10X2000 kW | 20 MW

CAPACITY MARKET, MIDLANDS (UNITED KINGDOM)

20 MW to cover surges in power demand in the Midlands

Summary:

Location:
Midlands (United Kingdom)

Installed power:
10 x 2000 kW= 20MW

Generator sets:
10 HMW-2200 T5 units in a 40-foot container
12192 x 2438 x 2896 mm (L x W x H)

Special configuration:
Generator sets to reduce current surges, operating in parallel to the public grid to which they deliver a steady power load 1 or 2 hours a day, up to a maximum 400 hours per year.

HIMOINSA distributor:
Ocktcom Limited

In the United Kingdom, various areas register well above normal levels of electricity consumption at certain peak times during the day. The demand varies depending on the time of year, the day of the week and the time of day. In order to balance out power supply and demand, the UK National Grid requires access to power generation plants that avoid overloads in the grid and ensure a reliable response. Through its distributor Ocktcom Limited, HIMOINSA has supplied 10 parallel-connected generator sets in 40 foot containers that deliver a constant 20MW of power into its grid, 1 or 2 hours a day, up to a maximum 400 hours per year.

Due to the major increases in consumption that are affecting the electricity grid, the Capacity Market (CM) project has become one of the solutions that the National Grid has at its disposal in order to satisfy electricity requirements during these peaks of power demand.

OBJETIVE

The objective of the project was to install a power generation plant that would ensure the supply of 20 MW of power to reduce current surges using generator sets that are able to deliver 100% of the available power in less than 30 seconds. This is in a zone close to the urban area. As a result, the units must be housed in a weather proof containers that are heavily soundproofed with a noise level of 79dBA at a distance of 1 metre in free field conditions, in order to guarantee minimum acoustic emissions.

SOLUTION

One of the main priorities for HIMOINSA and Ocktcom was to select the best possible technology: low-emission engines designed specifically for CM applications; engine models that can be adapted for a natural gas supply if so required by the project and legislation in the years to come. Clive Dix, Managing Director at HIMOINSA Power Solutions, UK, says "we offer the cleanest solution possible that is within our control and suggest other manufactures should also consider their responsibilities for the environment".
The MTU engines that were chosen (16V4000G63 model) exceed the requirements that were laid down.

Technical Specifications:

Energy generation plants in projects of this nature tend to be located in zones close to the urban area. In this case, HIMOINSA's engineering team has managed to reduce the level of noise from the containers to **78dBA at a distance of 1 metre**, which actually went beyond the project's acoustic emissions requirements.

In order to do so, they chose a **horizontal cooling package** which, as opposed to vertical packages, makes it possible to reduce noise without having to increase the total dimensions of the generator set. This system also includes a frequency changer that reduces the noise of the fans and the power they consume.

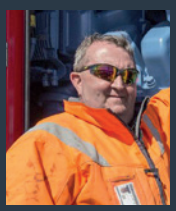
In order to guarantee these high levels of **soundproofing**, the design contemplated 40 ft containers with 100 mm thick, high-density (145 kg/m^3) volcanic rockwool. The floor was soundproofed with polyurethane foam.

At the same time, it was decided to incorporate a **ventilation system in the engine housing** that uses two electric fans to ensure that the air is renewed correctly. There is also a **fuel cooler** that makes it possible to increase the engine's efficiency.

To allow the generator sets to run in parallel, **Comap InteliGen control units** were used. Furthermore, given the humid conditions and the abundant rainfall throughout the year, a **C5-M paint system** was applied in order to protect the structure of the container against corrosion, thereby guaranteeing the high durability of the units.

Fast Frequency Response (FFR):

The engine's electronic control unit is prepared to accept the load quickly and spread over time, a key quality in the capacity market application.



James Beck,
MANAGING DIRECTOR
AT OCKTCOM LTD.

« The decision to work with HIMOINSA on this project and future Capacity Market projects was clear, HIMOINSA is the preferred supplier to Ocktcom because as a manufacturer they listen and is able to meet the Ocktcom design criteria offering low emission and low noise solutions specifically for the STOR market.

Both Ocktcom & HIMOINSA are very focused on sustainability, together we are offering best emission technology not only for future compliance but to show we are responsible organisations. Ocktcom can also offer HIMOINSA natural gas generators for STOR application and plan to convert some current STOR sites to run on dual fuel to reduce emissions, we can advise authorities of the benefits using emission optimised diesel and gas generating sets, STOR generating sites can be cleaner if designed responsibly and without the risk of an installation being de-commissioned because it will not meet future requirements. »