

Hawaii's renewable resources

To produce the most reliable power, utilities and other power generators rely on firm energy sources, which are available all the time. In Hawaii, firm renewables that offer reliability comparable to oil include geothermal and biomass. Non-firm sources like wind or sun still need back-up generation to ensure that electricity is available 24 hours a day despite weather conditions.

Firm renewables

Geothermal energy comes from steam made from molten lava deep inside the earth. HELCO buys power from Puna Geothermal Ventures, which plans to expand production from 30 MW to 60 MW. In the 1980s, HELCO operated and maintained a 3-MW demonstration power plant for seven years, using the geothermal well developed by the University of Hawaii.



Puna Geothermal Ventures, Big Island

Biomass in Hawaii includes:

Bagasse or sugar cane waste is burned as fuel to produce electricity on Maui and Kauai. Because of the contraction



Cane bagasse

of the sugar industry, the amount of bagasse has decreased.

Garbage is used by H-Power to produce 46 MW bought by HECO.



H-Power plant

Refuse-to-energy works in areas with large, concentrated populations. H-Power also saves on some waste disposal costs.

Non-firm renewables

Wind farms have been operating in Hawaii for decades. In the 1980s, HEI invested in the multi-million, 12-MW Kahuku wind farm. Low production



HELCO's Lalamilo Wind Farm

and equipment problems led to its shutdown. Since then, wind technology has improved and HELCO and MECO are planning to buy power from new wind farms.

Hydro or water power facilities produce a small amount of energy. Large hydro dams found on the Mainland are not feasible in Hawaii.



HELCO's Waiiau hydroelectric plant



Photovoltaic facility in Kihei, Maui

Photovoltaic (PV) or solar electric systems use silicon cells to turn sunlight into electricity (versus solar water heaters which use the sun to heat water). HECO, HELCO, and MECO are operating several demonstration projects to learn more about PV.

What is "renewable energy?"

Electricity is produced from a variety of energy sources. Some are fossil fuels such as oil and coal (natural gas is also a fossil fuel, but is not available in Hawaii). Other energy sources are "renewable," which means they can be replenished, often using sources from nature.

Why use renewable energy?

- **To reduce Hawaii's use of oil.** Although Hawaii will continue to need fossil fuels, Hawaiian Electric is committed to helping reduce oil use.
- **To protect the environment.** Hawaii's air is among the cleanest in the nation. HECO, HELCO, and MECO work hard to keep it that way by complying with stringent federal and state regulations governing emissions from power plants. Renewable energy sources also help by producing fewer emissions than fossil fuel generation.

