



POTEN LNG OPINION

Interest in Floating Regas Units Grows in Asia

Depressed charter rates have stirred new interest in floating, storage and regasification units (FSRU) in Asia. Apart from much smaller initial capital outlay compared with an onshore terminal, FSRUs are quicker to bring supply on stream provided there are ready off-takers. Market players see the possibility of FSRUs stimulating LNG demand in countries without regas capacity including Myanmar and the Philippines. Chinese shipowners are said to be looking at buying old carriers for conversion and chartering them out to city gas distributors, given attractively low valuations of \$18 million to \$20 million. Such carriers are typically 30 years and older with Moss containment system of 125,000 m³ (see LNGWM, Apr'15).

Japan's Mitsui OSK Lines (MOL) has put two of its first-generation tankers up for sale: the 1979-built LNG Taurus and the 1978-built LNG Capricorn, after having scrapped the 1977-built LNG Aries. Both are prospects to be converted from LNG carriers to floating regas vessels. Cost for a conversion are below \$80 million, depending on the tanker and specifications, which is much lower than a newbuild FSRU that are being ordered for more than \$300 million.

Converted FSRUs are attractive to independent Chinese LNG importers that are at the mercy of the country's three major importers, which can deny third-party deliveries even when a tanker is en route because of storage constraints. Additionally, FSRUs could be competitive against high tolling fees for third-party access currently sought by state-owned onshore terminal operators.

Excelerate Energy, the largest FSRU fleet owner and operator, estimates current construction costs to be over \$300 million, a fraction of an onshore facility which is often \$1 billion or more. The shipowner is looking for more candidates for FSRU conversion in the tanker market because of the depressed charter rates and uncommitted tonnage. A conversion from an existing tanker could take as little as 20 months while a newbuild could take a bit under three years. Currently, there are 22 FSRU operating as alternatives to onshore regas terminals globally, and another six of them to be completed through 2017, bringing total capacity to 4.4 million cubic meters, according to Poten data.

Another benefit of FSRUs is their ability to increase supply during seasonal peak demand across different regions. In China, heating demand for gas peaks in the winter and a FSRU with lower regas tariff than an onshore terminal will be more cost effective for peak shaving. However, there are concerns that Chinese shipowners do not have any LNG terminal experience, and tying up with similarly inexperienced independent gas distributors raises doubts of their capability to successfully operate a FSRU together. Independent city gas players have varying lobbying power with the local governments and that means only a handful will succeed in bypassing the current state-owned operators and directly importing LNG.

Chinese Regulations May Limit Sites

Chinese maritime rules state that there must not be any ships within 200 m radius of an LNG carrier, which causes challenges in finding suitable permanent sites for FSRUs in already congested ports. CNOOC is the only operator that has commissioned a FSRU in China. The Chinese authorities would prefer onshore terminals with the capability to expand in the future to match demand growth. Independent gas distributors ENN Group and Xinjiang Guanghui are already building onshore terminals, while power utility Huadian is studying options for its own terminal to supply gas-fired generation capacity (see LNGWM, Apr'15). Existing terminals start at 3 MMt/y to 3.5 MMt/y in their initial phase, and more storage capacity can be added over time (see LNGWM, Mar'15).

CNOOC, China's largest regas terminal operator by capacity and number of locations, chartered the 145,000 m³GDF Suez Cape Ann at a rate of around \$100,000/d for regas sendout equivalent to 2 MMt/y at its Tianjin facility for five years. CNOOC also signed a 2.6 MMt/y four-year supply contract with GDF Suez in 2010. However, Tianjin is underutilized and has only taken seven cargoes so far. It received the first two cargoes from Trinidad's Atlantic LNG in December 2013 and January 2014, and the third cargo was in September 2014 from Norway. A fourth cargo in December 2014 was from Yemen and subsequently a cargo a month was received during January to March this year before stopping again in April. In total, Tianjin imported 400,000 tons in the 17 months since commissioning. The terminal is being used for peak shaving during the winter, hence the low utilization rates, according to industry sources. It does not make any economic sense operating a FSRU at these rates.

The Philippines does not have any regas capacity and Shell is planning a FSRU in Batangas of main region Luzon as a way of keeping import costs down. However, as gas demand grows, an onshore terminal may eventually be constructed. The country is often hit by typhoons, which limits the possible sites for regas terminals because of shipping concerns (see country feature). It also presents challenges for using a FSRU. The typhoon season peaks in October to December, and could start as early as August. As a result, significant storage capacity may be required during these months. However, peak power demand season – March to July - does not line up with typhoon season.

Myanmar has become a potential market for a FSRU as its offshore gas production has fallen short of expectations. Output at its offshore gas blocks also could not fulfill its 12 Bcm/y contract to supply the pipeline to southwest China. The pipeline supplied 1 Bcm during January to April, and may only fulfill 3.5 Bcm to 4 Bcm this year.

Bangladesh in February signed a 15-year time charter starting end-2016 for a unit from Exceleerate and Astra Oil at \$0.47/MMBtu regas tariff (see *LNGWM*, Mar'15). A tariff at this level is only possible because of the relatively long charter. The daily sendout is expected to be 500 MMcf/d to 600 MMcf/d. The government has not confirmed any supply contracts for this terminal or any offtakers. The site is about 1 km from Moheshkali Island, where there will be a yet-to-be constructed onshore pipeline. A second terminal is being proposed at the same location but will be onshore.

In Malaysia, Petronas's 3.8 Mmt/y Melaka LNG floating regas project started operations in 2012 after being completed for less than the RM3 billion (\$820 million) capital budget using local contractors, but it has been operating below capacity (see *LNGWM*, Apr'15). Although it is not a FSRU, the floating terminal took two years shorter than an onshore facility. It has two existing 130,000 cu m carriers converted into storage units permanently berthed without having the need for dry docking for 20 years. Melaka received 1.6 MMT in 2014 to supplement falling domestic gas output.