

Advancing Diverse Renewable Energy Technologies (continued)

or agricultural waste. The foundation will promote research and development, assessment and demonstration projects for biofuels. It has sponsored workshops around the state to discuss biofuels in Hawaii's future and establish strong sustainability standards.

- Participated in development of State Biofuels Master Plan and began development of a company biofuel working plan to coordinate all fuel acquisition with goal of using as much "green" liquid fuel as possible.

Wind

- Supported First Wind Hawaii in construction of the 30 MW Kahuku Wind Farm, the first such facility on Oahu in nearly 30 years. Expected to be in service in early 2011.
- Working with First Wind Hawaii on potential 70 MW Kawaihoa Wind Farm to be developed on lands above Haleiwa, one of the projects that responded to the call for up to 100 MW of new renewable energy generation on Oahu.
- Completed and sent to the PUC for approval a purchase power agreement with First Wind for Kaheawa Wind Power II, a 21 MW addition to the Kaheawa Wind Farm above Ma'alaea in West Maui.
- Continuing work with Sempra Wind Power on development of a potential 21 MW wind farm at Ulupalakua in East Maui.
- Continuing technical, environmental, community outreach and information work on Interisland Wind project to import up to 400 MW of wind power from Molokai and Lanai to Oahu.
 - Working with State of Hawaii on the undersea cable portion for which an environmental study has begun.
 - Assisted in completing a Technical Review Committee report by national and international experts (including from the National Renewable Energy Laboratory).
 - Studying modifications to generators, upgrades to the transmission grid and new technology to reliably integrate ever increasing amounts of energy from variable renewable sources like sun and wind into the existing system.
 - Upgrading interislandwind.com website to provide public information on all aspects of the project.

Other renewable energy projects

- Participating in working group established by State Legislature to discuss geothermal energy expansion on Hawaii Island and perhaps Maui, taking into account community and cultural concerns.
- Negotiating garbage-to-energy projects on Oahu and other islands.
- Continued discussions and supporting research on future renewable technologies including ocean thermal energy conversion, wave energy, expanded concentrating solar power and others.
- Continued working with biomass developers, primarily on Hawaii Island.
- Supporting Honolulu Seawater Air Conditioning

HCEI RENEWABLE ENERGY PROJECTS SUMMARY*

Projects Identified In Energy Agreement

Status	No. of Projects	Total Size (MW)
In-service <ul style="list-style-type: none"> Campbell Industrial Park Combustion Turbine No. 1 ("CIP CT-1") Lanai Sustainability Research (Lanai Solar) Keahole Solar Power (Sopogy) 	3	111.7
PUC approved <ul style="list-style-type: none"> Airport Dispatchable Standby Generation Project Kahuku Wind Power 	2	38
Under PUC review <ul style="list-style-type: none"> Honua Power Kaheawa Wind Power II 	2	27.6
Active/Non-Utility Generator ("NUG") Form received (technologies include waste-to-energy, ocean thermal, wind power, photovoltaic)	11	658
Awaiting NUG Form	1	10
Unable to reach agreement on termsheet	2	29.5
Other projects – deferred or no updates at this time	12	--

Additional Projects

Status	No. of Projects	Total Size (MW)
Active/NUG Form received (technologies include photovoltaic, biomass)	14	46.4
Awaiting NUG Form or action from developer (technologies include waste-to-energy, ocean thermal, photovoltaic, concentrated solar power, wind, biomass, hydro)	14	71.9
Unable to reach agreement on termsheet	1	10.3

*As of 12/2010



Hawaiian Electric Company
Maul Electric Company
Hawaii Electric Light Company
January 2011

Hawaii Clean Energy Initiative Hawaiian Electric Companies' Energy Agreement Update - Year Two

PICKING UP THE PACE

In October 2008, the Hawaiian Electric companies joined the Governor of Hawaii, Hawaii Department of Business, Economic Development and Tourism (DBEDT), and the Division of Consumer Advocacy in an energy agreement as part of the Hawaii Clean Energy Initiative.

The agreement – the most aggressive and far-reaching effort in the nation – aims to move Hawaii decisively away from imported oil for electricity and ground transportation toward diverse, local renewable energy and energy efficiency.

The goal at Hawaiian Electric, Maui Electric and Hawaii Electric Light Company is greater energy and economic security

for Hawaii and reduced greenhouse gas emissions that are responsible for the climate change to which our islands are especially vulnerable. Making the needed investments now can provide more stable and lower energy costs in the long-run.

As we ended the second year, the pace is picking up. This list summarizes some key actions by the Hawaiian Electric companies in cooperation with many others to reduce our fossil fuel use and move toward a clean energy future for Hawaii.



Laying the Foundation

Much beginning work on this initiative is to lay the regulatory foundation needed to improve our ability to install new renewable energy and improve energy efficiency in Hawaii. Our state made major progress in the second year of the energy agreement.

Feed-In Tariff (FIT): In October 2010, the Public Utilities Commission approved plans to create standard rates, contract terms and specifications for renewable energy developers to add up to 60 megawatts to utility grids on Oahu, 10 MW in Maui County and 10 MW on Hawaii Island. A special working group of stakeholders is developing reliability standards for the utilities and renewable energy developers.

Tiers 1 and 2 of the Feed-in Tariff opened to online applications through an independent observer on behalf of the PUC in November 2010. Tier 3 is under development.

Decoupling: In August 2010, the PUC approved a change to the utilities' financial model to better support integration of more renewable energy and energy conservation by breaking the historic link between energy sales and utility revenues. Decoupling was implemented on Oahu in December 2010. Implementation on Hawaii Island and in Maui County to follow with PUC decisions in pending rate cases.

Clean Energy Scenario Planning (CESP): Would replace current framework for integrated resource planning with a broader, more dynamic process to meet future energy needs. PUC adoption of the CESP framework is pending.

Clean Energy Infrastructure Surcharge: The PUC has approved use, with case-by-case approval, of a surcharge to help pay for projects to support adding renewable generation in a more timely way.



Hawaiian Electric Company
Maul Electric Company
Hawaii Electric Light Company
January 2011

Energy Efficiency

- Supported Act 155 (2009) establishing an Energy Efficiency Portfolio Standard by 2030 and participating in the Energy Efficiency Portfolio Standards docket opened March 2010 by the PUC.
- Supported increasing the PBF Surcharge to 1.5% to provide additional needed funding to help meet energy efficiency and energy conservation goals.
- Completed transfer of energy efficiency rebate programs to Hawaii Energy, the public benefits fee administrator reporting to the PUC.
- Continued to help customers use energy wisely. Tools in print and online include **Cool Tips** reminders for summer months, an easier-to-use "My Home Energy Check" tool at heco.com, **Power to Save** booklets for homes and small businesses plus events such as the annual Live Energy Lite!, Hawaii Farm Fair and many HECO in Your Community booths at other events.
- Invited Hawaii Energy to co-sponsor Energy Expo 2010 and provided support and data for a planned pilot program to encourage conservation through comparison to one's neighbors.

Rates as Incentives for Wise Energy Use

- Soon to be rolled out: Replacing the present uniform residential rates (no matter how much electricity is used) with inclining rates so the cost of electricity rises as use increases. Exploring a single energy charge and single demand charge to eliminate declining block rates (lower rates as use increases) for commercial customers.

Smart Grid

- Although the PUC turned down an initial request for a pilot project to install more advanced meters, the commission stated its commitment to a "Smart Grid" and asked Hawaiian Electric to provide a roadmap of its Smart Grid plans.
- Developed a working Smart Grid roadmap to identify opportunities over time for new technologies to help solve challenges such as renewable energy integration, improved reliability, customer engagement, cost of service and safety.
- Gained PUC approval for East Oahu Transmission Project Phase 2 which substitutes smart grid solutions for traditional methods, resulting in savings for customers

- and decreased traffic congestion during project construction. Obtained approval for \$5.3 million in federal stimulus funds to help reduce the project cost.
- Continued Smart Grid pilot projects and testing to determine most effective blending of electricity delivery technology with information and communication technology. Among the early efforts is a joint Hawaii project with Sacramento Municipal Utility District (using California PUC funds).

Greening transportation

- Gained PUC approval for Electric Vehicle ("EV") pilot charging rates with a reduced off-peak price to encourage early EV adoption, make Hawaii EV-ready and incentivize off-peak charging. Established a robust EV section on heco.com with general information and easy sign-up for charging rate pilot.
- Partnered on applications for federal stimulus funds awarded through the Hawaii Department of Business,

- Economic Development & Tourism with 1) Better Place, an EV control network provider; 2) AeroVironment, a charge station provider; and 3) Plug-in America, a grass-roots EV outreach and education organization. Partnered with Better Place and Sheraton Hawaii on EV demonstration funded by the Department of Energy through the Hawaii Renewable Energy Development Venture.
- Sponsored the 2010 First Hawaiian International Hawaii Auto Show to promote EV awareness and provided EV information at the Asia Pacific Clean Energy Summit and Expo and other venues.
- Participating in the Edison Electric Institute Transportation Task Force with nearly two-dozen leading publicly owned utilities across the country.

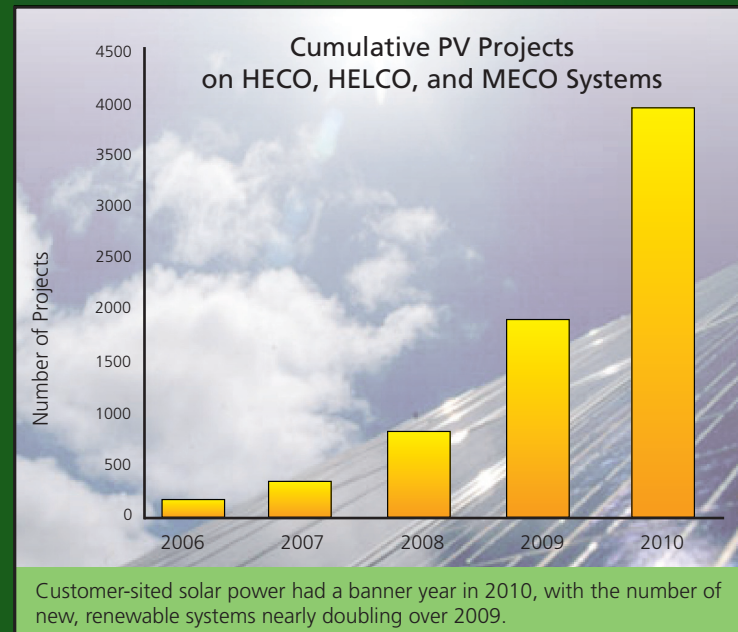
Advancing Diverse Renewable Energy Technologies

Seeking new renewable sources of energy

- Called for proposals to increase renewable energy and renewable fuels, including seeking ideas to use utility-owned land adjacent to the Kahe Power Plant in Leeward Oahu for clean energy projects.
- Continued negotiations on proposals resulting from request for proposals for up to 100 MW of renewable energy to Oahu, including Kawailoa wind project discussed below.
- Called for proposals for locally grown biofuels. (See Biofuels)
- Continuing to develop battery energy storage demonstration projects to evaluate their use in integrating more clean energy, in partnership with the Hawaii Natural Energy Institute at the University of Hawaii, the DBEDT energy office, the U.S. Office of Naval Research and others.

Solar

- Implementing the Feed-in Tariff approved by PUC for Oahu (see Laying the Foundation section) providing renewable energy developers (primarily PV developers) simplified and price-certain contracts to sell their power to the Hawaiian Electric companies.
- Obtained PUC approval to proceed with negotiation of purchase power agreements for four five-megawatt solar projects at a planned Castle & Cooke solar energy park in Mililani.
- Continued to seek approval for an amended Photovoltaic Host pilot program to allow the utility to rent roofs or open space, contract with a PV developer to install, own and operate a maximum-sized PV array and accept generated electricity to the grid.
- Increased legally required caps for net energy metering in Maui County and Hawaii Island from 3% to 4% of system peak and proposed increase for Oahu from 1% to 2%, in response to growing NEM participation.



- Entered into a \$2 million contract among DBEDT energy division and Maui Electric and Hawaii Electric Light Company using federal stimulus funds for projects to increase renewable energy integration (primarily PV) on island grids. Contract funds pay for equipment and installation; interconnection costs to be paid by the utilities.
 - Maui Electric will perform interconnection study on one Molokai circuit that has reached 15% penetration to identify upgrades that would allow more distributed generation.
- Continued work with Castle & Cooke on a battery back-up system for La Ola, the 1.2 MW photovoltaic facility supplying electricity to Maui Electric Company on Lanai.
- Completing purchase power agreement with Puna Geothermal Venture for an added 8 MW over the 30 MW already supplied.
- Supported Sopogy, Inc. on Holaniku, a 500 kilowatt concentrating solar power farm with thermal energy storage to buffer variability at Keahole Point at the Natural Energy Laboratory of Hawaii Authority on Hawaii Island.
- Continued development of Honolulu International Airport Emergency Facility, a partnership to serve the State Department of Transportation and Hawaiian Electric customers with four biodiesel-fueled generators able to provide 8 MW to the grid; planned for service in mid-2012.
- Called for proposals for long-term contracts for biofuels grown and produced in Hawaii to supply generating units on all islands. By the June 2010 deadline, received ten proposals. Negotiations with selected bidders underway.
- Finished preparation and received approvals to test biofuels at Maui Electric Company's Ma'alaea Power Plant and Hawaiian Electric's Kahe Power Plant.
- Continued funding research into Hawaii-grown biofuel feedstocks -- including algae among others -- at Hawaii Agriculture Research Center and sub-contractors University of Hawaii at Manoa and at UH-Hilo agricultural departments.
- Continued to honor the policy developed jointly with Natural Resources Defense Council on procuring sustainably produced biofuels with a preference for local biofuels included in contracts.
- Assisted in creation of the Hawaii Biofuels Foundation, a not-for-profit dedicated to promoting a sustainable Hawaii-based biofuels industry using locally-grown energy crops