



# Standby power

> Case History  
Queensland Alumina Ltd, Australia



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**Where:**  
Gladstone, Queensland, Australia

**What:**  
Standby power incorporating nine Cummins Power Generation generator sets with digital master control system

**Purpose:**  
To provide backup support for QAL's two 13 MW steam turbines which normally supplement the utility power supply for the refinery operations

**Primary choice factors:**  
Cummins Power Generation's ability to design and build a reliable and fully automated system

Cummins Power Generation powers QAL's Gladstone refinery

GLADSTONE, QUEENSLAND, AUSTRALIA — When Queensland Alumina Ltd (QAL) asked four companies to propose a solution to standby power problems at its Gladstone refinery — the largest alumina refinery in the world — Cummins committed to a forward-thinking turnkey solution.

QAL selected Cummins Brisbane for the Gladstone project after inspecting the Angaston power station, designed and built by Cummins Power Generation, situated in the Barossa Valley near Adelaide.

Nine 1,675 kVA Cummins Power Generation diesel generator sets and a Cummins DMC 300 digital master control system are at the heart of the refinery's new fully automated standby power system, commissioned in late 2006.

"QAL's key criteria for the new standby power station were that it had to be reliable and fully automated," said the sales executive from Cummins Brisbane's power generation team which also included a contracts manager and regional application engineer for the Gladstone project.



QAL senior project electrical engineer Craig Stevens interrogates the Cummins PowerCommand® genset control system.



QAL's previous standby system was in need of updating. Its four English Electric generator sets were unreliable, unserviceable and unable to provide backup support for QAL's two 13 MW steam turbines which normally supplement the utility power supply for the refinery operations.

Cummins was provided with a greenfield location for the turnkey power station after QAL had removed the old plant facility and returned the site to its original condition.

"We had to provide a total system solution — design, manufacture, installation and commissioning," the Sales Executive pointed out.

"This included site excavation, civil works, design and construction of the acoustically rated diesel generator powerhouse facility. Then came supply and installation of the gensets, exhaust system, step-up transformers, ground transformer, high-voltage switchboard, DC power supplies, DMC 300 and an 8,000 liter diesel fuel tank with reticulation system."

The Cummins DMC 300 digital master control system is a key feature for QAL.

"With the DMC 300 we were able to offer QAL control capability that exceeded its expectations."

*"Over the next few years QAL will be upgrading its existing power distribution network, and the DMC 300 is designed to be an integral factor in control of this network."*

QAL is also looking at expanding the role of the new generator system.

"While we started off looking for a basic standby power system, the capabilities of the Cummins generators and master control system have encouraged QAL to

investigate more complex scenarios such as peak shaving during periods of high bulk energy costs," says QAL senior electrical project engineer Craig Stevens.

The DMC 300 and nine 1,675 kVA gensets are part of a fully integrated system that utilizes Cummins PowerCommand 3100 digital paralleling equipment. The gensets are powered by Cummins' 50-liter V16 engine, the K50.

The demanding schedule required by QAL concentrated building and installation activities into a five-month window, leading up to operational completion.

"QAL was fortunate — and very pleased — that Cummins was able to deliver operational completion on schedule despite the fact there were occasional delays brought on by other site activities."

QAL's essential services operators are impressed with the new generators. "The old ones were so bad," says one.

"If the utility supply failed, we had to literally run 200 meters from the control room down to the old generator building and manually start the generators. If we were lucky, we got one or two running. These new Cummins machines are just great!"

The world-noted Gladstone refinery has an alumina production capacity of around 3.95 million tons per annum. Production of alumina is the intermediate stage between mining bauxite ore and producing the metal aluminum.

For more information about integrated standby power systems, contact your local Cummins Power Generation distributor or visit [www.cumminspower.com](http://www.cumminspower.com).

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