

## Facing the industry's toughest challenge: Making energy efficiency work

### **Why does energy efficiency deserve the status of 'first fuel' relative to fossil investment?**

1. *Favorable and variable cost profile*
2. *Societal and community benefits*
3. *Faster market impact on capacity needs and carbon profile*
4. *Ability to adjust and evolve over the course of the investment cycle*

Several powerful forces have combined to create the electric utility industry's most complex challenge: responding to the rapidly growing societal mandate for action on energy efficiency.

This mandate results from consumer awareness and preferences for:

- Environmental concern and sustainability
- Energy security and independence
- Higher reliability performance from an aging grid designed for a previous generation of end use applications
- Opportunities for individual control over rising electric costs and environmental impact
- Lower bills that would result from wiser or decreased use.

Utilities also see energy efficiency as contributing to a variety of needs.

- Carbon mitigation
- Asset based growth and infrastructure renewal
- Improved asset utilization in an era of rising commodity costs and right-of-way/ NIMBY restrictions
- Creating incremental capacity, energy and ancillary resources – particularly as new fossil generation faces higher costs and permitting risk
- Need and opportunity for upgraded information and telecommunications technology to enable programs and system controls
- Economic development and retention through reliability and customized programs
- Regulatory and community support for eventual rate increases for core operations

As we've spoken with executives on this topic over the past few years, the tone has rapidly shifted from "what's the potential" to "show me who's doing it" to "how do we get started?" And news of successful pilots of existing and emerging technologies continues on a weekly basis. Legislative 'innovation' also continues on a state and federal basis in response to societal and political pressure, and the 2008 election cycle.

In particular, the sense of urgency is highest relative to addressing climate change concerns and finding resources to address continued load growth at a time when prices of generation are rising quickly.

### **With this level of support, why is making energy efficiency work a challenge at all?**

In most cases, *this is still a concept in its infancy*. It doesn't even have a consistent name. Energy efficiency also is referred to as either part of or interchangeably with the Delivery System of the Future, demand-side management, Smart Grid, Dynamic Energy Response, and other names. Nobody has the complete answer, though pieces are falling in place.

People are arriving at the same conclusion in a variety of ways. Even as it's a common conclusion, implementation needs to be specific to a region and a utility. *One size will not fit all*. This is due to the fragmentation of industry business models and where each company and region is relative to installed base and applicable supply and infrastructure technology options. Implications will differ between utilities that own generation and those who don't. And benefits of efficiency depend upon which supply resources are avoided (e.g. gas peakers vs. coal fired baseload), and availability of renewable options. The ability of existing IT and communications

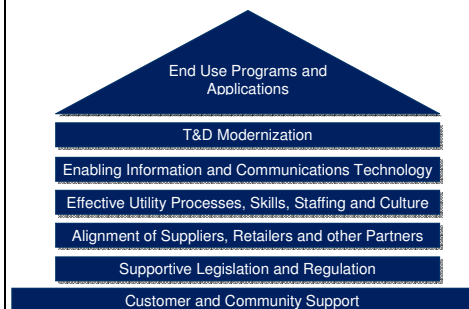
**Realizing the Full  
Potential of Energy  
Efficiency Requires  
Change on Several  
Dimensions**

systems to support the data collection, decision support and customer interaction depends on what individual utilities have in place. And existing infrastructure and design standards need to be addressed at the individual operating company level, and ultimately at the circuit level.

To meet potential legislative mandates, a utility could simply file an IRP, design some programs and outsource fulfillment and, hopefully, recover expenses. But that would miss most of the potential and benefits in this rare opportunity. The full potential leads to solutions customized to the needs of customers, utility infrastructure, regulatory structure and applicable technologies.

And the toughest part: *it is not a challenge the industry can solve on its own.*

Unlike traditional operational challenges, effectively capturing the potential of energy efficiency will require coordinated change along multiple dimensions, building on a base of customer support:



Source: Bridge Strategy Group

- 1) Programs and applications that help customers shape their usage need to be supported by...
- 2) Infrastructure that enables communication, programs, and higher levels, which requires...
- 3) IT and communications technologies that support the volume and speed of information exchange.
- 4) Managing information, programs and applications will require significant changes in staffing, skill requirements and core 'utility' processes such as resource planning, system operations, and distribution engineering

- 5) It will also require stronger relationships among consumers, utilities and 'channel partners' who support them
- 6) Legislation and regulation should remove barriers for utility participation and provides a strong framework for incremental investment
- 7) And these are only possible with a shift in consumer behavior, based on more information and options, and trust-based relationships with utilities and other partners, reinforced by community interaction

With this amount of parallel activity and the scope of entities involved, solutions cannot come entirely from utilities, although they are necessary components of any solution and ideally positioned for leadership.

Each utility, community and regulatory group will need to reach consensus on what can be done and how fast. And structuring that dialog is an effort in itself. But the discussion has fundamentally shifted from why to how. With a structured approach, involvement by many parties, and leadership from utilities, the potential of efficiency will be realized faster than currently imagined.

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