



**Hawaiian Electric
Maui Electric
Hawai'i Electric Light**

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CONTACT: Darren Pai, 808.543.7753
darren.pai@hawaiianelectric.com

FOR IMMEDIATE RELEASE

Hawaiian Electric Companies submit updated 30-year energy plans charting a course to 100 percent renewable energy

HONOLULU, April 1, 2016 – The Hawaiian Electric Companies today outlined a detailed plan charting a 30-year course leading to 100 percent renewable energy in Hawai'i. The plan lays out near-term actions to lay the foundation for meeting the most ambitious energy goals in the country, while preserving the flexibility needed to adapt to future advances in technology, changes in policy, and reductions in development costs.

The Power Supply Improvement Plan Update has been submitted to the Hawai'i Public Utilities Commission (PUC) for its review. Based on the update, collectively, Hawaiian Electric, Maui Electric, and Hawai'i Electric Light Company could:

- Increase private rooftop solar by more than 250 percent from current levels and 370 percent over 2014 levels, when the Companies' last Power Supply Improvement Plans were prepared
- Achieve 100 percent renewable energy by 2045, the highest level of any state in the country
- Achieve 100 percent renewable energy by 2030 on Moloka'i and Lāna'i and by 2040 on Maui and Hawai'i Island

And with Hawai'i's small and islanded power grids, it will remain especially critical to preserve a reliable and resilient power grid to serve customers and support the companies' clean energy transformation.

Customers will receive the benefits of modernized generation and a smarter power grid better able to integrate increasing renewable energy, a cleaner environment, more programs that offer them opportunities to save, and improved efficiencies throughout the energy system. As a result, inflation-adjusted electric rates can remain stable and relatively flat overall as investments are made on the path to 100 percent renewable energy.

"Our plans show that a 100 percent renewable energy future can be achieved," said Alan Oshima, president and CEO of Hawaiian Electric Company. "We want to work with parties from all segments of our community - government, business, community, and environmental groups – to refine the plans for Hawai'i's energy future. And while the vision remains the same, a 30-year plan to get there will naturally change given the rapid development of new technology, changing policy and costs, and other factors."

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Next steps on the journey

Hawai'i is already a national leader, achieving more than 23 percent renewable energy in 2015. The path to 100 percent renewable energy will continue with five-year action plans to maintain the momentum by developing projects and programs that will lay the foundation for even more progress.

These action plans, which largely require PUC approval, include:

- Implementing a smart grid by installing the modern wireless network, smart meters and other enhanced technology to modernize our existing power grid, increase customer options, and improve the integration of distributed energy resources.
- Issuing Requests for Proposals for projects for a variety of renewable energy projects with a combined capacity of more than 350 megawatts (MW) to be developed by 2022. With PUC approval, these projects would be developed through a competitive process and located on O'ahu, Hawai'i island Maui, Moloka'i, and Lāna'i.
- Taking the next steps to pursue the benefits of LNG, which can serve as a lower-cost, cleaner fuel during the transition to 100 percent renewable energy.
- Supporting the continued growth of private rooftop solar through new programs.
- Implementing a Demand Response Management System to provide customers with more options and to increase integration of rooftop solar.
- Installing circuit level improvements on all islands (upgraded conductors, voltage regulators, transformer replacements, reconfiguring circuits, distributed energy storage, advanced inverters) to safely and reliably integrate renewable energy.
- Pursuing energy storage options, including both utility-scale systems, energy storage integrated with rooftop PV systems, and pilot programs evaluating new technologies.
- Implementing Community-Based Renewable Energy, to allow customers who cannot or choose not to take advantage of rooftop solar to receive the benefits of participating in a renewable energy program.
- Retiring utility generation that is not ideally suited to support the integration of renewables, including four O'ahu generators at Kahe Generating Station, two at Waiiau Power Plant, as well as four generators that make up the Kahului Power Plant on Maui, and one steam generator in Puna on Hawai'i Island.
- Modifying and improving existing generation to help facilitate the integration of variable renewable generation (lower operating levels, ramp improvements).
- Microgrids at military facilities that operate in complementary fashion interconnected to the utility grid and provide resiliency and energy security for all our customers by using diversified locations for firm generation.

A diverse, renewable portfolio

The energy plan update included detailed computer modeling of more than 130 different scenarios that could possibly meet the most aggressive energy goals in the country. The Companies' plan calls for partnering with customers and renewable energy developers to invest in a diverse mix of renewable energy resources. By 2045, the diverse mix of resources serving O'ahu, Maui County, and Hawai'i Island could include:

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- 1215 MW private rooftop solar energy
- 36 MW feed-in-tariff solar energy
- 872 MW utility-scale solar energy
- 529 MW onshore wind energy
- 800 MW offshore wind energy
- 21 MW hydropower
- 118 MW geothermal energy

Off-island resources, such as offshore wind and the use of an interisland cable, need to be studied further to better understand their respective risks and relative costs. While instructive for directional planning, this prediction of a renewable resource mix 30 years into the future is certain to evolve as the Companies adapt to take advantage of rapidly evolving technology, changing energy policy and pricing, and many other variables.

LNG coupled with modern generation as a cleaner, more reliable, and lower cost transition to 100 percent renewable energy

Hawaiian Electric will shortly ask the PUC for approval of a contract to import liquefied natural gas (LNG) for electricity generation starting as soon as 2021 and ending by 2040. LNG would ultimately be phased out to achieve 100 percent renewable energy.

Natural gas, available and used widely for power generation around the world, is less volatile in price, much cleaner, and likely to remain cheaper than oil, especially as today's low oil prices rise as expected. Modern generators fueled with natural gas can provide the most cost-efficient and cleanest power needed while Hawai'i moves to 100 percent renewable energy.

The option with the lowest overall cost and most significant reduction in emissions includes retiring three oil-fired steam generating units at the Kahe Generating Station in 2020, when each would be over a half-century old, and replacing with a new, fuel-saving, more efficient combined-cycle unit. The new combined cycle unit, the associated retirement of older units, the conversion of a number of existing units to be able to burn natural gas, and entering into a contract to supply necessary LNG are by far the least costly means of making the transition to renewable resources while assuring system reliability and environmental compliance. When measured against current carbon dioxide emission levels, it is estimated this option, along with other system improvements, could reduce these emissions by more than four million tons when this option could be fully operational. This is the equivalent of removing 126,000 passenger vehicles from the road each year. Additionally, the combined-cycle unit will be capable of using renewable biofuels, making it more cost effective to introduce renewable diesel or gas fuels to the system when required.

Plans also call for using LNG in two existing Kahe generators (Units 5 and 6) and at the Kalaeloa Partners plant in Campbell Industrial Park. In addition, LNG is proposed for Ma'alaea power plant on Maui and the Keahole and Hamakua Energy Partners plants on Hawai'i Island. LNG could potentially be used at the planned Schofield Barracks Generating Station and other future sites.

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The LNG plan and the new combined-cycle unit to be presented to the PUC depend on the financial support and expertise that would be available as a result of the merger of Hawaiian Electric with NextEra Energy. If the merger does not go forward, Hawaiian Electric is still interested in pursuing the benefits of LNG for customers, but would need to negotiate a different contract, likely with lower, delayed savings, and emissions reductions for customers.

Open, collaborative planning process

The Hawaiian Electric Companies followed an open, collaborative process to develop these plans. The 23 parties named to the docket by the PUC provided written and verbal input, which informed and influenced the analysis. In addition, the Hawaiian Electric Companies held multiple stakeholder and technical conferences to share information and collect feedback from the parties. Several interveners in the proceeding also participated in many detailed planning meetings.

Additional independent technical analysis was provided by the U.S. Dept. of Energy, National Renewable Energy Laboratory, the Hawaii Natural Energy Institute, and the Electric Power Research Institute.

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