

Case study

Battery energy storage system

Project Summary

Project: Power grid stabilization and security of supply

Application: Battery energy storage system

Client: Steag Energy Services

Nidec's Role

Steag Energy Services, one of Germany's largest electric utilities, chose Nidec Industrial Solutions to serve as Engineering, Procurement and Construction (EPC) contractor for one of the world's largest battery energy storage systems.

Scope of Supply

- Turnkey engineering, procurement and construction services
- 6 - 15 MW/ 23 MWh battery energy storage systems
- Net voltage: 10 KV
- Total peak power: 90 MW
- Total capacity: 138 MWh



The challenge:

To stabilize Germany's power grid when there is a mismatch between energy generation and load

Like other electric utilities, Steag Energy Services is seeking to increase the contribution of renewable energy sources to Germany's power grid. Because of the intermittent nature of solar, wind and other renewable sources, the utility was in search of a reliable way to store excess generation to "fill in the gaps" and avoid variations in load. It sought an energy storage solution that would help it achieve its goals for power network stabilization and grid reliability.

Steag sought an EPC contractor with strong experience in delivering electricity stabilization systems and an extensive portfolio of utility projects. Nidec Industrial Solutions met both requirements and was assigned complete responsibility for the energy storage system's execution from design to installation and commissioning.

The solution:

90 MW 138 MWh battery energy storage system

A battery energy storage system (BESS) enables a utility to balance renewable generation so that local stored energy resources can be tapped according to regional electrical demand. Through frequency regulation and voltage control, these systems can help mitigate the threat of electricity service interruptions to critical load areas while improving power quality and grid stability.

To meet its needs, the German utility required a total capacity of 90 MW, making this one of the world's largest BESS projects.

Nidec's solution consisted of six 15 MW "plug-and-play" systems, each complete with power converters, a transformer, batteries and a control system. Each BESS was mounted inside a container for easy transportation and installation.

The use of Nidec's innovative battery storage technology not only enables Germany's power grid to better accommodate renewable energy sources, it also reduces nitrogen oxide, carbon dioxide and other greenhouse gas emissions.