

Utility Energy Efficiency: the CEO Perspective

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Introduction

The winds of change are blowing hard upon the electric utility business. Having past through an era of market and corporate restructuring, we are now entering a major new construction cycle - at a time when concerns about climate change are looming larger than ever. Growth is no longer seen as an unqualified good, and utilities are sensitive to the dangers of over-building, rate shock, and delayed and incomplete cost recovery. Efficiency, the “fifth fuel,” (or the first fuel) is on the minds of utilities, regulators and consumers. But efficiency has its own challenges. Because of rate design issues, utilities that invest in successful energy efficiency programs may see a loss of important revenues. At the end of the day, utilities are still corporations that have fiduciary obligations to shareholders. Something has to give, and that something may be the traditional utility business model. New approaches, and new models, are being investigated to help utilities build sustainable businesses out of supplying efficiency-related products and services; this in addition to utilities’ traditional power supply businesses. In the discussion to follow, we examine current CEO thinking on these issues, as reflected in the content of EEI-facilitated CEO discussions, formal CEO surveys, and CEO guidance to EEI on efficiency issues and strategies.

The Case for Action

The high priority which EEI-member CEOs now attach to increased energy efficiency is motivated, first and foremost, by concerns about climate change. They understand that for investor-owned electric utilities, this means an imperative to do even more to reduce greenhouse emissions.¹ It means maximizing cost-effective energy efficiency, and it means developing and deploying new, low-impact generating technologies.² The industry expects that climate legislation will be passed in the mid-term, and that within seven years related utility financial

¹ Since 1994, when EEI joined the U.S. Department of Energy in the Climate Challenge, the electric utility has led all other industrial sectors in reducing greenhouse gas emissions.

² EEI Global Climate Change Principles, February 8, 2007.

commitments will be significant.³ This consensus takes account of the fact that the Supreme Court has ruled that the Environment Protection Agency has authority, which it should exercise, to regulate carbon dioxide. It also recognizes that states such as California are beginning to take action to limit green house gas (GHG) emissions. Unfortunately, CEOs are in less agreement about how to achieve cost-effective GHG reductions. A survey taken in June of this year showed that CEOs were divided, with 32% a third favoring a cap and trade mechanism with a safety valve, 25% supporting a carbon tax, 20% supporting a cap and trade mechanism without a safety value, and 16% supporting more voluntary approaches.⁴

Adding to concerns about climate change is the realization that preferred supply technologies will not be available in the mid-term. For example, clean coal technologies will not be commercially available until 2015. Carbon capture and storage technologies are not expected to be commercially available until 2015-2020. Next-generation nuclear technology is available now, but given the lead times needed for regulatory approvals and construction, nuclear generation is not likely to make a significant contribution until 2015-2020. As a result, a large majority of CEOs consider increased end-use energy efficiency the top priority for the industry in the near-term.⁵ They see that aggressive efficiency improvement can mitigate infrastructure investment risk, while buying time until the nature and extent of carbon regulation has been determined, and better generating options become available.

Another key consideration is the need to help consumers mitigate rate increases. Residential rates among U.S. investor owned electric utilities rose 26% on average between 1999 and 2006,⁶ driven largely by increases in fuel prices. As we look ahead, additional increases seem likely, driven by spending on needed new infrastructure. Investments of over \$500 billion are projected through 2025.⁷ Increased energy efficiency (EE) and demand response (DR) can slow the growth in electricity consumption, delaying the need for some investments, and mitigating the

³ GF Energy 2007 *Electricity Outlook Entering the Climate Zone*, June 18, 2007

⁴ Ibid.

⁵ Ibid.

⁶ *Typical Bills and Average Rates Report*, EEI. The average unit revenue for residential customers rose 26%. The average unit revenue for all end-use customers rose 32%.

⁷ *Why Are Electricity Prices Increasing?*, the Brattle Group, June 2006. Prepared for EEI.

rate impact on consumers. In particular, demand response (DR), enabled through advanced (“smart”) meters and time-differentiated rates, can give customers new tools to control their energy bills. It does this in two ways. First, it allows consumers and their smart devices to know when prices are peaking, and avoid them by reducing usage during highest cost hours. Second, DR can discipline the market; it can reduce market clearing prices in peak hours by reducing the imbalance between supply and demand. So, for consumers, energy efficiency and demand response offer tools to mitigate the impact of rate increases.

The Unique Role of the Utility

If rapid efficiency improvement is critically needed, the CEOs recognize that regulated electric utilities are uniquely positioned to make it happen. Utilities have scope and scale, which will allow them to ramp up efficiency activities quickly, and drive down costs by standardizing programs and supporting business processes where possible. Utilities maintain key supporting infrastructures (e.g., rates, metering, billing), which are essential for the delivery, verification, and pricing of efficiency services. Utilities also have reasonable costs of capital, which can help customers capitalize efficient hardware. And finally, utilities generally have earned consumers’ trust, and can honor that trust by providing objective advice on how to achieve cost-effective efficiency improvement.

None of this is to say that the industry is thinking in terms of developing efficiency unilaterally. EEI members recognize that third parties may have specific skills, technologies, and products which we lack, and that it will frequently make good business sense to partner with third parties to deliver specific kinds of efficiency products and services.

The Need for Long-Term Commitment

Most importantly, the CEOs recognize that the commitment to efficiency improvement needs to be for the long-term. This is not just about gaining support for the next generating station. Climate change is a long-term proposition. It will take a sustained commitment to produce meaningful reductions in energy growth and emissions. This is why the EEI Board of Directors has directed the creation of an Electricity Efficiency Institute: because it wants to ensure that

efficiency remains a continuing priority within EEI and the industry.⁸ The Institute's mission will be to collect and distribute information to electric utilities that helps them drive energy efficiency improvement. And this will involve not just investor-owned utilities, but all utilities, municipal and cooperative.

From a financial point of view, the need for a long-term commitment implies the need to make sustainable *businesses* out of efficiency. And making a business means developing new business and regulatory models, since standard cost of service regulation rewards utilities and their shareholders for selling more power, not less. This, of course, is why decoupling has been such a controversial issue within the electric utility industry (i.e., because increasing use per customer and increasing customers means increased revenues). What is less appreciated outside the industry is that in an increasing cost environment, revenue growth from increased sales helps offset rising costs and helps defer the need for new rate cases.

Criteria for a Sustainable Efficiency Business

In looking to the future, EEI-member CEOs perceive three criteria for sustainable businesses, as follows: (1) the utility must be able to recover its efficiency program spending timely. Without a DSM tracker or similar treatment, rapid increases in program spending will depress financial performance between rate cases; (2) the utility must stay whole for its fixed costs. Decoupling is one obvious way to accomplish this, although it is not the only way. Reduced reliance of volumetric (kWh) rates to recover fixed costs can achieve the same thing; and (3) the ability to make a margin on efficiency products and services. The utility needs to be able to make a reasonable profit on efficiency, or it will not be an activity it can interest investors for the long-term.

New Business and Regulatory Models

At EEI, we are working with members – CEOs, and other executives – to explore four discrete business / regulatory incentive models by which a utility can make a margin on efficiency. The

⁸ Cite to EEI press release.

four are considered broadly representative of options available to utilities; but certainly, other configurations are possible.

The Share Savings model allows the utility to earn a margin by producing net energy efficiency savings (i.e., savings greater than the costs incurred to realize them), and retaining a pre-defined share for shareholders. Net benefits (avoided cost savings minus EE/DSM costs) are measured immediately after a program year is completed and installations have been validated. The incentive can be collected in the succeeding year, or spread over a longer collection period to allow measurement and verification. This model can include a risk/reward structure (e.g., where the shareholder share of savings is determined on a sliding scale in relation to program goals). It also typically includes a tracker for efficiency program costs.

The Energy Efficiency Capitalization, Bonus ROE model allows a margin by capitalizing efficiency program costs as a regulatory asset that earns the utility's nominal allowed rate of return, plus an equity premium. This asset is amortized like a power plant, but over a shorter period.

The Virtual Power Plant model, the newest of the models, allows the utility to earn a margin by producing energy efficiency savings for less than some agreed-to price, expressed as a discount from avoided supply costs (e.g., 90%). The expectation is that the utility will develop a portfolio of efficiency programs; the price for each depending on the avoided cost of the kind of generation it avoids (peaking capacity, baseload, etc.). Benefits are realized over the life of each program or measure.

The Regulated Esco model allows the utility to earn a margin by providing efficiency products and services to customers as premium services; typically, via contracts negotiated with customers. The utility may capitalize, or work with a third party who capitalizes new efficient equipment, which is repaid, with a margin, out of the savings that result. Net income the utility earns in this way is treated below the line; that is, it is not imputed against revenue requirements in the next rate case.

With the exception of those CEOs whose companies have proposed specific models to their regulators, most CEOs have not expressed a preference for one model over the others; at least, not in EEI-facilitated discussions. Nevertheless, the content of our discussions demonstrates that the CEOs are fully engaged, and are weighing the risk and return characteristics (the pros and cons) of the models carefully. For example, CEO comments in recent meetings have recognized that cost trackers and decoupling reduce the risk of aggressive efficiency development; and that if a jurisdiction has, or is willing to provide such treatments, the utility can make a business with a smaller margin. Conversely, without such policies, a utility would need a bigger profit margin to balance the risk (disincentives) associated with revenue deficiencies. Benefits tied to performance may be more sustainable politically than benefits tied to investment alone; but of course, measurement and verification entails significant administrative cost. Sculpting smooth rate trajectories is another key consideration, and models that spread benefits out over time may be more sustainable from those that produce bigger near-term rate impacts.

Conclusions

Given the diversity among utilities, their service territories, and their regulatory jurisdictions, there is no one business / incentive model that will prove right for everyone. Nevertheless, EEI member CEOs are united in several important respects.

1. Efficiency improvement is the first priority. Public concerns about climate change and rising electricity costs, uncertainty about the nature and extent of immanent carbon regulation, dwindling reserve margins, and the lack of commercially-ready next-generation fossil technologies – leave cost-effective efficiency improvement as our first and best resource option.
2. Utilities need to build sustainable energy efficiency businesses. Because efficiency improvement must be a long-term commitment, utilities need to find ways to increase efficiency that are compatible with financial growth.
3. New regulatory policies are needed. The criteria for sustainable efficiency businesses include timely recovery of efficiency program costs, recovery of fixed costs irrespective of kWh sent out, and the opportunity to make a profit margin on efficiency products and services. In most jurisdictions, new ratemaking policies will be needed to meet these criteria.
4. We need to change consumer cultures. Long-term efficiency improvement will require increased consumer awareness of, and responsiveness to, the cost characteristics of the power supply system. Abundant, cheap power supply can no longer be assumed. Consumers have an important role to play in increasing energy efficiency.
5. We need to change utility cultures. The development of sustainable efficiency businesses will also require changes in the culture of utilities; particularly, among employees who participated in demand side management activities in the 1980's and 1990's, and who may tend to approach efficiency issues with a mindset from those times. It is a new day, markets are changed, the technologies are improved, and consumer attitudes are changing. A long-term commitment to efficiency is essential for utility success in the future.