



CASE STUDY: PORT OF TAURANGA CRANE INSTALLATION

The Port of Tauranga, one of New Zealand's largest port facilities, commissioned a new ship-to-shore gantry crane in 2009. The crane is specifically designed to handle larger container ships and its purchase forms part of the port's plans for long-term growth.

PROJECT SCOPE

With an out-reach of 48 metres, the crane handles container ships up to 18 containers wide. It draws 2,500 amps, provides a lifting capacity of up to 80 tonnes and was delivered by a specially chartered vessel before being assembled on-site and moved into place for final connection and commissioning.

Northpower was contracted to design, plan and install the electrical infrastructure for the crane, including connection to the port's existing 11kV network. The project included liaison with the network provider, purchase of all electrical materials, supervision of a civil contractor and comprehensive testing.

CHALLENGES

The project began with a series of negotiations with the network provider, Powerco, to secure the increase in load to the port required to power the crane.

The project's biggest challenge lay in working within the constraints of a very busy port environment. Preparatory work, including laying an additional 11kV cable to extend the port's existing network, needed to be carried out without disrupting day-to-day operations.

FACTS AND FIGURES

- 1,000m of new 300mm² 11kV underground cable
- 2 new 11kV ABB switch units
- 1 new 11kV Reyrolle Vacuum Circuit Breaker
- Adjust protection settings on existing 11kV switchboard
- 500 man hours to complete the project
- 75 hours of design time

All changeover work had to be completed during a four-hour overnight shutdown, requiring extensive forward planning. Northpower also had to meet some unforeseen challenges, including the late arrival of the crane.

SOLUTIONS

Northpower staff worked closely with the network provider and port management, with Northpower engineers providing accurate calculations to demonstrate the impact of the crane on power usage. Protection settings on the circuit-breakers and the wharf were reset to meet the network provider's requirements. Northpower was also required to provide as-built drawings of the complete installation to the client.

Northpower's technicians designed and constructed a purpose-built system linking the power-intensive crane to the port's 11kV network. The challenge of completing the installation within a very tight timeframe was met through high quality project management, workmanship and engineering.

RESULTS

With the exception of the civil works the entire project was undertaken by Northpower. The supply was installed and commissioned on time and on budget. Following on from this project the client has since commissioned Northpower to conduct power quality studies on the remaining cranes.

"The thing that set Northpower apart was the fact that they were able to offer a full service, from the design stage right through to the final termination. This meant that we did not have to employ an outside consultant, as Northpower could handle the whole project."

"They offered us some very good design options, which was very important for us as it helped keep costs down. Overall we were very pleased with Northpower's performance - the project went according to plan and was on budget."

Greg Dinsdale, Manager Mechanical and Electrical Services, Port of Tauranga Ltd