ENERGY EFFICIENCY:
A GROWING UTILITY-BUSINESS SOLUTION TO RELIABILITY, AFFORDABILITY, & SUSTAINABILITY

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Energy Efficiency: A Growing Utility Business Solution to Reliability, Affordability, and Sustainability

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INTRODUCTION

Throughout the past decade, electric utilities nationwide have increasingly invested in energy efficiency (EE) programs for their customers. In fact, over the past 5 years, program budgets for energy efficiency have more than doubled, while energy savings from such programs have increased by 55 percent nationwide between 2007 and 2011.[1]

The nation's shareholder-owned electric utilities, which already administer over 85 percent of the country's energy efficiency program budgets, are taking advantage of their unique role as both energy suppliers and efficiency program providers to maximize the benefits of energy efficiency. In fact, according to a recent IEE report, energy savings from EE programs are projected to more than double by 2025 assuming similar success in energy efficiency program administration going forward.[2]

The benefits of the energy savings produced through efficiency programs are multifold and range from energy affordability, customer service, and customer satisfaction, to facilitating and prioritizing long term asset planning, meeting environmental goals, and increasing the reliability and stability of the power grid. From a customer perspective, electric utilities remain the trusted energy adviser; from a regulatory perspective, a strong focus on efficiency program cost-effectiveness has enabled utilities to procure a low-cost resource option and has provided a pathway to meet environmental goals in a clean and affordable way; and finally, from an electric utility perspective, the capability to analyze and use data across the whole power system from generation sources to customer end-uses is fundamental to optimizing the power grid. Using both supply- and demand-side resources effectively allows electric utilities to provide the most appropriate services to customers. As the role of demand-side resources continues to expand in importance in optimizing the nation's power grid, electric utilities are well positioned to ensure that energy efficiency continues to grow as a smart business solution that delivers broad-based benefits.

[1] IEE, Summary of Customer-Funded Electric Efficiency Savings, Expenditures, and Budgets (2011-2012). March 2013.

[2] IEE, Factors Affecting Electricity Consumption in the U.S. (2010-2035). March 2013.

In addition to EE programs specifically, utilities provide a suite of energy solutions to customers for energy management, such as energy use insights and bill management services, dynamic pricing and load management programs, and rates for customers with electric vehicles and/or distributed energy resources.

As the integration of demand-side resources becomes increasingly important in optimizing the nation's power grid, having electric utilities administer energy efficiency programs as one component of an energy solutions offering for their customers makes good business sense. Over the past decade, more states and utilities have turned to efficiency as a cost-effective energy solution for customers. As shown in Figure 1, EE budgets totaled almost $7 billion in 2012, up from nearly $3 billion in 2007.

Utility companies provide:

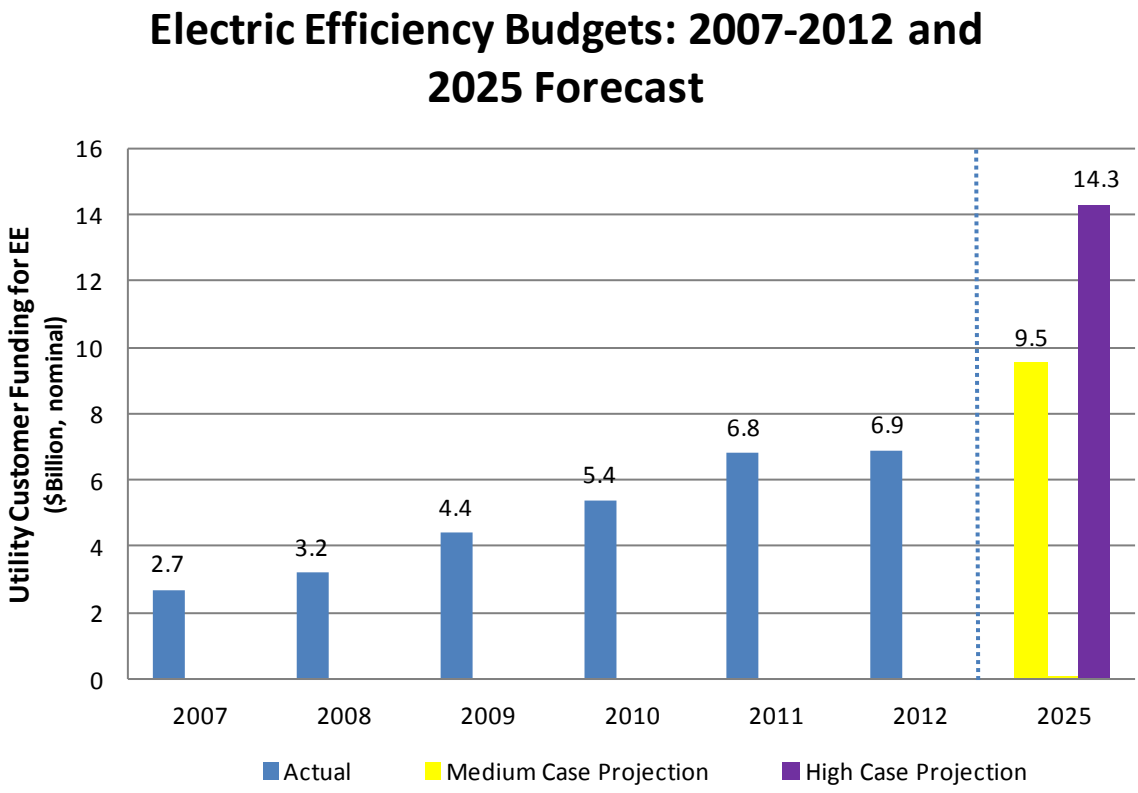
- A consistent and comprehensive point of contact to support customers' diverse energy needs.
- Complementary rates and programs that meet customer needs and interests.
- A clear brand that is easily recognized and trusted by the customer.
- Ability to integrate energy efficiency program savings into long-term system planning for transmission and distribution investments and capital planning (e.g., Integrated Resource Planning).
- Coordination and optimization of all energy sources and assets in the power grid.
- Accountability for meeting environmental regulatory compliance.
- Regulatory accountability and institutional stability.
- Experience as a regulated business accustomed to regulatory oversight of customer funds.

As the power grid increasingly becomes a two-way power and information highway, there are even more reasons why utility administered EE programs make good business sense.

- When utilities administer EE programs, only those programs that are cost-effective are offered and program costs as well as savings achieved are reviewed by regulators on a routine basis.
- The system of checks and balances placed on the utility ensures the equitable and productive use of customer funds.

- Finally, utilities are just beginning to leverage customer data from digital meters to enhance the delivery and effectiveness of their EE programs as well as to improve grid reliability and outage restoration.

Figure 1: Electric Efficiency Budgets: 2007-2012 and 2025 Forecast



Source: IEE, Summary of Customer-Funded Electric Efficiency Savings, Expenditures, and Budgets (2013)

CUSTOMER ENERGY SOLUTIONS

As the provider of electricity, the provider of energy solutions, and the trusted energy advisor, the utility has an important role to play in providing customers with information and insights for energy management. With the deployment of smart meters and the resulting information that is generated on energy use, utilities have increased their commitments to providing more targeted customer service.

In fact, the need to deliver diversified solutions for technology-empowered customers has led to many utilities today designating a Chief Customer Officer. Today's service-focused electric

utility understands that affordability, reliability, and options are key ingredients for a satisfied customer.

Coordinating efforts across multiple business units to provide customer energy solutions is now a top priority for electric utilities. The critical peak rebate programs available to smart-metered residential customers in the Baltimore Gas & Electric, Delmarva Power, and Pepco service areas (in Delaware and Maryland) are examples of new and successful customer programs. Recent results from BGE's pilot, for example, show that customers achieved peak savings of 26-36 percent and 93 percent of participating customers indicated satisfaction with the program. This program is a win-win for the customer and the utility. Other similar programs are in place around the country.

BIG DATA

Utilities are now utilizing the data generated by smart meters, instruments, and sensors along the digital grid to improve the reliability and resilience of the power grid.

With over 45 million smart meters installed in the U.S., dozens of utilities are now providing customers with an unprecedented view into their energy usage (often at the 15-minute increment), enabling them to understand their usage relative to their neighbors, develop budget or energy savings goals, and receive alerts regarding their monthly usage.[3] For example, Pacific Gas & Electric is leveraging data from smart meters to help customers on their 'My Energy' account understand which rate structure would help them save money, sign up for alerts during peak energy days, and create a personal energy savings action plan tailored to individual energy needs and goals.

In addition to providing insights into energy use, utilities are enhancing the flexibility and resilience of the grid by networking together thousands of sensors at key points in the grid – substations, transformers, local distribution lines, and high voltage transmission lines. For example, FPL has installed 4.5 million smart meters and over 10,000 devices on its grid and is viewing and managing multiple smart grid applications atop a single network, including: energy use information from smart meters, distribution automation, and advanced smart grid analytics

[3] IEE, Utility-Scale Smart Meter Deployments (2013).

solutions. This unified platform approach expands the functionality and performance of FPL's distribution system, resulting in increased reliability, additional energy efficiency opportunities, and reduced operations and maintenance costs.

Benefits from the networked approach have already materialized. In 2012, instead of dispatching crews, FPL resolved 42,000 issues remotely, reducing the duration of outages by about two hours in each case. Sensors to monitor transformer health and performance have identified 400 ailing neighborhood-level transformers before they failed. And, following Tropical Storm Sandy, FPL communicated with customer's smart meters to confirm power was on, reducing repeat calls for unrestored outages by 51 percent.

Analysis of large sets of interval level data is also changing how commercial energy efficiency is delivered. For example, ComEd is using an analytics driven approach to advance its retro-commissioning programs to small and medium-size facilities. By remotely screening key efficiency parameters across a portfolio of 4,000 small to mid-sized commercial buildings, the most energy inefficient buildings are identified and selected for remote energy audits, EE measures, and energy use monitoring.[4]

Utilizing information to provide value to customers in a targeted fashion is a natural evolution of energy efficiency programs and the grid, and is another example that demonstrates why utility-administered EE makes good business sense as part of an overall energy management, reliability, and grid resiliency strategy.

TRUSTED BRAND

In today's busy world, customers look for comprehensive solutions to address their energy needs. As indicated in numerous polls, when asked what groups or organizations residential customers look to for information on how to use electricity more efficiently, roughly two-thirds of the respondents indicate that they look to their utility for energy information and insights.[5]

A trusted brand is an intangible asset that provides an opportunity to the utility to influence how millions of households and businesses think about and use electricity. After many years of

[4] FirstFuel and Nexant are supporting ComEd in its expansion of the Smart Ideas for Your Business Retro-commissioning program to small to mid-size commercial customers.

[5] EEI Power Poll, Q2 2010.

running EE programs—investing in marketing, education, community outreach, logos, staff, program delivery methods, databases, teams of contractors, and other resources—utilities have positively affected customer interest in efficiency. In fact, an increasing number of customers now expect an integrated offering of electricity and energy management solutions from their electricity provider. In short, the utility is viewed as the trusted energy advisor for electricity management.[6]

ENERGY EFFICIENCY: A DEPENDABLE ENVIRONMENTAL RESOURCE

From a system planning perspective, the expected and realized performance of energy efficiency and other demand-side management programs are an integral part of the utility's resource planning process. EE is typically viewed as a least-cost, low-risk investment option.[7] However, for resource planning purposes, EE can only be valued if it is known to have occurred and can be counted on consistently. In order for resource planning to include EE as a resource in the delivery of least-cost, reliable, and affordable power in the long-term (typically 20 years), it is essential that EE solutions be developed and delivered by the entities that are accountable for fulfilling the resource plan. In most cases, this is the electric utility.

Depending on others to provide such data as an input to utility resource planning, or to targeted EE deployment, introduces risks, such as not having access to comprehensive information in a timely fashion, having only partial information, or having information that is difficult to access. EE resources are too important to take such risks.

For utilities that operate in geographically constrained areas, such as parts of the Northeast, EE can be deployed in a targeted fashion to locations that are facing resource constraints or experiencing an emergency event. For example, ConEd (in New York City) has utilized a variety of EE programs—from controlling window A/C units to conventional lighting and HVAC direct install programs to flexible EE/demand response programs with commercial customers—to avoid costly and potentially contentious transmission and distribution infrastructure projects in densely populated Manhattan.

[6] Accenture, Understanding Consumer Preferences in Energy Efficiency (2011).
[7] Ceres, Practicing Risk-Aware Electricity Regulation (2012).

The U.S. electric power industry is faced with a range of environmental policy and regulatory issues that impact strategic planning and long-term investments. Energy efficiency is a critical resource for meeting current, pending, and potential environmental emissions and clean energy mandates while also keeping rates affordable.

As environmental rulemakings proceed, coordinating environmental compliance, capacity planning, and energy efficiency planning is absolutely necessary to achieve an outcome that benefits customers by taking into account least-cost solutions.

The compact between regulators and the regulated utility entrusts a responsibility to the utility to prudently invest in both supply- and demand-side resources to yield reliable, affordable, safe, and increasingly clean electricity. The regulator-utility compact has led to a long track record of utilities delivering cost-effective energy efficiency programs on time and typically at, or under, budget. The fact that the electric utility industry is highly regulated and its EE programs are scrutinized and reviewed provides the accountability to deliver cost-effective EE programs and benefits to both customers and the environment. Utility-administered EE programs are a key element in utility sustainability practices today.

CONCLUSIONS

Energy efficiency has long been viewed as a resource that can reduce future system costs by avoiding the need to construct additional power plants. Yet, in the current era of rising costs due to environmental regulations, renewable energy portfolio standards, replacement of aging infrastructure, and other factors, the value of EE goes far beyond the avoidance of building generation. Demand-side resources – both efficiency and demand response – are an increasingly important asset to the modern grid. In an era of increasing amounts of intermittent renewable energy on the grid, distributed demand resources play a key role in providing flexibility to the grid. In addition, demand-side resources are low cost and reduce emissions. As utilities manage the increasingly complex business of maintaining a resilient grid that provides reliable, secure, affordable, and increasingly clean electricity, reliable demand-side programs have never been more critical.

To fully utilize EE as a resource on equal footing with supply-side resources, funding stability for utility programs, year-to-year program continuity, and program growth are essential.

Otherwise, EE cannot fully participate on a level playing field with supply side resources in the resource planning process.

By keeping ratepayer funds inside the utility-regulatory system, the threat of legislative raiding of funds is significantly reduced.[8] As shown in the past, any funding mechanism for EE that passes through a state budget approval process is at risk of redirection and raids. This undermines the consistency and reliability of EE programs.

As the integration of demand-side resources becomes an increasingly important resource in optimizing the nation's power grid, it makes good business sense for electric utilities to continue to administer energy efficiency programs as a critical low-cost component of the nation's energy mix.

[8] Non-utility administered EE program funds have recently been raided in Oregon, Wisconsin, and New Jersey.

About IEE

IEE is an Institute of The Edison Foundation focused on advancing the adoption of innovative and efficient technologies among electric utilities and their technology partners that will transform the power grid. IEE promotes the sharing of information, ideas, and experiences among regulators, policymakers, technology companies, thought leaders, and the electric power industry. IEE also identifies policies that support the business case for adoption of cost-effective technologies. IEE's members are committed to an affordable, reliable, secure, and clean energy future.

IEE is governed by a Management Committee of electric industry Chief Executive Officers. IEE members are the investor-owned utilities that represent about 70% of the U.S. electric power industry. IEE has a permanent Advisory Committee of leaders from the regulatory community, federal and state government agencies, and other informed stakeholders. IEE has a Strategy Committee of senior electric industry executives and 30 smart grid techology company partners.

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