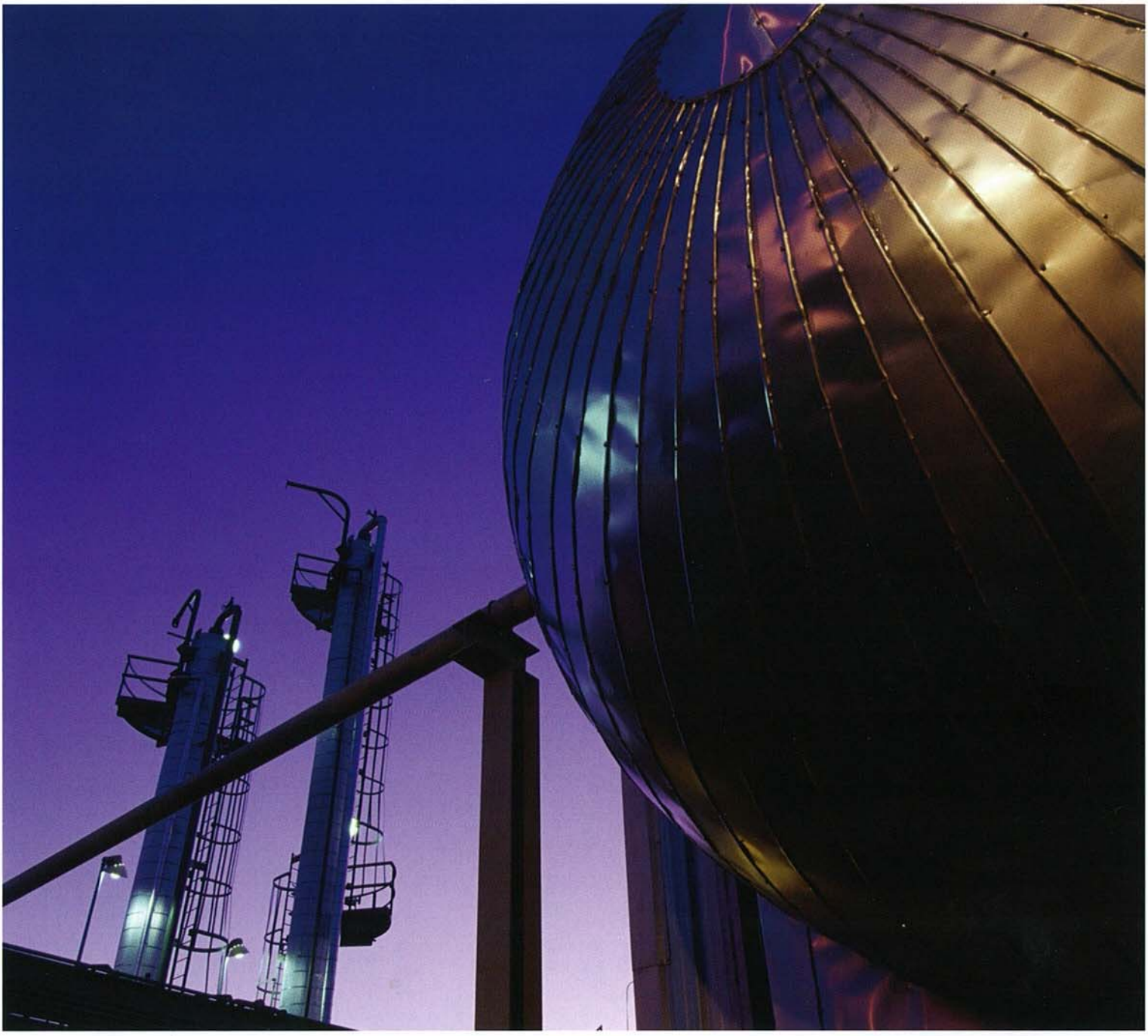


Ask DNV about…
…the LNG value chain

MANAGING RISK

Ask DNV about...

Offshore LNG production; fiction or a realistic option? Offshore gas fields in areas with no infrastructure may be developed with offshore LNG production. Such plants have not yet been built, but novel solutions are considered feasible to address challenges related to sloshing, cargo transfer, proximity of process, storage and accommodation.

Rules for offshore LNG facilities

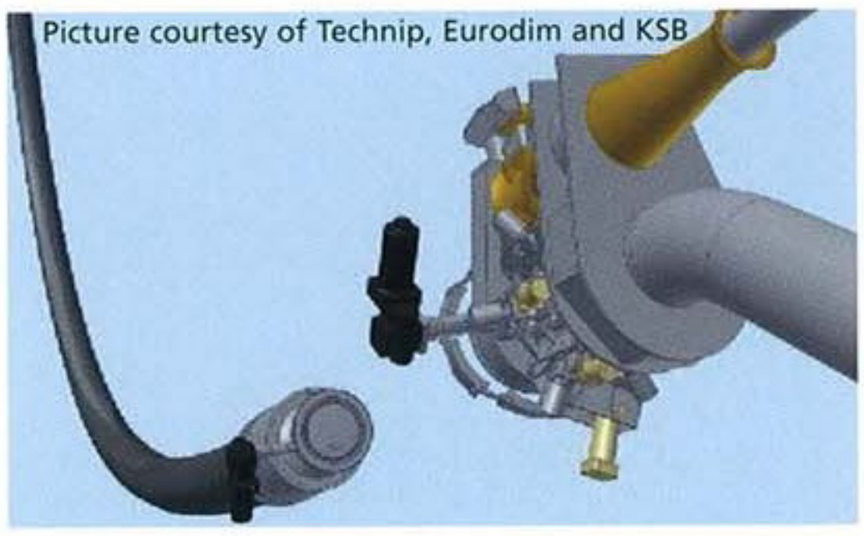
DNV has issued guidance and developed a set of rules to cover both liquefaction and regasification at LNG terminals. In 2004/2005, DNV issued the OTG -02 Offshore Gas Export and Receiving Terminals, and OSS 309 Verification, Certification, and Classification of Gas Export and Receiving Terminals. In addition, DNV is involved in industry projects and continuously updates its technical standards to accommodate current experience that is relevant for offshore liquefaction and regasification plants.

DNV assists in providing verification services (including classification) for offshore projects. This includes services in the concept stage, the detailed engineering stage, the construction and procurement stages, the installation and commissioning stages and the operations phase throughout the lifetime of the project. In addition DNV provides assistance in establishing design bases and tender documentation, carries out independent studies and analyses, and offers technical advisory services for LNG projects.

Cargo transfer – the missing link

The economics in an offshore development are often driven by the time to first production. Thus it is important to select equipment suppliers that can provide sufficient system functionality and reliability.

Cargo transfer between floating units is a key issue for the successful development of Floating LNG (FLNG) facilities. DNV has benchmarked and ranked eight different LNG offloading systems for the Statoil/Shell development of two deepwater gas fields off the coast of Nigeria. As the technologies are immature, it was a great challenge to capture all the relevant data in a consistent manner. DNV resolved this by interviewing the suppliers using a consistent and well-planned interview guide, and tailor-making a computer-based ranking system with the functionality to weigh important parameters and to carry out sensitivity analyses.



DNV is currently participating in the Amplitude-LNG Loading System JIP, with the objective of delivering a traceable and transparent qualification record to document the service fitness of the new transfer system according to the DNV-RP-A203 Qualification Procedures for New Technology.

Qualification of subsea LNG pipeline

Lacking track records, how can a novel system prove its functionality and reliability? ITP InTerPipe has developed a concept for submarine LNG pipelines to be used for LNG transport between facilities, or to shore. DNV has reviewed the novel pipe-in-pipe concept with the aim of qualifying the design and fabrication method and has issued a Statement of Feasibility. A set of recommendations has been identified and will be followed up in the later phases of the project.

...offshore production facilities