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Emerging data says FLNG a costly risk for Timor-Leste

A High Level Comparative Assessment of the Benefits of Timor-Leste LNG vs. Floating LNG provides a stark warning of the serious risks of the use of FLNG for Greater Sunrise. The report was commissioned by the Government of Timor-Leste as third party diligence on two previously submitted studies, one including Woodside's own. While initial estimates of capital costs and operating costs demonstrate the Timor-Leste option is far more economically viable; given the early-stage development concept of the FLNG technology, researchers conclude there is no possibility to validate the accuracy of Woodside's reported preliminary cost estimates.

FLNG is cited to be the most complex and expensive offshore production operation yet attempted and is to be considered as in an experimental phase. Experts estimate cost blowouts in the order of 30-100% could be incurred from beginning to operational sustainability. To date the industry's most significant experience with radical process innovation has been with Norway's Snøhvit facility, which has experienced a constant stream of design, production capacity, operability and maintainability issues that has taken more than 3 years of operations to remedy. In comparison, the untried solution of FLNG leaves the economics similarly questionable. Margins of error on early developer's estimates are typically very high. Due to the novelty, full costs associated with an FLNG facility would not be known until sometime after project completion, with the system established and having completed at least one significant operation and maintenance cycle. The uncertainty of costs will ultimately impact the pockets of Timorese and Australian citizens.

To make matters worse, Insurance issues were raised by the single-point nature of the investment in an FLNG facility. All FLNG production, storage and offloading facilities are concentrated on one hull. A loss of the hull means a total loss to the project. At this stage, it remains uncertain how the insurance industry would handle a single point insurance risk of this magnitude. Alternatively, the risks of the TLNG or land-based baseload liquefaction, are much lower, as this is a generally considered a mature technology with a track record spanning 47 years and 100 liquefaction trains in over 23 locations to date.

While no two projects are identical, in terms of engineering and cost estimation, land based LNG is a well established and proven alternative, allowing the cost risk to be more tightly bounded. While the initial FLNG projects are being based on proven liquefaction technologies, the "marinisation" of these processes for FLNG still introduces increased performance risk, particularly in the early stages of project life. In particular, early FLNG units could have longer and/or less-predictable commissioning and ramp-up periods as systems are proven and as any unexpected early-stage problems are encountered, diagnosed and remedied.

One of the main reasons why the TLNG option is generally better is because it allows for a 5 MMt/y LNG plant to be built, vs. 4 MMt/y for FLNG. This provides economies of scale while accelerating monetization of the resource. TLNG is also expected to have less downtime, operating 340 days per year on average vs.



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325 d/y for FLNG. That cost works out to \$1100 per tonne of annual capacity for TLNG, compared to \$2100 per tonne of capacity for FLNG.

There are several deepwater pipelines, similar to the one proposed for Timor-Leste, that are either already in service or imminent including Galsi in the Mediterranean which reaches a depth of 2,800 meters. The report finds that the 3,000 meters depth of the Timor-Leste pipeline does not exceed current engineering practice or pipelay barge capabilities, giving investors more security on the investment.

The report concludes “As one of the first FLNG projects, Greater Sunrise is expected to be subject to most of the issues associated with the immaturity of the solution, requiring a tolerance for risk that may be acceptable to the project contractors, but not necessarily to an emerging nation.”

Timor-Leste has spent millions of dollars since 2008 on primary, secondary and third party data, analysis and due diligence on all aspects of the proposed options and in developing Timor-Leste’s resource sector with world industry leaders. Over the next months, many of these findings will be released as part of the Government’s commitment to educating the public on resource management and ensuring a high level of transparency. **ENDS**

