



Courtesy: FLEX LNG

## Floating LNG Production

Floating LNG Production (LNG FPSO) technology is expected to provide the next breakthrough for monetizing stranded offshore gas fields.

Based on a successful track record of offshore oil field developments employing floating production, storage and offloading systems, the industry is now looking with great interest into solutions for enhancing the economics of offshore gas field developments through the integration and application of LNG and FPSO concepts

LNG FPSO facilities offer the potential to:

- Reduce the onerous permitting process for land-based LNG plants
- Eliminate the need for long pipelines to onshore facilities
- Avoid flaring, venting or re-injection of associated gas production
- Enable the development of smaller and more remote gas fields

The LNG FPSO concept is based on a ship-like vessel that can produce, store and offload LNG in a marine environment. Among the designs being considered is a self-propelled carrier on which natural gas can be treated, liquefied, transported, vaporized, and offloaded. This innovative approach will integrate gas treating and liquefaction processes with FPSO, FSRU and LNG shipping technologies.

Safety is of paramount concern, with the principal risks including flammable process inventories, abundance of process equipment with potential leak paths, and storage of LNG in proximity to process units and worker accommodations. The challenges include offshore adaptation and application of complex process equipment on a limited deck space, design of LNG containment systems to withstand vessel motion, and offloading under potentially difficult marine conditions.

Offshore LNG facilities must be efficient and provide a high degree of reliability and availability, under the constraints of equipment compactness and weight, process modularization, and equipment count. The key design consideration is to achieve maximum production of LNG with the limitations associated with process safety and equipment size.

Drawing on a comprehensive review of technical and commercial issues, Nexant's new PERP report provides an independent and informed basis for organizations to consider as they develop offshore gas projects to fit their individual circumstances and strategies.

### Report Overview

- Technological concepts: Floating structures and liquefaction components
- Challenges: Process integration, cargo containment, product transfer, safety
- Commercial drivers: Costs and breakeven economics
- New developments: Technology and designs

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