

X-LNG CASE STUDY · AUG 2025

Navigating LNG Volatility: Value at Risk

\$64.5M

the one-day loss simulation sees at 95% confidence; history on the same book shows \$46.1M

12 paired journeys · four indices, two vessels

Two methods · historical and Monte Carlo

Cargo level · VaR and expected shortfall

A small book with four different risks

— One cargo every two months from September 2025 · 3.5 to 3.9M MMBtu each

110%

HH + \$1 · FOB Long Calcasieu Pass, 6 cargoes

95%

TTF · DES Short Brunsbuettel, 6 cargoes

9%

Brent · FOB Long Qatar, 6 cargoes

85%

NBP · DES Short South Hook, 6 cargoes

Two vessels of 171k cbm move the book, worth **\$169.2M at the curve**. US length feeds Germany, Qatari length feeds the UK, and each of the twelve paired journeys carries its own delivery month and index pair, and therefore its own risk profile.

Risk is measured on that structure, not on a single blended price: every journey is valued against the two indices it actually touches.

Twelve paired journeys

01 One loading and one delivery per pair, from September 2025 onwards.

Four indices in one book

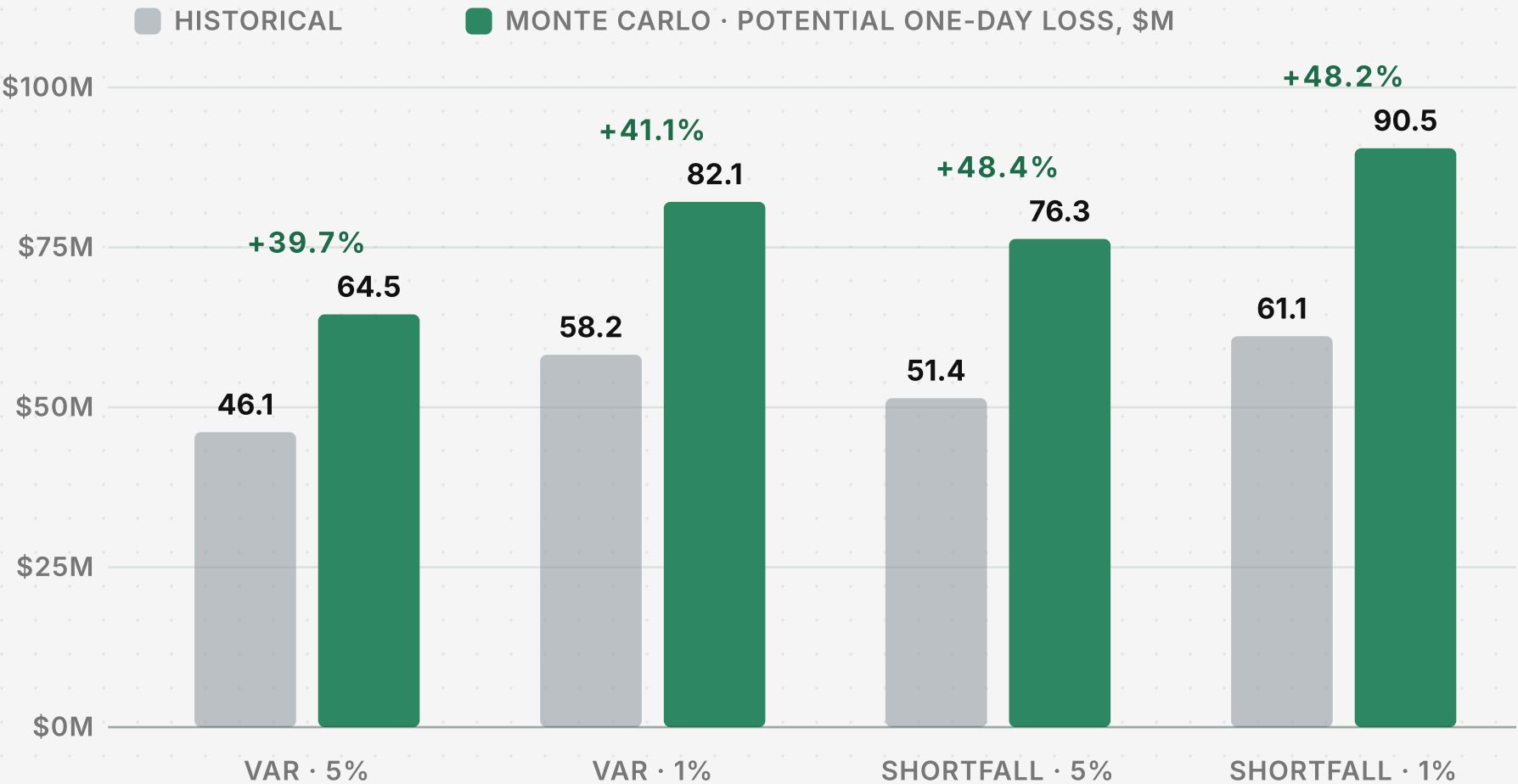
02 Henry Hub, TTF, Brent and NBP, each with its own volatility and its own month.

Two horizons

03 One-day loss at 95% and 99% confidence, plus the expected shortfall beyond each.

The same book, two answers

Potential one-day loss at 95% and 99% confidence, both methods



SAME BOOK, SAME DAY · HISTORY JAN 2024 TO JUL 2025 VS 1,000 SIMULATIONS

EXACT · HISTORICAL \$46.1M / \$58.2M / \$51.4M / \$61.1M · MONTE CARLO \$64.5M / \$82.1M / \$76.3M / \$90.5M

Simulation reports about 40% more risk on VaR and nearly 50% more on expected shortfall, because it contains scenarios the recent past never produced.

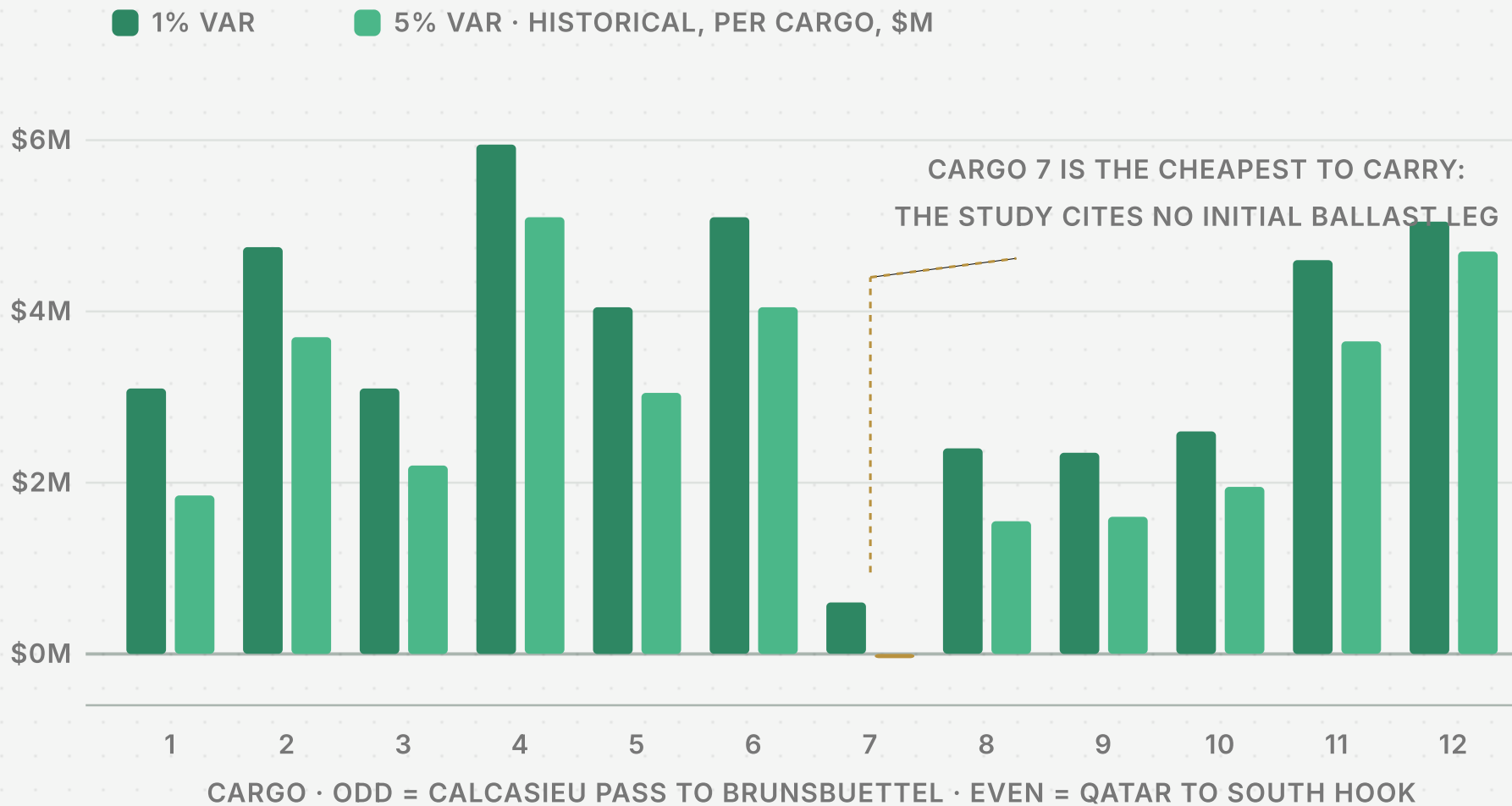
Cargo by cargo

Where the risk actually sits, and how the two lenses differ

01

Risk is not spread evenly

— Historical value at risk per cargo, 1% and 5% confidence

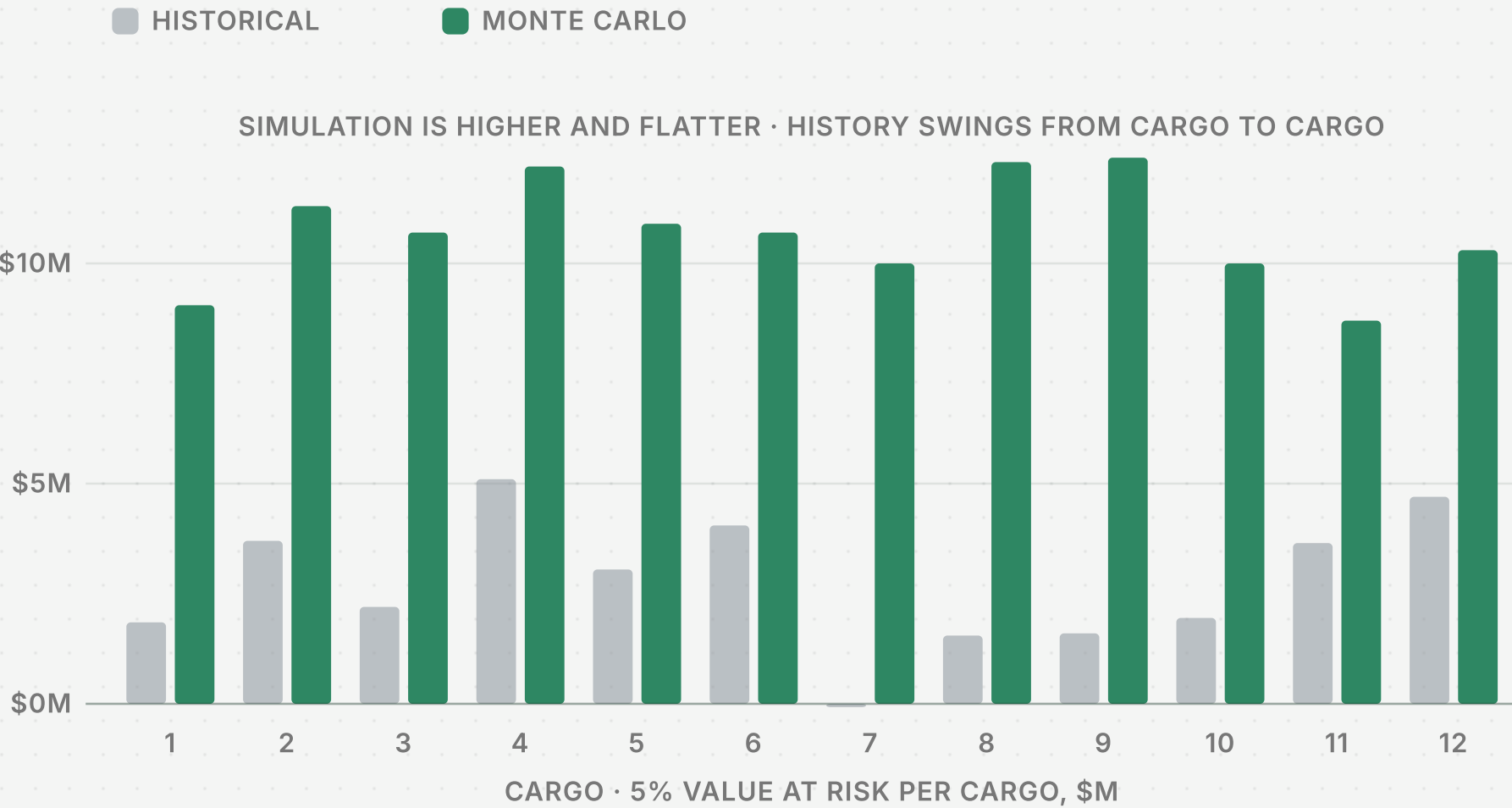


READ FROM THE ENGINE CHART · THE THREE LARGEST ARE ALL QATAR TO SOUTH HOOK

The spread between the cheapest and the most expensive cargo is nearly tenfold; the study explains cargo 7 by its missing initial ballast leg.

Simulation is higher and flatter

— The same 5% VaR per cargo, both methods on one scale



1,000 SIMULATIONS · MONTE CARLO VALUES READ FROM THE ENGINE CHART

Historical VaR inherits whatever each index actually did that month; simulated model prices are less sensitive to realised volatility.

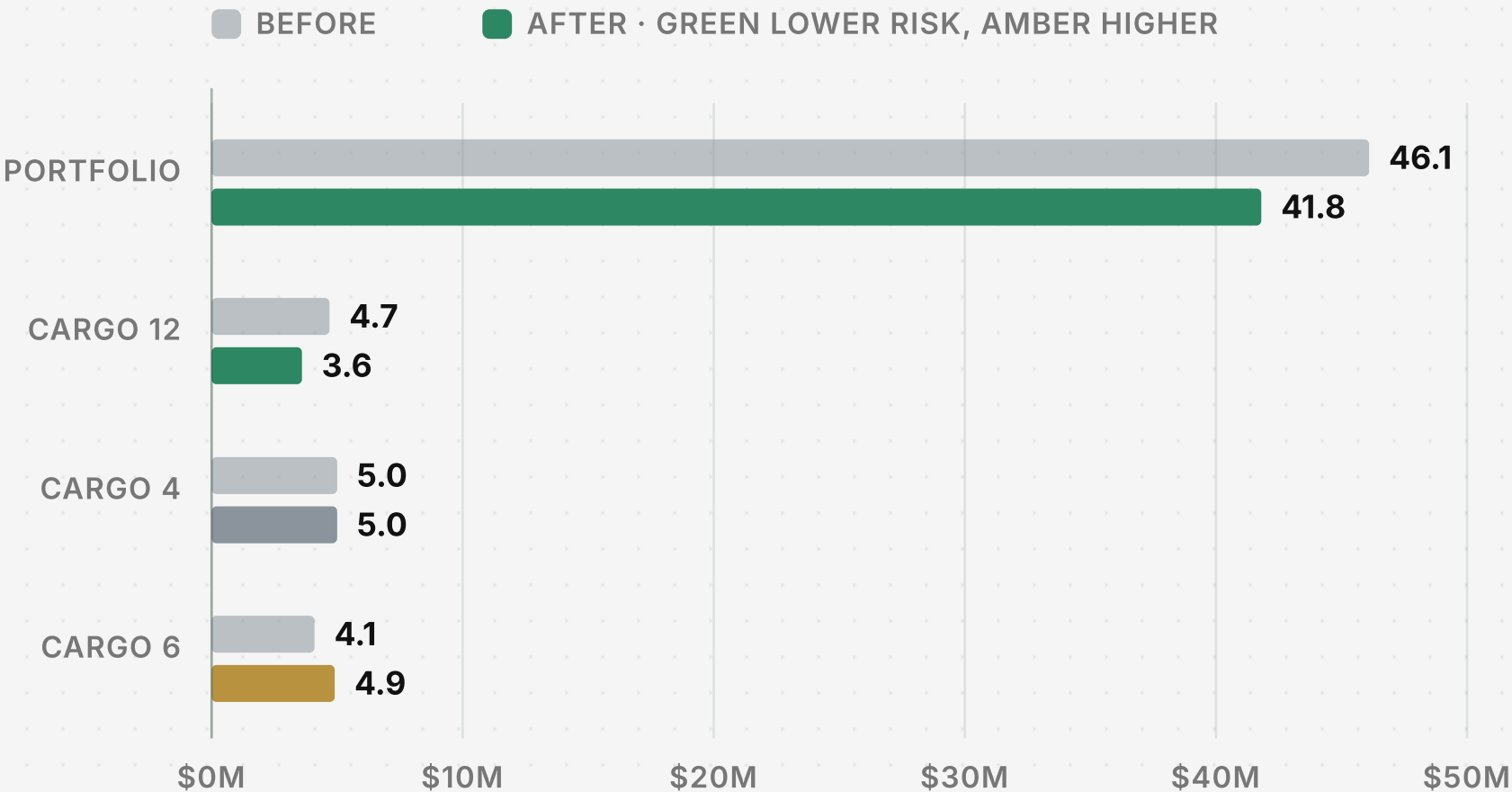
THE VERDICT

**Choosing the method is itself a risk decision:
the same book reports \$46M or \$64M depending on the
lens.**

History tells you what the market has already done to a book like this. Simulation tells you what it could still do. A risk report that quotes one number without naming the lens is only half an answer.

Re-indexing moves risk, it does not delete it

— The UK leg re-indexed to 50% NBP + \$4, profit held flat



5% VAR BEFORE AND AFTER RE-INDEXING · PROFIT HELD FLAT (+0.18%)

PROFIT \$169.2M TO \$169.5M (+0.18%) · 5% EXPECTED SHORTFALL \$51.4M TO \$46.8M

Portfolio 5% VaR falls from \$46.1M to \$41.8M, yet one cargo gets riskier: risk moves, it rarely disappears.

Takeaways

— What the two lenses each see



The method moves the number by 40%

\$46.1M on history against \$64.5M under simulation for the same 5% one-day loss; expected shortfall diverges by roughly 48%.



Cargo-level VaR shows where risk sits

History swings from cargo to cargo, simulation is flatter; the three riskiest journeys are all Qatar to South Hook.



Re-indexing lowers risk, but not everywhere

Portfolio 5% VaR falls to \$41.8M at almost unchanged profit, yet one cargo gets riskier. An illustration, not a pricing recommendation.

Modelled with X-LNG

— Whole-portfolio optimisation for LNG books

1

Your world goes in

Contracts, vessels, charter rates, prices, spot assumptions and constraints, the full book, not a slice.

2

One optimal plan comes out

Feasible, P&L-maximising and constraint-compliant, re-solved for every scenario in minutes.

3

Every number checks out

Each result can be recalculated by hand, transparency your risk committee can audit.

See the risk your report is not showing

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