



Standby power

> Case History

Lahad Datu Hospital in Sabah, Malaysia



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Where:

Government hospital at Lahad Datu in Sabah, East Malaysia

What:

Two 748DFJC generator sets, powered by KTA38G3 engines and rated at 936 kVA, from Cummins Power Generation

Purpose:

To provide backup to the irregular grid power supply, especially for the sensitive equipment in the hospital

Primary choice factors:

Guaranteed performance as required by specification, low sound levels of 65 dBA or less at 1 meter, maintenance of air quality due to low emissions

Cummins Power Generation ensures reliability at government hospital in Lahad Datu, Sabah, Malaysia

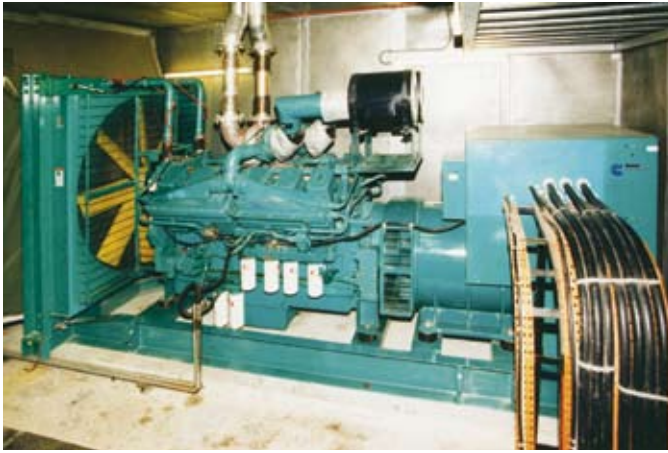
SABAH, EAST MALAYSIA — The power supply to a hospital has to be extremely reliable not only for the normal functioning of the facility, but also for the uninterrupted operation of sophisticated equipment used by medical staff in routine and emergency situations.

Since the latest instruments invariably incorporate microprocessors that are sensitive to electrical disturbances, power outages could cause them to malfunction, thereby endangering the patients.

For example, the voltage fluctuations that medical imaging equipment such as the CAT scan, MRI, and X-ray are subjected to should be extremely low in order to maintain the quality of the image output.

Health care regulators have, therefore, imposed stringent standards to ensure the quality of healthcare and safety.

Taking into consideration these criteria, engineering consultants KTA (Sarawak) Sdn Bhd specified gensets from Cummins Power Generation for standby duties at the 268-bed government hospital in Lahad Datu in Sabah and five other hospitals, all in East Malaysia.



Cummins Power Generation gensets meeting hospitals' needs for guaranteed performance on load acceptance, low sound levels and low emissions.

Two Cummins Power Generation 748DFJC gensets, powered by KTA38G3 engines rated at 936 kVA, have been installed at the Lahad Datu hospital to back up the grid supply.

Each of the other hospitals at Kuala Penyu, Pitas and Kunak in Sabah, which have 76 beds each, is backed up by a 280DFCC genset powered by an NTA855G4 engine rated at 350 kVA. Two 640DFHB gensets, powered by QST30G2 engines rated at 800 kVA, have been installed at the 212-bed hospital at Keningau in Sabah and also at the 268-bed hospital at Sarikei in Sarawak.

For all the hospital projects, the sound level has to be kept at 65 dBA or lower, at a distance of 1 meter. At Lahad Datu, this has been aided by the installation of a drop-over acoustic enclosure.

“The use of the GenSize software enabled us to calculate, store, retrieve and modify relevant information in order to determine the correct genset size for each application. This, in turn, helped us to provide the performance guarantee required by the specifications,” said Mr. Alex Tan from Scott & English (Malaysia) Sdn Bhd.

Cummins GenSize Selection

A key feature in the selection of the gensets for all six hospitals was the use of the Cummins GenSize software program provided by Cummins distributor Scott & English (Malaysia) Sdn Bhd.

Since several factors influence the optimum size of a genset for a particular application, it is difficult to make manual calculations. The computer software helps and ensures suitable sizing for the genset.



Emergency power system provides critical backup power for life-sustaining equipment in the hospitals.

In order to determine the size of a genset, it is then necessary to identify the nature and magnitude of the loads on the genset. Each of the loads and other factors will influence the calculations for the genset size differently. Several parameters have to be taken into account, including the Power Factor (PF), the phase of the loads, imbalances, whether the loads are cyclical in nature, whether they are produced by motors including variable frequency drive (VFD) motors, and whether they are low-inertia or high-inertia loads.

In addition, there are loads due to the Uninterruptible Power Supply (UPS) system, battery charger, medical imaging equipment and lighting, as well as regenerative loads. Also, the sequence in which the loads are introduced is important.

At the same time, the fact that the power requirements will increase over time must be taken into consideration and, therefore, the decision on the genset size will ultimately depend not only on the computer calculations but also on an estimation of future power requirements.

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“The installation and performance of the gensets at the six hospitals have been satisfactory, overall,” said Mr. J M Lee, director, KTA (Sarawak).

For more information about integrated standby power systems, contact your local Cummins Power Generation distributor or visit www.cumminspower.com.

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