



Pacific Northwest LNG

Integrating production, tank storage and vessel movements to inform LNG export-terminal master planning.

A proposed LNG export terminal in northwest British Columbia required a coordinated capacity basis for production, storage and shipping. Feed-rate variation changed tank inventories, while vessel arrivals and ocean conditions introduced uncertainty in export timing. The dynamic model linked onshore LNG production to offshore marine operations to evaluate storage requirements, vessel delays and exposure to tank-full production interruptions.



Integrated LNG production and marine logistics analysis

Project objective

Determine storage and marine capacity requirements for the proposed export terminal, including shipping variability, operating delays, risk of tank-full production interruptions and future throughput expansion.

KEY MASTER-PLANNING DECISIONS

LNG storage

Evaluate required tankage

Production, inventory and ship calls

Marine capacity

Test throughput and vessel delay

Berth occupancy, queues and timing

Operating resilience

Assess production shut-in risk

Tank-full exposure and expansion

Decisions supported

Evaluated the number of LNG storage tanks, maximum throughput for the proposed design, berth occupancy, vessel queueing and service times. Tested ship-arrival variation and ocean conditions to assess storage saturation, potential production shut-ins and requirements for future expansion.

Integrated LNG export model scope

PIPELINE → LIQUEFACTION → STORAGE → BERTH → VESSEL

Pipeline & production
Gas feed and variability in LNG production rates.

LNG tanks & inventory
Storage levels, tank capacity and saturation exposure.

Marine operations
Vessel calls, berth occupancy, queues and departure timing.

Ocean conditions
Weather distributions, arrivals and Triple Island transit.

How shipping affected production

Connecting onshore production with offshore vessel operations

The model connected production and tank inventories directly to LNG carrier arrivals, berth service and departures through Triple Island. Weather and vessel timing changed how long product remained in storage between ship calls. This provided a quantitative basis for comparing tankage, marine capacity and expansion alternatives, while assessing the risk of tank-full events interrupting production.

Transferable insight

Storage cannot be sized independently of shipping. Variability in vessel arrivals and ocean conditions can increase inventory requirements and trigger production interruptions, even when nominal plant and berth capacities appear sufficient.

KEY-PERSONNEL EXPERIENCE
Yes | Bryan Monk, P.Eng., modelling lead

MISIM CORPORATE ENGAGEMENT
No | prior-employer project

CLIENT
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