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LNG FPSO Development – Bringing Two Industries Together

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Abstract

Floating liquefaction solutions are receiving growing interest lately as they are seen as potential enablers to un-lock and monetize offshore gas reserves that are currently considered stranded.

Although Onshore LNG liquefaction facilities and Offshore Oil&Gas FPSOs are each successfully proven in operation, combining the two technologies into a LNG FPSO poses new technical, organizational, execution and economical challenges to the industry that have to be properly addressed to be able to successfully implement a first of a kind concept.

Having to integrate two distinctly different industries during design, execution and operation, and the LNG FPSO concept not being operational to date yet, being technically quite complex and capital intensive, it is essential to have a well-balanced, reputable, strong and experienced team to develop and execute such a project. It is hence critical that organisations involved in the execution concentrate their efforts and leverage complementary skills, capabilities and track records to make the LNG FPSO project a success.

Important aspects of a LNG FPSO are the space constraints and the location of operation. Contrary to an onshore LNG plant, space is very limited on the LNG FPSO and utmost care and creativity is required to arrive at a safe, constructible, operable and maintainable topside configuration. Any LNG FPSO concept shall find a good balance between efficiency and simplicity to safeguard the reliability of the facility.

SBM and Linde have approached the development challenge by operating as one fully integrated team during the complete project development, which allows us to manage critical interfaces and leverage each other's complementary expertise in the best possible way. The so-called Generic LNG FPSO design uses only proven components and can handle a wide range of gas compositions. The flexibility of the concept is achieved by designing the layout and weight requirements for the most conservative scenario in the design envelope. The generic design can subsequently quickly be tailored for a specific field application.

Having finalized the FEED phase of the generic LNG FPSO concept and the associated detailed CAPEX estimate by the end of September 2008, SBM/Linde believe that a mid-scale LNG FPSO is a technically and economically feasible concept that can unlock value of gas reserves that are currently considered stranded.