013.

Even though the energy efficiency goals do not apply to them, it should be noted that a handful of Texas municipal electric utilities, particularly Austin Energy, generate impressive amounts of energy efficiency savings. Austin Energy and the City of San Antonio generated 188 GWh alone in incremental energy efficiency savings in 2009 (EIA 2011).

Factors Affecting Performance

Collaboration among Stakeholders

Texas's success meeting energy efficiency goals can be attributed to a number of factors, but a few stand out in particular. Utility programs benefit from the ease of use of standard offer program materials for contractors and long standing relationships with contractors. Program managers cite sound electronic tracking systems and websites as contributing to program success, as well as broad reach and effectiveness of market transformation programs. Others note that while there is an inherent risk of inaccuracy, the programs benefit from a process for deeming energy savings, which reduces the cost of verification and measurement.

The relationship between utilities, the PUCT, and program implementers is characterized by a high-degree of collaboration and consultation, which allows for the dissemination of best practices and common barriers. Stakeholders engage in quarterly Energy Efficiency Implementation Project meetings and Texas IOUs formed a voluntary organization for energy efficiency program managers: The Electric Utility Marketing Managers of Texas (EUMMOT). EUMMOT facilitates coordination among program managers to convey common perspectives on energy efficiency program design and implementation; provides for exchange of information on markets and technologies; and advances understanding and participation in efficiency programs.

Rural vs. Urban Utilities

While the state as a whole consistently meets targets, there is a varying degree of success on a utility-by-utility basis. Rural utilities struggle to meet targets, primarily because of the dearth of energy contractors willing to enter the market in sparsely populated areas. Because goals are set as a percentage of incremental growth, utilities such as El Paso Electric that serve fast-growing areas must ramp up savings targets much faster than those with relatively predictable and stable load growth.

Program Design and Marketing

Program managers and advocates in the state roundly state that regulatory barriers inhibiting utilities' ability to market programs directly to customers is a major weakness to of current energy efficiency programs. Stakeholders also assert that it is difficult to improve upon programs or design new ones due to regulatory rigidity. Looking ahead to increased savings goals, Texas program managers and third-parties echo concerns about rural areas, marketing, and inflexible program designs, and also add the inherent contradiction between energy savings and shareholder value that needs to be addressed with a decoupling mechanism (Itron 2008).

Funding Levels

In total, Texas utility energy efficiency program budgets amounted to 0.3% of their revenues in 2009, while the median state spends 0.7%. An analysis by Good Company Associates found that the increase in the goal from 10% of demand growth to 20% in 2010 and 2011 did little to increase spending. The new goals will not significantly impact energy efficiency spending until the recession years are no longer included in the calculation of the five year average growth in demand. Good Company also concludes the cost-caps should not seriously constrain utilities from meeting goals given the modest savings levels.²¹ Many utilities exceed the demand goals, however, and as a result, push the limits of the cost-caps. Some companies have already surpassed the cost-caps and others are very close. Unless the PUCT grants a utility the ability to exceed the cost caps, utilities will have to reduce spending in some manner which could result in less demand reduction and energy savings.

Performance Incentives

A utility that exceeds its demand reduction goal within the prescribed cost limit is awarded a performance bonus. A utility that exceeds its demand reduction goal receives a bonus equal to 1% of the net benefits for every 2% that the utility exceeds its goal. The maximum bonus is equal to 20% of the utility's program costs.

Vermont

Summary

Electric EERS	~6% cumulative savings from 2009 to 2011
Applicable Sector	Third-party administrator
Natural Gas EERS	None
Authority 1	30 V.S.A. § 209

Legislative and Regulatory Background

Vermont pioneered the model of a statewide "energy efficiency utility" (EEU) after Vermont enacted legislation in 1999 authorizing Vermont Public Service Board (PSB) to collect a volumetric charge on all electric utility customers' bills to support energy efficiency programs. Vermont PSB created the EEU, Efficiency Vermont, to use these public benefits funds to provide programs and services that save money and conserve energy. Burlington Electric Department (BED) provides DSM services within its own territory. When Efficiency Vermont was created, BED requested, and was granted, authority to run its own programs. BED reports separately on the costs and savings of its programs.

Vermont does not have traditional EERS legislation with a set schedule of energy-savings percentages for each year. Instead, Vermont law requires EEU budgets to be set at a level that would realize "all reasonably available, cost-effective energy efficiency." Compensation and specific energy-savings levels—not "soft" goals or targets—are then negotiated with EEU contractor Vermont Energy Investment Corporation (VEIC). There is not an explicit penalty for non-performance. However, a portion of the compensation Vermont pays the administrator is contingent on meeting stated goals, subject to a monitoring and verification process. If the administrator does not meet

²¹ http://www.goodcompanyassociates.com/files/manager/Summary_PUCT_EE_Rule_8-6-10.pdf

stated goals, the state will withhold compensation, and the administrator potentially will be replaced at the end of the three-year period (DSIRE 2011). Efficiency Vermont's current goal is 360,000 MWh of energy savings during the three-year cycle, equivalent to 6.75% of electricity sales.

Moving forward, the goal-setting process will change due to Vermont's new "order of appointment" franchise-like structure. Every 3 years, a "demand resources plan" proceeding will be held. The proceeding will set budgets and goals for the next 20 years, coinciding with the long-range transmission plan to allow for integration of forecasting.²²

Energy Savings Achieved vs. Targeted

In 2006, efficiency savings were about 1% of sales and by 2008, Efficiency Vermont achieved unprecedented savings levels equal to 2.5% of annual sales, exceeding its MWh goal for the 3-year period. In 2007 and 2008, savings from energy efficiency measures more than offset the average underlying rate of electricity load growth. Savings dropped slightly to 1.6% in 2009, but rebounded significantly in 2010 as the state once again exceeded 2% annual savings. Judging performance on an annual basis, Vermont almost met over 90% of its goal in 2010, but at 3.7% savings over two years, it will need to make up for lost ground in order to meet the three year of 6.75% savings by the end of 2011.

Table 3: Efficiency Vermont Energy Efficiency Savings Achieved vs. Targets

2006-2008 Achieved (MWh)	2006-2008 Goal (MWh)	Percent Attained	2009 Savings Achieved (MWh)	2010 Savings Achieved (MWh)	2009-2011 Goal (MWh)	Percent of 3-year goal attained over 2 years
311,000	261,700	119%	85,000	114,000	360,000	55%

Sources: Efficiency Vermont, [2009 Annual Report](#); [2010 Savings Claim](#); [2011 Annual Plan](#)

Factors Affecting Performance

Funding Levels

Substantial increases to the Energy Efficiency Charge (EEC) included within customer rates drove Vermont's success over the last five years. Even though Vermont already had the highest per-capita investment in electric efficiency of any state in 2004, the state legislature passed Act 61 of 2005, which removed the spending cap on the EEU annual budget. The PSB now has flexibility to determine appropriate funding levels in the context of the integrated resource planning process. The PSB increased energy efficiency funding in 2006 from the previous maximum of \$17.5 million to \$30 million per year for the next three years. The aggressive electric energy efficiency measures have proven to be consistently cost-effective. In 2010, Efficiency Vermont saved 114 GWh at a cost of 4.1 cents per kilowatt-hour (over the life of the measures). Efficiency Vermont spent \$35.4 million on efficiency programs, participants spent \$21.7 million, and the overall lifetime benefits equaled \$136.1 million.

Third-Party, Performance-Based Program Administrator Model

The EEU structure ensures that as an efficiency program implementer, VEIC does not have conflicting incentives. They are not an investor-owned for-profit utility, have no rate base, and thus, no throughput incentive. VEIC is eligible to receive a performance incentive for meeting or exceeding performance goals established in its contracts, directly tying results to compensation. Along with these performance incentives, VEIC staff attributes much of their success to the alignment between their non-profit structure and their mission: to reduce the environmental and economic costs of energy

²² [EEU Structure \(Docket 7466\)](#)

use. Efficiency Vermont has a deep culture of innovation and experimentation centered solely on saving energy.²³

Working under a performance-based “order of appointment” allows Efficiency Vermont the flexibility to allocate funds to where they can buy the most energy savings with each budget dollar. Relative to other program administrators, they do more custom projects, and are not constrained to work off of prescriptive measures and prescriptive projects. This allows for incentives to be entirely negotiated with the customer, with Efficiency Vermont effectively buying down the cost of the project or measure until it becomes an attractive investment for them. Within each three-year performance contract period, Efficiency Vermont has program plans which are updated annually. The 2011 plan builds on 2010’s established strategies in five markets: business new construction, business retrofit, residential new construction, residential retrofit, and efficient products.

California

Summary

Electric EERS	Commission-set utility targets; ~1% annual savings
Applicable Sector	Investor-owned utilities
Natural Gas EERS	Yes
Authority 1	CPUC Decision 04-09-060
Date Effective	September 2004
Authority 2	CPUC Decision 08-07-047
Date Effective	7/31/2008
Authority 3	CPUC Decision 09-09-047
Date Effective	September 2009

Legislative and Regulatory Background

California is a long-time leading state for its utility-sector customer energy efficiency programs, which date back to the 1970s and have grown and evolved substantially over three decades. Its programs and related energy efficiency policies have had a significant impact on per capita electricity use, which has remained essentially constant over the past 30 years. Following California’s 2001 electricity crisis, the main state resource agencies worked together along with the state’s utilities and other key stakeholders and developed the California Integrated Energy Policy Report that included energy savings goals for the state’s IOUs. The CPUC formalized the goals in [Decision 04-09-060](#) in September 2004. The goals called for electricity use reductions in 2013 of 23 billion kWh and peak demand reductions of 4.9 million kW from programs operated over the 2004–2013 period. The natural gas goals were set at 67 MMTh per year by 2013.

The California Legislature emphasized the importance of energy efficiency and established broad goals with the enactment of [Assembly Bill 2021](#) of 2006. The bill requires the California Energy Commission (CEC), the California Public Utilities Commission (CPUC) and other interested parties to develop efficiency savings and demand reduction targets for the next 10 years. Having already developed interim efficiency goals for each of the IOUs from 2004 through 2013, the CPUC developed new electric and natural gas goals in 2008 for years 2012 through 2020, which call for 16,300 GWh of gross electric savings over the 9-year period. California’s current targets are embedded in the approved 2010-2012 program portfolios and budgets for the state’s IOUs, which calls for gross electricity savings of almost 7,000 GWh and natural gas savings of approximately 150 MMTh.²⁴

²³ For a more detailed discussion of factors driving success in Vermont, see Nowak et al (2011).

²⁴ A rough estimate of California’s gross savings goal as net savings can be achieved by converting gross savings to net savings using the 2009 net to gross conversion factor of 61% (CPUC 2011). Net goals are approximately 0.8% annual savings for the period 2010-2013, dropping to 0.55% from 2014-2020. California’s evaluation and attribution methods are some of the strictest in the country, however, which partly explains the low net to gross conversion factor.

Table 4: Goals and Budgets for the 2010-2012 Program Cycle

	PG&E	SCE	SDG&E	SoCal	Total
2010-2012 Program Cycle Electricity Savings (Gross GWh)	3,100	3,316	539	-	6,965
2010-2012 Program Cycle Natural Gas Savings (Gross MMTh)	48.9	-	11.4	90	150.3
2010-2012 Budgets (millions)	\$ 1,338	\$ 1,228	\$ 278	\$ 285	\$ 3,129

Energy efficiency is the first priority in California's loading order for energy resources. This was first acknowledged in California's 2003 Final Energy Action Plan I. Under Public Utilities Code Section 454.5(b)(9)(C), investor owned utilities are required to first meet their unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible.

Energy Savings Achieved vs. Targeted

California IOUs' evaluated net savings for the program period between 2004 and 2008 fell slightly short of the Commission's adopted goals, achieving 9,442 GWh of savings, or about 1% annually throughout the program period.²⁵ The utilities plan to make up for these shortfalls in the 2010-2012 program cycle.

Table 5: 2004-2008 California Achieved Savings vs. EERS Targets

	PG&E	SCE	SDG&E	SoCal	Total
2004-2008 Program Cycle Electricity Target (Net GWh)	4,313	4,788	1,387	-	10,488
Actual Savings (Net GWh)	4,184	4,278	979	-	9,442
2004-2008 Program Cycle Natural Gas Targets (Net MMTh)	64	-	13	77	154
Actual Natural Gas Savings (Net MMTh)	77	-	12	70	159

Source: CPUC, [Energy Efficiency 2006-2008 Interim Verification Report](#), 10/15/2009

The CPUC and the utilities are cautiously optimistic about the utilities meeting the 2010-2012 program savings goals. Saving goals for the California IOU plans must be met over the full 3-year cycle (not annually). Based on non-binding goals for 2010, IOUs are exceeding electricity goals and are close to meeting natural gas goals.²⁶

²⁵ Compared to 2008 IOU retail sales as reported by EIA

²⁶ Program performance reports to-date for the California IOU programs are posted in a highly usable format at <http://eeqa.cpuc.ca.gov/>

Table 6: 2010 California Achieved Savings vs. 2010 Portion of 2010-2012 EERS

	PG&E	SCE	SDG&E	SoCal	Total
2010 Program Cycle Electricity Goal (Gross GWh)	964	1,117	195	-	2,276
2010 Actual Savings (Gross GWh)	1,425	2,000	265	-	3,694
2010 Program Cycle Natural Gas Goal (Gross MMTh)	15.6	-	3.5	28	47.1
2010 Actual Natural Gas Savings (Gross MMTh)	16.9	-	1.1	21.9	39.9

Source: [California Energy Efficiency Groupware Application](#)

Factors Affecting Performance

A full discussion of California's programmatic successes can be found in (Nowak et al. 2011). Broadly, California's experience in program planning and customer engagement contributes greatly to its success. Complementary policies such as decoupling and performance incentives also improve the environment for utility energy efficiency programs. Utilities are given program and budget flexibility so that they may shift funding from unsuccessful programs to successful programs, which contributes to the utilities' success in meeting the energy efficiency savings goals.

Hawaii

Summary

Electric EERS	Starting in 2015 all electric utility savings will count towards Hawaii's Energy Efficiency Portfolio Standards (EEPS). EEPS long-term goal is 4,300 GWh reduction by 2030.
Applicable Sector	One Investor-owned utility with three subsidiaries located on Oahu, Hawaii, and Maui, one rural electric cooperative located in Kauai
Natural Gas EERS	None
Authority 1	HR 1464
Date Enacted	6/25/2009
Date Enacted	7/1/2009
Authority 2	HRS §269-91
Date Effective	12/31/2003

Legislative and Regulatory Background

Energy efficiency is included within the definition of "renewable electrical energy" in Hawaii's Renewable Portfolio Standard (RPS), which was codified in HRS §269-91, et seq., and amended in 2006, 2008, and 2009. The RPS requires investor-owned utilities and rural electric cooperative utilities to use "renewable electric energy," which includes energy efficiency measures, to meet 10% of net electricity sales by the end of 2010, 15% by 2015, 25% by 2020, and 40% by 2030. The Public Utilities Commission may assess penalties against a utility for failing to meet the RPS, unless the failure was beyond the reasonable control of the utility. Beginning in 2015, electrical energy savings will no longer be able to count toward Hawaii's RPS, and will instead count towards Hawaii's Energy Efficiency Portfolio Standards.

Recent Developments

Legislation enacted in 2009 (HR 1464) established a formal and separate energy efficiency portfolio standard (EEPS) that sets a goal of a 4,300 GWh reduction by 2030 (equal to about 40% of 2007 electricity sales). The Public Utilities Commission (PUC) must establish interim goals to be achieved by 2015, 2020, and 2025 and may adjust the 2030 standard to maximize cost-effective energy-efficiency programs and technologies. The PUC has yet to establish rules for the stand-alone EEPS, so the current energy efficiency targets in Hawaii are set in its RPS policy.²⁷

Shortly before the issuance of the stand-alone EEPS, Hawaii's energy efficiency program administrative structure underwent major changes. In June 2006, the Hawaii State Legislature enacted legislation to create a public benefits fund (PBF) for energy efficiency and demand side management.²⁸ This legislation granted authority to the Public Utilities Commission (PUC) to develop the details of the third-party administered public benefits fund. In December 2008, the PUC issued an order in Docket No. 2007-0323, outlining the structure of the PBF.²⁹ In July 2009, the Hawaiian Electric Companies' energy efficiency programs were consolidated into a single program, Hawaii Energy, operated by R.W. Beck, a subsidiary of Science Applications International Corporation (SAIC). Kauai Island Utility Cooperative (KIUC) continues to operate energy efficiency programs independently.

As of the writing of this report, most of the details of Hawaii's EEPS are under consideration by the PUC. The rules that come out of the proceeding will determine interim targets, and of particular importance, whether or not to provide incentives for compliance or penalties for non-compliance. Reducing the overall 4,300 GWh goal is not an option at this time. Hawaii seems committed to energy efficiency and renewable energy, as it recently adopted a statewide goal of reducing its reliance on imported fossil fuels by at least 70% by 2030.

Energy Savings Achieved vs. Targeted

As of 2010, Hawaii utilities achieved 19.0% of its renewable portfolio standard, 8.1% of which derived from cumulative, annualized energy efficiency savings over the policy period, easily meeting the 2010 RPS goal of 10%. In its first year of operation (July 2009-July 2010), Hawaii Energy achieved net customer energy savings of 113,159 MWh, meeting 97% and 81% of its residential and commercial targets, respectively.³⁰ Over the lifetime of these rebated and installed measures, cost savings will yield a 546% return on Hawaii's investment of \$46.9 million (\$17M/\$29.9M Ratepayer/Customer Investment).

Table 7: Hawaii Energy First Year Program Performance

PY 2009 Target (MWh)	PY 2009 Achieved Net Savings (MWh)	Achieved Savings as % of retail sales*
126,023	113,159	1.17%

*Based on 2009 sales of all HECO companies

The savings levels achieved by Hawaii Energy are impressive compared to the HECO utilities' savings of 57,429 MWh in 2009, which accounted for 0.6% of sales (including Hawaii Energy for the second half of 2009). KIUC reported DSM savings of 19,217 MWh in 2009, or 4.4% of its sales in that year—an impressive achievement.³¹

²⁷ Docket No. 2010-0037

²⁸ http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0121.htm

²⁹ <http://www.dsireusa.org/documents/incentives/HI14R.pdf>

³⁰ Hawaii Energy: Annual Report PY 2009, December 15, 2010

³¹ 2010 HECO and KIUC RPS Status Reports, Year Ending 12/31/09. Does not include renewable displacement technologies (i.e. solar hot-water)

Factors Affecting Performance

Decoupling and Performance Incentives

In August 2010, the Hawaii PUC issued its final Decision and Order approving the implementation of the decoupling mechanism for the Hawaiian Electric Company (HECO) companies. Utilities are required to report on their performance of commitments made in the Energy Agreement in their rate cases as the basis for review, modification, continuation or possible termination of the decoupling mechanism.³²

Hawaii Energy is compensated by the Commission for satisfactory performance of its contract. KIUC has not requested incentives. The most recent bill establishing an Energy Efficiency Portfolio Standard (EEPS) allows the PUC to establish incentives and penalties based on performance in achieving the EEPS.

Connecticut

Summary

Electric EERS	All cost-effective efficiency procurement requirement for electric and natural gas utilities that needs to be implemented. A stakeholder Council called the Energy Conservation Management Board helps to review, provide crucial input into utility proposals to invest in all cost-effective efficiency resources. Combined RPS/EERS 2007-2010 and commission-set utility targets; ~1% annual savings 2008-2011
Applicable Sector	Investor-owned utility, municipal utility
Natural Gas EERS	None
Authority 1	Public Act 07-242 of 2007
Date Enacted	June 4, 2007
Date Effective	July 7, 2007

Legislative and Regulatory Background

Connecticut has an all cost-effective efficiency procurement requirement for electric and natural gas utilities that needs to be implemented. It also has a stakeholder Council called the Energy Conservation Management Board comprised of representatives of commercial, industrial, residential, low income, and environmental interests that helps to review, provide crucial input into, and oversee the utilities' efficiency program. Connecticut established a renewable portfolio standard (RPS) several years ago and expanded it in 2005. Specifically, in June 2005, the Connecticut legislature adopted legislation that adds new "Class III" requirements covering energy efficiency and combined heat and power plants (CHP). Under the new Class III requirements, electricity suppliers must meet 1% of their demand through using efficiency and CHP by 2007 and 4% by 2010. No additional Class III resources are required after 2010. Class III resources include: customer-sited CHP systems, with a minimum operating efficiency of 50%, installed at commercial or industrial facilities in Connecticut on or after January 1, 2006; (2) electricity savings from conservation and load management programs that started on or after January 1, 2006; and (3) systems that recover waste heat or pressure from commercial and industrial processes installed on or after April 1, 2007. The revenue from these credits must be divided between the customer and the state Conservation and Load Management Fund, depending on when the Class III systems are installed, whether the owner is residential or nonresidential, and whether the resources received state support.

Distribution utilities and other power distributors are responsible for meeting the goals. Existing energy efficiency programs can be used to help meet the goals, starting in 2006. Third-party providers can also earn savings certificates and sell these to power providers that have Class III

³² See HI Docket 2008-0274.

obligations. Under the legislation, certificate values can range between \$0.01 and \$0.031 per kWh of savings.

The 2007 Electricity and Energy Efficiency Act (H.B. 7432) strengthened these requirements by enacting complementary policies, including policies covering energy savings from waste heat recovery. The law also requires utilities to adopt decoupling and enables performance incentives.³³ A key provision of the Act is that it requires utilities to achieve resource needs through "all available energy efficiency resources that are cost-effective, reliable and feasible." The DPUC has interpreted this mandate overly restrictively, however, focusing only on capacity needs, and has not approved funding increases to achieve all cost-effective energy efficiency.³⁴

The distribution companies must submit biennial assessments of energy and capacity requirements looking forward three, five and ten years, as well as plans to "eliminate growth in electric demand" and to achieve other demand-side and environmental objectives. The Connecticut Energy Advisory Board (CEAB) reviews the plans before they are submitted to the Department of Public Utility Control (DPUC), along with CEAB comments and analysis. In a separate proceeding, the DPUC reviews the annual Conservation and Load Management (CLM) Plan, which is developed by the utilities with oversight by the Energy Conservation Management Board (ECMB), which is appointed by the DPUC. Connecticut electric utilities adopt savings targets through annual CLM Plans. The ECMB oversees the Connecticut Energy Efficiency Fund (CEEF), which is primarily supported by monthly charges on customers' bills. CEEF was created in 1998 to address increasing energy demand and rising costs. With oversight by the ECMB and its consultants, the utilities administer the energy efficiency programs.

In its 2008 decision approving the combined 2009 CLM Plan submitted by the states' major utilities and the Energy Conservation Management Board, the DPUC ordered that the 2010 plan establish broader, longer-term goals.³⁵ Connecticut utilities did not include long-term goals in the joint 2010 or 2011 Plans, but goals for programs do exceed 1% annual savings in 2010 and 2011. The 2010 CLM Plan was approved, but the Department expressed concern that long-term goals were not adopted.³⁶ However, utilities are reluctant to include long-term goals without commitment from the DPUC to increase levels of funding necessary for aggressive long-term energy efficiency goals. The DPUC has shown no indication it will approve additional ratepayer funding for electric programs beyond the current statutorily-mandated ratepayer charge. Recent energy efficiency budget raids described below have fostered uncertainty that limits the utilities' desire to plan out energy efficiency over a long period of time.

Energy Savings Achieved vs. Targeted

Connecticut has been among the national leaders in energy efficiency savings for many years. As the table below illustrates, the state's CEEF-funded programs have been near or above the 1% annual savings for three consecutive years, meeting CLM goals in two of the last three.³⁷ These figures include programs administered by both IOUs and municipal utilities.³⁸

³³ Currently, only United Illuminating uses a full decoupling mechanism. The DPUC has not ordered full decoupling for other gas or electric utilities as of the printing of the report. All utilities are eligible for performance incentives.

³⁴ Docket 10-02-07

³⁵ Docket 08-10-03

³⁶ Docket 09-10-03, Department Order March 17, 2010, pgs 56-58

³⁷ Since CHP is included in the Class III targets, comparing energy efficiency savings to the RPS goals would not be accurate. Currently, there is no analysis of progress towards meeting Class III RPS targets.

³⁸ For most recent information on municipal utilities' performance, see [Energy Efficiency Services 2009 Annual Report, Connecticut Municipal Electric Energy Cooperative](#).

Table 8: Connecticut Statewide Energy Efficiency Savings vs. Goals 2008-2011

	2008		2009		2010		2011	
	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual
Electric Energy Efficiency Savings (GWh)	250	368	277	237	360	423	325	N/A
As Percent of Sales*	0.8%	1.2%	0.94%	0.8%	1.2%	1.4%**	1.1%	N/A

Source: 2009, 2010 and 2011 CLM Plans

Note: Data includes Low-income programs

*Based on same year sales

**Based on 2009 Sales

Factors Affecting Performance

Funding Levels

Within the new framework created by the Electricity and Energy Efficiency Act, spending increases have been a major factor enabling and sustaining the attainment of higher energy savings. The utility energy efficiency programs have the infrastructure and capabilities in place to acquire all cost-effective savings, but now these funding increases have been stopped and in some cases reversed.

Program plans—designed by the utilities to meet the explicit legal requirement for all cost effective energy savings—have been approved by ECMB, but funding increases have been blocked at the DPUC. At UI, the efficiency program budget is dropping. Budget changes have been caused by a few factors, including years in which unspent funds were carried over from previous years, sometimes due to DPUC orders to freeze programs for budgetary reasons. Changes also occurred due to influx of stimulus money. Budget decreases have also been caused by the state re-allocating efficiency funds to cut budget deficits. Public Act 10-179 will reallocate approximately \$19 million from the Conservation and Load Management Fund in 2012 and \$27 million annually from 2013 through 2018 to cut the deficit.³⁹

In 2009, electric efficiency program budgets dropped from \$104 million to \$73 million, which correlated to a savings drop from 354 GWh to 237 GWh. Even as the budgets rebounded in 2010, uncertainty persists about future levels of funding. It is also unclear whether Connecticut will establish a new set of long-term goals. The DPUC did not adopt higher savings goals proposed by the CEAB, utility program administrators, and the Energy Efficiency Board in the last two Integrated Resource Plans (IRPs), which were equivalent to about 20% energy savings over ten years. Since the DPUC has failed to adopt and fund long-term goals in its 2011 CLM plan, Connecticut no longer has a policy that can be characterized as an EERS.

Decoupling and Performance Incentives

Currently, only United Illuminating uses a full decoupling mechanism, adjusted annually. During annual hearings, the Energy Conservation Management Board (ECMB) reviews the past year's results relative to the established goals and determines a performance incentive for the distribution utilities for achieving or exceeding the goals. The incentive, referred to as a "management fee," can be from 1-8% of the program costs before taxes. The threshold for earning the minimum incentive (1%) is 70% of the goal. At 100% of the goal, the incentive would be 5%. At 130% of goals, it would be 8%. Program costs are recovered through rates.

³⁹ Currently under consideration, SB1157 would restore the funds with surplus anticipated to be announced at the beginning of May.

Nevada

Summary

Electric EERS	Energy Portfolio Standard: 25% Renewable energy by 2025—energy efficiency may meet a quarter of the standard in any given year, or 6.25% <i>cumulative</i> savings by 2025.
Applicable Sector	Investor-owned utilities, Retail Suppliers
Natural Gas EERS	None
Authority 1	NRS 704.7801 et seq.
Date Enacted	1997

Legislative and Regulatory Background

In 1997, Nevada established a renewable portfolio standard (RPS) as part of its restructuring legislation. [Assembly Bill \(AB\) 3](#) of 2005 revised the RPS, increasing the portfolio requirement to 20% by 2015 and allowing the utilities to use energy efficiency to help meet the requirements. Amendments in [Senate Bill 358](#) of 2009 raised the standard to 25% by 2025. Energy efficiency measures qualify if they are subsidized by the electric utility, reduce demand (as opposed to shifting peak demand to off-peak hours), and are implemented or sited at a retail customer's location after January 1, 2005. Energy efficiency savings can meet up to a quarter of the total standard in any given year. [AB 1 of 2007](#) expanded the definition of efficiency resources to include district heating systems powered by geothermal hot water (DSIRE 2011).

The Public Utilities Commission of Nevada (PUCN) established a program to allow energy providers to buy and sell portfolio energy credits (PECs) in order to meet energy portfolio requirements. The number of kWh saved by energy efficiency measures is multiplied by 1.05 to determine the number of PECs. For electricity saved during peak periods as a result of efficiency measures, the credit multiplier is increased to 2.0. PECs are valid for a period of four years.

Since they are cumulative savings goals, the 25% target in 2025 will require only 6.25% of its sales in 2025 to be met with energy efficiency *over a twenty-year period*. The average annual savings goals for periods 2009-2011, 2011-2013, and 2013-2015 will be 0.375%, dropping to 0.25% for the next two five year intervals.

Table 9: Nevada Energy Portfolio Standard Goals

Year	Renewables Requirement (% of sales)	EE Allowed (Total Annual) (% of Sales)
2005	6%	1.25%
2007	9%	2.25%
2009	12%	3.00%
2011	15%	3.75%
2013	18%	4.50%
2015	20%	5.00%
2020	22%	5.50%
2025	25%	6.25%

Energy Savings Achieved vs. Targeted

Since energy efficiency has been deemed an eligible resource in Nevada's RPS, the state's utilities have ramped up energy efficiency programs to meet the 25% cap in each year. The RPS policy applies to Nevada's two investor-owned utilities (Nevada Power and Sierra Pacific Power) and one retail electricity supplier (Shell Energy). Sierra Pacific and Shell Energy met their full RPS

requirements while Nevada Power achieved 82% of the non-solar resource requirement. Each entity reached the 25% cap for energy efficiency. Nevada's IOUs achieved impressive savings from energy efficiency programs in 2009, substantially exceeding the cap on energy efficiency set in its portfolio standard.

Table 10: 2009 Nevada IOU Energy Efficiency Savings

Utility	2009 Achieved Savings (MWh)	% of Retail Sales (based on 2009 sales)
Nevada Power*	335,816	1.6%
Sierra Pacific**	102,806	1.3%

*Source: NPC 2010 Annual DSM Update Report

** Source: Sierra Pacific Power Company 2010 DSM Update Report

Factors Affecting Performance

Both utilities consider energy efficiency and conservation as the first leg of a "Three-Part Strategy" to meet customer energy needs. The programs offered reach every customer segment and have been thoroughly examined to ensure effectiveness. The latest plans scaled up successful programs and re-designed those in need of support.

Funding Levels

The spending levels proposed by the utilities and approved by the PUCN will produce savings far exceeding those allowed in the Portfolio Standard. Nevada Power will ramp up spending from \$47.6 million in 2009 to \$76.4 million in 2012. The increased spending will also continue to drive high savings levels, as each utility has demonstrated in their latest DSM plans. The drop in savings in 2012 shown for both utilities is due to the inability of the utilities to claim savings on installations of CFLs because of a Nevada law that eliminates most incandescent lamps from the market, starting in 2012.

Table 11: 2010-2013 Projected Energy Efficiency Savings for Nevada IOUs

Utility	2010	2011	2012	2013
Nevada Power	201,607	215,014	149,609	N/A
Sierra Pacific	N/A	85,380	43,500	44,780

Source: NPC: [Docket No. 10-02009 \(Approves 2010-2012 DSM Plan\)](#) and [approved budgets](#) (via SWEEP); SPP: [2011-2013 DSM Plan](#)

Rhode Island

Summary

Electric EERS	A 2006 state law requires the electric distribution utility to procure all cost-effective efficiency resources through a 3-year Efficiency Procurement Plan and requires full funding of the Plan. After the required review and input by a key stakeholder efficiency council (which included a unanimous 7-0 vote), the Commission approved and fully funded the 2009-2011 Efficiency Procurement Plan which includes electric utility savings targets of 1.12% in 2010; and 1.36% in 2011. The Energy Efficiency Council has proposed savings target of 1.7% in 2012, 2.1% in 2013, and 2.5% in 2014, which are currently being reviewed by the Commission.
Applicable Sector	Investor-owned utilities
Natural Gas EERS	As of 2010, state law newly requires the natural gas utility to procure all cost-effective efficiency resources through a 3-year Efficiency Procurement Plan and requires full funding of the Plan.

	The Commission has approved natural gas efficiency savings for National Grid of 56,145 Annual MMBtu Savings in 2011 (~0.29% of sales). The Energy Efficiency Council has proposed savings target of 0.75% in 2012, 1.0% in 2013, and 1.2% in 2014, which are currently being reviewed by the Commission.
Authority 1	R.I.G.L § 39-1-27.7
Date Enacted	2006
Date Updated	2010

Legislative and Regulatory Background

Rhode Island's sole investor-owned utility, Narragansett Electric (National Grid), administers and operates a portfolio of energy efficiency programs for its customers, which account for 99% of statewide sales of electricity. Recent legislation has significantly enhanced energy efficiency's role in planning and meeting resource needs. The Rhode Island legislature unanimously passed sweeping new legislation on June 23, 2006: the Comprehensive Energy Conservation, Efficiency and Affordability Act of 2006 (R.I.G.L § 39-1-27.7). This act establishes a Least Cost Procurement mandate—requiring utilities to acquire all cost-effective energy efficiency with input and review from the Energy Efficiency and Resource Management Council (EERMC). Under the Least Cost Procurement mandate, National Grid is required to participate in strategic long-term planning and invest in all energy efficiency that is cost-effective and cheaper than supply on behalf of its customers.

The act also established requirements for strategic long-term planning and purchasing of least-cost supply and demand resources. Utilities must submit 3-year and annual energy efficiency procurement plans, which offer program details, as well as spending and savings goals. Hearings are held once a year before the Rhode Island Public Utilities Commission to review program plans. The current 3-year goals are 1.1% in 2009, 1.12% in 2010, and 1.36% in 2011.⁴⁰ The EERMC has proposed savings target of 1.7% in 2012, 2.1% in 2013, and 2.5% in 2014, which are currently being reviewed by the Commission.⁴¹

Rhode Island's EERS policy also includes natural gas targets. On November 1, 2010 National Grid proposed savings targets for 2011 of 173,379 MMBtu and spending goals of \$10,715,000. Despite a 2010 legislative mandate to procure all cost-effective natural gas efficiency, the PUC also pointed to a legislative funding provision that it interpreted as setting a funding ceiling. As a result, the Commission approved natural gas efficiency savings for National Grid of 56,145 Annual MMBtu Savings in 2011 (~0.29% of sales).⁴² The PUC has indicated that it will promptly reopen the proceeding if the legislative language in question is amended.⁴³ On May 18, 2011, the Rhode Island House passed legislation to clarify the full funding of all cost-effective natural gas efficiency. The Rhode Island Senate is expected to take up the legislation shortly. The EERMC has proposed savings target of 0.75% in 2012, 1.0% in 2013, and 1.2% in 2014, which are currently being reviewed by the Commission.

The EERMC has a specific legislative mandate and funding to guide, provide input, and oversee the development of 3-year energy efficiency procurement plans and related annual plans an consists of representatives of representing commercial, industrial, residential, low income, and environmental interests . The EERMC is also charged with completing an Energy Efficiency Opportunity Report to identify the size of the character of the cost-effective efficiency resources available in the state. The 3-year and annual energy efficiency procurement plans are developed by the utility with input and oversight of a subcommittee of the EERMC and other key stakeholders, including the Division of

⁴⁰ [Docket No. 4116, February 8, 2010](#), (Revised Attachment B)

⁴¹ See [http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing\(9-1-10\).pdf](http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing(9-1-10).pdf)

⁴² [Docket 4209, January 21, 2011](#)

⁴³ See ENE (Environment Northeast), [A Boost for Efficiency in Rhode Island](#). Providence 2011; A bill is currently being considered: [H 5281](#) would remove the cap on its natural gas energy efficiency charge and allow for a fully-reconciled funding mechanism.

Public Utilities and Carriers and TEC-RI, a consortium of the state's largest energy users. The full EERMC votes whether to approve the utility's EE plans before they are submitted to the PUC and is present in all related PUC dockets. The EERMC also is charged with evaluating the cost-effectiveness of the EE programs and upon a finding of cost-effectiveness, state laws provide for a fully reconciling funding mechanism to fund the EE program investments.

It is through Rhode Island's underlying economic procurement requirement, stakeholder involvement, and the subsequent PUC Efficiency Procurement Standards and dockets that an energy efficiency savings requirement is established for the electric utility.

Energy Savings Achieved vs. Targeted

National Grid, the state's electric and natural gas distribution utility has been able to meet the EE targets established through the above process. The utility plans to double the amount of savings for its customers, relative to 2008, over the three years from 2009 to 2011 through the implementation of programs that are lower than the cost of supply and are prudent and reliable. The projected cumulative amount of 265,000 net annual MWh savings over the three years is 90% of the "Aggressive Achievable Case" for energy efficiency procurement over the same period presented in an energy efficiency potential study by the consultancy KEMA submitted to the EERMC.⁴⁴ In its three-year plan, National Grid emphasized the importance of creating the delivery structure and financing mechanisms to enable the planned program expansion to proceed in a realistic and sustainable manner.⁴⁵ The program portfolio for 2011 is projected to have a benefit-cost ratio of 2.86. The Energy Efficiency Council has proposed savings target of 1.7% in 2012, 2.1% in 2013, and 2.5% in 2014, which are currently being reviewed by the Commission.

Table 12: Rhode Island Energy Efficiency Program Performance

	2008	2009	2010	2011
Annual Energy Savings Goal (MWh)	54,268	74,387	88,546	102,627
Goal as % of 2008 Sales	0.8%	1.1%	1.3%	1.5%
Annual Energy Savings Achieved (MWh)	60,053	81,000	NA	NA
Achieved Savings as % of 2008 Sales	0.9%	1.2%	NA	NA

Factors Affecting Performance

Funding Levels

In order achieve these levels of savings, funding increased from \$24 million in 2009 to \$31 million and \$45.6 million in 2010 and 2011. The greater investments are required by Rhode Island's 2010 energy bill which requires full funding for all cost-effective efficiency measures. Funding sources include an energy efficiency program charge, revenue from carbon auction proceeds from the Regional Greenhouse Gas Initiative (RGGI), and the Forward Capacity Market. Investments in this three-year period will generate \$281 million in lifetime energy savings for Rhode Island ratepayers.⁴⁶ Documented results for 2008-2010 show \$345,128,000 in total benefits to electric ratepayers and \$120,859,700 in total benefits to natural gas ratepayers. Total utility program cost for 2008-2010 was \$66,328,600 for electric and \$17,998,500 for natural gas.⁴⁷

⁴⁴ See ENE (Environment Northeast), RI Opportunity Report and related information at, <http://www.env-ne.org/resources/open/p/id/645/from/339>

⁴⁵ [National Grid Three Year Compliance Plan](#)

⁴⁶ See: http://www.env-ne.org/public/resources/pdf/RI_EERMC_AnnualReport_April2011.pdf

⁴⁷ [RI EERMC. Annual Report to the General Assembly. April 2011.](#)

Least-Cost Procurement Policy

A key factor in Rhode Island's success has been the Least Cost Procurement requirement that the state's utility shall invest in efficiency resources whenever they are cost-effective and cheaper than supply resources. The establishment of the EERMC has also been critical in identifying the potential energy efficiency resource and acting as a guide and evaluator throughout the utility energy efficiency procurement planning process.

Decoupling and Performance Incentives

Rhode Island has also benefited from a newly established state law which removes barriers to investing in cost-effective energy efficiency, a policy known as "revenue decoupling," which breaks the link between a utility's retail electricity sales and revenues. Utilities also may recover the costs for running energy efficiency programs and earn incentives for high performance (ACEEE 2011).

Washington

Summary

Electric EERS	I-937 Energy Efficiency Biennial and Ten-Year Goals: Vary by Utility
Applicable Sector	Investor-owned utilities, Municipal utilities, Public Utility Districts, Co-operatives
Natural Gas EERS	None
Authority 1	Ballot Initiative I-937
Date Enacted	November 2006
Authority 2	WAC 480-109
Date Effective	11/28/07
Authority 3	WAC 194-37
Date Effective	4/18/08

Legislative and Regulatory Background

Washington voters approved ballot initiative 937 in November 2006 which set new renewable energy resource and conservation requirements for large electric utilities to meet. The ballot, codified in Chapter 19.285 RCW, had rules adopted for its implementation in 2007 and 2008.⁴⁸ The energy conservation section requires each qualifying utility (those with more than 25,000 customers in Washington) to "pursue all available conservation that is cost-effective, reliable and feasible." Seventeen utilities, both publicly owned and investor owned, currently meet the definition of qualifying utility. "High efficiency cogeneration" is included as part of conservation and the term is defined in the law. The law requires utilities to use the Northwest Power and Conservation Council's (NPCC) methodology to determine their achievable cost-effective conservation potential through 2019, and update that potential assessment every two years for the subsequent ten-year period. Utilities also must establish a biennial acquisition target for 2010-2011, and update that target every two years. If a utility does not meet its conservation goals, it must pay an administrative fine for each MWh of shortfall, starting at \$50 and adjusting annually for inflation beginning in 2007.

The three major IOU's submitted reports in 2010 with a biennial conservation target as well as a ten-year achievable conservation potential. The energy efficiency targets Washington's utilities must meet amount to some of the most aggressive in the country. The credit for these ambitious targets is largely due to the law's requirement that utilities follow the NPCC methodology. The NPCC is the regional energy planning entity, established through the 1980 federal "Power Act." The Act codified energy efficiency as a real resource and required the region's largest supplier of electricity, the Bonneville Power Administration (BPA), to acquire energy efficiency that is cost effective, i.e., less expensive from the standpoint of the total cost per unit of energy saved than the next least-expensive

⁴⁸ [WAC 480-109](#) for investor owned utilities; and WAC 194-37 for public utilities

available resource. To guide BPA, the Act authorized the NPCC to produce a Northwest energy efficiency and power plan every five years. In its Sixth Power and Conservation Plan released in 2010, the NPCC concludes that energy efficiency can meet 85% of load growth in the region through 2030 at an average cost of 3.6¢/kWh, providing over 5900 average MW (aMW) of new energy efficiency savings (NPCC 2010).⁴⁹ While the IOUs and public utilities did not all use the Power Plan to set targets, the document usefully informed the planning process.⁵⁰

Prior to the implementation of its EERS, many of Washington's investor- and publicly-owned utilities had long records of significant investments in energy efficiency. Washington's diverse mix of private and public utilities have long records of offering customer energy efficiency and conservation programs.

Investor-owned utilities account for approximately half the retail electric sales in the state. Washington is a non-restructured state and has no public benefits funding to support programs. Investor-owned utilities recover the costs of energy efficiency programs through tariff riders. Program costs are reported and adjusted annually in proceedings before the Utilities and Transportation Commission.

Energy Savings Achieved vs. Targeted

Entering the second year of the biennial program planning period, Washington's IOUs are on track to meet their goals cost-effectively. Using the Total Resource Cost (TRC) test, PSE's 2010 electric and gas programs performed at 2.15 and 1.22, respectively (3.39 and 2.78 using the Utility Cost Test). The respective TRC figures for Avista in 2009 were 1.68 and 1.08.⁵¹

Table 13: Washington IOU Energy Savings Achieved vs. Targeted

Utility	2010-2011 Goal (MWh)	Biennial Target as % of 2009 Retail Sales*	2010 Achieved Savings** (MWh)
Avista ⁵²	128,603	2.4%	86,758
Pacificorp*** ⁵³	74,460	1.8%	N/A
Puget Sound Energy ⁵⁴	622,000	2.8%	295,547

*Retail sales reported in EIA 2009

**Savings data reported in utility DSM Annual Business Plans/Report ([PSE](#), [Avista](#))

***Converted from Average MW

Factors Affecting Performance

Collaboration among Stakeholders

The extensive planning process undertaken in 2009 has paid dividends for program performance in 2010 and 2011. The planning process benefited from a Conservation Working Group (CWG), which created a forum for the three utilities and regional stakeholders to share best practices and lessons learned. The CWG was formed in 2011, primarily to aid in providing clarity, certainty, and consistency where possible for IOUs in implementing their I-937 requirements. No similar process exists for the public utilities.

⁴⁹ 5900 aMW equals 51,684 GWh. Taking Washington's share of electricity load in the Northwest (~51%), we have calculated the statewide goal in Washington to be 26,358 GWh by 2030, or 1.5% of 2009 retail sales annually.

⁵⁰ PSE used its own IRP to set its target; PacifiCorp looked at the 6th Plan and adjusted its "share" generally downwards based on its IRP and key differences between its service territory and the overall region; Avista used its share of the 6th Plan but added fuel switching. Some public utilities used the 5th Power Plan, which identified a lower amount of regional savings than the 6th Plan. Beginning with the next biennium—2012-2013—the 5th Power Plan will no longer be an option.

⁵¹ Assumes 100% net-to-gross ratio

⁵² [UE-100176](#)

⁵³ [UE-100170](#)

⁵⁴ [UE-100177](#)

Experience with Energy Efficiency

Washington's initial success staying on track to meet its targets may be partly attributed to the utility program delivery and reporting infrastructure established throughout the past decades, including a Regional Technical Forum that provides utilities with deemed savings for a host of EE measures. Washington's three IOUs have set annual DSM program portfolio savings targets for many years in IRPs, and BPA has required DSM reporting from the public utilities for years. The long-standing commitment to DSM in the region fostered numerous groups, systems, and tools that promote and deliver energy efficiency services. As a result, Washington achieved statewide savings of 0.61% compared to retail sales in 2008 (Molina et al. 2010).

EERS Impacts on an Established Energy Saver

The implementation of the I-937 targets benefits Washington more than if it had maintained the status-quo, however, sending an important lesson to states without a statewide EERS that have energy efficiency programs in place. Aside from spurring a slight ramp-up in savings levels, the statewide EERS provides the state's IOUs certainty that benefits program development. Importantly, the targets have a much greater impact driving higher levels of savings from public and co-operative utilities in Washington, which account for just over half the electric sales in the state and varied greatly in their DSM offerings in the past. Tacoma Power customers will see a major boost in energy efficiency investments as a result of I-937, for example. Most publicly-owned utilities in Washington, including Bonneville Power Administration, Seattle City Light, and Snohomish County Public Utility District, have historically provided funding for energy efficiency programs and services.

The targets also strengthened the system of evaluation, monitoring, and verification of energy efficiency savings from programs. Since the WUCT approves the biennial efficiency targets for investor-owned utilities, Commission staff must base their recommendation for approval on more sufficient evidence than the deemed savings previously submitted by utilities. The targets, therefore, is spurring a transition for some utilities to a system of third-party verified savings and measures installed, resulting in a statewide effort to improve and streamline reporting requirements. PSE, for instance, now relies primarily on third-party EM&V. The increased focus on EM&V will result in more certain savings and prudent energy efficiency investments.

Colorado

Summary

Electric Energy Efficiency Goals	PSCo and Black Hills Energy (BHE) both aim for 0.9% of sales in 2011 and increase to 1.35% (1.0% for BHE) of sales in 2015 and then 1.66% (1.2%) of sales in 2019
Applicable Sector	Investor-owned utilities
Natural Gas Goals	Expenditure targets equal to at least 0.5% of prior year's revenue—savings targets commensurate with spending targets and expressed in terms of gas saved per unit of program expenditure; goals set by gas utilities as part of their gas DSM program plans.
Authority 1	CRS 40-3.2-101, et seq.

Legislative and Regulatory Background

The Colorado legislature passed HB-07-1037 in April 2007, which amended Colorado statutes C.R.S. 40-1-102 and 40-3.2-101-105 by requiring the Colorado Public Utilities Commission (COPUC) to establish energy savings goals for investor-owned electric and gas utilities. The bill also requires the COPUC to provide utilities with financial incentives for implementing cost-effective energy-saving programs. The COPUC must report annually on the progress made by investor-owned natural gas and electric utilities in meeting their demand side management goals.

The EERS statute does not directly set a fixed schedule of statewide percentages of energy savings to be achieved by particular years, nor does it require the acquisition of all cost-effective energy efficiency resources. Instead it sets an overall multi-year statewide goal for investor-owned utilities of at least five percent of the utility's retail MWh energy sales in the base year (2006) to be met by the end of 2018, counting savings in 2018 and including savings from DSM measures installed starting in 2006. The law empowers COPUC to set interim goals for utilities and to modify goals.

Public Service Company Colorado (PSCo) and Black Hills Energy (BHE) together account for more than 80% of the total projected GWh savings and over 58% of retail electricity sales in the state; some municipal utilities and electric co-ops also implement efficiency programs.

In a May 2008 decision, the COPUC set energy savings goals for PSCo for the period 2009-2020. The goals set energy saving targets of 0.53% of retail sales in 2008, ramping up to 1% in 2015, and 1.2% in 2019. The savings would amount to 3,669 GWh over the 12-year period.⁵⁵ The Commission accepted modified goals for PSCo for 2009 and 2010 in a Settlement Agreement in Decision R08-1243 in February 2009, which were designed to save approximately 0.6% (176 GWh) in 2009 and 0.8% (237 GWh) in 2010, exceeding the mandated savings in both years.⁵⁶ PSCo plans to achieve 255 GWh in 2011.⁵⁷

Black Hills Energy adopted an efficiency plan that aims to save 0.53% of projected sales in 2009 (10,287 MWh), 0.76% in 2010 (15,156 MWh), and 0.80% in 2011 (16,522 MWh).⁵⁸ The statutory minimum goal for Black Hills over the ten-year period is 93.9 GWh, based on 2006 sales.⁵⁹

In May 2011, COPUC approved new goals for PSCo for the 2012-2020 period. The goals are approximately 130 percent of the annual goals approved in May 2008, beginning at 1.14% of sales in 2012, ramping up to 1.35% in 2015, and reaching 1.68% in 2020. The goals set out to achieve 3,984 GWh in the nine-year period.⁶⁰

For investor-owned natural gas utilities, the EERS legislation structured the requirement in two parts. First, the natural gas IOU's must set DSM spending targets of more than 0.5% of revenues from customers in the prior year. Energy savings targets are then established by COPUC commensurate with spending and stated in terms of quantity of gas saved per dollar of efficiency program spending.

Energy Savings Achieved vs. Targeted

Leveraging parent company Xcel Energy's years of program delivery experience in Minnesota, PSCo surpassed their planned 2009 and 2010 electricity savings goals, saving 220 GWh in 2009 and 253 GWh in 2010.⁶¹ Black Hills Energy was less successful in the 2009/2010 program period. BHE notes in its 2009/10 Annual Status Report that it received approval of its programs only a month prior to the July 1st, 2009 start date, which did not give the utility enough time to design and execute programs in time for the 2009 Summer. As a result, savings and spending fell below targets for the year. BHE spent \$1.4 million and saved 4,554 MWh—58% and 44% of their respective targets.⁶²

⁵⁵ Docket No. 07A-420E, Decision C08-0560

⁵⁶ Based on 2009 retail sales. Xcel Energy/Public Service Company of Colorado [2009/2010 Demand-Side Management Biennial Plan](#), Electric and Natural Gas, Docket No. 08A-366EG. Originally filed August 2008, revised February 2009. In this profile, Xcel goals and savings are given at the generator level; these values need to be reduced by about 7% to get savings at the customer level.

⁵⁷ PSCo 2011 DSM Plan

⁵⁸ [COPUC Docket No. 08A-518E](#) Decision No. R09-0542,

⁵⁹ [Public Utilities Commission Report](#) to the Colorado General Assembly on Demand Side Management. April 28, 2009.

⁶⁰ Docket No. 10A-554EG, Decision No. C11-0442

⁶¹ Docket No. 08A-366EG. 2009 Savings data from 2009 Demand-Side Management Annual Status Report, 4/5/10; 2010 Savings data from Fourth Quarter Colorado DSM Roundtable Update, 2/15/11.

⁶² Black Hills Energy Colorado Electric Annual Status Report Energy Efficiency Programs 2009-2010

Table 14: Colorado Electric Utility Savings Targets as % of Sales

Utility	2009 Target	2009 Achieved	2010 Target	2010 Achieved	2011 Target	2020 (Cumulative 2012-2020)
PSCo	0.6%	0.8%	0.8%	0.9%	0.9%	13.75%
Black Hills Energy	0.53%	0.23%*	0.76%	N/A	0.80%	

*Program year beginning July 1, 2009 ending June 30, 2010

For natural gas, PSCo had already budgeted 250% of the minimum spending requirement prior to the EERS, as gas prices had doubled due to suppliers building a pipeline out of the Rocky Mountains. Now that prices have declined again, energy efficiency measures are much less cost effective, many with a total resource cost of 1.1. In 2009, the first year goals took effect and the first year in which PSCo had a complete and comprehensive efficiency plan in place, savings were 308,761 Dth, or 97% of the goal the Commission-approved plan.⁶³

Factors Affecting Performance

Funding Levels

One of primary ways utilities are using to achieve greater energy savings has been to invest more money: funding for utility energy efficiency has increased rapidly in Colorado as the PUC sets energy savings goals. According to the revised 2009/2010 Demand-Side Management Biennial Plan, PSCo increased their investment in gas and electric efficiency and demand programs from \$63 million in 2009 to \$80 million in 2010.

Performance Incentives

Policies complementary to the EERS partly attribute to PSCo's success. COPUC has implemented a performance-based incentive for PSCo, enabling them earn a return of 1-15% of net benefits on its demand-side management expenditures as long as it achieves at least 80% of its energy savings goal in any one year. The incentive is tied to energy savings achieved and the net economic benefits of the programs. The total payment of the performance incentive and a separate pre-tax disincentive is capped at \$30 million. Black Hills Energy has adopted the same mechanism.

Meeting Future Goals

With the aggressive savings increases planned over the next three to four years, PSCo will build on its strong residential, commercial and industrial programs, expanding marketing and incentive levels, and possibly adding further market transformation programs. In addition to continuing and expanding existing programs, new directions will be explored, including behavioral programs in the residential sector.

Illinois

Summary

Electric EERS	0.2% annual savings in 2008, ramping up to 1% in 2012, 2% in 2015 and thereafter
Applicable Sector	Investor-owned utilities; retail supplier; Illinois DCEO
Natural Gas EERS	8.5% cumulative savings by 2020 (0.2% annual savings in 2011, ramping up to 1.5% in 2019)
Authority 1	§ 220 ILCS 5/8-103
Authority 2	Public Act 96-0033
Authority 3	S.B. 1918

⁶³ Docket No. 08A-366EG. 2009 Demand-Side Management Annual Status Report, 4/5/10

Legislative Background

The scope of energy efficiency activity in Illinois began a dramatic expansion in July 2007, when the state legislature passed the Illinois Power Agency Act (IPAA), which includes requirements for energy efficiency and demand response programs. The IPAA establishes an EERS that sets incremental annual electric and natural gas savings targets based on previous year's consumption, beginning on June 1 of that year. The electric savings requirements began at 0.2% in 2008 and ramps up to a requirement of 2% annual savings in 2015 and thereafter. The natural gas goals begin in 2012 with a 0.2% reduction of 2011 sales and ramp up to 1.5% annual savings by 2019.

Table 15: Illinois Electric EERS Savings Goals

2008	2009	2010	2011	2012	2013	2014	2015+
0.20%	0.40%	0.60%	0.80%	1.00%	1.40%	1.80%	2.00%

Investor-owned electric utilities are responsible for roughly 75% of program savings and spending, while the Illinois Department of Commerce and Economic Opportunity (DCEO) administers the remaining 25% of the funds, which are used to for efficiency programs serving government facilities, low-income households, and market transformation-oriented information and training programs.

The rate increase for customers due to energy efficiency is limited by statute to 0.5% of the total 'per kWh' charge in the first year and increasing to 2.0% in 2012. If the rate impact cap is reached, the energy savings goals will be relaxed to the maximum savings that can be achieved within the rate impact cap. If, after 2 years, an electric utility fails to meet the efficiency standard it must make a contribution to the Low-Income Home Energy Assistance Program and transfer the program to the Illinois Power Authority.

Energy Savings Achieved vs. Targeted

Results to date among the major program administrators in Illinois have been mixed. ComEd and Ameren Illinois exceeded savings requirements in its first two program years while DCEO has not met savings goals in either of its first two program years. Independent analysis of ComEd's programs in its second program year found portfolio cost-effectiveness based on the Illinois Total Resource Cost (TRC) test to be 2.84. Ameren Illinois met its goals in 2009 cost-effectively as well as its portfolio scored a 2.78 using a TRC Test.

Table 16: Illinois Electric Efficiency Savings 2008-2010

Utility	2008-2009 (PY 1) Requirement (MWh)	2009 Achieved (MWh)	Percent Attained	2009-2010 (PY 2) Requirement (MWh)	2010 Achieved (MWh)	Percent Attained
ComEd	148,842	163,717	110%	315,223	456,151	145%
Ameren Illinois	62,808	89,955	143%	118,288	142,995	121%
DCEO	54,572	27,285	50%	110,715	72,331	65%

Sources: [ComEd Year 1 Evaluation Report](#); [ComEd Year 2 Evaluation Report](#); [Ameren Illinois Year 1 Annual Report](#); [Ameren Illinois Final PY2 Monthly Report September 2010](#); [DCEO Program Year 2 Evaluation](#)

Factors Affecting Performance

DCEO claims numerous factors prevented outright success for its public sector and low-income programs, such as the economic downturn and its effect on government and school budgets. DCEO market transformation activities such as training for contractors and technical assistance do not count for any savings during the first three years and public entities also require substantial technical assistance with completing paperwork, which increases the administrative costs of running the programs. Federal funds from the Recovery Act used by municipalities also supplanted, rather than

supplemented, the state government programs, impeding higher levels of savings. In response to these challenges, DCEO adopted new approaches in more recent program years, hiring more contractors to assist government agency customers, and partnering directly with Community Colleges and the State Board of Education to promote DCEO energy efficiency programs. DCEO also partnered with Regional Planning Agencies, which were assisting the administration of municipal-aimed Recovery Act funds (Energy Efficiency Community Block Grants (EECBG)).

Funding Levels

In order to meet the increasing savings goals, Illinois utilities increased energy efficiency budgets. Funding for electric efficiency programs shot up from less than one million in 2007 to \$89.9 million in 2009 and then to \$107.4 million for 2010 (ACEEE 2011). Natural gas efficiency budgets went from zero in 2007 to over \$4 million in 2009. In its 2008-2010 plan, ComEd's spending screens ramp up from \$39.4 million to \$126.7 million in 2010. In its 2011-2013 plan, its spending screens stabilize around \$160 million per year. For Ameren Illinois the limit levels off at \$60 million. However, a process is underway in which the Commission will report to the legislature on the impact of the spending caps, and the legislature will have an opportunity to increase or eliminate those caps.

Meeting Future Goals

There is widespread concern among program administrators that when the spending caps are reached, the annual savings goals will not be met. The spending limit stays fixed after it reaches 2% in 2012, but the MWh requirements continue to increase. In the long term, all the program administrators agree that new funding will be required and that there will be an effort to raise the spending limits supported by environmental and consumer stakeholders, who assert that annual savings above 1% can be reached and sustained cost-effectively statewide.

Minnesota

Summary

Electric EERS	1.5% annual savings beginning in 2010 (1% from programs, 0.5% from codes, standards, transmission and generation improvements).
Applicable Sector	Investor-owned utilities; retail suppliers
Natural Gas EERS	0.75% annual savings from 2010-2012; 1.5% annual savings in 2013
Authority 1	Minn. Stat. § 216B.241
Date Enacted	2/22/2007
Date Effective	2/22/2007

Legislative Background

Minnesota investor-owned electric and gas utilities are subject to the energy savings requirements of the Next Generation Energy Act (NGEA), passed by the Minnesota Legislature in 2007 (Minnesota Statutes 2008 § 216B.241). Among its provisions, the Act set energy-saving goals for utilities of 1.5% of retail sales each year, commencing with the first triennial plan period that began January 1, 2010. Of the 1.5%, the first 1% must be met with direct energy efficiency energy savings, or conservation improvements. This may include savings from efficiency measures installed at a utility's own facilities. The NGEA also allows savings to be achieved indirectly through energy codes and appliance standards. Up to 0.5% may be met by efficiency enhancements to each utility's generation, transmission, and distribution infrastructure. Electric and natural gas municipal utilities and co-operatives must set energy efficiency spending goals based on a percentage of revenue. Prior to the Next Generation Energy Act going into effect fully in 2010, Minnesota utilities were required to spend a percentage of gross operating revenue (0.5% gas, 1.5% electric) on energy efficiency programs rather than to achieve a set amount of energy savings.

The NGEA allows a utility to request a lower target (based on historical experience, an energy conservation potential study, and other factors), but in no case can that be lower than 1% per year. Lower savings can also be justified if the Commissioner of Commerce determines that additional savings are not cost-effective to ratepayers, the utility, participants, and society. In 2009, the state legislature amended the Act to reduce the mandated level of savings during the first three years for natural gas utilities, establishing an interim average annual savings goal of 0.75 percent over 2010-2012 (Minnesota Session Laws 2009, Ch. 110, Sec. 32).

For the first triennial period 2010-2012, CenterPoint Energy's natural gas energy efficiency plan is to increase savings from 0.73 to 0.78%, averaging the minimum 0.75%. Xcel Energy electric savings goals included in their approved triennial plan are 1.15% in 2010, 1.2% in 2011, and 1.3% in 2012.⁶⁴

Energy Savings Achieved vs. Targeted

Minnesota's utilities achieved increasing levels of efficiency savings over the 2007-2009 period. The Minnesota Office of Energy Security (OES) reported that statewide energy savings in 2009 met around 1.0 percent and 0.6 percent, electric and natural gas respectively, of 2007-2008 retail sales.

Table 17: Minnesota Statewide Electric Savings Achieved from Conservation Improvement Programs, 2006-2009

Year	Statewide Electric Savings Achieved (MWh)	Savings as % of 2007 Sales	IOU Natural Gas Savings (MCF)	Savings as % of Average Sales ⁶⁵
2006	411,999	0.60%	N/A	N/A
2007	468,070	0.68%	N/A	N/A
2008	597,288	0.87%	1,534,121	0.54%
2009	648,163	0.95%	1,777,369	0.63%

Source: [Minnesota Conservation Improvement Program Energy and Carbon Dioxide Savings Report for 2008-2009, March 23, 2011](#)

Factors Affecting Performance

Funding Levels

Reaching these higher levels of savings necessitated increased funding levels. The \$144 million statewide budget for electric efficiency programs in 2009 eclipsed 2008 levels by \$42 million. Spending levels will continue to rise as goals ramp-up and programs attempt to reach new sectors and achieve deeper levels of savings. Overall Conservation Improvement Program (CIP) spending by investor-owned utilities is projected to increase from \$77 million in 2008 to \$127 million in 2010, an increase of 65 percent.

Performance Incentives

In 2010, Minnesota adopted a new "shared savings" model for incentives. This incentive is voluntary (utilities are not required to participate), applies to any utility participating in the Conservation Improvement Program, and will replace existing incentives in 2010.⁶⁶ This incentive is designed to help utilities meet the 1.5% savings goal. The percentages are set individually for each utility and are reviewed each year.

⁶⁴ Targets presented in: CenterPoint Energy's 2010-2012 Triennial Conservation Improvement Program Plan; [Xcel Energy 2010/2011/2012 Triennial Plan Minnesota Electric and Natural Gas Conservation Improvement Program](#)

⁶⁵ Based on "average sales" figures presented in CIP Energy and Carbon Dioxide Savings Report for 2007-2008.

⁶⁶ Order issued January 27, 2010 in Docket E,G-999/CI-08-133

Experience with Energy Efficiency

Minnesota has a long record of customer energy efficiency programs offered by both investor-owned and publicly-owned utilities. These programs have achieved significant energy savings for well over two decades, without any of the interruption or upheavals that occurred in most other states that restructured their electric utility industries.

Meeting Future Goals

Despite higher spending levels, Minnesota will face several challenges as its utilities attempt to find ways to meet future savings goals. In the case of Xcel Energy, it will strive to meet the electric 1.5% goal over the long term from customer programs, possibly during the next triennial planning period from 2013 to 2015. While some stakeholders in the state argue the goal cannot be achieved over the long-term, others believe that the Minnesota's success thus far doubling and tripling energy savings as utilities ramp up demonstrates the feasibility of aggressive savings in the state.

Impact of Codes and Standards

The impact of higher appliance standards and building codes on utility savings may be a major factor determining the future savings levels for Minnesota utilities, depending on how the Commission addresses the issue in future dockets. Stringent codes and standards that raise baseline conditions for energy efficient equipment result in lower savings attributable to utility efficiency programs, which can reduce a utility's ability to claim savings and reduce the cost effectiveness of program portfolios. Mitigating these effects, Minnesota is one of the few states that permit utilities to get credit for savings from codes and standards.

Collaboration among Stakeholders

Xcel Energy describes their future efficiency program success as dependent on many factors, including the growth of their existing program portfolio, emerging energy efficient equipment technologies, market transformation, and the development of methodologies to quantify savings from nontraditional programs. Two key energy savings areas Xcel is looking at that fit squarely with the 1.5% Energy Efficiency Solutions Project are behavioral programs and codes and standards.

Seeking to address the issue of codes and standards among other potential barriers, the Minnesota Office of Energy Security contracted with the Minnesota Environmental Initiative (MEI) to lead a multi-stakeholder process to find ways to achieve the 1.5% goal. The MEI developed a "1.5% Energy Efficiency Solutions Project" and convened technical working groups to focus on four "policy barrier issue areas": behavioral programs, low income, codes and standards, and utility infrastructure improvements. The Project released its final report in March 2011.⁶⁷

North Carolina

Summary

Electric EERS	Renewable Energy and Energy Efficiency Portfolio Standard (REPS). Investor-owned: 12.5% by 2021 and thereafter. Municipal and co-operative utilities: 10% by 2018. Energy efficiency is capped at 25% of the 2012-2018 targets and at 40% of the 2021 target.
Applicable Sector	Investor-owned utilities, Municipal utilities, Co-operatives
Natural Gas EERS	None
Authority 1	N.C. Gen. Stat. § 62-133.8
Date Enacted	Enacted 8/20/2007 Effective: 1/1/2008

⁶⁷ <http://mn-ei.org/projects/images/EE1.5/Report/1.5EESolutionsFinalReportwithoutAppendices.pdf>

Authority 2	04 NCAC 11 R08-64, et seq.
Date Enacted	2/29/2008
Date Effective	2/29/2008

Legislative Background

North Carolina Senate Bill 3 was finalized in 2008, introducing the state's combined Renewable Energy and Energy Efficiency Portfolio Standard (REPS). Under the REPS, public electric utilities in the state must obtain renewable energy power and energy efficiency savings of 3% of prior-year electricity sales in 2012, 6% in 2015, 10% in 2018, and 12.5% in 2021 and thereafter. For IOUs, energy efficiency is capped at 25% of the 2012-2018 targets and at 40% of the 2021 target. Co-operative and municipal utilities may satisfy their all of their REPS requirements with energy efficiency outside of particular set-asides for solar and other resources. Utilities demonstrate compliance by procuring renewable energy credits (RECs) earned after January 1, 2008. Under NCUC rules, a REC is equivalent to 1 MWh of electricity avoided through an efficiency measure. Since the REPS goals are cumulative, the 12.5% target in 2021 will require 5% of its sales in 2021 to be met with energy efficiency *over the entire 13-year period* in which energy efficiency savings may be counted. Averaged over three years, each target period until 2018 requires annual savings of 0.25%. The final period from 2018 to 2020 will allow annual energy savings of 0.83%. Utilities plan to employ more than the full quarter allowable over the next ten years. Industrial customers may opt-out of utility energy efficiency programs and not bear the costs of new programs if they implement their own programs.

Table 18: REPS Savings Schedule and Eligible Efficiency for North Carolina IOUs

Year	Cumulative Renewables Requirement (% of Sales)	EE Allowed (Total Annual) (% of Sales)
2012	3.00%	0.75%
2015	6.00%	1.50%
2018	10.00%	2.50%
2021	12.5%	5%

Each electric power supplier must file a REPS compliance plan for Commission review as part of its Integrated Resource Planning (IRP) filing on or before September 1 of each year. A utility's IRP filing must include a comprehensive analysis of all resource options considered by the utility, including demand-side management and energy efficiency, which must result in "the least cost mix of generation and demand reduction measures achievable...."⁶⁸ According to Commission Rule R8-60, IRP filings must include a 15-year forecast of demand-side resources, among other requirements for the assessment and characterization of the demand-side resource.

EERS Impact on Energy Efficiency Programs

The targets have been effective in prompting utilities to develop energy efficiency programs, bringing substantial benefits to customers. Duke Energy Carolinas introduced energy efficiency programs in mid-2009 and projects savings from these programs will achieve more energy efficiency savings than can be utilized under the REPS for the foreseeable future.⁶⁹ Progress Energy had existing programs prior to Senate Bill 3, but developed an expanded portfolio of programs between 2008 and 2010.⁷⁰ Duke and Progress estimate cumulative savings to be 4.9% and 6.2% of retail sales, respectively, over the next ten years. Dominion North Carolina Power plans to achieve energy efficiency savings

⁶⁸ N.C. Gen. Stat. § 62-2(3a)

⁶⁹ [Duke IRP](#), page 16

⁷⁰ [Progress Energy IRP](#)

beginning in 2011.⁷¹ As these targets are adjusted annually, the next couple of years will be critical as Duke in particular shifts from a program portfolio that emphasizes CFLs towards a more diverse portfolio. As of the writing of the report, no public information is available detailing actual energy savings from energy efficiency programs.

The REPS goals succeeded in pushing North Carolina's utilities to develop programs, with the added benefit of catalyzing programs in South Carolina. While the targets are some of the lowest in the nation, utilities may set savings targets above the allowable REPS goal. In some instances however, such as with Dominion Power, utilities will only seek to save the minimum necessary to meet the REPS goal.

Complementary to the REPS goals, PEC and Duke have also obtained financial structures that promote added achievement.⁷² The initial results suggest that Duke has been very aggressive in making sure it achieves as much as possible early in its program deployment. Longer term impacts are less clear. PEC has been less forthcoming about its program impacts and it is not clear that financial structures alone are enough to motivate PEC. It is also unclear whether recently approved lost revenue adjustment mechanisms approved for both utilities will persuade the companies to invest more heavily in demand resources than supply, namely nuclear power, resources.⁷³

While prompting utilities to develop energy efficiency program portfolios is a notable achievement, particularly for public and co-operative utilities unlikely to pursue DSM without a policy in place, the paltry 5% cumulative goal energy efficiency goal will not drive annual efficiency savings levels much higher than 0.40% over the next decade—acting more like a business-as-usual baseline than a goal to drive market development and transformation. There is ongoing disagreement among environmental groups and utilities over whether the energy efficiency programs proposed by the IOUs in their latest resource plans are fully harnessing the energy efficiency resource.⁷⁴ Adding additional uncertainty to the situation in North Carolina, the N.C. State Legislature also has a bill under consideration that would repeal Senate Bill 3.⁷⁵

Maryland

Summary

Energy Efficiency Goal	15% per-capita electricity use reduction goal by 2015 with targeted reductions of 5% by 2011 calculated against a 2007 baseline (10% by utilities, 5% achieved independently)
Applicable Sector	Statewide Goal
Natural Gas EERS	None
Authority 1	Md. Public Utility Companies Code § 7-211
Date Enacted:	04/24/2008
Date Effective	06/01/2008

Legislative Background

Although Maryland's utilities ran energy efficiency and demand response programs in the 1980s and early 1990s, most of these efforts were discontinued when the state removed regulations during utility restructuring in the late 1990s. The EmPOWER Maryland Energy Efficiency Act of 2008 directs the Maryland Public Service Commission (PSC) to require electric utilities in the state to provide energy efficiency services to its customers to achieve 10% of the 15% per-capita electricity use reduction goal by 2015 with targeted reductions of 5% by 2011 calculated against a 2007 baseline (Order 82344). The 15% goal is equivalent to approximately 11,206 GWh, or 17% of 2007 retail sales.⁷⁶ The Maryland Energy Administration (MEA) and other public and private stakeholders, including the

⁷¹ [Dominion IRP](#)

⁷² Progress: Docket E-2, sub 931; Duke: Docket E-7 sub 831

⁷³ John Wilson, SACE. Personal e-mail 3/10/11

⁷⁴ [SACE Comments on Duke and PEC IRP](#)

⁷⁵ [House Bill 431](#)

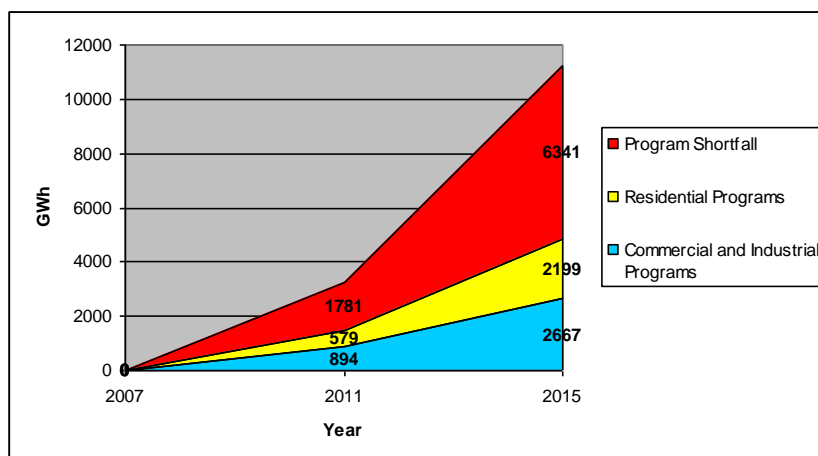
⁷⁶ Maryland Energy Administration. 2010. [Maryland Energy Outlook](#).

Department of Housing and Community Development (which runs the weatherization program and Department of General Services (runs the public-sector Energy Savings Performance Contracting program) are responsible for achieving the remaining 5% of the overall 2015 electricity savings target. Utility programs must also achieve a reduction in per capita peak demand of at least 5% by end of 2011, 10% by 2013, and 15% by 2015.

Regulatory Background

In late 2008, Maryland's utilities filed energy efficiency and demand reduction plans to achieve the EmPOWER Maryland goals. The "interim" energy efficiency savings goals set in the plans are not sufficient to meet the 2011 or 2015 EmPOWER Maryland goals.⁷⁷ Maryland's two largest utilities, Baltimore Gas and Electric (BGE) and Potomac Electric Power Company (PEPCO) set interim goals that fall 40% and 30% short of the EmPOWER Maryland goals for 2015. MEA plans to save 73 GWh for programs in FY11, ramping up from the 64 GWh it saved between 2009 and 2010.⁷⁸ As of the end of December 2010, MEA was achieving 97 GWh.⁷⁹

Figure 4: Projected Energy Efficiency Savings from Approved 2008 EmPOWER Maryland Plans



Source: Maryland Energy Administration, 2010

In its 2010 Energy Outlook report, the MEA projects that its programs combined with the approved PSC programs would reduce statewide energy consumption by approximately 4,866 GWh by 2015, which is less than half the overall goal of 11,206 GWh. Nonetheless, this projection would result in around 7% cumulative savings by 2015, or an average of about 1% annual savings, a significant achievement.

Energy Savings Achieved vs. Targeted

The latest DSM reports submitted by Maryland's major IOUs show that while programs are ramping up savings, they have not met their interim goals and will meet neither the interim goals nor the EmPOWER Maryland goals in 2011. The table below outlines the interim targets forecasted by utilities in their 2008 plans, reported savings, and how they compare to the 2011 EmPOWER Maryland Goal.⁸⁰

⁷⁷ Allegheny Power: Case 9153, Baltimore Gas & Electric: Case 9154, Potomac Electric Power Company (PEPCO): Case 9155; Delmarva Power & Light: Case 9156; Southern Maryland Electric Cooperative (SMECO): Case 9157

⁷⁸ Maryland Energy Administration, [EmPOWERing Maryland Clean Energy Programs FY 2011](#)

⁷⁹ Walt Auburn, Maryland Energy Administration. Personal Conversation. May 17, 2011.

⁸⁰ Yearly numbers are taken from the Full Year tables of each Annual Report and the Program to Date numbers are taken from the 2010 Annual report. The yearly summations for each utility will not equal the respective program to date numbers due to reporting issues or corrections.

Table 19: EmPOWER Maryland Utilities Savings Targets vs. Achieved

Utility		2009 Interim Target (MWh)	2010 Interim Target (MWh)	2011 Interim Target (MWh)	2009-2011 Total Target	2009-2011 EmPOWER Maryland Goal
Allegheny Power	Forecasted	6,757	27,201	46,119	109,955	122,664
	Reported	66	15,068	N/A	32,673	32,673
	Difference	-99%	-45%		-70%	-73%
BGE	Forecasted	295,285	351,735	412,096	1,059,116	2,052,948
	Reported	97,209	274,068	N/A	371,277	371,277
	Difference	-42%	-22%		-65%	-83%
Delmarva Power & Light	Forecasted	34,036	37,321	77,931	149,288	503,202
	Reported	11,035	11,706	N/A	22,925	22,925
	Difference	-68%	-69%		-85%	-96%
Pepco	Forecasted	145,141	163,800	279,687	588,628	1,874,656
	Reported	38,340	68,149	N/A	106,489	106,489
	Difference	-74%	-58%		-82%	-94%
SMECO	Forecasted	24,325	30,923	27,350	82,598	254,827
	Reported	248	18,461	N/A	18,494	18,494
	Difference	-99%	-40%		-78%	-95%
Total	Forecasted	543,884	679,129	843,183	2,096,074	4,914,786
	Reported	146,898	387,452	N/A	551,858	551,858
	Difference	-73%	-43%		-74%	-89%

Source: Maryland Public Service Commission, Annual 2010 EmPOWER Maryland Overall Implementation & EM&V Progress Report, March 22, 2011

Factors Affecting Performance

A recent report from the Maryland Public Interest Research Group (PIRG) issued a detailed account of how Maryland is falling behind on its energy efficiency goals (Maryland PIRG 2011). The report places much of the blame on the PSC for failing to properly initiate and oversee the EmPOWER Maryland initiative. The PSC delayed implementation of the EmPOWER Maryland programs; restricted the types of programs it allows utilities to pursue, namely through its cost-effectiveness test; and did not hold utilities accountable for electricity savings shortfalls. The report also notes that non-utility programs have been weakened because of decreased funding from sources intended for energy efficiency programs. Maryland participates in the Regional Greenhouse Gas Initiative (RGGI), which has brought more than \$148 million to the state's Strategic Energy Investment Fund since 1998, nearly half of which was originally allocated for energy efficiency. In 2010, the Governor and General Assembly cut this to 20 percent and diverted funds to assist utility customers pay bills. A similar proposal is in place for 2011 through FY 2014.

While the PIRG report rightly discusses the failure of the PSC, it should be noted that Maryland's utilities faltered in the planning and execution of energy efficiency programs. The utilities lack staff with programmatic experience and failed to exhaust the full range of potential energy efficiency measures in their initial plans. Additionally, while the scale of its effects is hotly debated, there is little doubt that the weakened economy played some role in the lower than expected customer participation rates.

Moving forward, the Maryland PSC commissioned EM&V reports for the completed program period, which should instruct utilities on how to improve upon programs. As Maryland attempts to get on track, the lesson that can be drawn from the past four years is that while aggressive goals send clear signals the future robustness of energy efficiency programs, it must be met with sustained commitment and aligned processes from Commissions and utilities.

Michigan

Summary

Electric EERS	0.3% annual savings in 2009, ramping up to 1% in 2012 and thereafter
Applicable Sector	Investor-owned utilities; co-operatives, municipals
Natural Gas EERS	0.10% annual savings in 2009, ramping up to 0.75% in 2012 and thereafter
Authority 1 Date Effective	Act 295 of 2008 10/6/2008

Legislative Background

Michigan adopted an EERS in October 2008, when the Clean, Efficient, and Renewable Energy Act was signed into law, requiring all types of electric and natural gas utilities to provide “Energy Optimization (EO) Programs.” Michigan’s EERS requires electric utilities to achieve 0.3% savings in 2009; 0.5% in 2010; 0.75% in 2011; and 1.0% in 2012 and each year thereafter. Percentages are savings relative to the prior year’s total retail electricity sales. Natural gas utilities must achieve 0.1% savings in 2009; 0.25% in 2010; 0.5% in 2011; and 0.75% in 2012 and each year thereafter. Percentages are of the prior year’s total annual retail natural gas sales in decatherms or equivalent MCFs.

Table 20: Michigan Electric and Natural Gas Energy Efficiency Savings Targets

		2009	2010	2011	2012
Electric	Percent Savings	0.30%	0.50%	0.75%	0.75%
	Savings (MWh)	326,056	502,797	742,451	N/A
Natural Gas	Percent Savings	0.10%	0.25%	0.50%	0.75%
	Savings (Mcf)	551,931	1,370,282	2,489,179	N/A

Source: Michigan PSC, Report on the Implementation of P.A. 295 Utility Energy Optimization Programs, January 2011

Regulated investor-owned utilities are responsible for 88.9 percent of the statewide electric savings targets; municipal utilities represent 7.8 percent of savings; and electric cooperatives, 3.4 percent. Most efficiency programs are administered by the utilities, although some have opted to fund a state-selected program administrator, Efficiency United, through an alternative compliance payment. Although Efficiency United program services are not subject to the statutory savings targets, equivalent contractual targets were imposed by the Commission. Large electric customers, as determined by their peak use, may administer their own programs.

The 66 utilities that did not opt to pay the alternative compliance payment must propose Energy Optimization (EO) Plans to the Michigan Public Service Commission (MPSC). There are limits to how much each utility may collect and spend on energy efficiency programs. In 2011, that spending cap is 1.5% of total retail sales revenues for 2009. In 2012 and thereafter, the spending cap is 2.0% of the total retail sales revenues for the two years preceding.

Energy Savings Achieved vs. Targeted

Overall, Michigan EO program savings for electric and natural gas achieved 129 percent of the statewide target in 2009. IOUs achieved 130 percent of their savings target, while municipal utilities reached 107 percent of their savings targets and electric cooperatives met 17 percent of their target (MPSC 2011). The Commission recently approved EO plans from Detroit Edison and Consumers Energy in which both utilities plan to exceed electric and natural gas savings targets every year through 2015.⁸¹

Table 21: Michigan Energy Efficiency Savings vs. Targeted

	2009 Requirement (MWh)	2009 Achieved (MWh)	Percent Attained	2010 Requirement (MWh)	2011 Requirement (MWh)
Statewide Electric EO Program Savings	326,056	375,652	129%	502,797	742,451

Factors Affecting Performance

Funding Levels

A major ramp-up in program funding has been critical to the success of EO programs thus far. Aggregate statewide funding (electric and natural gas) for EO programs was \$89 million in 2009. Budgets for 2010 and 2011 are \$137 million and \$191 million, respectively.

Collaboration among Stakeholders

Michigan utilities benefited from a coordinated approach that included a statewide Energy Optimization Collaborative with the mandatory participation of all gas and electric providers. The Collaborative, which also included energy efficiency experts, energy professionals, and other stakeholders, reviewed and improved Energy Optimization plans to maximize their effectiveness. Michigan's utilities quickly planned, designed and launched programs only months after the approval of their EO plans. While the initial programmatic focus was on lighting and other "low-hanging fruit," the major utilities plan to broaden their focus and reach new customers in the commercial and industrial sectors in order to achieve deeper savings.

Decoupling and Performance Incentives

Complementary policies such as revenue decoupling and performance incentives have also improved the business model for utility investments in energy efficiency. The Commission has approved revenue decoupling for Consumers Energy and Detroit Edison as well as for a number of gas utilities. The Commission also permits Detroit Edison to receive a performance incentive for exceeding their annual energy savings target. Performance incentives cannot exceed 15% of the total cost of the energy efficiency programs (MPSC 2011).

New Mexico

Summary

Electric EERS	Energy Efficiency Resource Standard: 5% reduction from 2005 total retail electricity sales by 2014, and a 10% reduction by 2020
Applicable Sector	Investor-owned electric utilities
Natural Gas EERS	None
Authority 1	N.M. Stat. § 62-17-1 et seq.

⁸¹ DTE: [U-15806-EO Amended](#); MichCon: U-16412 Amended December 2010

Legislative and Regulatory Background

In 2008, New Mexico adopted an amended version of the Efficient Use of Energy Act which: (1) directs utilities to develop and implement cost-effective DSM programs, (2) defines “cost-effectiveness” in terms of the total resource cost test, (3) establishes cost recovery mechanisms for both electric and natural gas utilities, (4) directs the New Mexico Public Regulation Commission to establish rules for integrated resource planning, and (5) directs the Commission to remove financial disincentives for utilities to reduce customer energy use through DSM programs. On February 27, 2008, Governor Bill Richardson signed House Bill 305 into law, amending the Efficient Use of Energy Act to establish energy efficiency targets for the state. Investor-owned utilities are now required to achieve a 5% reduction from 2005 total retail electricity sales by 2014, and a 10% reduction by 2020. A utility that determines it cannot achieve the energy saving requirements shall report to the Commission, explain the shortfall, and propose alternative requirements based on acquiring all cost-effective and achievable energy efficiency and load management resources. If the commission determines that the requirements exceed the achievable amount of energy efficiency and load management available, it may establish lower requirements for the utility.

Distribution cooperative utilities, which are not fully regulated by the PRC, must annually consider self-imposed electricity reduction targets and design demand side management programs to enable them to meet those targets. Each cooperative utility must submit a report to the PRC annually describing their demand side management efforts from the previous year (DSIRE).

Energy Savings Achieved vs. Targeted

Since the adoption of an EERS, New Mexico’s investor-owned utilities have developed programs for all customer segments. The electric IOUs suggest in their latest round of reporting that most, if not all, anticipate reaching the 5% cumulative goal by 2014. Experience thus far indicates that utilities can meet goals cost-effectively. In 2009 and 2010, PNM’s program portfolio as measured by the Total Resource Cost test was 1.56 and 2.22, respectively. The average cost per kWh of lifetime energy savings from the energy efficiency programs PNM implemented in 2009 and 2010 was 1.76 cents and 1.89 cents, respectively. The latest approved portfolios of programs demonstrate that utilities are learning important lessons on program delivery strategy and customer participation rates, which has led to the expansion and refinement of numerous programs in the last planning period.

Table 22: New Mexico Energy Savings Achieved and Targeted

Year	New Mexico IOU Achieved and Projected Savings 2008-2014 (MWh)		
	PNM	SPS	El Paso Electric
2008	35,200 (includes DR)*	1,279*	855*
2009	39,900*	13,964*	4,667*
2010	58,900*	28,908**	9,474**
2011	58,489	32,436	25,437
2012	69,920	36,979	30,691
2013	79,733	36,979	30,691
2014	77,605***	36,979	30,691
2014 Cumulative Savings (Goal)	411,000 (411,000)	187,689 (187,689)	116,025 (75,000)

* Verified savings

** Estimated savings

***PNM Goals only projected out to 2013. 2014 figure what would be needed to meet 5% goal.

Sources:

PNM: For 2008, see [Docket No. 10-00078-UT](#); 2009 and 2010 savings figures from Energy Efficiency Annual Reports; For 2010-2013 Plan, See [PNM 2010 DSM Plan \(Docket 10-00280-UT\)](#)

SPS: [2010/11 Energy Efficiency and Load Management Plan \(Docket 09-00352-UT\)](#)

El Paso Electric: [Energy Efficiency and Load Management Plan for 2011 \(Docket 10-00047-UT\)](#)

Factors Affecting Performance

Decoupling and Performance Incentives

The New Mexico PRC adopted rules concerning disincentive removal and performance-based incentives in May 2010. The rules specify amounts the utilities are allowed to collect per kWh and peak KW of verified savings, in addition to program cost recovery. However, the amounts specified in the rules are in the process of being modified utility-by-utility in DSM program plan review dockets subsequent to issuance of the rules. The provision of these disincentive/incentive adders is expected to motivate the utilities to increase DSM budgets and energy savings targets.

New York

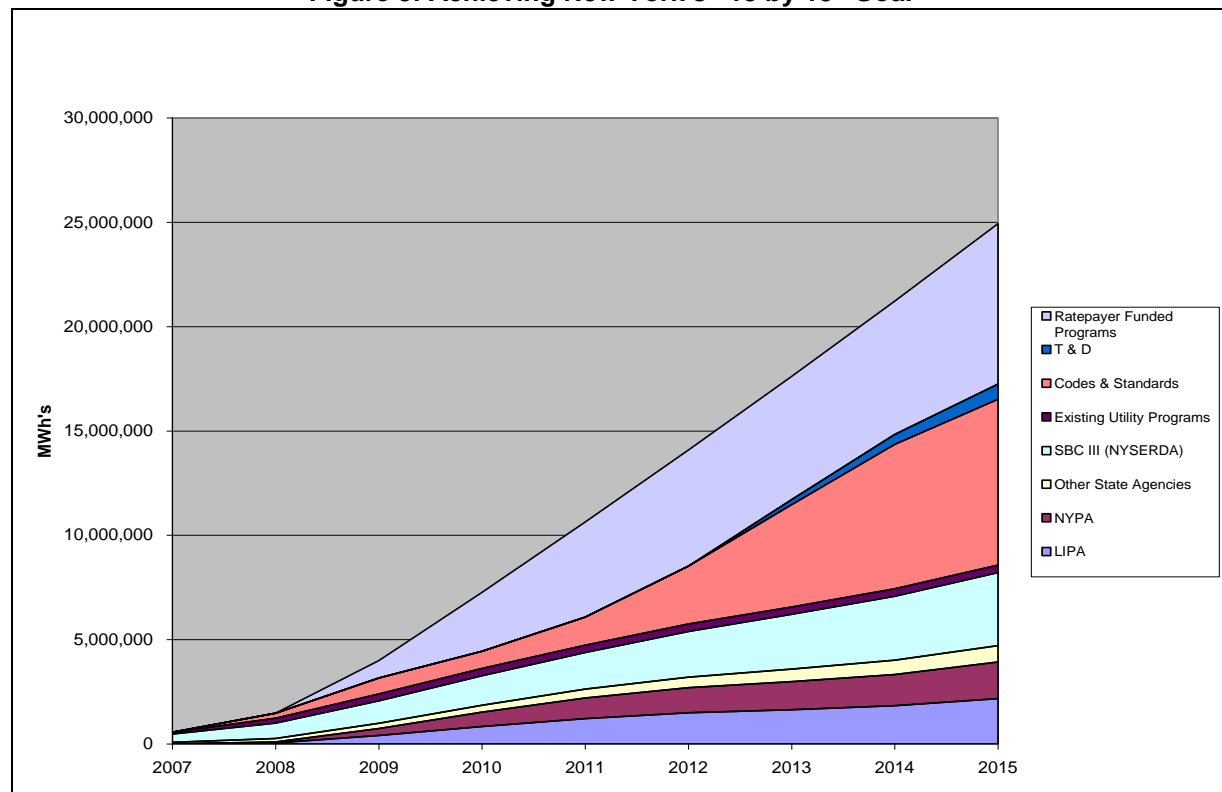
Summary

Electric EERS	15% Cumulative savings by 2015
Applicable Sector	Investor-owned utility, natural gas utilities with 14,000 or more customers
Natural Gas EERS	~14.7% by 2020
Authority 1	NY PSC Order, Case 07-M-0548
Date Enacted	06/23/2008
Date Effective	06/23/2008
Authority 2	NY PSC Order, Case 07-M-0748
Date Enacted	05/19/2009
Date Effective	05/19/2009

Legislative and Regulatory Background

On June 23, 2008, the New York Public Service Commission (NYPSC) issued a decision creating the New York Energy Efficiency Portfolio Standard (EEPS), which aimed to reduce electricity usage by 15% of forecast levels by 2015. NYPSC also approved natural gas efficiency targets in May 2009. The targets aim to save 4.34 Bcf annually through the end of 2011 and 3.45 Bcf annually beyond 2011. The downward revision of the target reflects a likely change in program balance following the exhaustion of federal stimulus funding. Combined with reductions from other sources, this target will result in a 14.7% reduction in estimated gas usage by 2020. New York's EEPS is delivered alongside a broad spectrum of research and development, business development, and market development programs.

New York has an array of program administrators that advance energy efficiency. The New York State Energy Research and Development Authority (NYSERDA) is the largest energy efficiency program administrator, followed by two additional major energy efficiency institutions: The New York Power Authority (NYPA), the largest state public power organization in the U.S., and the Long Island Power Authority (LIPA), which is structured as a non-profit municipal electricity provider and does not own any generation plants on Long Island. New York's investor-owned utilities also administer energy efficiency programs, the largest being Consolidated Edison in New York City and National Grid upstate, through its operating company, the Niagara Mohawk Power Corporation. All of these program administrators contribute to New York's 15x15 goal, as well as savings derived from other state agencies, codes and standards, and improvements to transmission and distribution. LIPA and NYPA, however, are not bound to the EEPS targets by regulation since they are not under the jurisdiction of the NYPSC. Thus while total electricity sales under the 15% by 2015 standard would require savings of roughly 29.4 million MWh annually in 2015, the NYPSC has approved program targets that leave roughly 7.7 million MWh to be achieved by programs outside its jurisdiction.

Figure 5: Achieving New York's "15 by 15" Goal

As of December 31, 2010, the NYPSC approved 99 energy efficiency programs (48 electric and 51 gas). Energy savings targets are set annually for each program administrator based on its share of the 15x15 goal. The savings targets through December 31, 2010 amount to 1,846,025 Net MWh (about 1% annual savings) and 2,855,811 Dekatherms. NYSERDA is responsible for 62% of electricity savings and 56% of natural gas savings with IOUs responsible for the rest. The approved programs represent a total funding commitment of \$1.1 billion, mostly through the end of 2011.

Energy Savings Achieved vs. Targeted

NYSERDA and the investor-owned utilities are performing below the near-term EEPs goals, but trends indicate the state is on track to meet its long-term targets. NYSERDA and the IOUs combined to meet 46.8% of their savings goal through 2010 but spent only 35.9% of what was budgeted for programs. Natural gas programs fared somewhat better, achieving 50.9% of the near-term energy savings goal and spending only 40.9% of the total budget through 2010.

Table 23: Natural Gas and Electric Savings and Spending as Percent of Targets through 12/31/2010, by Program Administrator

Program Administrator	Percent of Net MWh Target Achieved	Percent of Budget Spent
Central Hudson	31.5%	37.2%
Con Edison	22.4%	24.6%
Niagara Mohawk	50.3%	72.2%
NYSEG	13.1%	20.0%
Orange and Rockland	23.9%	22.4%
Rochester Gas & Electric	27.9%	26.9%
NYSERDA	54.2%	29.9%
NEW YORK STATE	46.8%	35.9%

Program Administrator	Percent of Net Dekatherm Target Achieved	Percent of Budget Spent
Central Hudson	65.4%	74.2%
Con Edison	8.1%	17.4%
Corning	111.2%	106.7%
KED-LI	77.4%	71.1%
KED-NY	28.5%	30.9%
Niagara Mohawk	137.4%	95.0%
NYSEG	127.0%	126.1%
O&R	157.8%	118.0%
RG&E	166.8%	142.6%
St. Lawrence Gas	55.9%	49.8%
NYSERDA	28.0%	25.6%
NEW YORK STATE	50.9%	40.9%

Source: NYPSC EEPS Program Implementation Status Through the 4th Quarter of 2010, March 2011

Factors Affecting Performance

Numerous barriers contributed to the slow start. The program approval period took longer than expected as Commission staff carefully examined the operating plans of the utilities, which had not been in the business of delivering efficiency programs for years. Once implemented, the recession negatively impacted program participation. Program administrators also identified market confusion as a concern. Since NYSERDA had been the sole supplier of energy efficiency for so long, customer awareness of the IOU programs is low. When they are aware, having two options makes their decisions more complicated. It is competitive, however, customers in general are not complaining because multiple financial incentive options allow them to choose those that best meet their needs.

New York has the funding, expertise and efficiency potential to meet their energy efficiency portfolio standard goals, and although there have been challenges since the adoption of the EEPS Order in 2008, there have been many initial successes. The programs in place are achieving higher levels of savings than expected, evidenced by the fact that savings levels are greater than spending levels in terms of percentage of expected values. Due to the scale and complexity of utility energy efficiency institutions and programs, one common element linking successful efforts to ramp-up savings is collaboration—especially collaboration across institutions that enables integration, coordination, and standardization. Stakeholders in New York recognize the need to build on these past successes.

Program Administrators state that the outlook for New York to achieve 15 by 2015 EEPS energy savings goals is good. The program plans submitted by electric program administrators supports this claim. Statewide, electric IOUs and NYSEERDA forecast electric savings to meet 94% of the 2011 goal. Natural gas program administrators expect to achieve 75% of the statewide 2011 target.

Ohio

Summary

Electric EERS	22% by 2025 (0.3% annual savings in 2009, ramping up to 1% in 2014 and 2% in 2019)
Applicable Sector	Investor-owned utilities
Natural Gas EERS	None
Authority 1 Date Enacted	ORC 4928.66 et seq. 1/1/2009
Authority 2	S.B. 221

Legislative Background

Senate Bill 221, signed into law May 1, 2008, included both an Energy Efficiency Portfolio Standard (EEPS), and Alternative Energy Portfolio Standard (RPS), among other provisions. For efficiency, it requires a gradual ramp up to a cumulative 22 percent reduction in electricity use by 2025. Beginning in 2009, the Act requires electric distribution utilities to implement energy efficiency programs that achieve energy savings equal to at least three-tenths of one per cent of sales. The baseline for which energy savings is calculated against is the average number of total kilowatt hours sold by electric distribution utilities during the preceding three years. The standard ramps up as shown in the table below.

Table 24: Ohio's Energy Efficiency Portfolio Standard

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020-25
0.30%	0.50%	0.70%	0.80%	0.90%	1.00%	1.00%	1.00%	1.00%	1.00%	2.00%	2.00%

Failure to comply with energy efficiency savings requirements results in forfeiture on the utility. The amount is either that prescribed by the legislature or the existing market value of one renewable energy credit per MWh of undercompliance or noncompliance. Any revenue from forfeiture is credited to the Advanced Energy Fund. The commission may amend the benchmarks if, after application by the electric distribution utility, the commission determines that the utility cannot reasonably achieve the benchmarks due to regulatory, economic, or technological reasons beyond its reasonable control. Utilities must annually submit energy efficiency status reports and according to Ohio Administrative Code Section 4901:1-39-06(B), Commission Staff is required to review the reports and file its finding and recommendations regarding program implementation and compliance with applicable benchmarks.

The EEPS applies to Ohio's investor-owned utilities and retail suppliers. Ohio's largest electric utility is FirstEnergy, with 1.8 million customers in Ohio served by three operating companies: Ohio Edison, Toledo Edison, and the Cleveland Electric Illuminating Company. Second is American Electric Power of Ohio (AEP), with 1.5 million customers served by two operating companies: the Columbus Southern Power Company and the Ohio Power Company. Duke Energy Ohio and Dayton Power & Light Company (DP&L) both have over a half-million customers. These investor-owned utilities sell almost 90% of all retail electricity in the state.

Energy Savings Achieved vs. Targeted

According to self-reported data, AEP, Duke Energy, and DP&L exceeded their requirements in 2009 and 2010, while FirstEnergy fell far short in 2009 and will report on its 2010 savings in May 2011.⁸² Program portfolios for AEP, DP&L, and Duke Energy as a whole were cost-effective in 2010 as determined by the Total Resource Cost test. These utilities' programs in 2009 and 2010 will save customers a net \$351 million in utility costs over the program measures' lifetime.⁸³

Unable to ramp up programs quickly, FirstEnergy received a waiver from the PUCO allowing it to meet the remainder of its 2009 requirements in future years.⁸⁴ Most recently, the PUCO waived annual requirements for FirstEnergy for 2009, 2010, 2011, and 2012. Instead, First Energy will be required to meet a cumulative benchmark by the end of 2012.⁸⁵ PUCO ruled that the Portfolio Plan, as filed by FirstEnergy, was not designed to meet the benchmarks in 2010, which PUCO addressed by allowing FirstEnergy to still comply by meeting a cumulative 2012 target (2.3%). FirstEnergy has applied for a rehearing regarding whether the plan was designed to achieve 2010 benchmarks, the results of which are pending at the Commission.

Table 25: Energy Efficiency Performance by Utility in 2009

Utility	2009 Requirement (MWh)	2009 Achieved (MWh)	Percent Attained	2010 Requirement (MWh)	2010 Achieved (MWh)	Percent Attained
American Electric Power ⁸⁶	136,944	171,000	125%	228,125	306,000	134%
Dayton Power & Light ⁸⁷	43,193	40,442	94%	71,781	101,061	141%
Duke Energy ⁸⁸	68,127	86,402	127%	109,420	310,755	284%
FirstEnergy ⁸⁹	166,310	22,614	14%	N/A	N/A	N/A
Total	414,574	320,458	77%	409,326	717,816	175%

Each utility has submitted plans to achieve their requirements through at least 2011, detailing program portfolios, budgets, and expected savings. Utilities also submit long-term plans forecasting their ability to meet targets in 2025. Except for Duke Energy, each utility projected savings levels in line with future requirements (Woodrum et al. 2010). In its long term forecast report, Duke Energy projected that it would not be able to cost-effectively achieve the long-term 22% requirement, forecasting that it could only meet 14 to 15 percent.⁹⁰ After a series of negotiations with stakeholders, however, Duke Energy agreed to a settlement agreement in which it agrees that "it is reasonable for Duke to assume that sufficient, cost-effective energy savings opportunities exist to allow the Company to meet the energy efficiency and demand reduction benchmarks stated in R.C. 4928.66 over the 10-year forecast period." It also states that CHP is a potentially cost-effective option for assisting Duke to meet its resource requirements.

Factors Affecting Performance

A number of factors drove the success of Ohio's other three utilities' meeting their goals in 2009 and 2010. Duke had programs approved prior to SB 221, allowing it to meet the requirements with programs already underway. AEP and DP&L began their energy efficiency efforts as a result of SB 221 and began with a portfolio of tried-and-true programs. Complementary policies allowing these

⁸² PUCO staff have yet to file their required report and findings on the energy efficiency status reports of any utilities, as required.

⁸³ Calculation by Dylan Sullivan, Natural Resources Defense Council. Based on utility presentations and evaluation reports.

⁸⁴ Order, January 7, 2010, [Docket 09-1004-EL-EEC, et al.](#)

⁸⁵ Order, March 23, 2011, [Docket 09-1947-EL-POR, et al.](#)

⁸⁶ Savings calculated on a pro-rated basis. 2009: [Docket No. 10-0318-EL-EEC](#); 2010: [11-1299-EL-EEC](#)

⁸⁷ Savings calculated on a pro-rated basis. [Docket No. 10-0303-EL-POR](#); 2010: [11-1276-EL-POR](#)

⁸⁸ Calculated as incremental savings. 2009: [Docket No. 10-0317-EL-EEC](#) (Appendix A); 2010: [11-1311-EL-EEC](#)

⁸⁹ Requirements for 2009 through 2012 waived. 2009 savings achieved filed in [Docket No. 10-0277-EL-EEC](#)

⁹⁰ Duke Long Term Forecast Report 2010

three utilities to recover program costs and in AEP and Duke's case, earn performance incentives on well-performing programs have also helped drive energy savings.

Funding Levels

In order to achieve sustained levels of savings required in Ohio's EEPS, utilities are ramping up budgets to develop the necessary program delivery infrastructure. Ohio's electric utilities increased their collective budgets for energy efficiency programs from approximately \$20 million per year between 2006 and 2008 to \$152.8 million in 2010, according to the Consortium for Energy Efficiency.

Meeting Future Goals

Utilities are now initiating the three year efficiency portfolio and program planning cycle for 2012-14. As utilities in Ohio shape plans to meet Ohio's aggressive requirements, they may look to a report by ACEEE, together with Summit Blue Consulting, "Shaping Ohio's Energy Future: Energy Efficiency Works," which recommends five innovative programs to complement other proven utility programs: advanced residential and commercial buildings initiatives; manufacturing and rural and agriculture initiatives; and combined heat and power programs. Together, the innovative initiatives recommended would achieve about half of the 22% savings required under the EEPS by 2025.

According to AEP, most of the programs they put into place over the next three year cycle will be similar to current programs. In the longer term beyond the next 3 to 5 years, they will assess industrial long-range planning, continuous improvement, and integrating energy efficiency with industrial process improvement to achieve deeper levels of energy savings. For Duke Energy Ohio, much of their efficiency program outlook depends on changes to codes and standards, and how utilities may or may not get credit for part of the savings due to them. The utility claims that this issue heavily influences the types of programs they offer, especially when planning 7 or 8 years into the future. Ohio utilities are informally discussing how to design a building codes enhancement and compliance support program. The next phase of portfolio plans will likely include a building codes enhancement program.⁹¹

EERS under Fire

On March 23, 2011, First Energy and DP&L both submitted testimony to the State Senate Energy and Public Utilities Committee requesting the legislature to revisit Ohio's EERS. The utilities expressed frustration with the lack of clarity of whether savings should be calculated as annualized or pro-rated, and recommended the targets be halved. Although the original S.B. 221 was unclear on the proper savings methodology, the Commission rejected the use of annualized savings on multiple occasions.⁹²

Pennsylvania⁹³

Summary

Electric EERS	3% cumulative savings by 2013
Applicable Sector	Investor-owned electric distribution companies
Natural Gas EERS	None
Authority 1	66 Pa C.S. § 2806.1
Date Enacted	10/15/2008
Date Effective	11/14/2008
Authority 2	PUC Order Docket No. M-2008-2069887
Date Enacted	1/15/2009

⁹¹ Personal conversation, Daniel Sawmiller, Ohio Consumers Counsel. May 5, 2011.

⁹² 08-888-EL-ORD, Entry on Rehearing (June 17, 2009) at 9.

⁹³ While PA PUC has reviewed this document, it does not endorse its findings

Legislative and Regulatory Background

In October 2008 Pennsylvania adopted Act 129, establishing an energy efficiency resource standard in Pennsylvania. Each electric distribution company (EDC) with at least 100,000 customers⁹⁴ must reduce energy consumption by a minimum 1% by May 31, 2011, increasing to 3% by May 31, 2013, measured against projected electricity consumption for the period from June 2009 to May 2010. Peak demand must be reduced by 4.5% by May 31, 2013. Ten percent of both consumption and peak demand reductions are to come from federal, state, and local government, including municipalities, school districts, institutions of higher education and nonprofit entities. Another ten percent must come from the low-income sector. The Pennsylvania Public Utility Commission (PUC) approved Energy Efficiency and Conservation (EE&C) plans for each EDC, which detailed program portfolios and savings targets tailored to each EDC. The PUC may also set targets for the period beyond 2013. Failure to achieve the reductions required (load and/or peak demand) subjects EDCs to a civil penalty of not less than \$1M and not to exceed \$20M.

Under the new legislation, the EDCs' EE&C plans propose a cost-recovery tariff mechanism to fund the EE&C measures and to ensure recovery of reasonable costs. The EDCs can also recover the costs through a reconcilable adjustment mechanism. The total cost associated with an EDC's energy efficiency and peak demand reduction plan may not exceed 2% of the EDC's total annual revenue as of December 31, 2006.

Energy Savings Achieved vs. Targeted

Pennsylvania EDCs officially began implementing programs counting towards their EERS on June 1, 2009. The 2nd quarter report of Program Year (PY) 2 indicates all of Pennsylvania's utilities are achieving significant savings levels.⁹⁵ Through November 2010, utilities had achieved approximately 58% of the 2011 goal, roughly on track to meet the 1% savings goal by June 2011.⁹⁶ Results for Program Year 2 have been promising given that in Program Year 1 utilities only achieved ~20% of the goal. In the cases of Allegheny, Met-Ed, and Penelec, savings in the 1st quarter of Program Year 2 exceeded all of those of PY 1. Twenty-seven programs began in the 1st quarter of PY 2, compared to 38 initiated in all of PY 1. The presence of a Statewide Evaluator (SWE) has been an extremely positive development for the state's utilities. The SWE provides timely reports that allow utilities to gauge performance and verify savings.

Table 26: Pennsylvania EERS Targets vs. Achieved

Program Administrator	Percent of 2011 Target Achieved end of PY 1	Percent of 2011 Target Achieved end of 2nd Quarter, PY 2	Percent of 2013 Target Achieved to date
Allegheny	1.4%	1.4%	0.5%
Duquesne	19.0%	22.4%	7.5%
Met-Ed	8.2%	37.1%	12.4%
Penelec	8.9%	45.4%	15.1%
Penn Power	11.7%	46.0%	15.3%
PECO	40.0%	113.0%	38.0%
PPL	22.0%	62.0%	21.0%
STATEWIDE*	19%	58%	19.3%

Source: Act 129 Statewide Evaluator Quarterly Report, Program Year One and Second Quarter, Program Year Two

*ACEEE Estimate, not endorsed by PA PUC

⁹⁴ Standards apply to the following utilities: PECO Energy, PPL Electric Utilities, West Penn Power (Allegheny), Pennsylvania Power Company (PennPower) Pennsylvania Electric (Penelec), Metropolitan Edison (Met-Ed), and Duquesne Light.

⁹⁵ Pennsylvania has a Statewide Evaluator, which reports on implementation status quarterly. As of the drafting of this report, the latest confirmed savings data comes from Program Year 2 (2010-2011) 2nd Quarter Report.

⁹⁶ Through six of the eight quarters given for utilities to meet the 1% goal in 2011, the theoretical "on-track" savings figure would be 75%.

Iowa**Summary**

Energy Efficiency EERS	Varies by utility from 1-1.5% annually by 2013
Applicable Sector	Investor-owned utilities, Municipal utilities, Co-operatives
Natural Gas EERS	Annual goals by 2013 vary by utility: 0.74% (Muni's); 0.85% (MidAmerican); 0.94% (Black Hills) 1.2% (IPL)
Authority 1	Iowa Code § 476
Authority 2	Senate Bill 2386
Date Enacted	5/06/2008
Date Effective	5/06/2008

Legislative and Regulatory Background

Iowa's utilities administer energy efficiency programs under a regulated structure with oversight by the Iowa Utilities Board (IUB) and significant input from the Office of Consumer Advocate and other energy efficiency stakeholders. Iowa Code 476.6.16 mandates that investor-owned utilities offer energy efficiency programs through cost-effective energy efficiency plans. The utilities recover program costs of the plans approved by the IUB through adding tariff riders to customer bills. Most publicly owned utilities in Iowa (municipal utilities), as well as rural electric cooperatives, provide energy efficiency programs, ensuring nearly statewide coverage. Iowa's utilities have long records of funding and providing comprehensive portfolios of energy efficiency programs to all major customer categories — residential, commercial, industrial and agricultural. Aside from a decrease in funding in the late 1990s as the state considered restructuring proposals, Iowa has long been a nationwide leader delivering utility energy efficiency programs.

Senate Bill 2386 amended Iowa Code 476.6, among other provisions, requires the IUB to develop energy savings performance standards for each utility. Each utility must file plans to meet specific energy efficiency goals. In compliance with this bill, the Iowa Utilities Board (IUB) issued an order asking investor-owned utilities (IOUs) to submit plans including a scenario to achieve a 1.5% annual electricity and natural gas savings goal.⁹⁷ Iowa's two investor-owned electric utilities, Interstate Power and Light Company (IPL) and MidAmerican Energy Company, complied with this request by filing Energy Efficiency Plans for 2009-2013 that outline how the utilities could meet the 1.5% electric target.⁹⁸ Both utilities determined the 1.5% natural gas target would be unattainable. While MidAmerican plans to meet the 1.5% electric goal, the IUB declined to approve a slightly lower electric goal for IPL due to potential rate impacts on IPL customers. Both IPL and MidAmerican's goals represent levels of electric savings around twice the levels achieved in 2008. Municipal and cooperative utilities also are required to implement energy efficiency programs, set energy savings goals, create plans to achieve those goals, and report to the IUB on progress.⁹⁹ Municipal and cooperative utilities filed goals on December 31, 2009.

Iowa's natural gas utilities also set annual energy efficiency savings targets for the period between 2009 and 2013. Annual goals vary—municipal utilities plan to save 0.74% by 2013; MidAmerican 0.85%; Black Hills Energy 0.94%; and IPL 1.2%.

Energy Savings Achieved vs. Targeted

As noted in the table below, both of Iowa's electric IOUs exceeded 2009 savings targets cost-effectively. Both MidAmerican and IPL reached customers in all sectors, using both traditional and innovative program designs to advance energy efficiency. IPL, in particular, received numerous accolades recognizing its excellence in marketing and education.

⁹⁷ [Docket No. 199 IAC 35.4 \(EEP-02-38; EEP-03-1; EEP 03-4\)](#), January 14, 2008.

⁹⁸ MidAmerican Energy Company: [Docket No. EEP-08-2](#). Interstate Power and Light Company: [Docket No. EEP-08-1](#).

Table 27: Iowa Utility Savings Targets as % of Sales

Utility	2009 Goal	2009 Achieved	2010 Goal	2011 Goal	2012 Goal	2013 Goal
MidAmerican	1.09%	1.2%	1.50%	1.54%	1.51%	1.50%
Interstate Power and Light	0.9%	1.3%	0.9%	1.0%	1.2%	1.3%
Municipal Utilities*	NA	NA	0.71%	NA	1.09%	NA
Electric Cooperatives**	NA	NA	1.1%	NA	1.2%	NA

*Average Goals of Iowa Association of Municipal Utilities

**Average Goals of Iowa Association of Electric Cooperatives

Sources: IOUs: 2011 Operating Plans and Annual Reports for Program Year 2009. Muni's and Co-ops: ["Evaluation of Energy Efficiency Goals and Programs Filed with the Iowa Utilities Board by the Iowa Association of Municipal Utilities"](#) and ["Evaluation of Energy Efficiency Goals and Programs Filed with the Iowa Utilities Board by the Iowa Association of Electric Cooperatives."](#)

Factors Affecting Performance

Uncertainty looms in the years ahead, however, as a result of the recession. MidAmerican noted in its Annual Report for Program Year 2009 that the weakened economy dampened demand for some programs, especially residential and low-income, while the promise of reduced costs drove demand for other programs or parts of programs. Because of the unknown impact of the economy on energy efficiency, MidAmerican will place emphasis in the near future on low cost efficiency and efficiency that can be achieved through behavior change.

Funding Levels

In order to achieve levels of savings unattained in previous years, Iowa's utilities are increasing cost-effective spending on electric energy efficiency programs to meet their goals. IPL and MidAmerican plan to increase direct spending on programs from 2009 to 2013 by 30% (\$60 to \$78 million for IPL) and 37.5% (\$40 to \$55 million for MidAmerican), respectively. Municipal utilities will increase spending by 32 percent from 2010 to 2012 and electric cooperatives will increase spending by 12 percent from 2010 to 2014.

Collaboration among Stakeholders

As they ramp up savings, Iowa recognizes the importance of coordination among the numerous utilities in the state. To achieve this objective, the state's IOUs, municipal, and co-operative utilities participate in the Statewide Energy Efficiency Collaborative, sponsored by the OCA. The Collaborative helps utilities identify and advance, where appropriate, areas of coordinated energy efficiency processes. The Collaborative also includes other energy efficiency stakeholders to share best practices and investigate opportunities for deeper savings and new programs.

Massachusetts

Summary

Electric EERS	State law requires the electric distribution utilities to procure all cost-effective efficiency resources through a 3-year Efficiency Procurement Plan and requires full funding of the Plan. After the required review and input by a key stakeholder efficiency council (which included a unanimous 11-0 vote), the Commission approved and fully funded the 2010-2012 Efficiency Procurement Plan in January of 2010 which includes electric utility savings targets of 1.4% in 2010, 2.0% in 2011; 2.4% in 2012
---------------	---

Applicable Sector	Utility, Investor-owned utilities, Cape Light Compact
Natural Gas EERS	State law requires the natural gas distribution utilities to procure all cost-effective efficiency resources through a 3-year Efficiency Procurement Plan and requires full funding of the Plan. After the required review and input by a key stakeholder efficiency council (which included a unanimous 11-0 vote), the Commission approved and fully funded the 2010-2012 Efficiency Procurement Plan in January of 2010 which includes natural gas utility savings targets of 0.63% in 2010, 0.83% in 2011; 1.15% in 2012
Authority 1	D.P.U. Order on Electric Three-Year Energy Efficiency Plans, 2010-2012 (D.P.U. 09-116 through D.P.U 09-120)
Statutory Authority	Mass. Gen. Laws c. 25 § 21.

Legislative and Regulatory Background

Massachusetts is a leading state for utility energy efficiency programs with a successful implementation record spanning over 30 years and across all customer sectors. The Green Communities Act of 2008 ushered in a new era for greatly expanded efficiency programs by establishing an “efficiency procurement” approach to EERS policies. That is, the Green Communities Act requires electric and natural gas distribution utilities to invest in all cost-effective energy efficiency that is cheaper than supply resources. Starting in the fall of 2009, and triennially thereafter, the distribution utilities are now required to propose a joint, comprehensive, fully funded state-wide 3-year efficiency plan (for 2010-2012) to satisfy the all cost-effective efficiency procurement requirement for input and review by a new diverse stakeholder efficiency council. This new Massachusetts Energy Efficiency Advisory Council (EEAC) plays a central role in planning and overseeing the utilities’ program administration. The EEAC is an 11 member stakeholder body, representing commercial, industrial, residential, low income, labor, and environmental interests, chaired by Massachusetts Department of Energy Resources (DOER), which works collaboratively with the utilities to develop state-wide coordinated energy efficiency plans. After EEAC review and approval, plans are submitted to the Department of Public Utilities (DPU) for analysis and cost-effectiveness testing. The EEAC and DOER help to keep programs on track to meet their energy savings goals. Plans are updated annually and may be modified mid-term. There are five electric energy efficiency program administrators and seven gas program administrators, whose work is overseen by the EEAC and approved by the DPU.

The Green Communities Act requires that electric and gas utilities procure all cost-effective energy efficiency before more expensive supply resources, requiring a three year planning cycle. On January 28th, 2010 the DPU approved the first 3-year (2010-2012) electric and gas energy efficiency plans under the Green Communities Act, paving the way for the realization of the goals and efficiency procurement requirement established in the Act. The electric efficiency procurement plan is fully funded and ramps up savings each year, from a starting point of 1.0% in 2009, to 1.4% in 2010, 2.0% in 2011, and then to 2.4% of retail electricity sales in 2012. 2.4% is equivalent to a first year savings of 1,103 GWh in 2012. The energy efficiency investments in 2010-2102 will save 2,625 gigawatt-hours (GWh) of electricity in 2012 (the cumulative annual impact in 2012). The statewide totals are comprised entirely of the individual program administrator savings.¹⁰⁰

Massachusetts’s efficiency procurement approach to their EERS has resulted in one of the most, if not the most ambitious fully funded savings targets of any state. With annual electricity savings of 2.4 percent per year going forward from 2012, the Massachusetts programs would achieve cumulative annual energy savings equivalent to 30 percent of retail electricity sales in 2020. Customers will use 23.4% less electricity in 2020 than they were forecasted to use (based on the April 2009 revised ISO-NE CELT forecast). Retail energy use in 2020 will be 12.5% less than what customers used in 2009,

¹⁰⁰ [D.P.U. Order on Electric Three-Year Energy Efficiency Plans, 2010-2012 \(D.P.U. 09-116 through D.P.U 09-120\)](#)

thereby reducing customer energy use over the next 11 years. (In visual terms, this will bend the curve of projected demand down.)

The natural gas plan will save 24.7 million therms in 2012, equivalent to 1.15 percent of retail natural gas sales in 2012. The fully funded energy efficiency investments in 2010-2012 will save over 57.3 million therms of natural gas in 2012 (the cumulative annual impact in 2012). The lifetime energy savings for the gas three-year plan will be almost 897 million therms.¹⁰¹ Overall, the fully funded 2010-2012 electric and natural gas efficiency procurement plans will yield net consumer savings of more than \$3.9 billion, reduce statewide carbon dioxide emissions by nearly 15 million short tons, and create more than 3,800 local jobs (ENE 2010).¹⁰²

Energy Savings Achieved vs. Targeted

According to the fourth quarter report from the Massachusetts Program Administrators in 2010, the state is on track to meet its 2010 electric and natural gas requirements. The preliminary data shows PA's meeting 98% of their MWh goals, 103% of their Therms goals, and spending less than the allotted budget on electric and natural gas programs.¹⁰³

Table 28 : Massachusetts Electric Savings Targets and Savings Achieved, 2010-2012

Year	Savings Target as Percent of Sales	Savings Goal (MWh)	Electric Savings Achieved (MWh)	Percent of Target Achieved
2010	1.4%	625,004	609,788	98%
2011	2.0%	897,232		
2012	2.4%	1,103,423		
2010-2012	5.8%	2,625,083		

Note: Data is preliminary and subject to revision and check.

Source: Quarterly Report of the Program Administrators, Fourth Quarter, 2010. February 3, 2011

Table 29: Massachusetts Natural Gas Savings Targets and Savings Achieved, 2010-2012

Year	Savings Target as Percent of Sales	Savings Goal (Therms)	Natural Gas Savings Achieved (Therms)	Percent of Target Achieved
2010	0.63%	13,586,666	13,926,865	103%
2011	0.89%	19,087,301		
2012	1.15%	24,687,219		
2010-2012	2.67%	56,368,432		

Note: Data is preliminary and subject to revision and check.

Source: Quarterly Report of the Program Administrators, Fourth Quarter, 2010. February 3, 2011

Factors Affecting Performance

Funding Levels

A major input required to make steep increases in energy savings attainable and sustainable will be unprecedented funding increases. According to the State of Massachusetts Department of Energy Resources (DOER), electric utilities budgeted \$183.8 million for 2009 electric energy efficiency programs from ratepayer-funded sources, a 46 percent increase over 2008 spending. Required by the Green Communities Act, full funding for the procurement all cost-effective efficiency resources was proposed as part of the utilities' 3-year plans, reviewed and endorsed by the EEAC, and then

¹⁰¹ [D.P.U. Order on Gas Three-Year Energy Efficiency Plans, 2010-2012 \(D.P.U. 09-121 through D.P.U. 09-128\)](#)

¹⁰² ENE (Environment Northeast) Spring 2010. *Efficiency Ramps up in Massachusetts*. Boston: ENE (Environment Northeast)

¹⁰³ A report with verified savings will be issued in mid- to late-2011.

approved by the DPU. Sources of funding include the System Benefits Charge on customer bills, an adjusting charge approved by DPU, revenues from the ISO New England (ISONE) Forward Capacity Market, and proceeds from the Regional Greenhouse Gas Initiative (RGGI). The Green Communities Act dedicates 80% of RGGI funds to energy efficiency.

Decoupling and Performance Incentives

Massachusetts is currently implementing decoupling for all of its gas and electric utilities: each utility must now include a decoupling proposal as a component of its next rate case to fully remove the disincentive to larger consumer efficiency programs.¹⁰⁴ To date, the state has five fully decoupled local distribution companies—National Grid Electric, Western Massachusetts Electric Company, Bay State Gas, National Grid Gas, and New England Gas. A shareholder incentive currently provides an opportunity for companies to earn about 5% of program costs as an incentive for meeting program goals. The incentive is based on a combination of elements including energy savings, net benefits to customers, and market transformation results.

Meeting Future Goals

The utility program administrators are implementing the strategic principle of accessing deeper savings first with statewide coordination and the active involvement of the EEAC. Deeper savings begin with planning for increased budgets for rebates and other financial incentives combined with increased one-on-one customer contact. Key to ongoing success in Massachusetts will be the continued leadership and long-term perspective from PAs, the EEAC and the state regulators, transparency and stakeholder participation, and continuous improvement and innovation in program offerings to improve the customer experience. A full discussion of Massachusetts's experience and programmatic successes can be found in Nowak et al. (2011).

¹⁰⁴ DPU Docket 07-50-A (July 2008)

BIBLIOGRAPHY

[ACEEE] American Council for an Energy-Efficient Economy. 2011. "State Energy Efficiency Policy Database." <http://www.aceee.org/sector/state-policy>. Washington, D.C.: American Council for an Energy-Efficient Economy.

Ameren Illinois Utilities. 2010. *Act on Energy: Ameren Illinois Utilities Energy Efficiency and Demand Response Program Results*. http://ilsag.org/yahoo_site_admin/assets/docs/AIU_EE_PY1_Annual_Report_wo_appendices.15993115.pdf. Ameren Illinois Utilities.

[CPUC] California Public Utilities Commission. 2011. *Energy Efficiency Evaluation Report for the 2009 Bridge Funding Period*. Sacramento, Calif.: California Public Utilities Commission.

DSIRE. 2011. "Database of State Incentives on Renewables and Efficiency." www.dsireusa.org. North Carolina State University.

[EIA] Energy Information Administration. 2011. *Form EIA-861 Final Data File for 2009*. <http://www.eia.doe.gov/cneaf/electricity/page/eia861.html>. Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

Efficiency Vermont. 2011. *Year 2010 Savings Claim*. http://www.encyvermont.com/docs/about_efficiency_vermont/annual_reports/2010_Savings_Claim.pdf. Burlington, Vermont: Efficiency Vermont.

Friedrich, Katherine, Maggie Eldridge, Dan York, Patti Witte, and Marty Kushler. 2009. *Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved Through Utility-Sector Energy Efficiency Programs*. Washington, D.C.: American Council for an Energy-Efficient Economy.

Frontier Associates. 2010. *Energy Efficiency Accomplishments of Texas Investor Owned Utilities Calendar Year 2009*. <http://www.texasefficiency.com/media/files/eummot%20results%20summary%202009.pdf>. Austin, Texas: Frontier Associates.

Hawaii Energy. 2010. *Program Year 2009 Annual Report*. Executive Summary. <http://www.hawaiienergy.com/media/assets/2010-12-15PY2009AnnualReportEXECUTIVESUMMARYv1FINAL.pdf>. Honolulu, Hawaii: R.W. Beck (An SAIC Company).

Itron. 2008. *Assessment of the Feasible and Achievable Levels of Electricity Savings from Investor Owned Utilities in Texas: 2009-2018*. http://www.texasefficiency.com/media/files/itron_texas_potential_study.pdf. Oakland, Calif.: Itron.

Kerth, Rob and Boggs, Julian. 2011. *Ohio's Clean Energy Report Card*. Environment Ohio Research and Policy Center.

Kushler, Marty, Dan York, and Patti Witte. 2009. *Meeting Aggressive New State Goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*. Washington, D.C.: American Council for an Energy-Efficient Economy.

Laitner, Skip, Rachel Gold, Steven Nadel, Therese Langer, R. Neal Elliott, and Dan Trombley. 2010. *The American Power Act and Enhanced Energy Efficiency Provisions: Impacts on the U.S. Economy*. Washington, D.C.: American Council for an Energy-Efficient Economy.

Maryland PIRG. 2011. *Falling Behind on Energy Efficiency: Maryland Risks Missing Its Electricity Savings Goals*. Maryland PIRG Foundation.

McKinsey & Company. 2009. *Unlocking Energy Efficiency in the U.S. Economy*. http://www.mckinsey.com/en/Client_Service/Electric_Power_and_Natural_Gas/Latest_thinking/~media/McKinsey/dotcom/client_service/EPNG/PDFs/Unlocking%20energy%20efficiency/US_energy_efficiency_full_report.ashx. McKinsey and Company.

Molina, Maggie, Max Neubauer, Michael Sciortino, Seth Nowak, Shruti Vaidyanathan, Nate Kaufman, and Anna Chittum. 2010. *The 2010 ACEEE State Energy Efficiency Scorecard*. Washington, D.C.: American Council for an Energy-Efficient Economy.

[MPSC] Michigan Public Service Commission. 2011. *Report on the Implementation of P.A. 295 Utility Optimization Programs*. http://www.michigan.gov/documents/mpsc/eo_legislature_report2010_339568_7.pdf. Lansing, Mich.: Michigan Public Service Commission.

Nadel, Steven. 2007. *Energy Efficiency Resource Standards Around the World*. White Paper. Washington, D.C.: American Council for an Energy-Efficient Economy.

National Academy of Sciences. 2010. *Real Prospects for Energy Efficiency in the United States*. Washington, D.C.: The National Academies Press.

Navigant Consulting. 2010. *Energy Efficiency/Demand Response Plan: Plan Year 2 (6/1/2009-5/31/2010). Evaluation Report: Summary Report*. http://ilsag.org/yahoo_site_admin/assets/docs/ComEd_Summary_PY2_Evaluation_Report_2010-12-21_Final.12113204.pdf, Chicago, Ill: Navigant Consulting.

Neubauer, Max, Steven Nadel, Jacob Talbot, Amanda Lowenberger, Dan Trombley, Sarah Black, Nate Kaufman, Shruti Vaidyanathan, Ben Foster, and Skip Laitner (ACEEE); Marca Hagenstad, Dan Violette, and Stuart Schare (Navigant Consulting, Inc.); David White and Rick Hornby (Synapse Energy Economics) 2010. *Advancing Energy Efficiency in Arkansas: Opportunities for a Clean Energy Economy*. Washington, D.C.: American Council for an Energy-Efficient Economy.

Nowak, Seth, Martin Kushler, Michael Sciortino, Dan York, and Patti Witte. 2011. *Energy Efficiency Resource Standards: State and Utility Strategies for Higher Energy Savings*. Washington, D.C.: American Council for an Energy-Efficient Economy.

Woodrum, Amanda, Phil Stephens, and Alex Hollingsworth. 2010. *Energy Standards at Work: Ohio Senate Bill 221 Creates a Cleaner Economy*. Policy Matters Ohio.

Xcel Energy, 2010 *Demand Side Management Annual Status Report*, Electric and Natural Gas, Public Service Company of Colorado. Filed April 1, 2011. Docket No. 08A-366EG.