

Transitioning to the Utility of the Future

Fully embraced by the Hawaiian Electric Companies and Green Mountain Power

ACROSS THE COUNTRY, MANY UTILITIES ARE in the midst of transitioning to the utility business model of the future. That emerging business model embraces the transition away from firm, fuel-fired central station generation—sited, owned, and operated by the few—to renewable distributed energy resources (DERs)—sited, owned, and operated by the many.

Regulatory policy in several states (California and New York immediately come to mind) governs the transitioning



of a number of these utilities. On the other hand, several utilities are taking the bull by the horns (an apt metaphor given the enormity and ornery nature of this transformation) to systematically transition to the utility of the future on their own terms.

I use the term “future” loosely because, for a number of utilities, the future is already here. Two such utilities bookend the country: the Hawaiian Electric Companies—the largest investor-owned utility (IOU) in Hawai‘i—and Green Mountain Power—the largest IOU in Vermont.

Over the past several years, I have been fortunate to work with both utilities, witnessing first-hand their struggles and successes in their transition to the utility of the future. In addition, I have held an integral role in their most recent integrated resource plans (IRPs), which outline their plans for opening their doors fully to DER penetration on their

power grids to pursue their goal of 100 percent renewable generation.

The Hawaiian Electric Companies.

Hawai‘i was the first state to mandate a 100 percent Renewable Portfolio Standard (RPS). In their December 2016 integrated resource plan (entitled a Power Supply Improvement Plan by commission edict), the Hawaiian Electric Companies outlined their plan for achieving their 100 percent RPS goal five years ahead of the 2045 deadline.

As stated in their resource plan’s Executive Summary: “Under multiple longer-term scenarios, our RPS can be at least 72 percent by 2030 and reach at least 100 percent by 2040, ahead of the 2045 deadline. In the aggregate, our action plans estimate achieving a 52 percent RPS by 2021 by adding 326 megawatts (MW) of rooftop solar, 31 MW of Feed-In Tariff (FIT) solar generation, 115 MW of demand response (DR), 360 MW of grid-scale solar, and 157 MW of grid-scale wind resources across all five islands we serve.” The 326 MW DER represents the maximum projected amount by 2021.

Their plan also includes enabling the island of Moloka‘i to be 100 percent renewable by 2020, maximizing demand response, modernizing their grid, and preserving flexibility to accommodate emerging technologies (such as hydrokinetic energy), innovation, and changing circumstances. In other words, embracing the foundational principles incumbent to the utility of the future.

Green Mountain Power. The story of their 2018 IRP (filed in December 2018) is one of the innovation and change that is a hallmark of the utility of the future:

- ◆ Change from the old energy system of centralized, fossil fuel-based generation transmitted through traditional poles and wires to customers far away, toward lower carbon, renewable, distributed generation with new, complex local and regional grid management opportunities.

- ◆ Change from one-way electricity flowing from a central plant to a customer toward two-way energy information, storage, and delivery between customers and to the benefit of everyone.
- ◆ Change from steady and increasing loads toward flat and declining loads, as customers choose self-generation plus energy storage and utilize beneficial energy efficiency programs.
- ◆ Change from separate fuels for and treatment of thermal, lighting, and transportation energy toward convergence through the strategic electrification of resources.

It wasn’t until 2015 that Vermont passed their Renewable Energy Standard (RES) that mandated renewable energy goals. Divided into three Tiers, RES requires a total of 75 percent of retail sales by 2032 to be derived from a combination of grid-scale renewable resources and DERs. The state’s 2016 *Comprehensive Energy Plan* called for attaining 90 percent of its energy from renewable resources by 2050.

Fortunately, Green Mountain Power had already embraced the utility of the future business model and was well on its way toward meeting these mandated goals. The utility also enables customers to connect storage systems to the power grid, either through their program that offered 2,000 Tesla PowerWall 2.0 batteries at a reduced price as well as any other privately-purchased BESS. Both are first-of-their-kind programs. It’s no surprise that the utility is guided by the “customer as North Star” principle.

Both utilities have thrived within the utility of the future business model. Other utilities can benefit from their lead. 🌟

—RICH MAGLIANI

Solari assists utilities with creating their integrated resource plans (IRPs) through an integrated resource, distribution, and grid planning process for incorporating renewable generation.

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