

LNG Floating Production, Storage and Offloading Unit

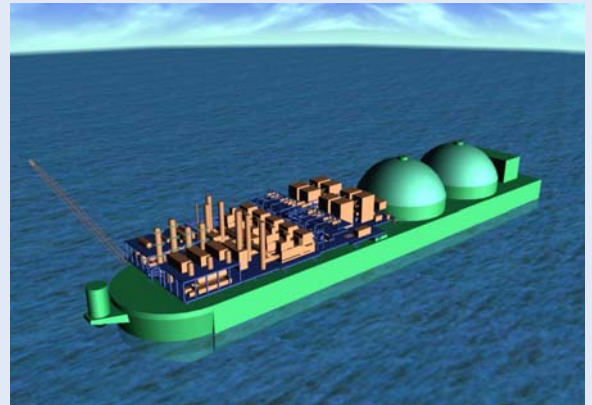
Customer: Merlin Production Inc

Services Provided

- Front End Design
- Assessment of overall technical feasibility
- Safety and Environmental studies

Benefits to Customer

- Comprehensive plant design identifying plant performance, cost, size and weight and overall technical feasibility
- Development of key metrics for inclusion in the business model for assessment of project return on investment



Project Description

- Costain was awarded a contract for the conceptual design and basic engineering of liquefaction facilities to be located on a floating production, storage and offloading (FPSO) unit moored offshore North West Australia.
- The LNG capacities considered were 3 million tonnes per annum and 4 million tonnes per annum.
- The well-established closed nitrogen expander cycle was employed for liquefaction. This process has been shown to be optimal for offshore liquefaction due to its:
 - Inherent safety
 - Lack of sensitivity to vessel movement
 - Simplicity of operation
 - Ease of start-up / shutdown
 - Flexibility to feed gas changes
- Building on previous studies and engineering assessments for offshore liquefaction, this comprehensive evaluation considered all aspects of plant design and optimisation.
- Consideration was given to the use of direct drive nitrogen cycle compressors, the plant cooling system, acid gas removal, modularisation, the effect of marinisation and minimisation of emissions.
- Classification society requirements were considered in developing plant layout and in all safety issues and a coarse safety assessment was performed.
- Costain worked closely with Moss Maritime, Oslo and DNV, Oslo and Houston.
- From consideration of LNG storage and LNG transfer options a fully viable solution for offshore LNG was developed.