Lessons from New England

Energy Efficiency Best Practices

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Acadia Center

Advancing the Clean Energy Future

Ten years after Rhode Island's 1996 electric restructuring legislation, the state was still spending over 60 times more on energy supply that was 6 times more expensive than energy efficiency. In 2006, Rhode Island customers spent approximately $1.09 billion on electric supply at a price of $0.14 per kilowatt-hour and yet only invested $17.4 million in energy efficiency that delivered electric savings at a price of $0.021 per lifetime kWh (EIA; RI PUC, 2006). Massachusetts faced similar prices and levels of investment, despite utilities' engaging in energy efficiency efforts for over two decades. That changed in the middle of the last decade, with Rhode Island's groundbreaking Comprehensive Energy Conservation, Efficiency, & Affordability Act of 2006 and Massachusetts' Green Communities Act of 2008 setting the states on a new course to invest in all cost-effective energy efficiency as the lowest cost, cleanest energy resource.

Reforms in both states have increased transparency in decision-making, provided for greater consumer and public input, and developed processes that rely upon independent, expert advice. Stakeholder councils are charged with a central planning and policy role in achieving the new goals by empowering leading stakeholders – business, institutional, consumer, low-income, and environmental – to work together with the utility program administrator to implement the state's energy efficiency vision.

Regulators and stakeholders in both states intentionally set high goals and ramped-up the programs to meet them. Through the ramp-up in Rhode Island, investment in electric and natural gas efficiency has grown by more than 640% from $16 million in 2007 to $103 million in 2015, resulting in $2.67 billion in total benefits to ratepayers. In the first three-year period alone, Massachusetts utilities were able to deliver $5.4 billion in benefits over the lifetime of the energy efficiency improvements installed in homes and businesses from program spending of less than $1.2 billion, by ramping-up the energy efficiency programs towards nation-leading targets. Benefits from the program's growth through 2015 have nearly tripled, lifetime electric savings more than quadrupled, and lifetime natural gas savings nearly tripled. Investment in electric and natural gas efficiency has expanded almost six-fold from $124 million in 2008 to $743 million in 2015, resulting in $14.8 billion in benefits to ratepayers.

Ramp ups in efficiency require more than a commitment to funding, however. The programs in Massachusetts and Rhode Island underwent substantial changes that have allowed them to capture these much higher levels of efficiency year after year. These changes involved new approaches, a sharper focus on customers and their needs, integrated financing, and many other innovations.

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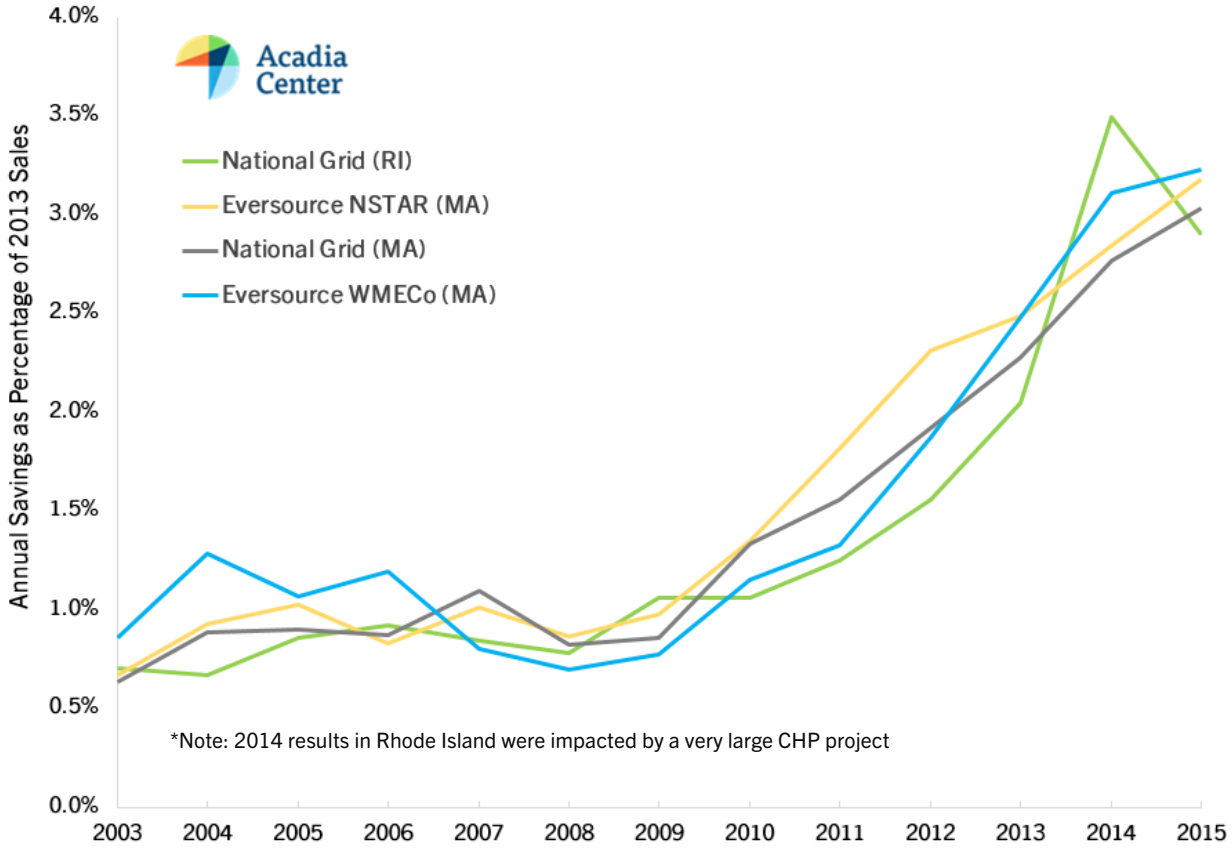

By deliberately growing the programs to meet ambitious savings targets in both the electric and natural gas sectors, Rhode Island has delivered significant benefits to its economy in the last 8 years – investments in energy efficiency will create over 23,746 job years of employment economy-wide and add $2.67 billion to the state gross product. And the job growth continues well beyond the years of the initial ramp up – the EERMC found that in 2015, 696 full-time equivalent jobs were directly related to the delivery of the state's energy efficiency programs, a 12.6% increase from 2014.

The following tables present details on a range of practices in the New England states that can be used to inform efforts in other jurisdictions.

Best Practice	Description	Results/Resources/Documentation
Set clear savings targets for multiple years	• Market participants need clear signals that a territory will have stable business opportunities • Budget and program uncertainty leads to EE businesses leaving for states with more stability	• Massachusetts: Goal set at 2.93% of annual electric sales; 1.24% of annual gas sales across three years of current plan (2016-2018) • Connecticut: Average annual savings 1.51% of electric sales across 2016-2018; 0.61% of annual gas sales across 2016-18 • Rhode Island: Savings targets of 2.50% of electric sales increasing to 2.60% from 2015 to 2017; 1.00% to 1.10% of gas sales from 2015-2017 • CEE 2015 report finds investment levels stable, industry growing
Maximize value of incentives through frequent calibration to market needs	• As markets transform, incentives should be reduced in order to maximize savings potential.	• More information on Technical Reference Manuals • Annual updates to Massachusetts Technical Reference Manual and RI Technical Reference Manual • As an example, Massachusetts will not incentivize anything other than LEDs in the C&I prescriptive programs starting 2017
Conduct rigorous assessment of achievable technical potential	• State law in RI, CT and MA establishes an economic model for efficiency investment based on procuring all cost-effective electric and gas efficiency. • Process starts with a rigorous assessment of the amount of achievable, technical efficiency potential available in the state. • The results are used to determine energy savings targets for the next 3 years.	• MA – electric savings: 4,117,539 MWh by 2018; gas savings: 85,809,618 Therms by 2018 • CT – electric savings: 1,242,545 MWh by 2018; gas savings: 22,654 Mcf by 2018 • RI – electric savings: 592,425 MWh by 2017; gas savings: 1,187,281 MMBtu by 2017 • MA Consultant Assessment of 2016-2018 Potential
Full engagement from a wide range of stakeholders	• Stakeholder involvement and oversight in energy efficiency decision-making has resulted in greater stability, less litigation, and ultimately allows for higher energy savings levels.	• Collaboration that Counts: The Role of State Energy Efficiency Stakeholder Councils

Anchor in economic terms and benefits for ratepayers	• Energy savings deliver bill savings to all customers and macroeconomic benefits, including increasing in-state economic activity and job creation. • These states track and document the full range of economic benefits.	• REMI carbon tax study in MA • REMI study of feebates program in RI • Rhode Island Clean Energy – 2016 Industry Report • Acadia Center reports – Macroeconomic modeling assessments for Efficiency in New England and Canada • Economic Impacts of EE Investments in VT • Bill Savings in a Clean Energy Future
Retain excellent outside experts to facilitate stakeholder understanding and participation	• Expert technical consultants facilitate stakeholder's understanding and provide recommendations to ensure that energy efficiency programs address multiple market failures, compel the utility to continually innovate and adopt new technologies, and achieve energy savings cost-efficiently.	• ACEEE/Acadia Center paper – 2012 • MA Consultant Analysis of First Draft of 2016-2018 Plan
Align utility incentives with customer interests	• Decoupling to break the link between utility profits and sales volume for both electric and natural gas. • Performance-based incentives that reward the utility for achieving energy savings goals. • Careful design of energy savings targets and the performance incentive structure is necessary to drive ambitious behavior, require efficiency programs to go broad and deep, and compel excellent program design and delivery.	• Beyond Carrots for Incentives – overview w/download and paper • Incentivizing Utility-Led Efficiency Programs: Performance Incentives • Acadia Center Decoupling presentation
Include comprehensive efforts in all sectors for equity	• All customers contribute to funding for energy efficiency programs and have access to cost-saving efficiency opportunities.	• Synapse paper on Best practices • Best Practices for Advancing State Energy Efficiency Programs • Acadia Center blog post

	• Consistent stakeholder engagement is necessary to ensure that programs are designed to serve hard-to-reach customer and expensive segments, like multi-family housing, which might be ignored by markets.	
Integrate electric, natural gas, and delivered fuels efficiency	• Address electric and thermal savings opportunities simultaneously and increase cost-effectiveness.	• ACEEE Successful Practices in Combined Gas and Electric Utility Energy Efficiency Programs
Target program activities to most effective point of supply chain, not just customers	• Upstream (distributor-level or negotiated retail agreements) incentives can offer greater reach than traditional rebates and at lower cost. This works well for purchases of more efficient products for replacement, but less so for early retirement or when a higher level of consumer education is needed.	• How to Use Midstream Incentives to Promote ENERGY STAR Certified Consumer Electronics • The End of Prescriptive Rebate Forms? Massachusetts Moves Upstream
Target financing strategically to municipalities and other hard-to-reach sectors.	• Early signs from the Rhode Island Infrastructure Bank suggests that targeted financing can help deliver energy savings in difficult sectors. The structure that is working in Rhode Island is increasing access to attractive financing to cities and towns, combined with access to expert technical assistance and rebates to help develop affordable, long-term plans for deep energy savings.	• In its first one-month application period, the RIIB received $50 million in energy efficiency applications from municipalities and approved $17.2 million in financing to cover the customer-funded portion of the project. Another $17 million in municipal efficiency and clean energy projects are going forward with private-market financing.
Specific best Practices for C&I		
Conduct market segmentation on all business customers.	• Program administrators should develop highly granular levels of classification for their customer base.	• Good Segmentation is Key for Commercial Customer Engagement

		• MA Consultant 2014 Presentation on Segmentation Strategies
Provide customized approaches to customers.	• Rather than focus on sorting customers into rigid programs, market segmentation data should be used to create highly customized offerings for customers based on their characteristics and needs.	• Eversource presentation
Strategic energy management	• Helping customers implement strategic energy management will drive savings and cause them to have a much better understanding of present and future needs for upgrades, reducing outside effort needed to drive demand for efficiency.	• Energy Trust of Oregon and Commercial Strategic Energy Management: A Catalyst for Accelerating Customer Energy Savings • Case study videos
Long-term engagement with customers	• In order to achieve both broader (more customers) and deeper (more efficiency per customer) savings over time, engagement with customers by vendors and/or program administrators should be structured as a multi-year effort.	• Eversource / UTC 3-year strategic agreement
Specific best practices for Residential Sector		
Move beyond a one-touch approach for residential retrofit	• Many if not most customers will take a phased approach to home efficiency improvements. Post-audit marketing should occur over a period of years to move customers to complete upgrades.	• ACEEE report on high participation rates
New construction programs should incentivize low load and near net-zero homes.	• Focus new construction programs on highly efficient homes in order to educate the building trades and mainstream high performance buildings.	• ACEEE on Zero Net Energy strategies • Connecticut Zero Energy Challenge

Good financing complements other efforts	• The availability of convenient and attractive financing can help address customers with lack of access to capital. • The application process, requirements, and interest rates all contribute to the attractiveness of a financing product.	• Acadia Center paper on residential financing • Connecticut residential financing market research
Integrated technology-based customer engagement and behavioral programs	• Behavioral programs offer a new opportunity for energy savings. They should be integrated with customer engagement systems that drive demand in all efficiency upgrades through continuous engagement.	• ACEEE 2016 paper on behavioral programs in tenant engagement • Gamified Efficiency Programs

For more information:

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