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# TURBOCHARGING EFFICIENCY PROGRAMS

Going for Broader and Deeper Savings

Mathias Bell • Brendan O'Donnell • Ryan Matley • Noel Crisostomo



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Rocky Mountain Institute (RMI) is an independent, entrepreneurial, nonprofit think-and-do tank. RMI emphasizes integrative design, advanced technologies, and mindful markets in fulfilling its mission to drive the efficient and restorative use of resources. RMI's strategic focus is to map and drive the U.S. transition from fossil fuels to efficiency and renewables by 2050.

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# Executive Summary

It is a new era for utility efficiency programs. Policymakers and regulators have required many utilities to achieve more efficiency savings than ever before, and the amount utilities spend on efficiency continues to increase at a rapid pace. Momentum for utility efficiency programs has never been greater.

Utilities have been providing efficiency to their customers for more than 30 years. But just continuing on with a “business-as-usual” mindset will not be sufficient if utilities hope to sustain the momentum and meet (or exceed) their efficiency targets. Energy Efficiency Resource Standards (EERS) have set challenging energy savings targets, and to meet these targets, utilities will have to improve their performance in administering programs. If utilities don’t make significant progress, utility efficiency programs will fail to deliver on increasingly aggressive targets.

To improve their performance, utilities will need to turbocharge their efficiency programs by going for both broader and deeper savings. Going broader means acquiring more participants, while going deeper means helping each participant save more energy. The intent of our paper is to recommend business process improvements that can increase the effectiveness of programs pursuing broader and deeper savings.

# Challenges and Recommendations for Turbocharging Efficiency Programs

There are many barriers to the adoption of energy efficiency, from the system-level, such as market fragmentation, to the individual-level, like agency and capital constraints. To turbocharge their efficiency efforts, utilities must overcome all these barriers—but they can't address them all at once. In order to unlock the potential of their programs, we recommend utilities start to address their own challenges first. Once utilities address these challenges then they can move on to working with others to overcome system and individual-level barriers.

Many of the challenges utilities face are the result of their history as regulated monopolies selling electricity rather than selling energy efficiency, which is a very different type of business. Selling electricity has not required the same level of customer outreach as promoting efficiency nor has it prepared utilities to compete with thousands of other products and services—ranging from iPads to granite counters—their customers can choose to buy instead of efficiency. In addition, since policy and regulation required lower levels of energy savings from efficiency programs in the past, utilities have become somewhat complacent and accustomed to working alone, neither of which

will facilitate going broader and deeper. Utilities by themselves are not responsible for program success or failure, however. Regulators, while doing a lot to enable efficiency in many states, also add many unnecessary complications.

Though these challenges are significant, they are not insurmountable. Utilities who are leading in energy savings have incorporated many business process improvements into their programs that all utilities looking to achieve higher levels of savings can adopt. (In this paper, we refer to these utilities who have made the most progress in deep and broad savings as “leading utilities.”) We have grouped these process improvements, which enable broader and deeper savings, into four main categories:

- Make Marketing Work
- Improve sales execution
- Drive down transaction costs
- Embrace collaboration

Some utilities have already begun to make concrete progress in one or more of these areas. They are very focused on improving their sales and marketing efforts and working

collaboratively. In fact, leading utilities have already adopted many of the recommendations we highlight in this paper. In order to illustrate how these recommendations look in practice, we highlight six efficiency programs run by utilities and third-party administrators as case studies:

- NYSERDA's New Construction Program
- Energy Trust of Oregon's Strategic Energy Management Initiative
- NEEP's Retail Products Initiative
- Palm Desert Demonstration Partnership: Set to Save
- Pacific Gas & Electric's Monitoring-Based Persistence Commissioning Program
- Xcel Energy's Energy Star New Homes Program



# CHALLENGES AND RECOMMENDATIONS FOR UTILITIES

## CHALLENGES:

Taking On Competition

Reaching Out To Customers

Overcoming Complacency

Working Alone

Regulatory Complications

## RECOMMENDATIONS:

### Make Marketing Work

- Know the target audience
- Get the message right
- Build relationships and trust over time

By understanding and influencing consumer opinions about energy efficiency, utilities can align good technology with good messaging. The leading utilities do not simply publicize their programs and incentives. They understand their consumers' needs, values, and desires, and use this information for messaging their programs. To improve marketing efforts for programs, utilities can segment their customers, customize messaging to them, and continue to build relationships and trust with their customers over time.

### Improve Sales Execution

- Be dynamic and flexible
- Diversify sales channels
- Make calculated bets
- Recognize patterns
- Go through the right networks
- Let the customer make some decisions
- Get the timing right

Utility programs can pursue significant opportunities to raise conversion rates from prospective participants to actual participants. The leading utilities have embraced strategies that allow for easy adaptation to customer demands and have been open to new program ideas. Some of these strategies include being dynamic and flexible with how programs are structured, approaching customers from different angles, and recognizing patterns among customers to take efficient design to greater scale. These sales strategies can increase the number of participants and the likelihood of repeat participants.

### Drive down transaction cost

- Incorporate online tools
- Make audits simpler and faster
- Explore behavioral change programs
- Move upstream
- Seek real-time feedback

Since the average costs of programs have been so low, utilities have not had to run their efficiency programs as leanly as they could. As policymakers continue to ratchet up goals, and utilities focus on going broader and deeper, they will have to find ways to cut out unnecessary costs and increase the productivity of their program portfolios in order to maintain cost-effectiveness. There are many new, promising tools that the leading utilities are using to drive down transaction costs, including faster and simpler audits, moving upstream to vendors and manufacturers, and using the web effectively to drive participation rates.

### Embrace Collaboration

- Get credit for codes and standards
- Leverage third-party partners
- Look externally to non-utility organizations
- Work with regulators and collaborative working groups

Stakeholders in the utility energy efficiency program process include regulators, non-profit organizations, architectural and engineering firms, contractors, auditors, and customers, among others. To achieve higher levels of savings, all of these parties can work more closely together. For utilities, there are many benefits for working with other stakeholders, such as finding new ideas for programs, getting credit for codes and standards, and increasing "buy-in" among regulators who may not favor program innovations.

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1 ROCK THE

WHICH BULB  
IS AN ENERGY  
ROCK STAR?



RE-ENERGIZE  
YOUR  
LIGHTING



75%  
CFL BULBS  
USE 75% LESS  
ENERGY

# Introduction

For the past several decades, policymakers, businesses, and utilities have made progress capturing some of the efficiency potential. If the U.S. had not invested in efficiency at the rate it has since the 1970s oil crisis, electricity demand would likely have been more than 100% higher than it is today.<sup>1</sup> Several drivers led to that success. Building codes and appliance standards caused much of the savings. Some savings came from energy service companies (ESCOs) and engineers and contractors selecting and installing better equipment. Businesses and homeowners who make efficiency their own responsibility created additional savings. One other major contributor: utility efficiency programs.

Even though the U.S. has realized efficiency savings, we can capture much more. McKinsey & Company and the National Academy of Sciences have recently found that utilities can capture more than 20% of total electricity demand through efficiency savings over the next ten years with very positive economic returns.<sup>2</sup> In order to capture all of the economic efficiency potential, the U.S. will have to improve the rate of capture by adopting more stringent codes and standards, increasing the market pull for efficiency service providers, and aggressively pursuing efficiency savings from utility programs.

# Efficiency Programs 101

Utility energy efficiency programs help customers save energy. They also provide the utility with a source of low cost energy supply in the form of energy savings that defer the need to build more power plants. But why do we need them? Why don't the customers save energy on their own if it is in their best interests, and why would the utility want to avoid building power plants when they earn a return from the investment?

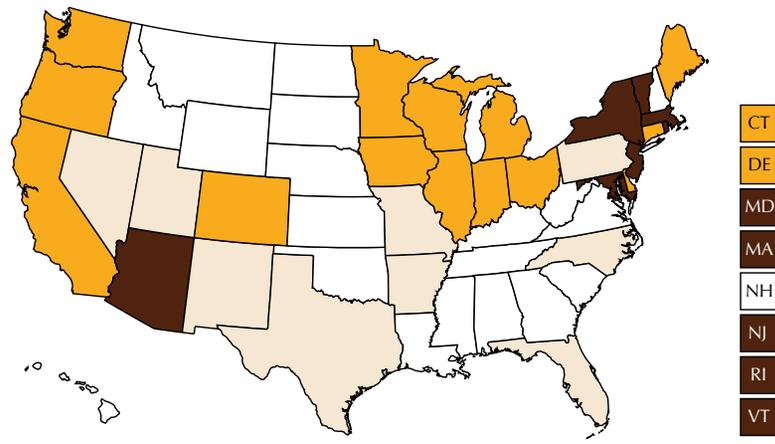
To answer the first question, consumers do not always make economically rational decisions. There are many barriers to investing in efficiency.<sup>3</sup> For residential customers, utility bills are often small enough to ignore, and when they are not, consumers often do not have the time required or information available to determine what efficiency investments are worth pursuing. Commercial or industrial customers are more financially motivated to make efficiency investments, but still lack quality information to help determine the right investments. These efficiency investments must also compete against other uses for scarce capital.

To move beyond these barriers to efficiency, utilities offer financial incentives to encourage greater adoption of efficient technologies. Utilities can give this incentive to their customers to reduce the upfront costs of a measure (e.g. residential water heaters) to retailers to allow them to sell products at a discount (CFLs) or to influence stocking decisions (ENERGY STAR TVs), or to manufacturers to encourage them to build more efficient equipment (computer power supplies). The incentive can be in the form of a mail in rebate for a specific product, a payment based on the energy savings from a custom commercial or industrial project, or in the form of

the utility directly installing an efficient product at no cost to the customer. In addition, the qualification of certain technologies, manufacturers, contractors, or brands for a rebate should carry with it an implicit stamp of quality. When the utility understands the best applications for each technology and the potential energy savings, it saves customers the time and confusion in sorting through all that information on their own.

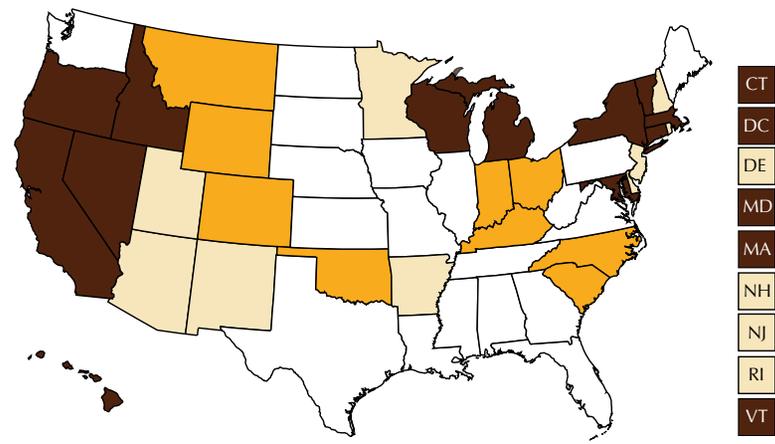
Utility energy efficiency programs are born from the regulatory process. During a regulatory proceeding, regulators, the utility and other stakeholders negotiate the budget, energy savings goals and scope of the programs. The rules the regulatory process creates define the program structure and are centered on ensuring that utilities make prudent investments of ratepayer money (the cost-effectiveness requirements) that deliver the savings that are required (the evaluation).

Regulators have funded efficiency programs because they reduce costs for utilities and their customers. The average cost of efficiency programs (generally at levelized cost of ~3.3 cents/ kWh<sup>4</sup>) is less than the cost of building a new plant (from 4.3 to 19.5 cents/ kWh<sup>5</sup>). Utilities have faced adverse incentives to investing in efficiency, however. Traditionally, utility revenues and profits have been tied to the amount of energy sold and the capital invested to provide it. To counter this bias against efficiency, some states have "decoupled" utility revenues from energy sales so that utilities are indifferent to efficiency. Other states have gone farther and allowed utilities to earn a rate of return on efficiency investments to put efficiency on the same footing as building new supply. Many states though still need to introduce regulations that will provide economic incentives for utilities to invest in energy efficiency.<sup>6</sup>



**FIGURE 1 U.S. Energy Efficiency Resource Standards**

*30 states have mandated, voluntary, or pending Energy Efficiency Resource Standards. (Source: RMI, ACEEE 2011)*



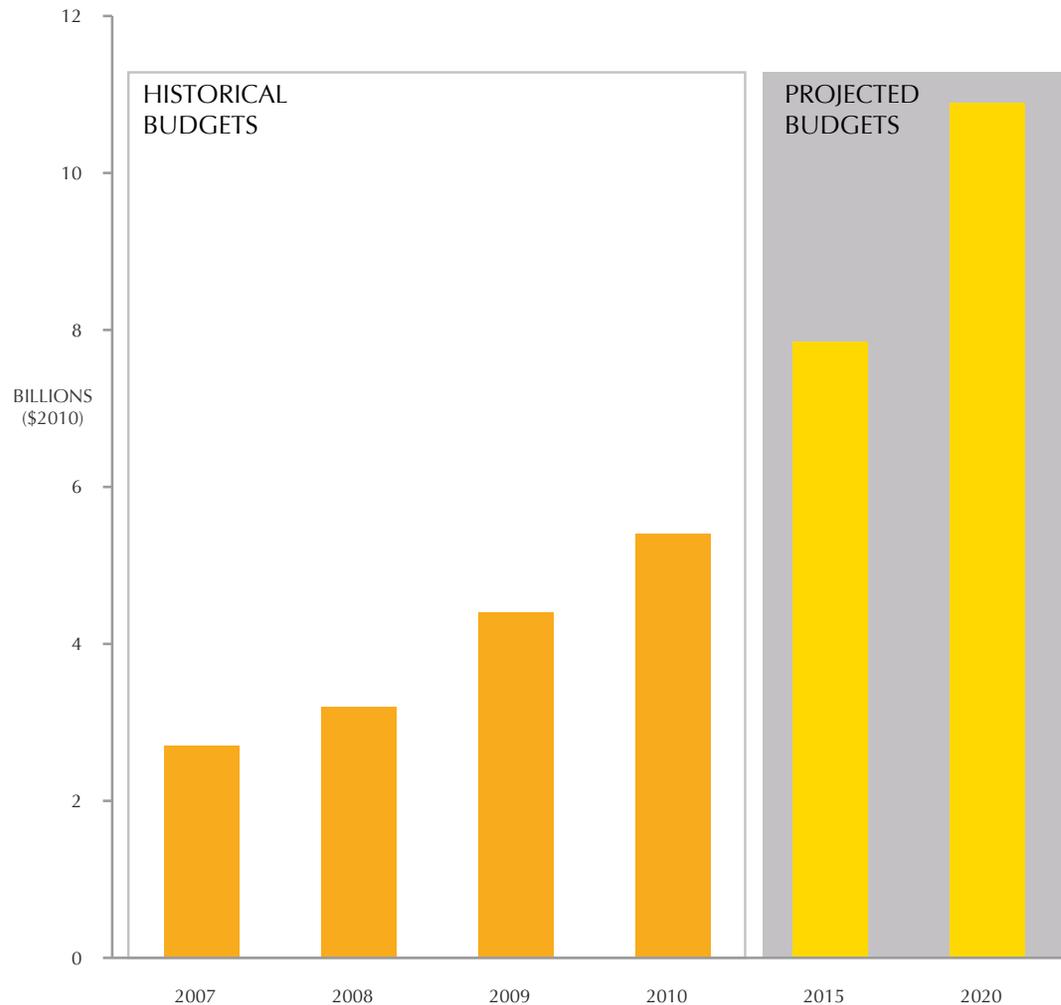
**FIGURE 2 Lost Revenue Adjustment & Revenue Decoupling Mechanisms for Electric Utilities**

*22 states have established either lost revenue adjustment and revenue decoupling mechanisms for electric utilities. (Source: IEE 2011)*

Utilities can help the U.S. capture a greater portion of the efficiency opportunity and have several strategic advantages for delivering energy savings through their programs. Utilities already have a relationship with every single electricity customer in the U.S., can accept longer paybacks than most other stakeholders, and have access to lower-cost capital.<sup>7</sup> Despite these advantages, the effects of most programs nationwide have been small. The utility industry has saved on average less than 0.25% of total sales annually since 2000.<sup>8</sup>

The states and regions that have emphasized investing in efficiency to meet their energy needs serve as a benchmark for how much utility programs can improve. The Pacific Northwest has a long legacy as one of the leading regions. Since 1980, this region has met half of the growth in electricity demand with energy efficiency, and utility programs have saved on average 0.89% of total sales annually since 2000.<sup>9</sup> Other states have been achieving very high levels of savings recently. Vermont saved 2.59% of annual sales in 2008 and Hawaii, a state that only recently began investing in energy efficiency, saved 1.97%.<sup>10</sup>

Looking forward, utilities are now poised to achieve unprecedented levels of savings. Policymakers in many states require utilities to save the equivalent of 20% of their sales in 2020 with Energy Efficiency Resource Standards (EERS) over the next decade, and regulators are allowing utilities to recover lost revenues and earn returns for shareholders (Figs. 1&2). Investments in efficiency are growing significantly due to these new goals, requirements, and incentives. Utility efficiency program budgets doubled nationally from 2007 to 2010 and are slated to jump again by 150%



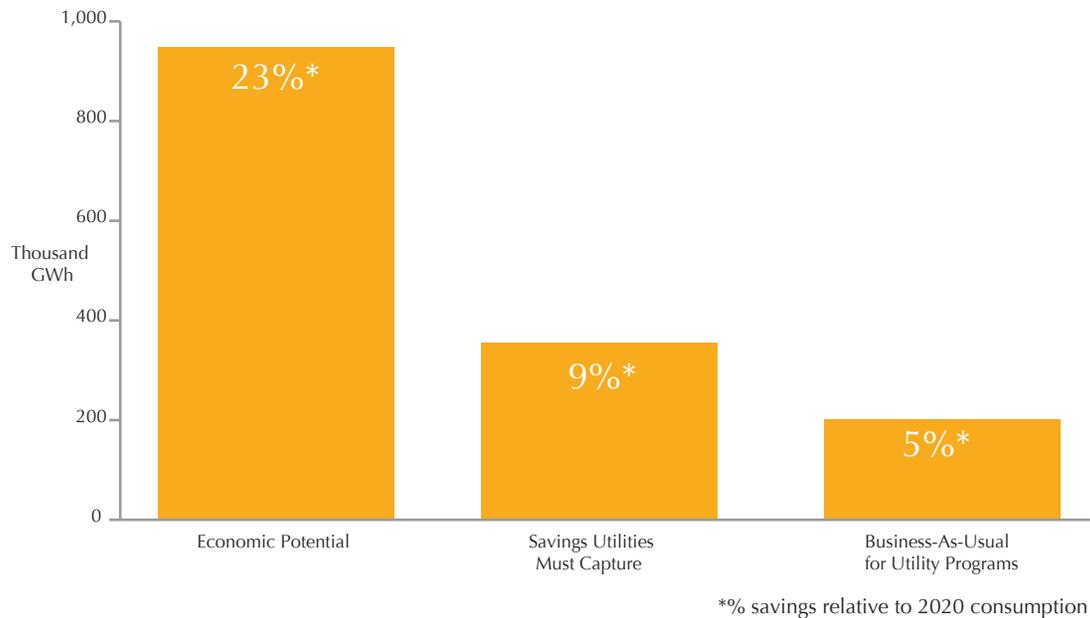
**Figure 3 U.S. Electric Ratepayer-funded Program Budgets**

*The budgets for utility programs have been increasing dramatically. Moving forward, if utilities spend as much as regulators and policymakers are calling for, spending will more than double in 2020 from where it is today. Spending levels could increase even more if utilities in states without policies today enact them over the next decade. (Source: CEE 2010, LBNL 2009)*

by 2020 (Fig. 3). Nationwide, utility efficiency programs will go from saving less than 2.5% of total electricity demand over the last decade to nearly 10% over the next decade.<sup>11</sup>

Though this progress is significant, there are two critical gaps policymakers, regulators, and utilities in the U.S. still need to address (Fig. 4).

The first gap is between the economic potential and what utilities are required to achieve. More than half the states have mandated energy efficiency goals that will require utilities on the whole to achieve unprecedented levels of savings. But utilities can still achieve more. Trending states that have begun to invest can match the savings levels of leading states over time (~2–3% of total electricity demand annually). Laggard states with little or no program budget for efficiency can begin to make significant investment.



**Figure 4 Projections for Efficiency Savings from Utility Programs**

*If utilities continue to deliver efficiency savings through programs at their current pace (BAU), they will drastically underperform against what policymakers require them to achieve. On top of that, there is a lot of remaining potential that utilities are not required to capture over the next decade. (Source: EPRI 2008, LBNL 2009, McKinsey and Co. 2009, EIA 2010)*

The second gap is between what utilities are required to achieve over the next decade and their current pace for savings. Most utilities have either met or exceeded their goals to date.<sup>12</sup> But these goals are only beginning to ramp up and as they become more substantial, conventional programs will not be sufficient. If utilities are to capture a greater portion of the economic potential over time, they will have to meet these current savings goals first.

To meet these current savings goals, utilities can increase the effectiveness of their programs. The leading utilities have recognized that conventional tactics will be insufficient and are already looking for new ways to deliver savings. As other utilities begin to build up their program departments to achieve higher levels of savings (>0.5–1.0% of total electricity demand annually), they too will have to look to find ways to capture more savings from their programs.



# Turbocharging Efficiency Programs to Achieve More Savings

As utilities look to save more energy, there are two ways that they can succeed. They can turbocharge their efficiency programs by going broader and deeper:

**BROADER.** Utilities must increase the number of participants in their programs. Going broader is all about customer acquisition. Utilities will have to reach customers who have not historically participated in their programs. This often means targeting new market segments.

**DEEPER.** Utilities will also have to increase the amount of energy savings per customer. Going deeper means installing more measures and addressing more end-uses. If a program is seeking high amounts of energy savings, it will encourage projects to leverage the best practices of integrative design rather than looking at individual technologies incrementally. Optimally combining these technologies into bundles will increase savings while often reducing overall costs.

Utilities will have to pursue both. Astute program managers recognize many buildings are well suited for going deeper—both in new construction and existing buildings that are about to make large capital investments in equipment,<sup>i</sup> enabling the right timing for a deep energy retrofit. And there are opportunities for going broader since many customers haven't yet participated in utility programs.

To demonstrate the need for going both broader and deeper, we provide an illustrative example of a utility looking to achieve higher levels of savings (See infographic on page 13). For this case, a hypothetical utility has been achieving annual savings of 0.5% of total electricity demand. New policies require the utility to achieve 2% savings in the upcoming year. If the utility focused all of its efforts only on breadth or depth, it would have to quadruple its efforts with hardly feasible numbers. However, if the utility were to pursue breadth and depth at the same time, it would only have to double its efforts in each area, which seems much more attainable.

If the utility focused all of its resources on going broader, the number of participants would have to increase from 5% to 20%. If the utility focused all of its resources instead on going deeper, the average savings per participant would have to increase from 10% to 40%. Quadrupling efforts on either breadth or depth hardly seems feasible for utility program managers. However, what if the utility were to pursue breadth and depth at the same time? The utility could achieve its 2% goals by only doubling their breadth (from

5% of their customers to 10%) and depth (from 10% savings on average to 20%) numbers. While meeting these goals would still be a tremendous undertaking, they are far more palatable than if the utility only pursued breadth or depth exclusively.

This paper aims to build on this research by analyzing the challenges that utilities themselves face for going broader and deeper, and then offering recommendations to increase the effectiveness of programs through process improvements. This will help utilities meet some of the most aggressive requirements. Many utilities are already carrying out some of these recommendations and the leaders are carrying out many of them. But in order to meet current savings targets and then go beyond them, utilities will have to embrace many more of these recommendations.

There are several reports that demonstrate how programs can achieve more savings. Some of these reports also detail the market barriers for customers and the programs they would need to address these barriers. Some of these reports include:

McKinsey & Company. *Unlocking Energy Efficiency in the U.S. Economy*. 2009.

Lawrence Berkeley National Laboratory. *Driving Demand For Home Energy Improvements: Motivating Residential Customers to Invest in Comprehensive Upgrades*

*That Eliminate Energy Waste, Avoid High Bills, and Spur The Economy*. 2010.

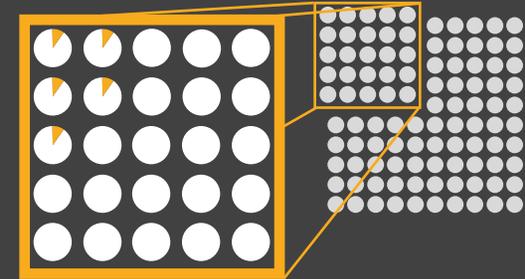
ACEEE. *Energy Efficiency Resource Standards: State and Utility Strategies for Higher Energy Savings*. 2011.

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<sup>i</sup> For more information on deep energy retrofits, please see RMI's website: <http://retrofitdepot.org/Deep-Retrofits>

# BROADER + DEEPER = GREATER SAVINGS

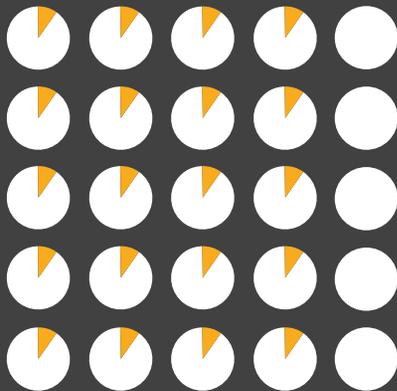
A hypothetical utility has 1-million customers and 30,000 GWh sales per year. Their efficiency program's current level of annual savings is 0.5% of total electricity demand. Over the past year, 5% of their customers have participated in programs with an average savings of 10% per customer.



In order to achieve 2% savings in the upcoming year, the hypothetical utility would have to:

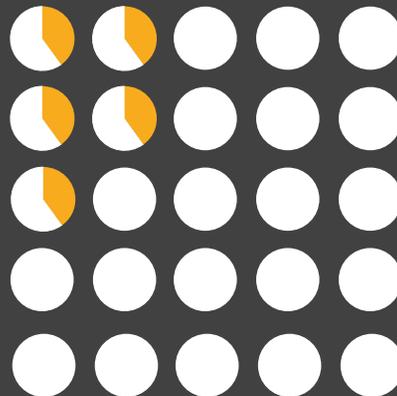
## A) GO BROADER

Focus all efforts on quadrupling the number of participants from 5% of the customers to 20%



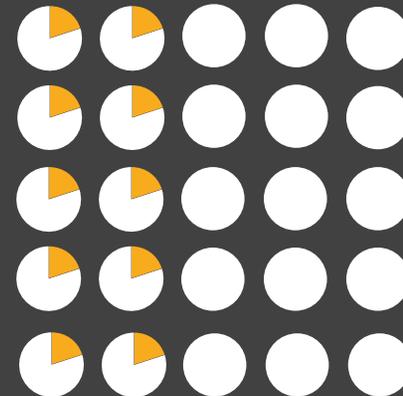
## B) GO DEEPER

Focus all efforts on quadrupling the average saving per participant from 10% to 40%



## C) GO BROADER AND DEEPER

Pursue breadth and depth simultaneously doubling both numbers



**GO BROADER AND DEEPER:** Quadrupling the amount of either breadth or depth would be a daunting task for program managers. However, by doubling both breadth and depth in combination, program managers can achieve the same level of savings with a higher likelihood of meeting program goals.



# Efficiency Programs Challenges and Recommendations

We have interviewed utility energy efficiency portfolio and program managers, utility program consultants, and practitioners at non-profit organizations focused on energy efficiency. We've organized lessons we have learned to help utilities go broader and deeper first by recognizing the challenges for utilities and then making recommendations to help address these challenges.

# Challenges for Utilities

## Taking on competition

With more than a century of experience, the electric utility industry has experienced little competition selling electricity and making money. This isn't a surprise. The monopolistic industry structure has made it challenging for new competitors to emerge. Deregulation in some states has changed that, but most of the competition has come from other utilities rather than from new entrants. So utilities really have only had to compete with other utilities and only to a certain degree.

Selling energy efficiency, though, is different than selling electricity. Other efficiency service providers can compete with the utility for customers. Furthermore, utilities are also competing for people's time and money with thousands of other types of products that businesses and homeowners can choose to buy. The transition to selling efficiency is not easy. Any time a company that has little experience with competition is asked to compete, it will struggle, at least at first.

What makes things even more challenging for utilities is that efficiency is a difficult product to

sell. Understanding the value of efficiency still requires a lot of thinking time, and it's not very compelling, simple, visible, or easy to try out before purchasing.

Utilities therefore have a tough job in front of them: competing in a tough marketplace with a product that is difficult to sell. After nearly a century operating outside the market, it's difficult to convince people to buy more insulation and a more expensive boiler when they could also buy the newest products from Apple, Toyota, or Proctor & Gamble.

## Reaching out to customers

Acquiring new customers and deepening relationships with current ones is no easy feat. It requires marketing and outreach funding (that can be recovered by the utility) and effective marketing based on a clear understanding of consumer's motivations and decision-making.

From a program delivery and planning perspective today, marketing and customer relations are soft costs that add to overhead and

make it harder for an energy efficiency measure to pass cost effectiveness tests. Citing prudence with ratepayer funding and shareholder interests, utility management has been reticent to take risks with marketing and customer engagement, preferring to keep overhead low. The pervasive notion is that if the technology is a good enough value and the utility has the right incentive structure in place, customers will want it. This is true to a point, but leaves room for a more targeted approach. Also, marketing budgets are often segmented by program and sector. This top-down approach aligns logically with regulators' concern over how ratepayer funds should be allocated, but it has also stifled coordinated and creative programs using cross-marketing and clear messaging.

While some programs certainly have had a good response, efficiency programs have not had the expected participation given the low cost of efficiency as a resource. Top programs have achieved participation rates close to 90% while average program participation rates have been closer to 35%.<sup>13</sup> For mass-market residential and small commercial customers, the most common point of contact they have with their utility is



a monthly bill and calls when the power goes out. With the monthly bill, some utilities may include a stuffer highlighting available efficiency programs, but this is a very narrow engagement and hardly addresses the fact that efficiency can start out low on the list of a consumer’s priorities.<sup>14</sup> For larger industrial customers, there is generally a dedicated account representative, but his or her responsibilities involve negotiating rates and service contracts more than marketing efficiency. Instead, utilities rely heavily on their industrial customers to propose their own process improvement projects— asking their customers to come to them rather than seeking out projects to offer to customers.

### **Overcoming complacency**

Utilities lack experience with competition and have not excelled at reaching out to customers, but they have been able to attract participants and capture efficiency savings. Utility programs saved as much energy as they were required to with few challenges.

Because a small fraction of customers have a general interest in efficiency and a desire to take advantage of “free money,” utilities have not had to employ an aggressive sales approach. As a result, they’ve left a lot savings on the table.

Almost every other industry has a “Do you want fries with that?” line to increase sales, but many utility efficiency programs do not. There is little cross marketing between programs. For instance, when a homeowner participates in an efficiency audit program, the auditor will give him or her a report on the home’s energy consumption, but often that’s it. The auditor cannot install a programmable thermostat the homeowner might be interested in because to him that’s part of a different program not connected to the efficiency audit budget.

Similarly, if a utility is trying to achieve greater breadth and depth with its programs, it has to

have repeat customers. Most utility programs don't provide customers with a simple or easy experience that encourages them to come back. Instead, customers have to go through many hoops just to receive their incentive. Many utility programs still require participants to download and print a PDF application, write out the details of their project on paper, provide all the cost information for the project, and then send back the written form by fax or by snail mail. Furthermore, many utility programs don't maintain easily accessible records on program participants, even though utilities have an abundance of customer data. This makes attracting potential repeat participants much more challenging.

## **Working alone in an area with so many moving parts**

Even though energy efficiency is a societal resource, utilities have struggled to enlist others to help capture savings. Traditional program delivery is directly aligned with who is ultimately on the hook for efficiency goals: the utility. Programs are usually vertically integrated, meaning the utility is often involved at every step from concept to delivery. This integration has had many benefits, especially simple and clear measurement of program costs and savings, but it has also discouraged collaboration. There are many players in the market: third-party implementers, energy service companies, regional efficiency agencies, contractors, builders, manufacturers, entrepreneurs, non-

profits and customers. Each has an opportunity to help utilities go broader and deeper, but has been vastly underutilized.

The biggest issue inhibiting utilities from actively seeking collaboration is how utilities receive credit for energy savings. Utilities can broadly support the concept of better codes and standards, market transformation and leveraging third parties. But, empirically documenting the incremental benefits, claiming savings, and justifying cost recovery from their public utility commissions is a challenge, particularly retroactively. It is very difficult for regulators to find neutral and unbiased opinions, so many are reluctant to verify savings.<sup>15</sup> Because they have to account for savings, utilities feel they are held to a different standard of measurement and accountability than the other players in the energy efficiency marketplace. These players have effectively operated in the industries that utilities service with their programs, but managers have struggled to enlist their help.<sup>16</sup>

## **Regulation creates more complications than it needs to**

At its best, policy and regulation creates a fair environment and the right incentives for utilities to invest in efficiency. At its worst, policy and regulation stifles program innovation, denying utilities the ability to pilot programs, and apply new forms of outreach and sophisticated sales tools. When going for greater breadth and depth, utility programs need innovation and can't afford to have it squelched. Utilities have enough

challenges as it is without policy and regulation making things even tougher.

Regulators in states like California have become very stringent in their reporting requirements to ensure that ratepayers are getting the benefit of the programs they are paying for. This need for detailed evaluation, measurement, and verification reporting, while incredibly important, has encouraged utilities programs to become too structured and rigid. There are too many stories where a utility proposes new types of programs to achieve greater levels of savings and some public utility commission has come back with a "No" answer. Take the case of PG&E's innovative Business and Consumer Electronics program, which was intended to work directly with product manufacturers. A delay setting the baseline from the public utility commission caused energy use savings from an upstream consumer electronics program to be dramatically reduced, severely affecting the cost-effectiveness of the program.

Furthermore, lengthy regulatory cases with hundreds of testimonies can slow progress to a halt. Slow regulatory processes, especially on providing feedback for program innovations, can handicap utility programs because utilities need to be able move at the speed of a competitive market, not at the rate it takes to approve a new, large centralized power plant.



# Recommendations for Utilities

Though the barriers we have identified pose a significant challenge, they are not insurmountable. There are many successful approaches that can help utilities succeed at going broader and deeper. Our focus is on business process improvements that utilities can incorporate into program planning and delivery.



## Make Marketing Work

- Know the target audience
- Get the message right
- Build relationships and trust over time



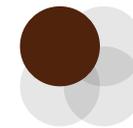
## Improve Sales Execution

- Be dynamic and flexible
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## Drive Down Transaction Cost

- Incorporate online tools
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- Seek real-time feedback



## Embrace Collaboration

- Get credit for codes and standards
- Leverage third-party partners
- Look externally to non-utility organizations
- Work with regulators and collaborative working groups



# MAKE MARKETING WORK

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Know the target audience

Get the message right

Build relationships and trust  
over time

Just publicizing programs is not necessarily good marketing. Too often, the focus in customer outreach has been correctly setting incentive levels and publicizing them to customers. The prevailing attitude has been, “If the program is correctly funded, they will come. Money talks and consumers will listen if we get our offerings out to them.” While robust incentives certainly help, customers have not flocked in droves to programs. Utilities will have to improve their marketing efforts. Energy efficiency is a product and utilities need their customers to want to buy it. Key recommendations derived from stakeholder interviews include:

## KNOW THE TARGET AUDIENCE

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Motivations to invest in energy efficiency vary widely based on region, demographics and other criteria.<sup>17</sup> For marketing to mass-market customers, utilities can target their customers' bills, but also sell non-energy benefits that speak to how homeowners benefit from efficiency beyond energy cost savings. Homeowners want to hear how temperature control and daylighting make their houses much more comfortable, more valuable, and more beautiful places to live. They want to hear about reduced service calls and maintenance savings.<sup>18</sup> Non-energy benefits can also speak to customer's bottom line and are ultimately a smart investment. U.S. buildings labeled under the LEED or ENERGY STAR systems charge 6% higher rent, have greater occupancy rates, and sell for 16% more than comparable properties.<sup>19</sup>

In the larger commercial and industrial sectors, utilities can offer technical expertise in operations outside of just energy savings. Both market research and program experience confirm that the most successful programs are those that effectively link efficiency to other "non-energy" related issues.<sup>20</sup> Rather than just incentives, non-energy benefits are the points

that social media and other marketing materials can help highlight.

To reach large commercial and industrial customers who are savvier with their energy consumption, utilities need to know their business and speak their language. Rather than a traditional account manager, a dedicated efficiency service representative, who can focus on efficiency rather than rates and bills, is a highly effective sales tool. Having these representatives requires the utility to invest in education in financial and sales literacy. But, as organizations like the Energy Trust of Oregon have learned, there's a huge upside for utilities to get energy efficiency into businesses' capital planning. (See case study on page 42.) Non-energy benefits are similarly important to commercial customers. Representatives who know what's important, be it sales volume or manufacturing efficiency, are able to entice these customers.

## GET THE MESSAGE RIGHT

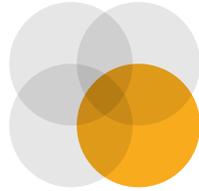
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What's missing is a targeted message that compels a wide audience to invest in energy efficiency. Focusing on costs and savings may speak to regulators, but consumers have a lot more on their plate. Utilities should understand their customers' needs, values, and desires, and use this information to structure program offerings. This is not necessarily a flashy marketing campaign. It can be, but it requires tact, creativity and an innovative approach to move beyond just publicity. If utilities want to increase adoption of their programs, they must correctly segment the market, learn their customer's leverage points, and hammer these points in addition to cost savings. For instance, Arizona Public Service (APS) tries to engage homebuyers through both mass media—television and radio— and more targeted media— print and online—, by focusing on energy savings and increased comfort for families to generate interest in ENERGY STAR homes.

## BUILD RELATIONSHIPS AND TRUST OVER TIME

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Marketing gets you in the door, but it's equally important to grow and maintain relationships with customers. In many cases, the utility can take advantage of existing pathways. Opportunistic utilities realize that contractors are not just their implementers, but are the on-the-ground and forward face of their programs. When customers hear about programs through word of mouth, there is a much higher enrollment rate ("65% vs. 50% cold calling," one expert explained, for their programs).<sup>21</sup> Also, good initial experience with efficiency upgrades will encourage customers to invest in deeper savings measures. NYSERDA has been particularly effective at building relationships with their customers through their programs. Managers have emphasized face time, flexibility, training and high quality technical assistance – especially around LEED implementation. (See case study on page 40.)



# IMPROVE SALES EXECUTION

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Be dynamic and flexible

Diversify sales channels

Make calculated bets

Recognize patterns

Go through the right networks

Let the customer make some decisions

Get the timing right

For utilities to succeed at taking their programs broader and deeper, they need to improve their sales processes. No matter how you cut the data, the conversion rates from prospective participants to actual participants are meager but can increase. Since utilities haven't been exposed to much competition, they have not had to develop the aggressive tactics essential in other industries. Utilities can learn best practices from other industries and then close sales even better than other service industries.

## BE DYNAMIC AND FLEXIBLE

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Utilities can't afford to adopt a program delivery approach that is too rigid and structured. For energy efficiency, there are too many moving parts. Utilities instead need to make sure they keep their finger on their customer's pulse. When their customers' needs change, utilities have to be able to adapt. Because of a sudden downturn in an industrial customer's business, the utility may have to change gears and focus on the customer's operating costs even though the utility's demand-side management (DSM) plan called for savings from capital expenditures. For residential, a homeowner may have initially said he or she was interested in a deep energy retrofit but now has cold feet. Rather than writing the customer off, the utility can help him or her with a measure-by-measure retrofit. Becoming more dynamic and flexible won't be easy for a lot of utilities. It's possible though and the best utilities, working closely with their regulators, are already beginning to do it.

## DIVERSIFY SALES CHANNELS

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For utilities to be successful, they can't work with all their customers using the same approach. Utilities need to approach customers from a lot of different angles. Some of these mechanisms are very conventional like a direct-install program. Others, like market transformation programs, are not. Utilities need to be open to all of the approaches if they want to be successful.

## MAKE CALCULATED BETS

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Utilities are risk-averse, largely because regulators have required them to be. This has been a good thing for the industry because it has meant reliable operations and a steady return for shareholders. Utility programs, though, need to be infused with an entrepreneurial spirit, or at least the viewpoint of a venture capital firm. Taking on a little calculated risk if the project has a high potential upside is worth it. Pilot programs really are an opportunity to take a chance and learn what works. If the pilot doesn't work, it means a little has been lost. If the pilot does work, it could mean a new opportunity to go broader or deeper at a low-cost. For instance, many utilities are reluctant to roll out upstream programs, despite the success that Pacific Gas & Electric, Northeast Efficiency Partnership, and others are having. (See "Move upstream" approach below.) Successful utilities have developed procedures with regulators for carefully selecting the most important pilots, designing them to meet specific information objectives, and staging them and scaling them to balance risk of failure and avoiding over commitment at early stages.

## RECOGNIZE PATTERNS

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Utilities know that customers have specific needs. Rather than rolling out programs intended for a whole sector, utilities can look at their customer base, recognize patterns, and then roll out programs with a pre-determined set of efficiency measures. For instance, every utility territory has a lot of restaurants. Why not pilot projects with a couple willing restaurants, learn what works and what doesn't and then take the program to scale, rolling it out to the rest of the restaurants in the territory? And then do the same for grocery stores, auto repair shops, dry cleaners, and others. Southern California Edison and Southern California Gas used this approach to improve the execution of retrofits for hotels, golf courses, and municipal buildings in Palm Desert with the Set to Save program. (See case study on page 46.)

## GO THROUGH THE RIGHT NETWORKS

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There are some cases where the utility may not be the best party to sell efficiency. A customer may want to talk to his or her utility sales representative about rate structures but not efficiency programs. Instead, for commercial or industrial customers, it may be better to work with a regional trade group. Or encourage supply chain partners to work together. Or have someone else the customer trusts sell efficiency, like someone who has worked in the industry for years as a facility manager. For residential, many of the leading utilities have been leveraging the existing network of efficiency service providers. Contractors may know their customers better than the utility and working through the local contractors and trade ally groups has been a really successful approach.

## LET THE CUSTOMER MAKE SOME DECISIONS

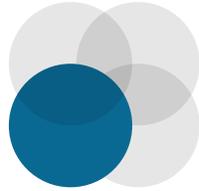
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A deep energy retrofit is a tough sell. It requires a lot of time and financial investment from the customer, and he or she will have to also understand some complex engineering topics. Before making such a big commitment, customers generally want to try it first. Utilities can help customers choose different packages or tiers for efficiency—basic, comprehensive, and deep, for instance. In some cases, it will be better to go with the low-hanging fruit, provide a good experience to the customer, and then make him want to come back. In many programs at the leading utilities, repeat customers comprise the majority of participants, such as Pacific Gas and Electric's commissioning program. (See case study on page 48.)

## GET THE TIMING RIGHT

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For all the focus on developing relationships with customers, utilities also need to have information on their customers' equipment. For a deep energy retrofit to be economic, the timing of the retrofit needs to synch up with when the customer is upgrading major equipment or making other significant renovations for market positioning. Then the customer can address the whole building, improving thermal performance and daylighting while downsizing their equipment. If the retrofit is poorly timed, it will be prohibitively expensive in all likelihood. Knowing the state of a customer's equipment can have a big impact on future efficiency savings. This is one reason why developing relationships with customers is crucial.



# DRIVE DOWN TRANSACTION COSTS

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Incorporate online tools

Make audits simpler and faster

Explore behavioral change programs

Move upstream

Seek real-time feedback

If utilities adopt better marketing and sales approaches, the costs for the delivery of efficiency programs will likely increase. In order to maintain current levels of cost-effectiveness, some other costs will have to come down. We think there is a lot of potential for utilities to drive down the transaction costs associated with efficiency. Since costs for saved kilowatt-hours from most programs have been low, utilities have not had to run their efficiency programs efficiently. However, there are many ways utilities can cut out unnecessary costs and increase the productivity of their program portfolios.

## INCORPORATE ONLINE TOOLS

Web-based tools intended to drive participation in efficiency programs have held promise for quite some time, but they are now starting to deliver on that promise. The best sites don't just list the information for their programs, but actually work with customers. These sites gather data from customers, recommend several different efficiency packages, and, in some cases, allow information sharing through social networks. It's important for both the utility and the customer to know what the customer is looking for. One customer may just be looking for CFLs while another is looking for a deep energy retrofit. With online tools, utilities won't have to waste time and money marketing programs to customers who aren't interested.

## MAKE AUDITS SIMPLER AND FASTER

For most customers in the residential and small commercial sectors, audits take far too long. They can be a hassle and take time away from the customer's busy home life or business. If a customer wants to max out her efficiency savings, she will need a very detailed inspection of all her equipment. For most customers though, that's not what they're looking for right now. These customers just want to know what the best opportunities are for them. New software-enabled audits can give these customers what they need in much less time than the detailed inspection. If the utility does not have to spend as much time with each customer, this means lower costs for each audit and the ability to provide audits to more customers. Enerpath mobile sales teams use cloud-based software accessible on smartphones and iPads for audits and are able to increase the number of homes and businesses that received audits significantly as well as the enrollment rates of those audits. (See case study on page 46.)

## EXPLORE BEHAVIORAL CHANGE PROGRAMS

Companies like OPower and Efficiency 2.0 have received a lot of attention for their programs that promise to deliver savings by changing customers' behavior. There are a lot of questions about how much energy they actually save and whether savings can persist. We think they have a promising approach to drive down transaction costs as a result of one of their side benefits. When making customers more aware of their consumption, rather than just encouraging them to switch off their lights or turn down their thermostats, these programs can also point to other efficiency programs. The Energy Trust of Oregon, for instance, believes that behavior change elements of their Strategic Energy Management Initiative encourage their participants to seek additional efficiency opportunities. (See case study.) Being able to make a customer aware of their energy consumption and then driving the customer to learn more about the utility's other programs at a low cost is extremely valuable.

## MOVE UPSTREAM

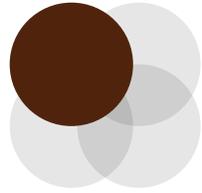
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Sometimes a customer won't participate in any of the utility programs no matter what a utility tries to do. Rather than spending a lot of money trying to win this intransigent customer over, the utility can provide the customer the benefits without the hassle of direct participation by working upstream—providing incentives to vendors and manufacturers to supply the market with efficient products. Utilities like Pacific Gas & Electric have had great success working upstream with vendors for everything from consumer electronics to HVAC and motors. For utilities smaller than Pacific Gas & Electric whose market size may not have the same sort of sway, they can work with other utilities to have significant influence with vendors. The Northeast Efficiency Partnership Retail Products Initiative does exactly that. (See case study on page 44.)

## SEEK REAL-TIME FEEDBACK

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Utilities could have an incredibly rich set of data at their hands. Using sophisticated IT-equipment, utilities can record and later access their customers' demand profiles, the age of the customers' equipment (which would enable right-timing for a retrofit), and how customers are responding to marketing. Generally though, poor data management and organization on outdated legacy IT systems has made things difficult. Making this data available in real-time can help utilities find more customers and more measures, improving the effectiveness of programs.



# EMBRACE COLLABORATION

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Get credit for codes and standards

Leverage third-party partners

Look externally to non-utility organizations

Work with regulators and collaborative working groups

Though utilities are ultimately responsible for acquiring savings, they can't afford to go at it alone. In order to achieve broader and deeper savings, they will have to work more closely with third-party implementers, energy service companies, regional efficiency agencies, contractors, builders, manufacturers, entrepreneurs, and non-profits. For utilities to begin working more these stakeholder on programs, there needs to be motivation and a less ad-hoc structure for collaboration, particularly with regulators. Otherwise, programs that attempt to leverage multiple stakeholders can go quickly off the rails.

## GET CREDIT FOR CODES AND STANDARDS

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Utilities have been required to meet aggressive efficiency goals, but, generally, can only count efficiency savings that are directly attributable to their efforts. As a result, many drivers for efficiency cannot count towards meeting efficiency goals and can have deleterious effects for the utility—causing both decreases in demand and a smaller efficiency resource available for programs to capture.

One of these drivers is building codes and appliance standards, which can yield savings at one-third the cost of conventional residential energy efficiency programs and are roughly one-tenth the average cost of retail residential electricity.<sup>22</sup> To encourage utilities to help drive more aggressive codes and standards, policymakers and regulators in some states have begun to allow utilities to take credit for savings from codes and standards.<sup>23</sup> In California and Massachusetts, regulators credit savings based on utility support in the development of advanced codes and standards. Though there are still major questions pertaining to how much savings utilities should be credited, these advancements are promising.

## LEVERAGE THIRD-PARTY PARTNERS

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Specialized engineering firms, community-based non-profit organizations, contractors and vendors all vie for a piece of the energy efficiency pie. Perceptive utilities leverage their position by incentivizing third-party implementers to work with them—like San Diego Gas & Electric using environmental and community non-profit organizations for its Smart Meter Program deployment. Utilities can reward third parties with incentives to upsell customers to more efficient products. If the utility gets credit for the savings, it is a very cost-effective way to acquire efficiency. (See case study on page 48.)

## LOOK EXTERNALLY TO NON-UTILITY ORGANIZATIONS

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While ratepayer funding is undoubtedly the most persistent source of funding, utilities can still leverage programs they do not administer. A vast majority of utility programs are still bound by reliance on cost-effectiveness, but other organizations outside the utility framework are not and have more freedom to test new techniques. American Recovery and Reinvestment Act grants have been great for this, particularly with neighborhood and community-based programs. There's a lot to learn about how to improve utility efficiency programs from others with different funding sources. For example, Xcel Energy leveraged program experience from a state-funded program and the workforce of home energy raters during the design of its ENERGY STAR program. (See case study on page 50.)

## WORK WITH REGULATORS AND COLLABORATIVE WORKING GROUPS

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If regulators trust market transformation, codes and standards, and other cooperative programs enough to give utilities credit for the savings, then utilities will be far more likely to pursue them in the future.

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of Regulatory Utility Commissioners has helped get programs off the ground.

Formal regional stakeholder collaboratives will help with this. There are many stakeholders who have a say in how energy efficiency is coordinated. Utilities are most productive with consumer groups, environmental advocates, industry and academics if they coordinate outside of the formal regulatory process. Regional collaborative working groups (or stakeholder advisory groups) have been successful in seeking stakeholder engagement before utilities go before their public utility commissions. Regulators can be less involved, but can trust the collaborative’s recommendations. They can also help set good Evaluation, Measurement and Verification (EM&V) policies. Effective examples are a collaborative run by Duke Energy in the Carolinas and Indiana, and RE-AMP in the upper Midwest. Even in states without established efficiency programs, such as Mississippi, a collaborative sponsored by National Association

# Case Studies

Program managers at many utilities are already embracing the broader and deeper approaches we've laid out, and have already made concrete progress. Here we have highlighted six currently operating programs that we believe others can learn from. We selected the programs from a review of ratepayer funded utility or efficiency administrator—operated programs from across the nation. They represent initiatives targeting the residential, commercial, and industrial sectors that work to transform practices in new construction and existing buildings, as well as consumer appliances. We selected the programs for innovations in the design of their delivery and marketing strategies, breadth and depth of offerings, customer and industry engagement efforts, and incentive process. RMI conducted telephone interviews with program managers and implementers and reviewed process evaluations to understand how they managed barriers they encountered during program operations and continued to pursue further savings.

For more information on the program mechanics and the lessons managers have gained from their experiences, see the detailed case studies in the appendix, on page 40.

## **NYSERDA's New Construction Program**

Beginning in 2008 the New York State Energy Research and Development Authority's (NYSERDA) New Construction Program (NCP) faced several challenges as the demand for new buildings subsided with the recession. It had to meet greater savings goals but with a smaller budget for incentive expenditures. The program needed to revise its customer acquisition tactics beyond its already broad range of incentive offerings. Managers refocused their efforts in two ways: first, marketing directly to upstream partners and second, working with building design teams at the appropriate time. By incorporating these strategies into an aggressive outreach campaign, NCP re-engaged owners that were struggling in a soft economy.

## **Energy Trust of Oregon's Strategic Energy Management Initiative**

Energy Trust of Oregon (ETO) faced several challenges with its industrial Production Efficiency program. Their efficiency goals were increasing 25-40% per year. The recession was delaying or eliminating investment in custom projects, which had made up 91% of the program savings from 2004-7. In order to manage the risk of not meeting its savings target, ETO diversified its portfolio with the Strategic Energy Management (SEM) initiative, a training and support offering that helps customers reduce energy-related expenditures. Over the course of a year, participating firms were able to achieve

energy savings through no- and low-cost changes to operations and employee behavior for a small fraction of the investment needed for a major capital retrofit. This value proposition was key to securing their commitment to dedicate staff to the SEM effort in a challenging economy. The initiative has surpassed its anticipated share of the ETO savings portfolio and while doing so, has exceeded its managers' expectations about the willingness of industrial customers to manage their energy use. ETO managers were elated to see SEM participants get excited about efficiency and instate "the human activity that underpins" efforts to comprehensively and sustainably manage their facilities' energy use.

## **Northeast Efficiency Partnership's Retail Products Initiative**

Northeast Energy Efficiency Partnerships (NEEP) identified that the New England states have the potential to reduce electricity use 20% by 2018. To achieve this potential, NEEP uses a multifaceted strategy that advocates for progressive energy policies and programs. One crucial challenge identified has been the need for much broader participation in efficiency programs. One way to acquire more customers is to go upstream and work with appliance and product manufacturers and retailers. Because many local Northeastern utilities are individually too small to tractably change these market stakeholders, NEEP served as an organizing body that harnessed their energy efficiency programs' collective buying power. Since 1997, NEEP and its efficiency program sponsors have run the high-efficiency Retail

Products Initiative to influence the production and purchase of more efficient appliances and products. Over the past decade, the concerted effort of efficiency program managers to "work together to transform markets" has changed stocking and advertising practices. In 2010, the Initiatives' sponsors collectively achieved 60-90% stocking penetrations of three types of ENERGY STAR products and have tapped hard-to-reach customers. This is largely a result of utility managers' progression beyond offering traditional rebate programs to educate market players and employ more and novel sales channels that broadcasted and improved customer messages on efficiency.

## **Palm Desert Energy Demonstration Partnership: Set to Save Program**

In 2006, the Palm Desert Energy Demonstration Partnership was conceived and designed as a groundbreaking energy efficiency model that would empower the city to save money and energy by reducing electricity and gas use and peak demand by 30% in five years. To achieve this goal, Southern California Edison (SCE), Southern California Gas Company (SCG), the City of Palm Desert, and The Energy Coalition partnered to implement a community-focused demonstration pilot that aimed to be a replicable model for future utility efforts around the state. Palm Desert piloted a number of innovative projects, program designs, and initiatives that intended to deliver long-term benefits to the community by tailoring efforts according to local customer profiles and the desert climate. The

Partners knew they needed broad participation and deep savings to meet the goal and to do so scoped a comprehensive effort under the brand “Set to Save.” The Partners customized new incentives and services, the City developed the first Property-Assessed Clean Energy (PACE) financing program, facilitated community-based marketing and government leadership, simplified customer participation, promoted behavior change and emerging technologies. However, regulators disputed the program’s implementation and restricted funds for future years. While Set to Save has progressed toward its goal, it exemplifies a need for a regulatory setting that not only encourages efficiency but also enables innovative program delivery.

#### **Pacific Gas and Electric’s Monitoring-Based Persistence Commissioning (MBPCx) Program**

California’s commitment to pursue energy efficiency has challenged Pacific Gas & Electric (PG&E) to look for persistent and deeper savings. Unfortunately, few customers seek deep efficiency retrofits their first time. Enovity designed and proposed the Monitoring-Based Persistence Commissioning (MBPCx) Program to address the lack of persistent energy measures and have worked with customers who demand short payback periods since the program’s inception in 2006. The focus on short-term returns has hampered deep savings, especially in the recession. Despite this, the program implementer’s foot-in-the-door and one-stop-shop methods to provide excellent service

have harvested low-hanging fruit but also instituted ongoing measures to maintain optimal building performance and continuous customer engagement. This customer service mindset aligned the different goals of customers, the utility, and regulators and has yielded additional benefit. As customers return for deeper efficiency services, program implementers fulfill and may justify the expansion of their savings goals.

#### **Xcel Energy’s Energy Star New Homes Program**

In 2008, 19.4 % of new homes in Colorado earned the ENERGY STAR rating. Xcel Energy (Xcel) aimed to transform the Colorado housing market with the launch of an ENERGY STAR New Homes Program in 2009. To do so, Xcel Energy was quick to collaborate with others. They partnered with the Governor’s Energy Office and worked closely with Home Energy Rating System (HERS) Raters who already had strong relationships with the home building industry. But soon after the start of the program, Xcel Energy found that it was not cost effective because builders were able to meet savings requirements with little or no additional cost. Furthermore, the recession caused the demand for new homes to collapse; annual construction starts decreased from highs of 40,000 in 2005 to less than 10,000 in 2010. Xcel Energy chose to continue offering the new homes program to keep the trust that had been built with the Raters and to ensure that the program would be ready when demand revived. Xcel Energy acted quickly to refine technical assumptions

and incentive levels and ramped up their educational efforts through key channels. These revisions ensured cost effectiveness and building quality so that the program could continue. Now, only two years after operations, ENERGY STAR homes comprise 47.2% of Colorado’s market.



# Conclusion

Utilities will be more likely to meet their goals if they turbocharge their efficiency programs. Utilities are beginning to offer many new services from distributed generation and smart meters to electric vehicle charging rates and infrastructure. With all these new services, utilities recognize that they will have to be even more customer facing than they are already. Efficiency programs, an area where the industry has more than thirty years of experience, will be a perfect place to start. Turbocharging efficiency programs can be both an experiment and exhibition for customers.

As utilities introduce new program offerings intended to go broader and deeper, regulators can support these efforts. Regulators know that it is in everyone's interest for utilities to acquire more cost-effective savings. In order for utilities to go broader and deeper, regulators still need to do their job but cannot be a bottleneck. If there's going to be real progress on efficiency, utilities and regulators will have to work more closely than ever before.

All utilities need to start moving now. There is still too much discussion and not enough action. Leading utilities have already done a lot of work to go broader and deeper, but they can still go farther. Other utilities need to learn the best practices and start imitating them.

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# Appendix–Case Studies

## **NYSERDA’s New Construction Program:** *Targeted marketing and optimized program delivery acquire and secure customers*

NYSERDA, a ratepayer-funded public benefit corporation established in 1975 by the State Legislature, is mandated to use innovation and technology to solve some of New York’s most difficult energy and environmental problems while improving the economy. NYSERDA provides financial support and objective expertise to meet this mandate. The NCP aims to create long-term changes in design practices by integrating efficiency and sustainability concepts into commercial building design. NCP works with architectural, engineering, real estate firms, financial institutions, economic development organizations, and through trade networks to progress toward market transformation. They have found that working upstream with these partners is useful since they are well positioned to know about construction projects early on in the process. NCP focuses on new buildings and substantial renovations to existing buildings for commercial, institutional, industrial, and certain multi-family projects. The program offers

building owners, tenants, and leaseholders three tracks to pursue: pre-qualified, custom, and whole building. Providing a variety of options allows for a larger pool of participants– as long as they have not yet progressed beyond the design phase, NCP has a suitable program track for them to work with. NCP incentivizes portions of the cost incurred for technical assistance in energy analysis, Leadership in Energy and Environmental Design (LEED) or Collaborative for High Performing Schools (CHPS) certification, and commissioning. In addition to pre-qualified financial incentives on specific measures, NCP provides incentives based on the amount of energy and peak demand saved and on designs that perform above a designated baseline, which has become more efficient over time; currently it is ASHRAE 90.1-2007.

### **BREAKING DOWN BARRIERS WITH SCALABLE SOLUTIONS**

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**Reaching to individual building professionals.** NCP marketed aggressively at its inception in 1999 to gather the critical mass needed for it to run sustainably. This momentum allowed for

reduced marketing budgets during subsequent program cycles. NCP had to reevaluate the role of marketing when the recession hit. It faced depressed demand and needed progress toward its savings goal. Managers and consultants specializing in customer and project outreach asked themselves, “Who are the people we need to go after?” They re-emphasized the program’s messaging on long-term energy savings and supported market segments with sub-sector specific case studies. NCP’s needed leads came from ramping efforts to have one-on-one and group conversations and educational seminars with all participants in the building process.

Optimal delivery of offerings. Timing the entrance of energy analysis into the design and engineering phases can be challenging. To manage the risk of a project not capturing its opportunities for efficiency, NCP coordinates the scoping of its technical assistance with the schedule of the applicant and their designers. This ensures that task work orders are completed quickly as the project proceeds according to its established schedules. Nevertheless, projects may not reach completion for a

variety of reasons. Over the lifetime of the NCP, managers have found that approximately 37% of applicants drop out of the program, primarily because projects are terminated or put on hold. Still, NCP encourages applicants to seek technical assistance early in the design process, between the conceptual and schematic design phases. This way the program ensures that applicants consider efficiency at the right time and optimize energy savings.

**Organizational flexibility for persistent and deeper savings.** The NCP continues to refine the program and its organizational niche in order to keep pace with savings mandates. For example, the NCP now offers support for third party commissioning service providers. In addition, the NCP is expanding its collaboration with the NYSERDA Research and Development Department with a long-term goal of working toward net zero energy.

**IMPACT.** Steve Finkle, Senior Project Manager, explains that, “A reasonable incentive structure, objective technical expertise and being persistent” are key tactics to customer acquisition and high conversion rates. These

elements have brought NYSERDA success. From 2006-2011, NCP served 1,245 customers and affected 131.8 M square feet, saving 431.8 GWh in cumulative annual electricity and 105.2 MW of peak demand at a levelized cost of \$0.091/kWh.<sup>ii</sup>

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<sup>ii</sup> RMI calculated the levelized costs of electricity (LCOE) cited in each case study by including both program administration and participant costs per the Total Resource Cost test. The calculation normalizes this cost over the lifetime of the efficiency measure savings using a discount rate of 7.5%, which is a proxy assumption for utilities' weighted average cost of capital. It is important to note that the costs vary with the goals and scope of the program. For example, the LCOE for a market transformation program may be higher than that of a resource acquisition program, but it may afford many energy and environmental co-benefits that are unaccounted for.

## **Energy Trust of Oregon's Strategic Energy Management Initiative:**

*Behavioral changes inexpensively bring balance to an industrial efficiency portfolio*

ETO is a ratepayer-funded, non-profit organization charged with investing in cost-effective energy efficiency. The SEM initiative fosters improved operations and maintenance by framing efficiency in terms of manufacturing principles that facility operators understand. SEM is designed similarly to common industrial quality and safety initiatives by linking a performance metric, in this case energy consumption, to production output. SEM convenes a Peer Support Network of 10 non-competing firms—from forest product processors to computer manufacturers—for a year-long series of training sessions. The sessions teach the cohort how to identify and capture opportunities to reduce their plant's production energy use intensity (EUI) by changing corporate energy policy, identifying internal champions and teams to focus on the energy issues at the company. Once the champions and teams are established, ETO consultants create multivariate regression models of the facility's energy intensity to establish energy usage baselines and to teach the energy teams how to identify, implement and track the results of promising efficiency measures. At year's end, ETO publicly recognizes firms to reward progress and inspire others, in addition to providing monetary incentives for kWh and therm reductions in energy intensity.

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**Encouraging peer-to-peer learning.** To overcome participants' time and geographical constraints, ETO tried using webinars for the peer support networks, but this method did not keep firms engaged. So, ETO adapted the program to encourage more face-to-face time, so that members of the peer support network could develop "collegial relationships." This was important because it enabled greater comfort between firms, who shared best practices and were also forthcoming with deficiencies. ETO was successful in helping peers develop rapport because they separated competitors, which allayed concerns about confidentiality. ETO used this friendly feedback to encourage competition among these typically non-competitive organizations. The network pressured participants who were merely "Aware or Receptive," to keep up with the efforts of "Sustained and Practicing" leaders. Motivated but distant firms received one-on-one, on-site training instead of working within the cohort.

**Ensuring quantifiable behavioral change.** Although behavioral measures are unknown and site-specific, ETO works to make certain that they are measurable and effective. During recruitment, they assume ex-ante savings of 5%. An estimate like this is a rough cut, but that it's generally sufficient for ETO as an approximation to determine whether a site has sufficient load to provide SEM technical

support in a cost-effective manner. ETO verifies savings with a top-down analysis using the multivariate regression energy intensity models developed for the facility. The analysis compares the energy intensity of the facility measured prior to enrollment with that after one year of implementation, taking care to normalize meter-level interval data for all key energy drivers, including production. Analysts compare reductions in energy intensity with a register of specific energy-saving actions completed at the site to determine a clear link between efforts and estimated savings. Regulators and ETO management permit this estimation and top-down savings methodology as long as the average savings across the entire cohort ensure that the program is cost-effective. This is an excellent example of program making calculated bets.

**Deploying human capital, not only technological capital.** SEM managers found that industrial firms still can need "handholding" despite the fact that among all customer classes they can be the most "motivated and capable" at capturing efficiency. To capture this potential, ETO suggests that other program managers invest in deploying implementers and technicians to guide firms through the efficiency process. This workforce would be "equipped with a strong [process efficiency] skill set" and would provide ongoing solutions to customers.

**IMPACT.** Kim Crossman, Industrial Sector Lead, claims that participants in the SEM initiative are more likely to complete larger capital improvements because seeing verified savings reinforces the desire to install new measures. Participants new to energy efficiency, not only energy-savvy firms, have been implementing custom measures. This surprised Crossman, who explains that SEM “clears the organization’s barriers to success. Anyone can do it!” On average, SEM reduced 17 firms’ energy intensity by 9%, at a levelized cost of \$0.007/kWh and saved 25,508,600 kWh over its first two years.

## **Northeast Energy Efficiency Partnership's Retail Products Initiative:** *Creating and sustaining partnerships captures customers and transforms the marketplace*

NEEP is a non-profit organization that promotes energy efficiency through the partnerships established with Northeast and Mid-Atlantic utilities, program administrators, industry, and end users. The Initiative coordinates the efforts of 14 utilities and non-profit efficiency implementers to promote the adoption of ENERGY STAR lighting products, appliances, and services to create more efficient homes and businesses. The coordinated activities of the Initiative leverage the total buying power of seven states' utilities, retailers, and customers to drive greater penetration than singular state or service territory efforts could produce alone. The Negotiated Cooperative Promotion (NCP) is integral to the partnership between utilities, manufacturers, and retailers. In the NCP, utilities solicit creative approaches from manufacturers and retailers to leverage their market expertise. This process has led to agreements for promotions such as buy downs, coupons, and rebates to decrease the incremental cost of technologies. The cooperative approach has also let programs align messaging and promotions around the ENERGY STAR brand, and trained sales representatives to teach consumers about the benefits of efficiency.

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**From resource acquisition to market transformation.** Initiative managers strongly believe that the security of the partnerships relies upon long term funding to implement efficiency policy. Budget uncertainty inhibits industry from entering partnerships or may shut down large programs that have taken years to establish. Reliable policies have been essential in "helping partners understand how efficiency programs work within a framework of cost effectiveness and moving [savings] targets." As manufacturers and retailers gained experience with utility programs, they became eager to "capture the opportunities of the potential customer base." Manufacturers even began working with smaller, independent, and less cost beneficial vendors to broaden their market scope. Furthermore, longer program cycles facilitate collaboration between utilities and industry. This has let some manufacturers embrace the cyclic process of first buying down and providing market lift for new products, subsequently removing incentives, integrating them in standards, and then promoting new, emerging technologies. The Initiative has demonstrated that standards can complement market transformation.

**Find compromise with data reporting requirements.** One of the biggest challenges that the Initiative Sponsors face is in the collection of sales data from industry partners. Programs must sufficiently demonstrate that

their promotional activities are responsible for changes in purchasing habits. In order to encourage new industry actors to partner with the programs, Initiative sponsors have offered alternative methods to provide sales data since strict, one-size-fits-all data requirements would prevent several partners from providing program resources to their customers. Today, programs continue to work with industry partners to get more comprehensive sales data.

**Enabling innovative marketing and education.** Managers acknowledge that savings from behavioral and training programs are difficult to quantify. Unfortunately this barrier may preclude the appropriation of funds for hard-to-reach segments. NEEP administrators argue that, "There are only so many rebates you can give, and only so many dollars you can throw at this." Still, the Initiative has persisted to make sure sponsor programs reach as many customers as possible. They have even hosted promotional events at discount stores, food banks, and community centers to capture seniors, non-English speaking, and low-income audiences that would not have been reached by a traditional media campaign. They've also gone online, using their partners' online stores and utility websites designed to help customers find the information they need. The Initiative aims to "break the mold;" to make programs fun, and "help develop new channels for program offerings and delivery models" to capture a larger breadth of customers.

**IMPACT.** Linda Malik, Residential Program Manager, is determined to continue the Initiative's streak of 12 straight (2000-11) ENERGY STAR Partner awards for excellence. She shares this sentiment with partners by saying, "There's always more efficiency." In 2010, 4,285 retailers sold 174,176 qualified appliances and over 9.5 million CFLs. The Initiative provided over \$23.3 million in incentives to partners and customers and will save over 5 million MWh throughout the products' lifetimes.

## **Palm Desert Energy Demonstration Partnership: Set to Save Program:**

*Partners reach for broad and deep efficiency and the nation's most ambitious savings goal*

Southern California Edison (SCE) and Southern California Gas Company (SCG), two investor-owned utilities, worked with the local government, non-profit, community groups, and local contractors to strive for a 30% reduction in energy use—one of the nation's most aggressive conservation goals of any city-utility partnership program to date. Palm Desert would have saved 3% of electricity and 0.5% of natural gas compared to usual efforts. Establishing the Set to Save brand was key to reaching this goal. This simplified messaging unified the utilities' and City's offerings and distinguished it from traditional residential and commercial promotions. Two key stakeholders helped create a groundswell of community support for the Set to Save Program. Homeowners associations (HOA) helped create interest in efficiency and local contractors then met the demand for upgrades. HOAs, which promoted energy upgrades to their residents during community events and in newsletters, had the potential to reach half of Palm Desert residents and exchanged thousands of outdoor CFLs to LEDs as well as low-flow faucet aerators and showerheads. Contractors complemented this demand well. They helped develop residential campaigns and promoted and implemented variable speed pool pumps, natural gas pool heaters, and HVAC improvements.

Establishing the marketing capability to generate savings was just the beginning. The Partnership simplified the purchasing process to ensure a positive experience, customized incentives and services for specific customer types, expanded their ability to go for broad and deep savings, and developed plans to finance building retrofits. Set to Save simplified the purchase of efficiency with a phone call to the "One-Stop-Shop Program;" customers' equipment was installed at a single price without having to search for contractors who offered the best price or submit a rebate application to the utilities.

Set to Save first went broad, then deep. It swept through neighborhoods and targeted influential community channels—from chambers of commerce to teachers—at special utility-sponsored events and presentations to the HOAs to spark popular interest. First, contractors directly installed "pre-engineered solutions" while conducting "Energy Doctor" house calls and audits. These surveys would then enable Partners to identify good candidates for segment-specific and holistic efficiency measures. This multi-step approach was key to acquiring customers. The Partners believe that the pursuit of efficiency measures individually (to achieve breadth by "picking the low-hanging fruit") complements the bundling of measures in an integrative manner to accrue larger savings—not costs (to achieve depth while "Tunneling Through the Cost Barrier"). According to Steven Meyers, a consultant to the implementing contractor of the One-Stop-Shop Program and Energy Efficiency Upgrade

Program, EnerPath, capturing efficiency is not an "either/or" proposition, but one so vast that it requires "both/and."

By combining this broad and deep mindset with behavior and adoption theories, Set to Save sold efficiency as a product and provided customers a good first experience. Becky Estrella, a former SCG Program Manager, described that after all, the Partnership needed "almost everyone to participate" and depended on select customers to welcome deeper savings. For example, after directly installing CFLs or low-flow fixtures, contractors would return to cross-market variable speed pool pumps, DR-capable HVAC upgrades, and whole house retrofits. The partnership also recognized patterns among classes of commercial customers and provided specialized technical assistance to golf courses, hotels, restaurants, municipal buildings, and water pump stations that could be scaled to others throughout area. A key enabler of deep energy savings was the development of AB811, which allowed California cities and counties to make low-interest loans to property owners for permanent energy upgrades. Loan payments were collected through property tax assessments, from participants' savings on energy bills that offset the cost of loan payments.

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**Using technology to harness social behaviors.** Partnership contractors utilized laptops

to provide home and business owners an immediate, face-to-face consultation on suggested efficiency retrofit measures to drive down transaction costs. Contractors administered the program while targeting specific geographic areas, with the goal of developing energy efficiency as the social norm. They were able to convince busy and cash-strapped customers to install measures that neighbors or competitors had done. Home Energy Reports created by OPOWER that compared energy usage among neighbors reinforced this social motivation. These combined methods created enthusiastic word-of-mouth testimonials; many customers enrolled with Set to Save after hearing about it from people they knew.

**Regulatory barriers challenge innovative program design.** When the pilot was approved, regulators aimed for it to test the scalability of several delivery strategies that other utilities might use. In fact several Partnership elements are being replicated in California and other states. But at the end of the 2006-8 utility program cycle, regulators, evaluators, and ratepayer advocates disputed the costs, innovation, and verifiability of the program's energy savings. The Partners and regulators disagreed upon the prudence of state time and ratepayer funding needed for the lessons of an experimental pilot. SCG argued that M&V was conducted at an inappropriate time—when the pilots were still in development—and discounted their benefits because detailed analyses had not yet verified the “macro”-level data which was collected.

A utility manager explained that, as is often done with pilots, “customer-facing [data collection] systems” are developed first, in order to leave detailed back-end calculations to be completed during later phases of the pilot. Meyers concurred, describing that the rigidity of program budget protocols and resource cost tests prohibits several enabling conditions that utilities need to adapt to the economic drivers that change during market transformations. One example is that programs be long enough for implementers to make reasonable business decisions. Implementers “will not build the infrastructure to deliver programs and services” with budgetary time limits that prohibit an adequate recovery of assets. Michael DeSousa, a SCE Program Manager, explained further that utilities will be “relegated to use tried and true methods” if experiments like those in the pilot “are put under the same [cost effectiveness measurement] structure” as traditional programs. Upholding the pilot to the usual cost benefit requirements prohibit it from innovating and testing different strategies since doing so is typically more costly.

**IMPACT.** Though the Partnership faced setbacks, it recognized the need to work with “local voices,” which yielded lasting results. The City instituted an Office of Energy Management, a community presence that assists customers and continues to work toward the 30% goal. Estrella explains that, “Community entities—from homeowner associations to contractors—are incredibly important. They are the sales force.” In one year, the program

installed efficiency measures in 860 businesses and 6,080 homes. Within the residential sector the program installed approximately 1000 variable speed pool pumps, and completed 300 whole house retrofits. Through 2010, the Set to Save Program saved over 28 million kWh at a levelized cost of \$0.104/kWh and over 1.9 million therms of natural gas since program inception.

**Pacific Gas & Electric's Monitoring-Based Persistence Commissioning Program:** *Third party connections and services deliver persistent savings to customers and utilities*

PG&E, an investor-owned utility, uses a requirement to work with third party contractors to capture efficiency from high-performance buildings. MBPCx implements retrofit, monitoring, and optimization measures to maintain and decrease the energy use of the existing commercial sector. The program first identifies the owner's budgetary and payback constraints, the building's installed equipment, and benchmarks consumption. Next, it provides a savings summary to the facilities manager, or financial executive who decides whether to pursue the project. The implementer, or a customer-selected vendor, installs the equipment or modifications to the control system. The implementer provides the customer an M&V report and pays the incentive depending on the verified amount of savings. On a quarterly basis, the implementer reports to the building operator on the building's performance to ensure that savings persist. Furthermore, the implementer uses the ongoing opportunity to communicate with the customer to identify future efficiency measures. PG&E pays the third party based on their total realized savings, up to a contracted amount that is negotiated prior to the three-year budget cycle.

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**Align stakeholders at the beginning to drive down transaction costs.** Every project starts by understanding the customer's goals and capital constraints. But the implementer's regulatory responsibilities as a third party divert some of its focus from acquiring customer efficiency. A program manager described an instance where the commissioning agent had to write four reports for a client, only one of which the client would care about: the incentive check. While standardized tools have simplified calculations, MBPCx managers advocate for an industry-wide method for measuring and reviewing savings impacts to minimize the "back and forth" between implementers and evaluators.

**Focusing on customer relations can drive deeper efficiency projects.** Facilities managers may champion MBPCx projects, but financial officers' budgets constrain the savings depth. Decision makers usually "define how deep and broad you can go" based on a 2-3 year simple payback. The implementer is incentivized to go deep, but is focused on developing a relationship with the customer first. The first projects are based on just a few measures taking on the low-hanging fruit. Then they go for the deeper savings. Since "no one likes a giant report that goes nowhere," the implementer's success depends upon a firm foot-in-the-door

that will lead to future projects.

**Cross-marketing provides insight on –and leads to– new customers.** PG&E's implementer uses the leads from its own energy efficiency consulting, building automation, and O&M services to funnel participants into the MBPCx program, and vice versa. The implementer tries to provide customers a one-stop-shop and reduce their transaction barriers. Enovity's repeat customers comprise the majority of MBPCx participants for this reason. The third party implementer believes that utility account managers can use similar cross-marketing tactics to their advantage to capture more resources. Fostering greater communication between administrators across different programs and organizations would help channel customers to the services they need to save energy.

**IMPACT.** Henry Summers, Project Manager, believes foremost that aligning similar or complementary goals, getting to know customers individually, and "helping them learn the process" sets the basis for successful MBPCx. From 2009-11, MBPCx reduced customers' annual energy consumption an average of 10%. With the program PG&E saved 11.25 million kWh at a leveled cost of \$0.036/kWh.

## **Xcel Energy's Energy Star New Homes Program:** *Leveraging existing efforts to drive the demand for efficient new homes*

Xcel Energy, an investor owned utility, operates the ENERGY STAR program to increase the market share of homes built using a “whole house” approach to energy efficient construction and appliance installation. Xcel Energy partners with Residential Science Resources, their program implementer, to personally educate and recruit builders and HERS Raters into the program. This collaboration is valuable for the Raters and the utility. The implementer serves as a direct channel for Raters to voice ideas, questions, and concerns with Xcel Energy. The program benefits from their knowledge of utility strategies and programs, building science, and database technology. Residential Science Resources leverages their knowledge to assist Xcel Energy in program development, regulatory reporting, HERS certification, and marketing. This is largely enabled through the implementer's database on homes. With this database Raters can easily capture field data and provide builders with detailed reports for each home. Additionally, Xcel Energy can track parameters for each home including HERS scores, energy savings, rebate costs, and construction and equipment specifications. To receive incentives builders must construct homes that perform to a HERS Index of 75 or less, which achieve a 25% reduction compared to those built to code. Builders choose an independent HERS rating company to perform multiple site visits during construction. The site visits are key to

ensure quality control that homes are built to ENERGY STAR standards. Homes verified to use progressively less energy receive a higher “tiered” incentive, up to \$2,200 for a home consuming 40% less energy than one built to code. Though marketing and education efforts are focused on building industry professionals, other stakeholders including real estate agents, appraisers, and lenders also have learned to tout the benefits of ENERGY STAR homes including utility cost reductions, improved thermal comfort, and increased resale values to buyers.

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**Leverage and learn from existing capacity.** Managers built the program upon lessons learned from existing efforts statewide. Xcel Energy teamed up with ReCharge Colorado, an ARRA-funded efficiency campaign of the Governor's Energy Office and a passionate base of HERS raters. Humble program managers built consensus during program design in lieu of neglecting the input of the existing players. By doing so, they identified a crucial program dynamic: Raters “own the business relationship with builders.” Xcel Energy made it an objective to build upon and leverage this relationship to make the program successful. Xcel Energy harnesses Raters as the “conduit of enrollment” to share best practices and to push builders to use the certification to transform and elevate market norms, not to merely comply with code.

**Be flexible in program design.** About a year after the program's launch in 2009, Xcel Energy determined that the program was not cost effective and needed refinements. An analysis concluded that their assumptions on incremental capital costs of efficient construction was too high and that homes meeting the minimum level of efficiency requirements (HERS Index 85) did not generate a sufficient amount of energy savings. The program lowered incentive levels and pushed for deeper savings at a HERS score of 75. These adjustments significantly improved the program's performance under the TRC test and ensured that the program could continue in preparation for the housing market's recovery.

**IMPACT.** Bruce Peterson, Product Portfolio Manager, persevered through the challenges the ENERGY STAR program faced saying, “When new housing starts increased we wanted the builders to be engaged in this kind of work.” From 2009-2010, nearly 4,000 ENERGY STAR new homes were constructed in the Colorado service territory. Xcel Energy forecasts that 3,700 more will complete the program in 2011. In 2010 alone, the program saved 23,604 Dth of natural gas, the primary savings objective of the program. Additionally, it achieved about 1 GWh of savings at a levelized cost of \$0.036/kWh.

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