



Remarks for Panel Discussion:
New Technologies and Actors in the Grid Edge Space

DOE Quadrennial Energy Review
Public Meeting, Austin, TX, May 9, 2016

Prepared by

Doug Lewin, VP, Regulatory Affairs and Market Development, CLEAResult

Hello and good afternoon. I'm Doug Lewin, VP of Regulatory Affairs and Market Development at CLEAResult, the leading provider of energy efficiency solutions for utilities in North America. We have 2700 employees working with 200+ utilities in 70 cities across the US and Canada. We have teams of energy experts, technologists, engineers, marketers, and more that help utility customers at the grid edge use energy more efficiently. We work with over 22,000 contractors on over 900 programs in virtually every sector: residential, commercial, and industrial.

As many have alluded to throughout the day, the electric and gas utility industry is in the midst of a major transformation. States, advocates, utilities, and service providers are struggling to find regulatory and business models that fit this rapidly changing paradigm and incent utilities to work with customers to implement new technologies. Until recently, the industry and the regulatory model that supports it were oriented toward one main goal: build infrastructure. We take electricity for granted now, but as recently as 1970, 30% of consumers didn't have a single TV, 40% didn't have a washing machine, and 85% didn't have a clothes dryer.

The current regulatory model in place now was built to ensure mass electrification: everyone wanted a clothes dryer and color TV and lack of electricity wasn't going to hold us back. And let's acknowledge this fact: the regulatory model was enormously successful. It worked! We have highly reliable, safe, and affordable electricity and it's nearly universal in the US.

It worked by giving utilities a high return on equity to build, build, build. But today, load growth is projected around 1%, but has been consistently flat even as the country came out of recession. Sales last year were roughly equal to 2007 even though GDP went up over 10%. We still need infrastructure, and utilities will continue to earn on those investments, but the question is being asked from California to Utah to New York to Texas: how much is needed? And are we incenting the right types of spending?

In short, how do we align utility interests with increasing efficiency? Let's take an example, say a utility could spend \$50 million to upgrade transmission and distribution infrastructure or spend \$40 million to reduce demand so it wasn't needed. With a 10% rate of return, the utility loses \$1 million by reducing demand, and so, in what can only be described as sane and financially responsible behavior, the utility spends the \$50m. But what if they could earn 15% on distributed energy resources (DERs) like energy efficiency and demand response? Now they make \$1 million more from DERs and it would be sane and financially responsible to opt for DERs. Meanwhile, consumers would be on the hook for \$46 million instead of \$55 million. It's the quintessential win-win-win, but it's simply not done yet—partly because it's far more complex in reality than the simplified example I just gave.

Still, this is the fundamental question we need to address if we're going to maximize activity at the grid edge: how can utilities earn more from DER deployment than from conventional build-outs?

In tandem with the regulatory and business model questions, we need to focus on technology and consumer engagement issues. The description of this session alludes to the "digital and information revolution." Nearly 40% of customers nationwide—and over 90% in of customers in Texas—now have smart meters which provide the potential for utilities and third parties to target energy saving measures to consumers based on data analytics.

Companies like CLEAResult focus on bridging the gap between the customer, the utility, and the grid. The energy services industry is highly focused on the grid edge customer interface. We are increasingly able to leverage insights gained from energy efficiency programs with automated analytics to provide quick, accurate, and actionable information to consumers. This convergence between program data and device or grid information is where the next set of innovation is emerging.

The convergence of services and technologies are enabling a more flexible grid. For example, the services industry can increasingly deliver a suite of solutions including energy efficiency (HVAC, lighting, insulation, etc.) paired with connected devices, distributed generation, and storage, giving the home and business the potential to be a dynamic grid resource. Innovative pricing structures (e.g. time of use) coupled with data analysis from smart meter deployments, further enable the grid edge to become an active utility resource to address grid issues, whether caused by renewable intermittency, congestion, conventional plant outages, or unexpected spikes in usage and prices.

But we have to remember that for the vast majority of people, be they residential, commercial, or institutional customers, the most basic energy information is often difficult to access and even more difficult to analyze or turn into any sort of action. One of our most successful programs is called Resource Management Services which we implement for our client Entergy Texas in East Texas schools. We start by organizing utility billing data—which is often unorganized for entities with multiple buildings and departments—and then layer on analytics of 15 minute increment meter data. We then customize solutions with a phased approach: in the first year or so, it's mostly about operational and behavioral change, including retro-commissioning. This is in line with our approach which we call "People First, Buildings Second," meaning we need to start with a focus on behavioral and operational change first. Then we move onto lighting,

HVAC, and controls, including peak usage avoidance. By that point, energy management has literally proved its value through financial savings and is becoming more important to the organization. We can then pursue deeper retrofits including building envelope, water heating, heat recovery, and renewable energy systems.

Sophisticated control systems have been in commercial and institutional settings for a long time but with the help of utility programs and energy service providers, they are increasingly delivering higher quality data in real-time. The algorithms and decision logic are becoming extremely refined and automated, giving building operators and managers a greater and greater opportunity to implement effective strategies to manage energy use, demand response, storage, and distributed generation to their advantage.

The grid edge is full of opportunities. To maximize the potential of the grid edge, we need to address the fundamental issue of the utility business model. Utilities are rapidly moving toward cleaner sources and customer-centricity. "If it doesn't fit into clean energy, grid modernization or a focus on the customer, we're not doing it anymore," said Brian Wolff, EEI's executive vice president for public policy last month. I'm going to repeat that for emphasis: "If it doesn't fit into clean energy, grid modernization or a focus on the customer, we're not doing it anymore."

Let's figure out how to put the profit motive behind that trend. If we can find a way for utilities to earn more and consumers to save more, all while strengthening the economy and improving the environment, the grid edge will become the leading edge of an energy transformation.

Thank you for the opportunity to speak here today. I look forward to the discussion.