Hawaiian Electric
Maui Electric
Hawai'i Electric Light

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Hawaiian Electric Company Status Report

General Utility Description
Hawaiian Electric, Maui Electric, and Hawai'i Electric Light (collectively the Hawaiian Electric Companies) serves the islands of O'ahu, Maui, Moloka'i, Lāna'i and Hawai'i Island. Each island has a standalone grid.

The Hawaiian Electric Companies, under the parent company Hawaiian Electric Industries, are investor-owned and regulated by the State of Hawai'i Public Utilities Commission. (More on next page.)

Equipment and Systems
Manually probed data is translated from .HHF format through MV90 to Lodestar file format and imported to SAS for analysis. Effective May 2012, Customer Information System was migrated to SAP.

Current Load Research Projects
- Class Load Studies (one for each island) done on five year cycle.
- Evaluation of Electric Vehicle (EV) Time-of-Use Pilot Rate loads
- Net Energy Metering (NEM) Exploratory study

Future / Anticipated Load Research Issues
<u>Smart Grid:</u> Initial rollout of SmartGrid (with Silver Spring Networks) is currently in progress.

<u>Hawaii Clean Energy Initiative:</u> Achieve 70% clean energy by 2030 with 30% from efficiency measures, and 40% coming from locally generated renewable sources.

<u>Net Energy Metering:</u> Hawai'i's utilities lead the nation in solar PV, with more than 35,000 systems connected to our grids which represents about 10% of our residential customer base. Some circuits are already seeing PV capacity that exceeds 500% of the minimum load.

Challenges
High electric rates, subject to price fluctuations of imported oil. Between 2009 and 2011, average electricity prices on Oahu increased by more than 50%. Of that increase, 94% was tied to increases in the price of oil.

Constraints of standalone grids limit the amount non-firm renewable energy sources that can be adopted.

Power facts

The Hawaiian Electric Companies – Hawaiian Electric, Maui Electric and Hawai‘i Electric Light - provide electricity for 95% of residents of the State of Hawai‘i on the islands of O‘ahu, Maui, Moloka‘i, Lāna‘i and Hawai‘i Island. Hawaiian Electric – established in 1891 by a royal charter from King David Kalākaua – remains one of the last major, locally owned and operated companies in the state.

Our three companies employ 2,800 people. Approximately 25,000 Hawai‘i residents are shareholders of Hawaiian Electric’s parent company, Hawaiian Electric Industries (HEI).

HAWAIIAN ELECTRIC

Customers:..... 299,528

Firm generation:

Hawaiian Electric plants

Waiau (oil) .....500 MW
Kahe (oil) .....650 MW
Campbell Industrial Park (biofuel).. 120 MW

Independent power producers

HPOWER (waste-to-energy): .. 73 MW
Kalaeloa Partners (oil): .....208 MW
AES-Hawai‘i (coal): .....180 MW

Total firm capacity..... 1,731 MW

Deactivated units:

Honolulu Power Plant (oil).....113 MW

Variable (as-available) generation:

Independent power producers

Kahuku Wind ..... 30 MW
Kawailoa Wind ..... 69 MW
Tesoro: ..... 18.5 MW
Chevron:.....9.6 MW
Kalaeloa Solar Farm .....5 MW
Kalaeloa Renewable Energy Park .....
.....5 MW
Kapolei Sustainable Energy Park
.....1.2 MW
Customer-sited solar .....210 MW

Approximate non-firm capacity:
..... 348.3 MW

Renewable energy percentage*
.....11.7%

MAUI ELECTRIC

Serving Maui Island, Moloka‘i & Lāna‘i
Customers 69,577

Firm generation:

Maui Electric plants (oil)

Mā‘alaea .....212.1 MW
Kahului .....37.6 MW
Lāna‘i .....10.4 MW
Moloka‘i ..... 12 MW
Hāna (distributed generation): ....2 MW

Independent power producers

HC&S (hydro, bagasse, coal,
recycled oil, oil): .....16 MW

Total firm capacity..... 290.1 MW

Variable (as-available) generation:

Independent power producers

Kaheawa Wind Farm I .....30 MW
Kaheawa Wind Farm II.....21 MW
Auwahi Wind Farm .....21 MW
Mākila Hydro: .....0.5 MW
Lāna‘i Sustainability Research (PV)
.....1.2 MW
Customer-sited solar .....40.9 MW

Approximate non-firm capacity:
..... 114.6 MW

Renewable energy percentage*
.....29.0%

HAWAI‘I ELECTRIC LIGHT

Customers 82,637

Firm generation:

Hawai‘i Electric Light plants (oil)

Hill.....35.5 MW
Puna .....38 MW
Keāhole.....80.6 MW
Kanoelehua .....21.8 MW
Waimea: .....8.3 MW
Dispersed generation: .....4 MW

Independent power producers

Puna Geothermal Venture ..... 38 MW
Hāmākua Energy Partners (oil)..60 MW

Total firm capacity: ..... 286.2 MW

Deactivated units:

Shipman (oil).....15.2 MW

Variable (as-available) generation:

Hawai‘i Electric Light plants

Wailuku River Hydro .....12.1 MW
Waiau Hydro.....1.1 MW
Pu‘u‘eo Hydro .....3.25 MW

Independent Power Producers

Tawhiri (wind).....20.5 MW
Hāwī Renewable Development (wind) ..
.....10.56 MW
Keāhole Solar Power (concentrated
solar) .....0.5 MW
Other small producers (wind, hydro, ...
oil) .....1 MW
Customer-sited generation ....38.2 MW

Approximate non-firm capacity
..... 87.2 MW

Renewable energy percentage*
.....48.1%

* Renewable energy percentages as of 12/31/13 as defined by Hawai‘i Revised Statutes 269-91