



# Peaking power

## > Case History

Lonsdale Power Station, Adelaide

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**Power  
Generation**

### **Where:**

Lonsdale Power Station, Adelaide, Australia

### **What:**

20 MW peaking power plant comprising 18 containerized gensets which can be started automatically on demand, within 60 seconds, from anywhere in Australia

### **Purpose:**

To deliver 20 MW of power during peak demand to meet the state's electricity requirements

### **Primary choice factors:**

Ability of Cummins Power Generation to design and build environmentally friendly diesel power station in extremely short time

## **Cummins Power Generation builds 'clean' power station, meets tough environmental standards**

ADELAIDE, AUSTRALIA — The 20 MW peaking power plant designed and built by Cummins Power Generation in Adelaide highlights the tough environmental standards that can be met by a diesel plant.

The power station is on a leased 2,500 square meter site in the suburb of Lonsdale and comprises 18 containerized generators which deliver 20 MW to help meet South Australia's electricity requirements during peak demand.

Cummins Power Generation rents the plant to an electricity market trader and actually sells the power into the wholesale National Electricity Market (NEM) for the trader — Emagy, a wholly owned subsidiary of SG Australia.

The diesel power station — the first of its type in Australia — was built in the extremely short time of less than four months which must be close to a record for a project of this complexity.

Cummins Power Generation signed the contract with the customer in late August 2001, and achieved practical completion and commissioning by December 21, 2001.



On-site noise level from the plant is as low as 65 dBA which is less than that of a passing truck or bus.

### Exceeds future emissions standards

Significantly, the power station meets — in fact, exceeds — tough Australian environmental standards proposed for 2008.

It features the latest selective catalytic reduction systems technology which ensures that oxides of nitrogen (NO<sub>x</sub>) emissions at ground level are significantly below Australian environmental standards proposed for 2008.

This control of emissions is critical because Adelaide has high NO<sub>x</sub> levels in its air 'shed' during the summer. These oxides of nitrogen are an irritant to the respiratory system and contribute to smog.

The power station has won a prestigious award for environmental excellence. The Institution of Engineers Australia gave the plant a special commendation, highlighting the work done by Cummins Power Generation and its consultants, SDA Engineering, in meeting tough environmental standards.



The Cummins Power Generation team that made the power station happen.

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The power station uses the latest selective catalytic reduction systems technology to ensure that ground-level NO<sub>x</sub> emissions are below Australian standards planned for 2008.

The power station is also 80 percent quieter than statutory requirements for noise pollution. On-site noise level from the plant, with all generators running, is as low as 65 dBA — less than that of a passing truck or bus.

Each of the 18 generator sets is also fully containerized with integrated bunding to prevent any fuel, oil or coolant spillage to the environment.

### Unmanned plant starts automatically

The plant is unmanned and its sophisticated control system allows the 18 generators to be started automatically on demand, within one minute, from anywhere in Australia. As a peaking plant it is required to reach full load within 60 seconds of receiving a price signal from the electricity market.

It has to start up this quickly to take advantage of price spikes. The South Australian electricity market is volatile in summer. Wholesale prices are determined every five minutes and can move from \$30/MWh to \$5000/MWh in this period.

For more information about peaking power systems or other energy solutions, contact your local Cummins Power Generation distributor or visit [www.cumminspower.com/energysolutions](http://www.cumminspower.com/energysolutions).

### Power station specifications

- 18 x Cummins Power Generation containerized 1125 kW DFLE generator sets comprising KTA50G8 diesel engines coupled to Newage alternators.
  - 18 x ABB 415V/11kW step-up transformers.
  - 2 x Reactors (fault limiting).
  - 4 x Stueler catalytic converters using urea injection.
  - 1 x NO<sub>x</sub> continuous monitoring system.
  - 2 x 50,000-liter fuel tanks and fuel unloading canopy.
- Cummins Master Controller and SCADA systems.  
Cummins PowerCommand® Control for paralleling.

