

The Energy Corporate Challenge in a Changing World  
Mike May  
President & CEO  
Hawaiian Electric Company, Inc.

Hawaii's energy and environmental situation is unique. The islands form the most remote archipelago on earth and are especially vulnerable to disruptions of sea-borne energy supply as well as impacts of global climate change. Each island's grid must stand alone with no interconnections possible to the continent or (so far) to other islands. Two legs of Hawaii's economy -- military and tourism -- are energy intensive. Hawaii also depends on a benign physical environment for tourism and the quality of life needed for economic growth. Though its contribution to climate change is small, Hawaii is perhaps the state most vulnerable to its impacts (rising seas levels, weather changes). Finally, with little industry, warm weather and short driving distances, Hawaii residents are among the lowest per capital energy consumers (43rd in nation) but pay some of the highest electricity and gasoline bills.

For the reasons described -- economy, environment, and security -- the oil-based energy system that has worked well for 80+ years will no longer do. However, some things are off the table for geological or political reasons, including nuclear, large-scale hydro and natural gas (due to lack of natural gas infrastructure). The political environment is complex as well for a publicly regulated, shareholder owned utility challenged by:

1) a renewable portfolio standard law; 2) the nation's second state-level global warming act; 3) a Hawaii Clean Energy Initiative signed between the Governor and U. S. Department of Energy to reach 70 percent renewables by 2030; 4) the rising price and uncertainty of supply of oil.

Coming efforts to limit carbon emissions -- through restrictions, taxes and fees or a cap and trade system with either allocated or auctioned caps -- offers another still uncertain challenge. Low energy use with little price elasticity will make Hawaii a likely loser in a cap and trade scenario, especially if air travel is debited to the islands. Further, purchase of offsets within Hawaii may be more expensive than elsewhere, resulting in a continued or increased outflow of payments and capital needed to pay for infrastructure change and offset the inequalities and social disruptions of carbon control.

Further, Hawaii can not reduce use of imported oil without recreating its air, sea and ground transport systems. Air travel is a huge challenge as is ocean transport; both are major emitters. Ground transport offers the most opportunities: mass transit, more fuel-efficient vehicles, more self-propulsion, tele-commuting and soon (we hope) pure electric and plug-in hybrid vehicles that take advantage of off-peak electric capacity at lower carbon impacts than the present fleet.

Our response starts with energy efficiency and conservation, plus renewable energy. The RE portfolio is diverse in technology and significance: waste-to-energy, biomass, geothermal, solar, wind, hydro, wave and, seawater air conditioning. Renewables in the long run will provide energy security, local industry and more stable prices. What we will all need to accept in the short term is that there be investments necessary to develop renewables and in some cases, near-term prices will be higher.

Hawaii's greatest immediate opportunity is fuel substitution; an option not shared by most other states' energy systems (those dependent on coal or large-scale hydro). Substituting or blending biofuels in existing generation units can make changes while not walking away from a huge capital investment.

Asked to "dream the big dream," our vision of a preferred energy future includes: 1) Aircraft flown and ships powered with renewable biofuels; 2) Wind turbines and wave platforms on horizons across the state; 3) Solar water heating, photovoltaic and compact solar systems on virtually every roof, all supporting and supported by a "green" grid and "smart" meters; 4) Pure electric, plug-in hybrid and high-mileage vehicles, mass transit and personal propulsion; 5) Our present generation fleet (less a few retirees) fueled by biofuel; 6) Green fields and "algae farms" providing local feed stocks to provide a significant share of fuel for electricity and transportation; 7) Last but first in order of attainment, maximum efficiency in every building and home. All this makes Hawaii a model for other island states and nations and any area seeking a measure of energy self-determination.