

Case study: Integrated LNG
 Client: not disclosed
 Location: not disclosed
 Time: 2006 - 2007



Problem

A liquefied natural gas (LNG) plant has gas supply agreements with three suppliers, committing them to daily gas supply levels. The 20+ gas production locations are remote and supply the LNG plant through an interconnected complex pipeline network. The four parties have coordinated their planned downtime to maximise production availability. The agreements stipulate that each individual supplier must maintain a 15% spare capacity which the LNG plant may use to reduce unplanned variations in the total gas supply.

The LNG plant wants to increase its long-term LNG sales. The three gas suppliers need to invest in additional capacity to make that happen. Before doing so they request a reduction of their contractual spare capacity from 15% down to 10%.

What is the value of the proposed contractual change for the LNG plant? Can it serve its customers with the same reliability, delivering the LNG cargoes on time without investing in additional LNG storage capacity?



SecuoS approach

We collected information on present operations and planned developments of the LNG plant and all three suppliers' facilities. With the assumptions agreed, we built an integrated model of the gas production facilities, the shared gas pipeline network and the LNG plant. Because gas volumes and composition vary over the years, the model was run for three representative years spread over a six-year period. Results show the overall probability of satisfying the gas demand of the LNG plant.

Outcome

The study showed that from a reliability and operability perspective a reduced suppliers' spare capacity of 10% above their daily obligations would incur significant unplanned loss of LNG production. Armed with the results of our study, the LNG plant could rationally value the increased gas supply capacity against the reduced spare capacity and formulated their negotiation and operational strategies accordingly.

We have assisted with setting up the Availability Assurance process for many companies and plants all over the world. The savings in project development applications are substantial. Typically, 2-5% reduction in capital investment and 10-20% reduction in unavailability are achieved.

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