

CASE

STUDY

COMBINED HEAT AND POWER (Benelux Greenhouse Projects)



General Description

In the first half of 2018, Rolls Royce awarded a contract to Ingeteam, to undertake a project concerning five gas gensets in Belgium and one gas genset in Netherlands.

The new project consists of six B36:45 L6 and L9 gas generating sets designed to provide heat and power to both new and existing greenhouses, five in total.

Customers' list is composed as below mentioned:

- MTS de Jong Francke, in Netherland.
- VW Tuinderijen, in Belgium.
- Tuinbouwbedrijf Marc Pittoors (T.B.M.P.), in Belgium.
- Tomato Masters, in Belgium.
- Tomw@tt, in Belgium.

The electrical power produced will primarily be used for greenhouses grow lights or exported to the regional grids.

Heat extracted from the exhaust gas and the engine's cooling water system will provide heating and cleaned CO₂ from the engines and will be injected into the greenhouses to boost plant growth.

In total, the technology achieves efficiency levels of more than 96%.

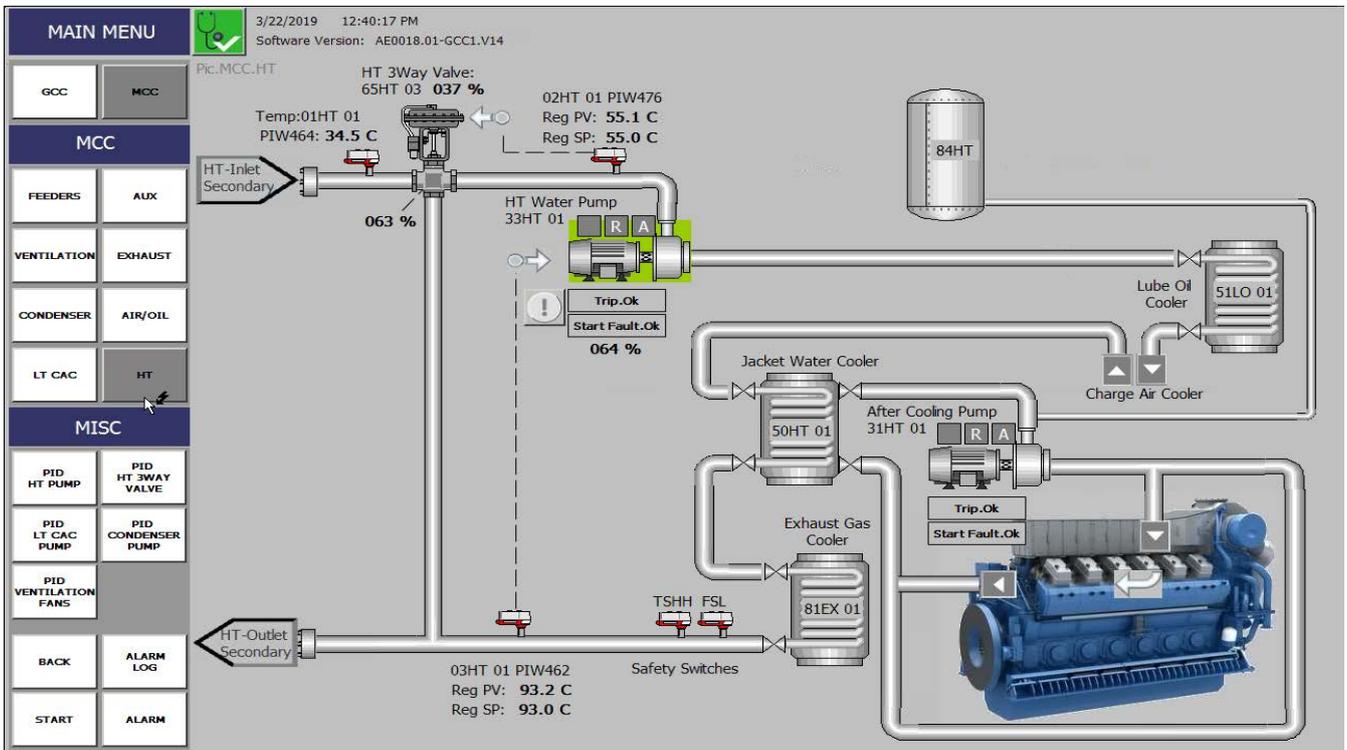
Scope of Supply

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

- GCC Generator Control Cabinets, including all elements required for the control, protection and monitoring of the gensets.
- MCC Motor Control Cabinets for engine's auxiliaries.
- Battery Cabinets.
- Frequency Converters for fans and pumps.
- Electrical and automation engineering for the above listed issues.
- Commissioning on site.

Gensets control systems for Greenhouses

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

