HAWAIʻI ISLAND ELECTRIC UTILITY BUSINESS MODEL

Prepared for The Kohala Center
December 2012

The electric utility may need to adjust its business model to reflect the substantial changes that have already occurred in the electricity market in Hawaiʻi. While electricity consumption has risen steadily for many years, the recent economic recession, the state-wide push for energy efficiency, and the high retail price of electricity have all contributed to produce negative electricity sales growth since 2007 in stark contrast to the healthy 2.5% growth per year predicted in the 2007 HELCO Integrated Resource Plan.[1] The prospect of flat or falling electricity sales for the foreseeable future, combined with rising operating and maintenance costs due to the utility's aging generators and power grid, presents serious questions about the long-term profitability of the electric utility. In an effort to address these financial threats to the utility (and to support parallel energy efficiency and distributed renewable energy policies), the Public Utilities Commission approved in 2012 a new rate structure known as revenue decoupling that will help keep utility revenues up even if sales continue to fall (by automatically increasing electric rates). However, it is not clear this policy tool will be successful.

The decoupling mechanism is partly designed to "remove [the utility's] disincentive to aggressively pursue Hawaii's clean energy objectives". Assuming that the decoupling mechanism performs as intended and results in increased customer-sited renewable generation and energy efficiency measures, both of these results will almost certainly further erode the utility's sales. The decoupling mechanism will ensure that utility rates rise to match any drop in sales, but this could lead to vicious cycle where decoupling results in continual rate increases, driving away customers and forcing relentless rate hikes to maintain service to a dwindling (and increasingly impoverished) remaining customer base.

In other words, sales declines that are perceived to threaten the utility's profits has prompted a regulatory change (decoupling), and decoupling is intended to spur more distributed generation and energy efficiency, which results in continued or accelerating sales declines, which results in continually higher rates for essentially a reduced level of service.

Furthermore, while decoupling was intended in part to increase renewable energy penetration on the grid, flat or declining electricity consumption means the increase in renewable energy must result in the curtailment of existing generation, either conventional or possibly existing renewable sources. Decoupling sales from revenues will not necessarily remove the incentive for the utility to favor curtailment of existing renewable generation over curtailment of their own generation units.

More fundamentally, the cost of purchasing electricity from HELCO has already become so expensive that almost any alternative (including most renewable options) would be cheaper for the ratepayer. This is likely to be exacerbated in the future as the cost of renewable energy technologies continues to fall.

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[1] Electricity sales growth of 2.5% per year forecast until 2020 and 1.5% growth per year from 2020 to 2030. HELCO IRP-3.

The decline in renewable electricity generation costs has already strained the economic viability of the utility's current business model. Customers have a significant financial incentive to produce their own electricity, either through the retail net metering program that effectively pays customers about $.42/kWh, or under the Feed-in-Tariff that pays almost $.22/kWh. These rates are lucrative enough that several companies will offer to build a solar system on a residential roof at no cost, and the customer can purchase solar energy at less than half the cost to buy it from HELCO. Even entirely off-grid options (which are more expensive due to the cost of battery storage) can provide significant value, and will become even more attractive if the retail HELCO rate continues to rise.

The only way for HELCO to substantially reduce the cost of electricity (and thereby become more attractive relative to competing technologies) is to shift its own cost of generation from relatively expensive petroleum-based fuels to lower-cost options such as geothermal, wind, and solar. HELCO's cost of generation, which includes cost of fuel and operations and maintenance of its generating units, had risen to $.24/kWh in 2011 (the retail price paid by customers, which includes administrative costs, transmission, distribution, capital expenses, and company profits, is far higher, at more than $.42/kWh on average).[2] The cost of generation is mostly a function of the cost of importing fuel oil from O'ahu. The cost of fuel oil is linked to the cost importing petroleum to the state. Due to the state's isolation and other factors, most petroleum comes from Asia and the Middle East, which commands a large premium on North American and European petroleum prices. Since 2006 HELCO's retail electricity price has risen 40%, and the current extraordinary cost is not likely to come down unless the utility decides to replace its own generators with lower-cost renewable resources. However, replacing its own generators could significantly lower the utility's rate base, pushing down profits, presenting another business model challenge.

The financial challenge facing the utility (that of continually rising costs for its core services, while the costs of competing services are falling rapidly) is formidable. If the utility cannot reverse this trend, it may begin to accelerate out of control due to the rate increase provisions built into the decoupling mechanism. There are a number of alternative business models that could improve the long-term viability of the electric utility (including cooperative, municipal, or community-based models), but these would involve radical departures from the status quo, and they may not be immediately attractive to a traditional investor-owned utility. However, given the weight of the evidence in long-term electricity market dynamics, a radical change, potentially including an exit from the industry, may provide the best option to maximize shareholder value and at least allow current utility shareholders to redeploy their capital into more attractive investment opportunities.

[2] Current contacts with independent power producers such as Puna Geothermal Venture, Hamakua Energy Partners, and the two existing wind farms stipulate that the price paid for purchased electricity is directly tied to HELCO's cost of generation (primarily a function of fuel costs). All told, more than 60% of the retail cost of electricity is linked to the price HELCO pays to import fuel to the island.