

WB Power Services (WBPS) was first established in 1983 and since then we have grown significantly in size and service capability. Today, we provide critical power services to some of the UK's most important businesses and organisations, ensuring essential services are protected. We are proud to retain our family values on a national scale as we strive to be the biggest and the best power generation company in the UK.

# CASE STUDY



## LONDON HOSPITAL

This London Hospital is one of the largest community health service providers in the UK. It is a major acute hospital that offers very specialist care for the most complex of injuries and illnesses, with over 6,000 staff and around 1,000 beds, and serves a population of 1.3 million across London.

WB Power Services were awarded the opportunity by the Foundation Trust to scope, design and install a power solution for the hospital, providing vital back-up power for the facilities in case of a power failure.

## PROJECT OVERVIEW

**2000kVA**

**GENERATOR INSTALLATION**  
2 x 1000kVA generating sets installed on-site

**5,000 LITRES**

**FUEL MANAGEMENT SOLUTION**  
Common 5,000 litre fuel tank installed in the inlet premium



**EQUIPMENT REMOVAL**  
Responsible for the removal of the incumbent generator set and additional ancillary equipment



**PLANT ROOM INSTALLATION**  
The generating sets were installed in an existing plant room with limited space

## OTHER REQUIREMENTS

SOUND RESTRICTIONS

CONTROL SYSTEMS

ELECTRICAL INSTALLATION WORKS

## PROJECT OVERVIEW

An incredibly diverse and bespoke project for the WB Power team, the installed solution comprised of incumbent equipment removal, civil works and the installation of 2 x 1000 kVA generating sets in an existing plant room. The generating set was installed along with accompanying ancillary equipment such as common 5000 litre fuel tank, plant room attenuation equipment, exhaust flue, new switchboard and electrical installation/migration works.

## CIVIL WORKS

When carrying out our initial site survey to gain a thorough understanding of client requirements, it became apparent that there was an extensive civil works requirement. The proposed switch room was not long enough for the installation of the new switchboard, so following discussions, it was agreed that the end wall of the switch room would be removed. In addition to this, there was also a requirement to remove additional walls, construction of a concrete base for the new generating set, aperture ceiling repairs and finally, the installation of two new single access doors.



*Incumbent generating sets and ancillary equipment demonstrated significant wear and tear and was no longer offering a reliable back-up power solution for the hospital.*

## EQUIPMENT REMOVAL

WB Power included the removal and 'disposal' of the sites incumbent generating set and it's accompanying ancillary equipment.

- LV SWITCHBOARD
- GENERATING SET
- FUEL TANK
- ATTENUATION EQUIPMENT
- EXHAUST SILENCER AND FLUE



*One of the hospitals incumbent generator sets, prior to removal by WB Power*

## GENERATING SETS

Following a detailed analysis of the hospital's power requirements, WB Power proposed the installation of 2 x 1000kVA prime rated generating sets. These sets were installed with additional bespoke work, which included:

- **AUTOMATIC LUBRICATING OIL REPLENISHMENT SYSTEM**
- **FUSIBLE LINK RELEASED FIRE VALVE**
- **ENCLOSED SPRING ANTI-VIBRATION MOUNTINGS**
- **DUTY/STANDBY STARTER MOTORS AND AMG BATTERIES**



*The proposed generating sets were carefully selected by the WB Power team following a detailed analysis of customer requirements. They struck a careful balance of fuel efficiency, upfront costs and ongoing service requirements.*

## EXHAUST SYSTEMS

Due to the environment, there were strict sound levels that the newly installed generating sets had to achieve. To accomplish this, WB Power proposed the supply and installation of exhaust gas silencers, which would achieve a sound level of 65 dBA @ 1m. The flues were to be extended to roof level, and were to follow the existing flue route. Particulate filters were then installed on the roof of the building to ensure exhaust soot was captured and stored, greatly reducing emissions.



*Newly installed exhaust flues extended to roof level and following the existing route*

## FUEL MANAGEMENT SOLUTION

The generating sets were configured to be fed fuel from a common 5000 litre tank installed in the inlet plenum. The tank was provided with a fuel polishing system to ensure the fuel wasn't contaminated with water, microbial growth and solid particulates.

A secondary fill system was also installed; comprising both duty & standby transfer pumps, which was located adjacent to an existing set of pumps in the boiler room. Finally, WB Power installed new fuel pipework between the pumps and the fuel tank, but capped the pump inlet pipework, which would be connected at a later date.



*The newly installed lube oil replenishment system, jacketed fuel feed and return pipework*



*Particulate filters installed on the roof of the Hospital*

## LV SWITCHBOARD & CONTROL SYSTEM

As part of the installation, WB Power installed a new LV switchboard, which included ComAp control modules. In addition, WB Power also provided two remote panels, which were installed to control the synchronising at two remote switchboards. Included within this was design services, FAT attendance, manuals and commissioning assistance.

## ELECTRICAL INSTALLATION WORKS

In addition, WB Power also provided two remote panels, which were installed to control the synchronising at two remote switchboards. Included within this was design services, FAT attendance, manuals and commissioning assistance. In addition, the following electrical work was conducted on-site:

- **GENERATOR SUPPLY CABLE FROM THE GENERATOR CIRCUIT BREAKERS TO THE NEW SWITCHBOARD**
- **MIGRATION OF OUTGOING CABLE SUPPLIES TO THE NEW SWITCHBOARD**
- **NEW OUTGOING CIRCUIT TO THE BOILER HOUSES LV SWITCHBOARD**
- **CONTROL CABLING BETWEEN GENERATOR CONTROL PANEL, FUEL TANKS AND MOTORISED LOUVRES**
- **CONTROL CABLING BETWEEN GENERATOR CONTROL PANEL AND NEW SWITCHBOARD**
- **EARTH BONDING**
- **ROOM LIGHTING**
- **CABLE JOINING & EXTENSION INTO THE NEW SWITCHBOARD**



## OUTCOME

Following completion of the installation, the sets were commissioned utilising a resistive load bank test. This was conducted by WB Power's in-house commissioning team, with one of their Commissioning Engineers on site conducting the tests over a 10 day period. Whilst on-site the Engineer was also able to deliver formal training to the Hospital Engineers. A detailed analysis of the project found that the generator and accompanying ancillary equipment was delivered by our Projects Team within predefined time frames and on-budget. All predefined hospital requirements were delivered, meaning the project was a great success for WB Power.