

HAWAII GRID ENERGY STORAGE RESEARCH PROJECT SUMMARY

Item	Project Title	Description	Location	Lead Organization	Technology Category	Stage of Development	Project Period	Status	Project Contact	Partners	Funding Source - Amount	Comments
1	KIUC Battery Storage Project	1.5 MW Xtreme Power battery will be owned by KIUC	Kauai	KIUC	Battery	Commercial	2011	Online as of 11/11	Mike Yamane, myamane@kiuc.coop	Xtreme Power	KIUC	PV smoothing, additional ancillary services to be determined
2	First Wind Kahuku Project	15 MW (10 MWh) Xtreme Power battery at 30 MW Kahuku site; funded & owned by First Wind with DOE loan guarantee.	Kahuku, Oahu	First Wind	Battery	Commercial	March 2011	Active	Kekoa Kaluhiwa (?)	Xtreme Power, First Wind	First Wind DOE	Wind smoothing, curtailment mitigation, voltage regulation
3	Waiawa High-Penetration Circuit (PV)	1 MW (250 KWh) Altairnano battery at HECO substation on high PV penetration circuit.	Waiawa, Oahu	HNEI	Battery	Integrated technology demonstration	June 2012	Funded, not yet active	icutshaw@hawaii.edu	HECO, Altairnano	HNEI HECO	Voltage and frequency regulation research
4	Lanai La Ola PV Project	1.125 MW (0.5 MWh) Xtreme Power battery at Lanai Solar Farm; funded and owned by Castle & Cooke.	Lanai	Castle and Cooke	Battery	Commercial	2011	Active		Castle and Cooke Xtreme Power	Castle and Cooke	Battery will be used to meet ramp rate constraints imposed by MECO for connecting PV project to Lanai grid.
5	Kaheawa Wind Project 1	1.5 MW (1 MWh) Xtreme Power battery; 30 MW wind farm.	Kaheawa, Maui	First Wind	Battery	Prototype development	2009	Active		First Wind, Xtreme Power	First Wind	Battery project to demonstrate functions and capabilities of energy storage to enable managing wind plant ramps. Wind smoothing, curtailment mitigation
6	Kaheawa Wind Project 2	10 MW (20 MWh) Xtreme Power battery.	Kaheawa, Maui	First Wind	Battery	Commercial	2011	Proposed, not yet active		First Wind, Xtreme Power	First Wind	Battery to meet interconnection agreement requirements. Provide ancillary services, wind smoothing, curtailment mitigation, frequency regulation, spinning reserve, and AGC response
7	Wind Farm BESS Demonstration	1 MW Altairnano battery for 10.5 MW wind farm.	Hawi, Hawaii	HNEI	Battery	Integrated technology demonstration	March 2012	Funded, not yet active	icutshaw@hawaii.edu	Altairnano, HELCO, HRD	HNEI HELCO	Research project for Closed loop control system for voltage and frequency regulation
8	HNU Energy BESS Demonstration	1 MW (1 MWh?) International Battery project planned at Kihei substation; funded by HREDV (\$1M) and HNU Energy (\$1M), owned by HNU Energy.	Kihei, Maui	HNU	Battery	Integrated technology demonstration	2011	Funded, not yet active		HNU Energy, MECO	HREDV	

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9	HREDV/Gen-X BESS Demonstration Project	100 kW Altairnano battery near Hawi in conjunction with wind & solar for agricultural use. Owned by Gen-X.	Hawi, Hawaii	Altairnano	Battery	Isolated technology demonstration	2011-2012	Funded, not yet active		Altairnano, Gen-X, HELCO	HREDV	
10	Auwahi Wind Project	BESS associated with 22MW wind project on Maui. Details on size/capacity and functions TBD during PPA negotiations.	Ulupalakua, Maui	Sempra Energy	Battery	Commercial	2011-2012	Proposed, not yet funded			Sempra	
11	RDSI Maui Smart Grid Project	Smart grid project demonstration.	Wailea, Maui	HNEI	Battery, Smart grid, AMI Communications, and home area networks	Integrated technology demonstration	2010-2013	Active	Jay Griffin Griffin4@hawaii.edu	HNEI, SRA International / Sentech, MECO, Silver Spring Networks, HECO	DOE \$7M	Distribution management system (DMS) and AMI infrastructure to manage distribution-level resources, such as battery energy storage, controllable loads, and distributed PV, and provide grid services at distribution and transmission levels
12	Hawaii – Okinawa Smart Grid Demonstration Project	Smart grid project demonstration.	Kihei, Maui	NEDO	Research Battery, Smart grid, AMI, Communications tech.	Integrated technology demonstration	2011-2014	Funded	Osamu Onodera, onoderaosm@nedo.go.jp	Hitachi, MECO, DBEDT, HECO, HNEI	NEDO	Battery, Smart grid/AMI/Communications tech. EVs Including electric vehicle charging, distribution management system, energy management system, smart PV inverters, and community energy storage.
13	MRESS (Maui Renewable Energy Storage System)	Battery demonstration for curtailment reduction on Maui; Premium Power 250 kW, 1.25 MWh zinc-bromide flow battery.	Kahului baseyard	DBEDT	Battery at Kahului; Molokai TBD	turnkey commercial	9/22/10-6/30/12	In procurement	Andrea Gill, DBEDT; agill@dbedt.hawaii.gov	DBEDT, MECO	ARRA \$1.2M	BESS on Maui plus equipment (TBD after interconnection study) to allow additional renewables on Kaunakakai circuit.
14	HELCO BESS	Battery vendor: Saft. Two batteries. Li-ion (Ni-Co-Al) 100 kW, 248 kWh.	Site selection underway; island of Hawaii	DBEDT	Battery	turnkey commercial	9/22/10-6/30/12	In procurement	Andrea Gill, DBEDT; agill@dbedt.hawaii.gov	DBEDT, HELCO	ARRA \$0.9M	Containerized for mobility and testing at different sites.