ALAMITOS ENERGY CENTER CASE STUDY

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Renewable Energy Developer Battery Energy Storage System

A renewable energy developer has deployed one of the largest lithium-ion battery energy storage systems in the world, in Southern California at the Alamitos Energy Center. The battery project, located in Long Beach, is an effort to modernize the energy asset by installing a 640 MW combined cycle gas turbine and a 400 MW simple cycle gas turbine, both of which use air-cooled condensers for cooling as opposed to the previous natural gas-fired generating units that were using seawater for cooling. The modernization also included a large, 100 MW, 400 MWHr battery energy storage system. This sustainable energy solution has many positive impacts[1], including:

- Increased grid reliability
- Increased usage of renewable energy assets
- Reduce greenhouse gas and air pollutant emissions
- Reduce marine impacts by no longer using seawater cooling mechanism
- Upgrade aging infrastructure
- Replacement of natural gas generation with 100 MW of Battery Energy Storage
- No emissions
- Increased support for new electricity demand for EVs
- Negligible freshwater usage and eliminates discharge into San Gabriel River
- Reduced noise

The battery system consisted of 1500 LG Chem Battery Racks which were double stacked into 33 cores of 24 battery racks. Each of the cores was monitored with a single Li-ion Tamer controller, populated with 12 monitoring sensors and 2 reference sensors. The project was implemented into a large building which is becoming increasingly common for utility-scale battery projects. Many battery systems' integrators have standard containerized battery energy storage systems and the decision by the owner/operator of the system to use a large building instead of containerized systems is worth noting.

Li-ion Tamer is a recognised safety solution for the protection of lithium-ion battery installations. The Li-ion Tamer system provides the earliest possible warning of imminent battery failures by detecting the off-gas phase that occurs early in the failure mode of lithium ion batteries. An alert to a battery off-gas event enables proper mitigation steps to be taken at an early stage to avoid progression to the most catastrophic phase (Thermal Runaway) which can pose serious threat to occupants' safety and damage assets/ property resulting in loss of capacity of the center to deliver power to customers.

[1] http://www.renewaesalamitos.com/AEC%20BESS%20Fact%20Sheet%202019.pdf

www.xtralis.com

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