

PÖYRY CASE SUMMARY

Woodside Energy Ltd Pluto LNG Project Engineering Support Flow Assurance, Process Engineering



The Pluto LNG Project is located in Australia's North West Shelf.

Background

The LNG business is growing rapidly: volumes traded, suppliers and buyers in both long term contracts and spot markets. LNG developments are large scale with billions of dollars involved – technical, commercial and political assurance is vital to underpin such investments.

Woodside Energy is a world class player in the LNG market with a number of successes in the North West Shelf. The Pluto LNG Project is set to become the fastest developed LNG project from discovery of the gas field in 2005 to the production of first gas in late 2010. The \$12 billion project will process gas from the Pluto and Xena gas fields, located about 190km north-west of Karratha, Western Australia.

The Pluto gas field is estimated to contain a recoverable dry gas reserve volume of 4.4 trillion cubic feet (Tcf). A smaller field, Xena, with an estimated

recoverable reserve volume of 0.6Tcf will also be incorporated into the project. Train 1 capacity is 4.3 mtpa with plans for a second train.

Woodside understands the challenges involved in developing deep water LNG projects and manage the risks carefully. Pöyry Energy (Pöyry) was selected from international competition to provide flow assurance and related engineering services to the Pluto LNG project.

In one of the longest deepwater tie-backs in the world, the flow assurance studies for Pluto are vital to ensure acceptable fluid flow under all operating conditions. The studies include evaluating the thermal and hydraulic performance of the Pluto production system from the reservoir through 27 km of subsea flowlines across the Pluto offshore platform and onwards into the 180 km subsea trunkline to the onshore LNG plant.

Added Value

Pöyry's Flow Assurance Teams have a unique mix of flow assurance knowledge with extensive operations support and detail design background delivering practical solutions including development of sound operating procedures based on dynamic behaviour of the system. Pöyry Energy draws upon its worldwide expertise to deliver best in class engineering services. Our involvement in concept and detailed design flow assurance studies allows us to quickly identify of 'show-stoppers' which if neglected in FEED, could have significant cost & schedule impact in detailed design.

Workscope

Pöyry engagement covers detailed design, commissioning, start-up and operational support phases for the foundation project and concept studies for potential expansion. Services include flow assurance and process engineering support for related systems. Activities include:

- OLGA modelling covering: start-up, shutdown, 'insulate & blowdown', pigging, ramp-up, ramp-down, slug catcher sizing, commissioning, hydrodynamic slugging, MEG tracking and methanol tracking
- Delivery of detailed flow assurance input requirements for pipeline fatigue, buckling, expansion analysis and material selection
- Hydrate kinetics and plug simulation
- Topsides dynamic modelling and surge analysis
- Management of fluid characterisation and MEG injection system transient analysis
- Input into erosion analysis and into the production system simulator functional specification
- Operating philosophies and procedures
- Commissioning and start-up support

Pöyry also provided input into the Pluto platform design, including design reviews, HAZOPs and acting as the client's process engineering representative in Singapore.

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