

Innovation type:
New/improved methods and work processes

Innovation:

A BESS has replaced a diesel aggregate and island mode can be activated in case of a power outage during a football match.

Lede has established new work processes for the transition to island mode in case of a power outage during a football match.

TRL: # 9

Year: 2021

Contact:

Lede (Signe Marie Oland)

Potential users:

Other owners/operators of BESS. Owners/users of diesel aggregate as back-up solutions in case of power outages.

Pilot project: Transition to and from island mode

The 1 MW battery energy storage system (BESS) at Skagerak EnergiLab is designed to supply the station lights and also other connected end-customers during football matches in case of a power outage. Hence, the stadium can become a small microgrid, entering island mode. In the pilot project the transition to and from island mode, both planned and unplanned transition, was studied with emphasis on electrical phenomena in the transition phase. It was investigated if the regulation on quality of supply (Forskrift om Leveringskvalitet) was violated during the transition.

Challenge

Transition to and from island mode without effecting connected end-customers can be a challenge, as the voltage quality regulations might be violated during the transition.

Solution

The design and procedures for entering and exiting island mode is working as planned. No violations of regulations on voltage quality was experienced during the testing. As expected, there was voltage swells during the transition from grid connection to island mode and back again. These voltage swells did not cause any failure of connected equipment but can be visible in the luminous efficiency from light bulb of the end-customers connected to the microgrid.

Potential

The test results can be of great interest for other microgrids, in addition to the experiences gained by Lede and Skagerak EnergiLab. The BESS at Skagerak EnergiLab replaces a diesel aggregate and can be used to limit the effects of a power outage for the connected end-customers. New procedures have been made and implemented for the transition to island mode during a football match.

Reference in CINELDI

[Pilot sluttrapport: Transition to and from island mode \(in Norwegian\)](#)