

PROJECT SHEET

ICHTHYS PROJECT

ONSHORE LNG FACILITIES LNG MODULES LOAD-OUT, TRANSPORTATION, DISCHARGE

BOSKALIS' ENERGY SOLUTIONS

Boskalis is a leading global dredging and marine expert. With safety as our core value we provide innovative, sustainable and all-round solutions for our clients in the energy market. Realizing projects in remote locations with a heightened environmental focus is one of our specialties. Under brands such as Boskalis, Dockwise, SMIT, Fairmount, VBMS and Smit Lamnalco we offer more services than any other company in our industry, making us your next one-stop solution provider.

We support the development, construction, maintenance and decommissioning of oil and gas import and export facilities, fixed and floating exploration and drilling facilities, pipelines and cables and offshore wind farms.

INTRODUCTION

As Australia moves to take its place as one of the world's biggest LNG exporters by 2020, the INPEX-operated Ichthys LNG Project stands as one of the country's most exciting and challenging developments.

The Project includes some of the world's biggest and most advanced offshore facilities, massive onshore processing facilities near Darwin in the Northern Territory and an 890 kilometer pipeline to unite them.

When operational, the Ichthys LNG Project is expected to produce 8.9 million ton of LNG and 1.6 million ton of LPG per annum, along with approximately 100,000 barrels of condensate per day at peak.

FEATURES

Client	JKC joint venture (JGC, KBR, Chiyoda)
Operator	INPEX
Location	Darwin, Australia Qingdao, China (COOEC yard) Laem Chabang, Thailand (STP&I yard) Batangas, Philippines (AG&P yard)
Period	Preparations/ Engineering from 2012 – 2014 Execution from 2014 – 2016
Vessels	mv FINESSE mv FORTE mv TRANSSHelf
Contractor	Fairstar/Dockwise/Boskalis Offshore Energy



A FINESSE - Loadout of large module in Thailand

B TRANSSHelf - ready to discharge a 6000 t module in Darwin



With the security of having delivered the biggest project financing ever arranged in the international markets and with sales and purchase agreements already in place, the volume and value of Ichthys LNG Project reserves will supply customers with energy for more than 40 years.

SCOPE OF WORK

In general our scope consists of the transportation of large modules for the construction of the Ichthys Project Onshore LNG Facilities from various locations in Asia to Darwin in Australia.

To make this happen, an extensive period of experienced transport engineering was undertaken.

Our full scope of work can be summarized as follows:

- Project Management of the Transportation scope
- Transport Management consisting of Marine Engineering, Transport Engineering, Structural Engineering, Vessel Management and last but not least the Execution of the Load-outs, Ballasting and Discharging of all shipments.
- Quarantine Management to ensure compliancy with Australia's and Project's requirements. Cleanliness of wet side and topside of each vessel is of utmost priority.
- Health, Safety and Environment Management.

The client hired our vessels because of our experience, large open-stern deckspace and fast ballast system. First we transported the largest modules for the Project and later on we could efficiently transport multiple modules per shipment. The availability of two identical vessels was very beneficial for the flexibility of client's schedule.

In total we performed 23 shipments:

- 1x Module Offloading Facility-Transition-Pontoon from Nantong, China to Darwin(float-on / float-off operation)
- 8x largest module (± 6000t / 97x44x30 m) from Qingdao, China to Darwin (roll-on / roll-off operation)
- 10x large modules from Laem Chabang, Thailand to Darwin (roll-on /roll-off operation)
- 2x large modules from Batangas, Philippines to Darwin (roll-on /roll-off operation)

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CHALLENGES

A driver of success for the project was definitely our experienced in-house project management team of engineering and operational personnel, safety management along with the capabilities of our vessels. We were able to work together with the client to achieve safe execution of loading and discharge operations and an on time delivery of modules in order to develop the Ichthys Project Onshore LNG Facilities in Darwin.

The main challenges we dealt with on this project:

- Extreme high/low tides in Darwin and managing safe roll-off operations
- Quarantine regulations and requirements (cleanliness, ballast water exchange, etc.)
- Extreme weather- lightning/thunderstorm during wet season in Australia
- Last minute schedule changes and stowage changes challenged our Engineering Team to arrange approved manuals for operations

ENGINEERING

Extensive and ongoing engineering was performed throughout the duration of the project. In the preparation phase a lot of feasibility studies, generic mooring plans, modification necessities, review of grillage approaches and vessel mobilization plans were made. During the operational phase many dedicated mooring plans, load-out plans, voyage manuals and discharge plans were made for each shipment. This engineering was performed in our Netherlands and Chinese offices to fully satisfaction.

COMPLETION

The client recognized and appreciated our performance on this project. With 1675 vessel days and over 1.1 million man hours worked without any lost time injury, we're proud of this major achievement!

- FORTE - discharging large modules during high tide in Darwin

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