

Case note

ABB's EssPro™ Energy Storage Power Conversion System (PCS) contributes to cost savings and environmental sustainability



ABB in Indonesia has supplied a 240 kW EssPro Energy Storage Power Conversion System (PCS) for a pilot project set up on a picturesque Indonesian island, Kei Besar. Thanks to the applied solution, the state utility company has considerably reduced power generation costs, at the same time cutting both air and noise pollution, thus bringing not only financial, but also environmental benefits to the local community.

Highlights – EssPro PCS

Minimized risk due to proven technology

High availability ensures lowest cost of ownership

Easily deployable

Utility grade with advanced controls

Modular design

Global lifecycle management in close-cooperation with customers

Kei Besar is one of hundreds of islands scattered all over Banda Sea. Due to its remote location, the only electricity source used in the region came from a diesel power plant operated by Indonesia's state utility company, PT PLN (Persero).

Challenge

The continuous increase of fuel price as well as ageing components of the diesel engines resulted in enormous power generation costs, which eventually became unaffordable for both the electricity producer and the surrounding community. As a consequence, the electricity service period was limited to eighteen hours a day (from 6 p.m. to 12 a.m.).

Solution

To address the need for power while reducing the usage of the existing diesel generators, PLN has set up a pilot project based around a solar PV power plant with battery energy storage system (BESS).

As part of the BESS installation, ABB has provided a 240 kW EssPro PCS which primarily aims at controlling the process of battery charging and discharging. In addition, during the diesel power plant operation time ('On Period') with the PV solar plant running in parallel and supplying power to the load, the EssPro

runs in power flow control mode, delivering certain amount of power to the grid. During the 'Off Period', in turn, when the load is disconnected and the PV solar power plant continues to operate in island mode, the EssPro switches to voltage and frequency control mode, absorbing power from solar inverters so it can be used during the 'On Period'. Finally, by instantaneously regulating voltage and frequency, ABB's EssPro ensures stability and reliability of the power supply.

Benefits

ABB's EssPro PCS constitutes a superior response to the challenges posed by energy storage and power quality in a wide range of applications.

Modular design

ABB's EssPro PCS ranges from 50kVA to 30MVA. One of the key features of the system is its modular construction, which accounts for the platform's extreme reliability. Modular inverter blocks also make the system highly configurable and versatile, thereby enabling both indoor and outdoor placement.

Seamless integration

The EssPro PCS solution is easily deployable in terms of installation time and space requirements. Furthermore, low operational costs derive from its high efficiency and low maintenance.



EssPro PCS in successful operation on site

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