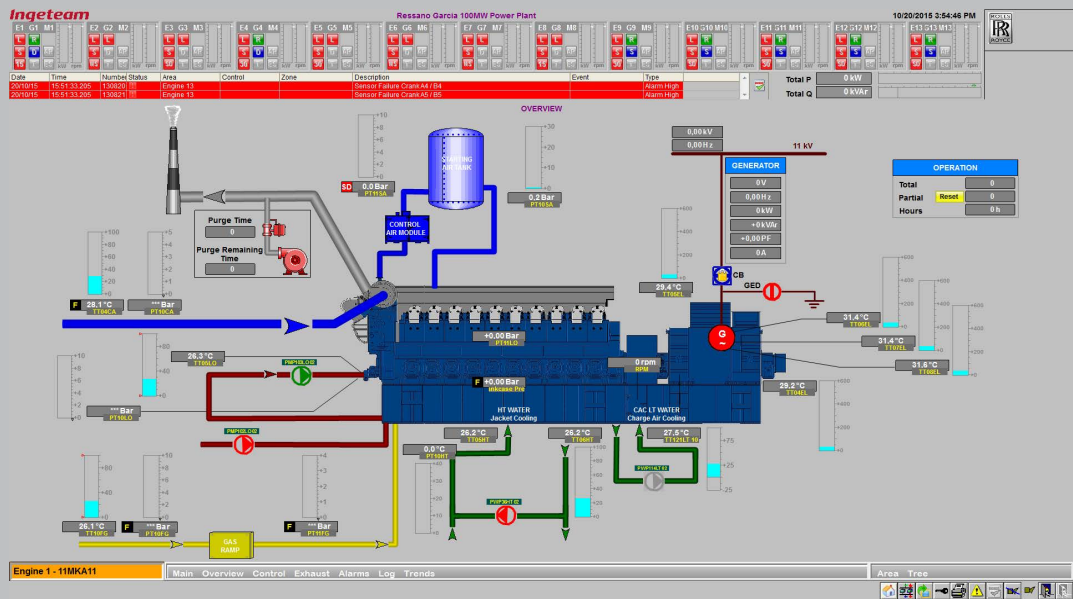


# CASE

# STUDY

## ENERGY POWER PLANTS - GAS FIRED (Republic of Mozambique)



### General Description

In 2015, Rolls Royce awarded a contract to Ingeteam, to undertake a project concerning thirteen gas gensets for Gigawatt Mozambique (Republic of Mozambique).

The project consists of thirteen B35:40 V20 AG2 gas generating sets (medium speed) designed for new gas-fired power plants in Ressano Garcia (Mozambique), that will be operated by Gigawatt Mozambique. The new energy power plants will feed up to 100 MW of electric power to the Mozambique National electricity grid.

Gigawatt Mozambique, owned by the South African Gigajoule Group, is the first independent power producer of Republic of Mozambique. The current project contribute to increase the production capacity of energy with energy resources of the country, while boosting its sustainable development.

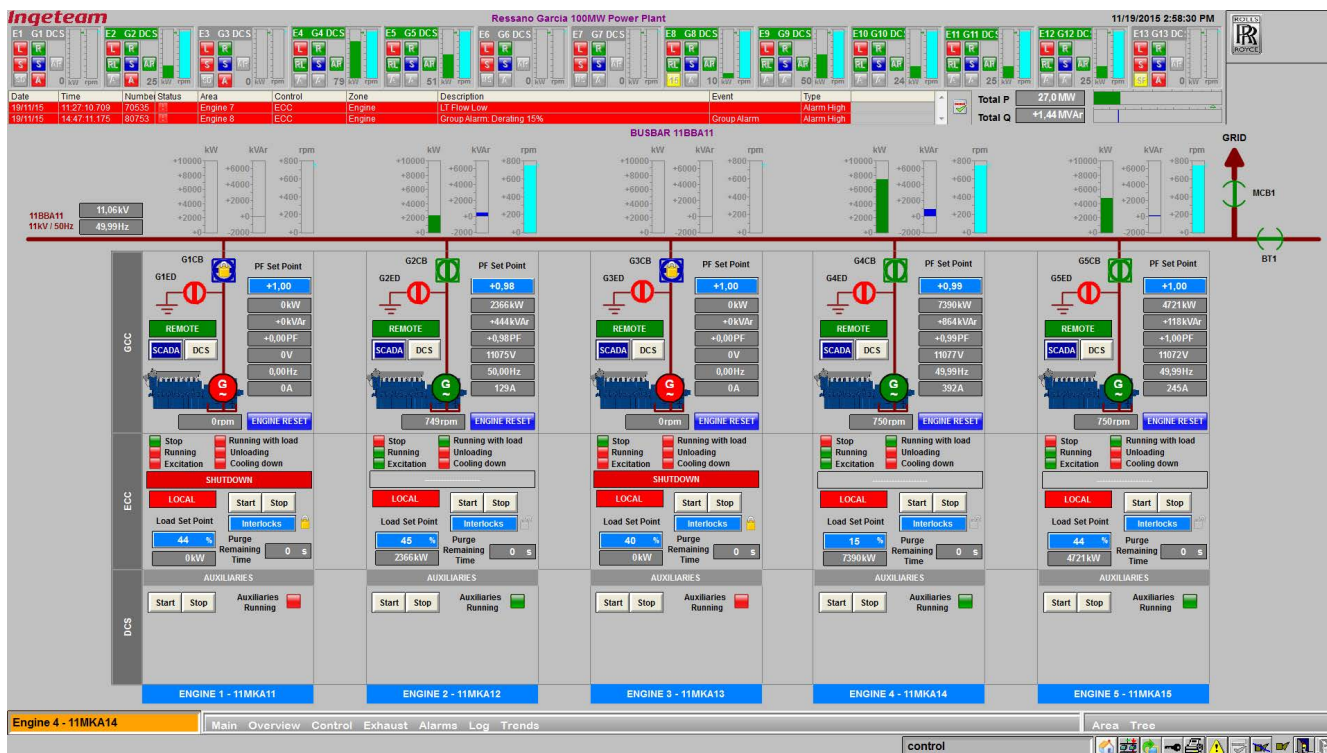
### Scope of Supply

Ingeteam's scope of supply consisted of: definition of engineering, design, manufacturing, documentation and commissioning works of the following electrical and automation equipment:

- 13x GCC Generator Control Cabinets, including all elements required for the control, protection and monitoring of the gensets.
- 1x SCADA System.
- Application Software development for PLC's and HMI's
- Basic and Conceptual Engineering
- Detail Engineering
- Integral testing at our facilities (FAT), prior to shipment
- Installation Supervision
- Commissioning and Operational Tests
- Training

Thirteen Gensets control systems for Gas Engines

## General Diagram



## Control System Functionality

Integrated control for each electric generator:

- Control Sequences (start or stop, manual or automatic mode,...)
- Communication with the engine control system (ECC)
- Voltage regulation and power factor control
- Synchronization

Control of auxiliary systems:

- Engine low temperature water system control
- Combustion air regulation

SCADA system for control and supervision:

- Electric variables monitoring
- Reports and trends
- Alarms and events filing
- Integration with other control equipment

## Communication Diagram

