



NZ HAWERA TO KUPE GAS PLANT 33KV SUPPLY LINE
FOR ORIGIN ENERGY RESOURCES LTD NZ

A major New Zealand offshore gas platform powered by a comprehensive distribution solution

Contract Value:
\$6.7M

Project Duration:
Commenced: 2007
Completed: 2008

Location:
Hawera, New Zealand

Service Offering:

- Engineering
- Construction
- Fabrication
- Commissioning
- Project Delivery & Implementation

PROJECT OVERVIEW

The Kupe natural gas field is located 35 metres under the Tasman Sea, 30 km off the coast of the town Manaia in Taranaki on New Zealand's North Island.

The field was discovered in 1986 and is being managed through the Joint Venture, Kupe Gas Project.

The project is operated by Origin Energy (Origin) and comprises an unmanned offshore platform with three production wells, a 30km raw gas pipeline running from the platform to the shore, an onshore production station near Hawera, near New Plymouth, and light crude storage and export facilities near Port Taranaki in New Plymouth.

The Kupe Gas Project provides the New Zealand gas supply network with approximately 273 petajoules of natural gas, meeting gas supply needs for between 15 and 20 years, as well as 1.1 million tonnes of liquefied petroleum gas (LPG) and 18.6 million barrels of light oil.

The project was officially opened by Prime Minister John Key on 18 March 2010 and cost NZ\$1.3 billion.

UGL was contracted to provide critical infrastructure to support the Kupe Gas Project's offshore platform's power needs. UGL's expertise in oil and gas and power distribution were utilised on this project to deliver an exceptional outcome for the client.

THE CHALLENGE

Origin is constantly searching for new sources of energy in Australia and increasingly internationally in countries such as New Zealand, to help meet the growing energy demand of its customers.

Their exploration activity is carried out on land (onshore exploration) as well as in water (offshore exploration). Strategically targeting gas reserves located close to markets, any new discoveries can quickly be developed.

The onshore production station, 12 km west of Hawera, processes raw gas to meet the specification for the main North Island gas transmission system and separates out the light oil/condensate and liquid petroleum gas (LPG). The condensate is transported to Port Taranaki (New Plymouth) for export, while the LPG is sold into the domestic New Zealand market.

The challenge for this project was to supply power 19km out to sea to the unmanned offshore platform. This would meet the energy needs of the platform to safely extract and transport gas products back to the onshore processing plant.

THE SOLUTION

UGL carried out the design and construction works of the 33kV supply cable from Hawera Grid Exit Point (GXP) substation to the Kupe production facility.

This required the design and construction of a new 33kV substation, including indoor and outdoor electrical equipment, civil works, underground cable and fibre optic installations.

It also included the design, construction and commission of:

- 33kV switchboard with associated protection and metering
- Communications links between the production station and Hawera GXP
- 48V DC system
- Terminate 33kV power and control cables related to the switchboard
- Local service supply
- Construction of switchroom for installing 33kV switchboard, and associated controls and 48VDC UPS
- Design, supply and installation of 33kV Capacitor
- 33kV cable design and installed over a 19km route from Hawera GXP to the Kupe site
- Earthing design and installation

UGL's team safely completed all contracted works, to ensure this new field could begin producing gas, to help support meeting New Zealand's increasing energy needs.

KEY OUTCOMES AND BENEFITS

Kupe is a critical part of New Zealand's energy infrastructure. At its peak, the gas produced from the Kupe field is expected to meet 10 to 15 per cent of New Zealand's annual gas demand and 50 per cent of New Zealand's LPG demand.

Production is forecast to continue for the next 15 to 20 years. Over the life of the field, it will provide 273 petajoules of natural gas, 1,114 kilotonnes of LPG and 17.6 million barrels of light oil.

At the peak of construction, almost 1,000 people worked on the production station site in Taranaki, providing a significant boost to the local economy. More than six million hours of labour were expended on the project, while maintaining a strong commitment to the safety of everyone involved.

Importantly, most of the people employed on the project were locally based, enhancing the regions work force with valuable new skills and experience through their involvement with an internationally recognised project.



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