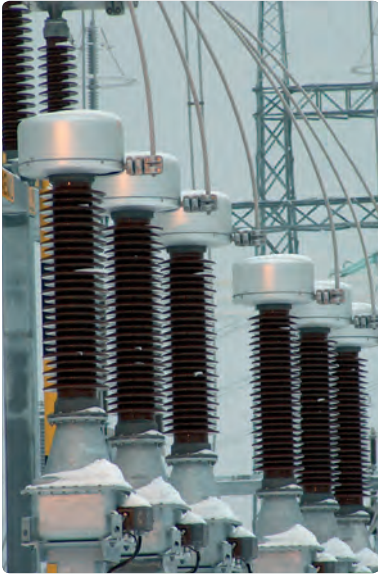


CASE

STUDY

4MW-6s Energy Storage System
STORE PROJECT: Los Guinchos (Canary Islands)



Applications:

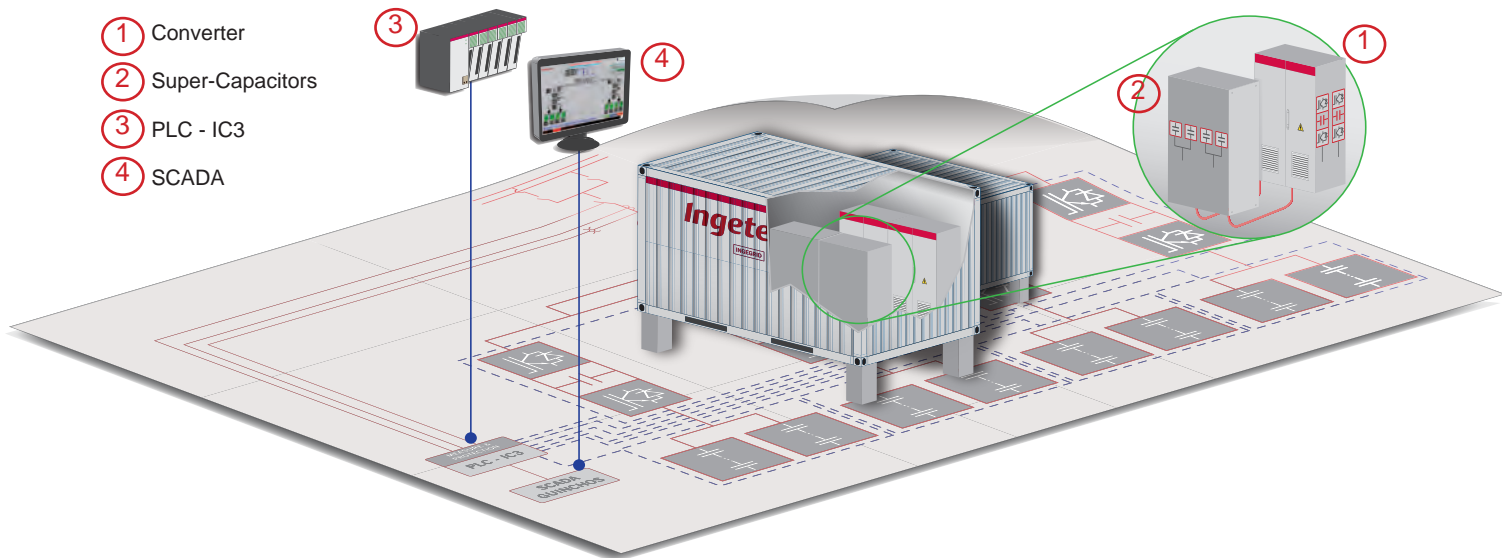
- To minimise load shedding situations (consumer disconnection), thus increasing service quality.
- To avoid investment into extra diesel generation units.

STORE is a research project lead by Endesa Generación. The aim of Endesa is to diversify the generation mix by integrating pumping technologies, batteries and other storage technologies which enable higher generation efficiency and energy management.

Ingeteam's objective has been to design an advanced, hybrid system associated to the existing diesel generation plant.

- It consist of ultra-rapid response energy storage system based on super-capacitor technology, with a peak capacity of 4 MW for up to 6 seconds.

Super-Capacitors Store System





*Supplied as an integrator

INGETEAM® Equipment Supplied for the Installation and/or Tests

- 2 x INGEGRID SH-B Power Conversion System (PCS), water-cooled, LV 400 (4MW 6 seconds – 2MVAR continuous).
- 1 x INGESYS IC3: Control equipment (PLC) programmed as an Management System.
- 1 x local SCADA: Control equipment including INGESYS IT software and local SCADA.
- 8 x Cabinets for storing 6 super-capacitors each (55.55F, 1.080 V).*
- 2 x sectionalising and measurement DC cabinets.*

Services Provided

- Electrical and electronic system specification.
- System container specification.
- Power flow simulation and models
- Substation automation system configuration and integration with the plant's SCADA.
- Protection system.
- SCADA monitoring system configuration
- Comprehensive system tests in the Ingeteam Power Electronics laboratory.
- Commissioning.

Others

Ingeteam's contribution has been to design, manufacture and test a smart, hybrid storage system which has been installed in the Guinchos diesel generation plant on the island of La Palma in the Atlantic Ocean.

After the disconnection of one faulty generation unit, the grid frequency is affected and when it drops below certain value, the frequency protection devices start the under-frequency load-shedding and it produces power outages.

When the faulty generation unit is disconnected, the INGEGRID system injects active power, with the proper magnitude and quickly enough to ensure that the frequency variation does not result in load shedding. It allows the other generation units to adapt to the new situation (using the inertia response and speed regulator)

Objectives:

- To minimise load shedding situations (consumer disconnection), thus increasing service quality.
- To avoid investment into extra diesel generation units.

