



# Hawaii's Big Island integrates renewable energy with Saft's Li-ion technology



Two lithium-ion (Li-ion) Intensium® Max 20E containerized energy storage systems are helping Hawaii's grid to prepare for the integration of more renewable energy.

The US State of Hawaii is well placed to generate energy from natural sources, but it has historically had a high dependence on oil. It has set the challenging target of 40% energy from renewable sources by 2030, which it will achieve partly with intermittent sources such as solar and wind power. Hawaii is a US national leader in the adoption of photovoltaic (PV) power as well as having industrial-scale wind farms producing megawatts of power.

## The challenge of creating a Renewable Energy Storage System for Hawaii

Hawaii's Big Island has more than one-third of its energy coming from renewable sources. In 2010, the Hawaii Electric Light Company (HELCO) received federal stimulus funding of \$900,000 from the Hawaii Department of Business, Economic Development and Tourism (DBEDT) for the installation of energy storage systems to increase the island grid's ability to integrate an even greater level of renewable resources.

Case study



**SAFT**

## Saft provides the ideal Energy Storage System (ESS)

In 2012 Saft delivered the ideal Energy Storage System (ESS) for Big Island in the form of two Intensium® Max 20E containers. The turnkey ESS solution, including design, supply, installation and commissioning, works in conjunction with ABB's PCS 100 Power Conversion System. The key features of Saft's Intensium® Max solution include:

- 248 kWh of energy storage per container, each coupled with a 100 kW power conversion system in the same container
- 2 hour runtime and can be charged overnight during off-peak times
- Delivered in standardized 20-foot containers, which are easy to handle and install
- Containerized approach integrates SCADA interface, HMI interface, battery management system, system cooling/heating and fire prevention systems
- Saft's well proven Li-ion technology ensures long calendar and cycle life, with an expected operating life of at least 15 years
- Can be configured to provide various grid support services – for example, the reduction of renewable output power volatility and optimization of renewable power performance – as well as responsive charging and discharging, frequency regulation, autonomous operation and electrical output management

## Demonstrating the advantages of energy storage for Big Island

*“With Big Island having the highest penetration of renewables such as geothermal, wind, hydroelectric and photovoltaic, evaluating energy storage is a key element to HELCO integrating more distributed renewable energy generation. We need to build our experience with energy storage to determine if this technology can help to allow the grids to take more distributed renewable energy.”*

**Jay Ignacio**  
HELCO president



## Demonstrating the advantages of energy storage for the Big Island

The two Saft ESS installations are now helping HELCO to investigate the capability of energy storage for PV smoothing, reducing renewable energy curtailment and providing ancillary services such as spinning reserves.

Each ESS is intended to demonstrate specific benefits:

- The first installation provides effective energy storage to time-shift PV power production from the morning to support the high afternoon loads created by the use of air-conditioning systems
- The second installation at a bottling plant has improved power quality to boost production.



### Saft

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