



CASE STUDY

Delivering the Power to Alice Springs

Client Objectives

The new Owen Springs power station is a major infrastructure development for central Northern Territory. Not only because it seeks world's best practice in fuel efficiency and reduced carbon emissions, it is also earmarked to become the region's sole electricity provider. The \$126 million power station comprising of three 10.9 megawatt diesel / gas generators will gradually displace the Ron Goodin power station over the next decade as the primary power facility to the Alice Springs area, eventually leading to the latter's decommissioning. Due to the importance of this project, it was critical that Power & Water Corporation constructed a facility that is capable of sustaining the electricity demand of Alice Springs and its surrounding area for the years to come.

MAN Diesel & Turbo Australia, the head contractor for the design and construction of the project, engaged the services of Tutt Bryant Heavy Lift & Shift (formerly Tutt Bryant Project Services) to assist in the transportation and installation of the power station generators and alternators. Tutt Bryant Heavy Lift & Shift was selected on the basis of their experience in handling unusual lifting and transportation tasks safely and economically. The scope of work encompassed the unloading, reloading and transportation of the generators (each weighing 230 tonnes) and alternators (each weighing 60 tonnes) from the Port of Darwin to the Owen Springs site, followed by the placement of all machinery onto their individual foundations. With access to the full resources that are based in Perth and Darwin, Tutt Bryant Heavy Lift & Shift was able to provide MAN Diesel & Turbo Australia with a comprehensive solution involving specialised transport assets and alternative lifting equipment in the form of the modular hydraulic jacking system.

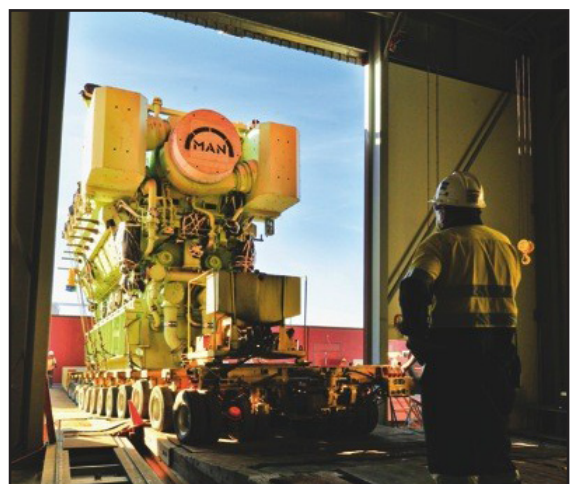
Obviously, it is not as simple as it sounds. The sheer mass of the loads, the 1,500 km transportation distance and the difficult nature of installation meant that detailed pre-planning, load studies and fluent execution were vital to the success of the operation. For Tutt Bryant Heavy Lift & Shift, the enormity of the project was not only welcomed as a challenge, but also viewed as an opportunity to showcase their capability as a leading heavy lift and transportation provider in the country.



The 230 tonne generator during transportation over the 1,500km journey from Port of Darwin to the Owen Springs site



Utilising a modular hydraulic jacking system, Tutt Bryant Heavy Lift & Shift was able to unload and relocate the equipment in one single motion, increasing efficiency



Self propelled trailers were used in conjunction with the modular hydraulic jacking system to manoeuvre and place the generators onto their respective foundations



Solution

Each of the three generators and their alternators arrived separately at the East Arm Wharf in the Port of Darwin. The combined gross load on each occasion was in excess of 420 tonnes. Tutt Bryant Heavy Lift & Shift utilised a Nicolas 18 axle, 3 file hydraulic platform trailer to transport each of the generators, and a 4 x 8 low loader and 2 x 8 dolly for each of the alternators. This combination of trailers, low loaders and dollies provided enough load capacity to efficiently transport the 420 plus tonne load over the vast distance. In order to drive the load, Tutt Bryant Heavy Lift & Shift organised three prime movers to operate in a two-in-front, one-in-back formation.

Like most heavy lift and transportation tasks that Tutt Bryant Heavy Lift & Shift undertakes, there are naturally challenges that need to be overcome. In this case, pre-planning was crucial considering the oversized nature of the loads, the vast distance of travel, and the ever-changing landscape and terrain that needed to be negotiated. To overcome these challenges, Tutt Bryant Heavy Lift & Shift collaborated closely with the local authorities and communities to ensure that the loads can be carefully manoeuvred through, and that the impact on public infrastructure like roads was kept to a minimal. Another area of concern was the height of the loads which at 6.6 metres meant that they would collide with powerlines at certain junctions. This issue was addressed by strategically planning their route, avoiding overhead powerlines where possible. In instances where they could not be avoided, line crews from Power & Water Corporation were on hand to raise the powerlines as the haul train travelled underneath.

Tutt Bryant Heavy Lift & Shift was able to complete the 1,500 km journey on schedule, arriving on each occasion within the allocated timeframe. Once on site, the next phase of the task involved Tutt Bryant Heavy Lift & Shift unloading and placing the loads onto their respective foundations. To do this efficiently, the SBL1100 modular hydraulic jacking system was deployed along with self propelled trailers that are able to jack up and down. The utilisation of such specialised transportation and alternative lifting equipment allowed each of the generators and alternators to be unloaded and relocated all in a single motion, thereby increasing the efficiency of the task. The installation was a delicate process as a result of the tight confined space and the requirement to have the machinery exactly aligned. During execution, Tutt Bryant Heavy Lift & Shift was able to implement innovative solutions such as building a ramp up onto the alternator foundations and enabling side shift capability mode on the modular hydraulic jacking system – these solutions enabled the alternators to be manoeuvred into their respective bays sideways and placed within a 2-3mm tolerance.

Client Benefit

The generators and alternators were transported and placed onto their respective foundations as specified by MAN Diesel & Turbo Australia. Completing their task on schedule, Tutt Bryant Heavy Lift & Shift ensured the prompt continuation of the installation and construction works of the power plant. In providing efficient methodologies, thorough pre-planning and careful execution, Tutt Bryant Heavy Lift & Shift not only achieved the client's objectives, but also further enhanced their reputation as a leading heavy lift and transportation provider in Australia.

Tutt Bryant Heavy Lift & Shift would like to thank Power & Water Corporation, MAN Diesel & Turbo Australia, NT Roads, the Northern Territory Police, and the local shires for their support and assistance which all contributed to the success of this extraordinary task.

Key Equipment

Hydrospex SBL1100 Modular Hydraulic Jacking System

The SBL1100 has a patented foldable design that allows excellent transportation dimensions and the quick 'plug and play' set up typically requires only half a day. Once set up, the SBL1100 has a lifting height of nearly 13 meters and a lifting capacity of up to 1,100 tonnes. The self-contained hydraulic system has a fail-safe design with three-stage hydraulic cylinders mounted upside down in an octagonal shaped boom design. Powered side shifters are another feature that ensures maximum placement accuracy.



The Hydrospex SBL1100 Modular Hydraulic Jacking System