Power Generation

UK POWER GENERATION PLANTS

CLIENT: CUMMINS POWER GENERATION
LOCATION: THROUGHOUT UK
PROJECT TYPE: COMMERCIAL & INDUSTRIAL

THE POWER GENERATION PLANTS SUPPORT PEAK DEMAND ON THE ELECTRICAL SUPPLY INFRASTRUCTURE SUPPLEMENTING ELECTRICITY TO THE NETWORK USING GAS GENERATOR TURBINES TO CONVERT GAS INTO USEABLE ELECTRICAL ENERGY.

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WORKING ALONGSIDE VARIOUS SPECIALIST CONTRACTORS DURING AN 18-MONTH PERIOD, KEMADA HAVE SUCCESSFULLY DELIVERED OVER 240MW OF GAS GENERATED POWER STATIONS ACROSS THE UNITED KINGDOM.

CUMMINS ARE AN INTERNATIONAL COMPANY THAT OFFERS ENGINEERING AND MANUFACTURING SOLUTIONS TO PROVIDE VARIOUS TYPES OF TURBINE GENERATORS FOR MANY TYPES OF PROVISIONS ALL OVER THE WORLD.

THE ISSUE

On behalf of Cummins Power Generation, Kemada were engaged to install the Mechanical and Electrical (LV & HV) scope of works across the UK's Gas Power supply for STOR (Short Term Operating Reserve). All projects had to be completed in their entirety and operational to meet G59 testing dates and handover to the client to meet operational tariffs, and with multiple sites being constructed across the UK, this would prove extremely challenging.

Gas Power Stations ranging from 8MW up to 24MW and were located throughout England and Wales. A total of 4no. Indoor sites of 20MW each have been completed, along with 9no. Outdoor Containerised Gas Generators of 166MW.

Lead times on specialist equipment dictated that the bulk of the site installation work, testing and commissioning would be undertaken during very tight programme periods. This created logistical challenges in expediting both the material and labour resource required to deliver the projects to meet the client's targets, an issue which was further compounded in working around other key suppliers and sequencing of activities.

THE SOLUTION

Working with our supply chain from the tender phase to project completion we were able to identify key areas where standardisation of equipment, materials and the installation process not only reduced associated project risk but also allowed us greater flexibility over all the client's projects.

Excellent relationships and communication with both the customer and suppliers enabled us to develop a schedule for the individual sites in line with the overall delivery strategy of all projects. This also allowed us to build in some flexibility to accommodate any emerging customer requirements which potentially necessitated changes, these were absorbed into the programme of works.

Scheduled design meetings and site visits at key times during the construction phase enabled us to establish layouts and sequence of works for each individual site whilst also ensuring collaborative working relationships were maintained at all times which was paramount to successful project delivery.

The electrical installation works carried out by Kemada comprised of:

- HV cable & connections from a new TX to a new HV switch room
- Control & protection cable work associated with the new DNO and HV TX area
- Fire system for the newly installed HV system
- Internal canopy fit out including all control cabling from the engine control panel (GIB) to a control Panel (PDP) – Internal sites only
- Internal canopy systems including engine sensors, ventilation for the engine, run signal cabling & small power and lighting – Internal sites only
- HV cabling to the engine alternator
- Package LV systems involved with the control of the engine units
- Installation of building power & lighting
- High level CMS to enable cable delivery in a small space
- LV switch room, completing all cable terminations to power the engine control systems including control panel (DMC), essential to control the engines and usage data
- All pre-commission testing

The mechanical installation works carried out by Kemada comprised of:

- Installation of all steel structures holding the electrical CMS and pipe work
- Installation of external radiators – Internal sites only
- Installation of cooling system associated with the engines
- Installation of day lube oil tanks & larger storage tanks for service use
- Installation of pressure monitoring systems
- Installation of all pressure vessel units to ensure coolant is available for start up
- Installation of the Gas service to each unit, installation of relevant safety check valves & ensuring pressure required at each unit is delivered

THE OUTCOME

Installation works across all 13 no. sites were completed to programme and to very high standards of quality fully meeting the customers' requirements and satisfaction. Stations were fully energised to provide STOR onto the network to provide guarantee of supplied during peak period.

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