The traditional investor-owned electric utility business model is a centralized, vertically integrated monopoly. These utilities provide power to roughly 69 percent of U.S. consumers and earn a return on equity based on capital investments, with costs recovered from the amount of kilowatts used by consumers. Today, that model is at a crossroads, beset by more new challenges than ever in its 100-plus-year history.

The industry is witnessing the rise of a wide range of disruptive forces — distributed generation, electric vehicles, demand response, renewable integration and storage, microgrids and more — all while many utilities are experiencing flat or declining load growth.

Recent research by Accenture reflects the concerns of utility executives about new threats to the existing utility business model. Of greatest concern for utilities is that distributed generation, energy storage and energy efficiency advances will “increase the likelihood of customers using the grid only as a backup resource for peak supply or even migrating off the grid entirely.”

So, how do we evolve to the optimal electric system of the future?

“It’s a daunting challenge for everybody who has a vested interest in the issue,” says Becky Harrison, Chief Executive Officer of GridWise® Alliance, a coalition advocating for the modernization of the nation’s electric system. “It’s all about change and change is never easy.”

The GridWise Alliance is bringing together stakeholder groups to explore what the future utility business model might look like in its Grid of the Future Action Plan — a series of prescriptive reports designed to provide a roadmap and recommendations for grid and energy delivery transformation.

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As Hawaii quickly moves to providing grid services by engaging stakeholders in the development of innovative solutions, many view it as a test case for tomorrow’s utility — or, as PUC Chair Hermina Morita recently characterized it, Hawaii is sending us “a postcard from the future.”

New York: Distributed System Platform Provider

In New York, on the other hand, extreme weather events like Hurricane Sandy have spurred new interest in the benefits of integrating distributed energy onto the grid for increased reliability. To that end, the New York Public Service Commission recently launched a Reforming the Energy Vision (REV) proposal. It is designed to move utilities from a traditional utility model to a distributed system platform provider (DSPP) and to make the regulatory and ratemaking changes needed to support that new model.

The goal is to reduce peak demand and mitigate extreme weather event threats to the distribution system by increasing behind-the-meter resources while also reducing the need for future investments in generators and delivery infrastructure.

The DSPP model will position utilities as service providers that coordinate distribution of electricity produced by hundreds of small generators, with an eye toward increasing energy efficiency and empowering consumer choice.

As they continue to move the utilities from the traditional to a DSPP model, New York’s regulators will try to come up with rate mechanisms that encourage consumer involvement in distributed energy resources, such as photovoltaics and other renewables. It’s a true paradigm shift, one in which utilities will need to explain and demonstrate the real value of the services they provide.

With its new proposal, New York is attempting to reform the energy vision. “Although not every state will pay attention to what New York is doing, many will,” says Ward Camp, Vice President, Regulatory and Governmental Affairs, Landis+Gyr. “The DSPP model moves us away from a commodity-based rate recovery system and toward a services-based system and transactive energy future. Transactive energy is here and continuing to happen.”

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Massachusetts: Keeping the Traditional Model?

In Massachusetts, a deregulated state that is part of the New England Independent System Operator grid, the Department of Public Utilities (DPU) is seeking a solution to enable the state to bring price signals to electricity consumers and achieve three objectives: reduce outages, optimize demand and integrate distributed energy resources. The hope is to retain the core market structure by leveraging advanced metering and to evolve it from basic default rates to dynamic, time-based pricing.

Where Are We Headed?

The initiatives in New York and Hawaii, in particular, are prompting new industry discussions about the utility business model of the future and are helping industry stakeholders answer many questions. How will utilities be compensated in the future for the value proposition they’re bringing? What should their role be in managing distributed generation or providing microgrids? Can they become a trusted advisor if distributed energy resources are unregulated?

From reliability concerns and environmental regulations, to the decline in load growth and the continuing growth of solar PV and other distributed generation, the industry faces a “perfect storm” of challenges. In response, the industry will require a new regulatory framework and business model to adapt in an environment of fast-paced changes.

Individual utilities are already exploring new business models. From adding home services to active participation in the solar market, they are working to succeed in this new marketplace. But as the pace of change increases, utilities must collaborate with regulators and all other stakeholders in order to resolve the new business models.

“We’re changing the equation,” says Harrison. “We have to make sure that we evolve the system in a way that everybody pays their fair share. Right now, there’s no agreement about what the final business model will look like.”

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