



Prime power

> Case History
PLN Bontang, East Kalimantan, Indonesia



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Where:

PLN Bontang, East Kalimantan, Indonesia

What:

Three Cummins Power Generation 823DFJD generator sets powered by KTA38G5 engines, each set prime rated at 823 kW/1029 kVA, and one 1005DFLC genset, powered by a KTA50G3 engine, the set prime rated at 1005 kW/1256 kVA, together with paralleling switchgear

Purpose:

To add to the power supply from the utility system

Primary choice factors:

Product reliability, suitability of the product for emergency and heavy-duty prime applications, proven track record, quick-response service support, cost-effective maintenance

Gensets top up power supply from utility system in prime application

EAST KALIMANTAN, INDONESIA — In Indonesia, power plants produce power using various resources such as oil, gas or coal, which are complemented by hydroelectric power and a limited amount of geothermal energy. Perusahaan Listrik Negara (PLN), the state-owned electricity company, currently manages the power supply throughout the country. Indonesia's plans to rapidly expand its power generation capacity are based on opening up the market to Independent Power Producers (IPPs).

The financial crisis in recent years had strained the resources of PLN, especially in relation to its contracts with IPPs. With the country's economy growing, albeit at a modest rate, the demand for power has increased and several areas are facing a supply shortage.

The province of East Kalimantan in Indonesia is one of the largest energy producers in the country, yet electricity supply is a problem in several areas. This has, however, been remedied through the installation of diesel gensets.

Built around 1979, the PLN power plant in Bontang, East Kalimantan runs on diesel fuel and serves the electricity requirements of commercial, industrial and residential buildings in the area 24 hours a day.



Cummins Power Generation high capacity gensets supplement power to the PLN supply at Bontang.



Paralleling switchgear facilitates synchronisation of gensets with the grid supply.

As Bontang has a huge natural gas reserve and hosts some of the largest LNG plants in the world, there was pressing demand for more power supply to cater to shortages at the grid as well as for emergencies, and in anticipation of future needs. A PLN tender for an additional power plant package was called and the contract was clinched by main contractor CV Amalia Persada.

The main contractor's scope of work included the supply of the power house, genset, transformer and switchgear, as well as the installation. PT Altrak, the Cummins distributor in Indonesia, supplied the genset and switchgear.

"The contribution of the gensets to the prime power supply at PLN Bontang is significant, as it assures that the essential energy requirements of commercial, industrial and residential units are met. But great demands are placed on the gensets, since they are operational 24 hours a day," said Mr. Hairuddin Halim of PT Altrak 1978.

Three Cummins Power Generation 823DFJD gensets powered by KTA38G5 engines, each set prime rated at 823 kW/1029 kVA, and one Cummins Power Generation 1005DFLC genset powered by a KTA50G3 engine, and rated at 1005 kW/1256 kVA, add to the power supply from the grid.

The gensets were supplied with control systems from Cummins Power Generation. The system controls the generator set start and shutdown functions, facilitates automatic remote starting, controls the DC panel lighting, and monitors engine performance.

Vibration isolators protect the control panel electronics and circuitry from generator set vibration. Rugged, nonfluctuating, and easy-to-read analog gauges display performance trends.

Synchronisation is done manually by the operators who ensure the efficient functioning of the gensets. Furthermore, the Cummins branch office is located near the power station. Routine inspection procedures are carried out by the operators, guided by the Cummins operations manual. At the same time, the operators are always in close communication with the Cummins Power Generation technicians at the branch office, so that at the slightest indication of any problem with the gensets the technicians can respond quickly.

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"This is addressed effectively by the experienced operators at the PLN Bontang power station, acting in accordance with the procedures established by Cummins Power Generation and with support from the Cummins branch office nearby," Mr. Halim said.

Through the adoption of a comprehensive maintenance program, the performance efficiency of the gensets is assured. It includes preventive maintenance as well as parts replacement schedules. Consumables such as filters (for oil, water and fuel) are scheduled for replacement after 250 hours of operation. In order to minimize downtime, the availability of parts such as the filters is kept at 95 percent, that of pistons and liners at 80 percent, and camshafts and crankshafts at 70 percent. Furthermore, the maintenance requirements are forecast based on the operating times of the gensets.

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

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