Onslow Power Station

CUSTOMER	Downer Group
LOCATION	Onslow, Western Australia
OPERATIONAL DATE	December 2017

A coastal town in the Pilbara region of Western Australia, Onslow is located almost 1,400 kilometres north of Perth. With a population of less than 1,000 people, the remote town is subject to hot and harsh conditions while also being prone to cyclonic activity.

One of Australia's largest distributed energy resource (DER) microgrids, the Onslow Power Station will supply a high portion of Onslow's electricity needs via renewable energy sources such as solar and battery solutions.

WHY MTU?

An integrated services provider across Australia and New Zealand, the Downer Group was engaged by Horizon Power to design and construct a power station, zone substation, and transmission line. As part of this process, the Downer Group approached Penske Australia in late 2016 with a request to tender for the containerised gas generator set portion of the power station.

After a detailed assessment process in conjunction with MTU, Penske Australia's energy solutions team recommended the installation of MTU's 12V4000 L32 power generators as they are specifically designed for high ambient temperatures and humidity – ideal for Onslow!

Boasting high performance and efficiency, MTU is a world leader in the manufacture of high speed gas and diesel engines, offering reliable bespoke solutions that deliver low whole-of-life costs and emissions with long service intervals.

Furthermore, the 12V4000 L32 unit had already proved successful in hot and humid climate such as in Bangladesh and Indonesia providing significant technical advantages over competitor products including:

- High cylinder displacement of 57.2 litres with a predicted time-between-overhaul (TBO) of 63,000 hours.
- Optimal engine performance over the full power range (42.2% electrical efficiency), in high ambient conditions.
- Robust L32 generation of MTU's 12V4000 design allows for minimal high temperature de-rate (<5%) once on site.
- Excellent transient step load and very dynamic load sharing controls.
- High tolerance to low load running increasing system reliability and turn down ratio.
- Very good step load performance due to a lower compression ratio compared to many of its competitors.

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- Engine design has a high tolerance to low load running – as low as 35% load – without a time restriction.

The multiple MTU 12V4000 L32 generators were accompanied by an MTU 16V2000 DS1250 diesel generator for black start and redundancy purposes, delivering a complete MTU solution.

ABOUT PENSKE AUSTRALIA'S SERVICES

Penske Australia's highly experienced national energy solutions team successfully completed various stages, meeting key milestones for this time-critical project, including:

- Supply of containerised gas and diesel generator sets.
- Design and documentation.
- Integration of generator set controls into wider control system.
- Commissioning to ensure optimal operation of all equipment on site.
- Ongoing service and maintenance ensuring a robust supply of genuine MTU parts and support.
- Project management through the 12-month project period.

MODEL SPECIFICATION

- 7 x MTU 12V4000 L32 gas generator sets (each rated at 1,125 kWe).
- 1 x MTU 16V2000 DS1250 diesel generator set (rated at 900 kWe).
- Each of the gas generator sets is housed in a 40'/12 m High Cube ISO container comprising the following:
  - Bunded floor.
  - Forced ventilation system.
  - Exhaust system.
  - Cyclone hoods.
  - Gantry beams.
  - Attenuation to 85dBA at one metre.
  - Personnel and maintenance doors with internal panic release.
  - 50°C rated radiators with variable speed drive (VSD).
  - Local control panel.

mtu A Rolls-Royce solution

For more information contact our Energy Solutions team on 1300 688 338

PENSKE Australia