33% OF THE WORLD'S HELIUM SUPPLY JUST WENT OFFLINE

Your AI Infrastructure Plan Doesn't Account for It

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Executive Summary

Iranian drone strikes hit Qatar's Ras Laffan — **33%** of global helium, offline. Hormuz closed. **27–30%** of supply removed. Prices: **+40–100%**. LNG: **+60%**. **200** containers stranded, vaporizing in **48 days**.

Hyperscaler capex: **$500–602B** (2026). **$1.15T** three-year. S. Korea: **>70%** helium from Qatar. Samsung + SK Hynix: **90%** of HBM. HBM: **sold out**. DRAM: **+50%**. DDR5: **+100%**. Fab buffer: **2–4 weeks**. **Zero** substitutes.

Metric	Value
Qatar helium share	33% (27–30% removed)
Strike date	Feb 28, 2026
Hormuz	Closed
He price surge	40–100%
LNG surge	60%
Containers stranded	~200
Vaporization window	48 days
Capex (2026)	$500–602B
Capex (2025–27)	$1.15T
S. Korea from Qatar	>70%
HBM share (Samsung+SK)	90%
HBM supply	Sold out
DRAM YTD	+50%
DDR5 contracts	+100%
Fab He buffer	2–4 weeks
He in semiconductor	24% (→30%)

1. Three Channels: Missile to GPU Cluster

Channel 1: Helium Supply

Element	Data	Timeline
Qatar share	33% of global	Offline since Feb 28
Supply removed	17–30%	Immediate
Price surge	40–100% spot	Within weeks
S. Korea dep.	>70% from Qatar	Critical
Taiwan dep.	~30% from Qatar	Moderate
Fab buffer	2–4 weeks	Clock running
Containers	~200 stranded	48-day vaporization
Substitutes	None for EUV	No mitigation

Channel 2: LNG Energy Costs

Element	Data	Timeline
EU LNG price	+60%	Immediate
Qatar LNG	2nd largest exporter	Offline
US data center power	176 TWh / 4.4%	Growing
Energy cost lag	4–8 weeks	Apr–May 2026
LNG expansion	Expected 2028	Now delayed

Channel 3: Geopolitical Restructuring

Element	Data	Implication
Russian pipeline gas to China	-33% cheaper than LNG	Structural energy advantage
Power of Siberia 2	In China 2026–30 plan	Decade-long cheap energy

China domestic helium	Investing in extraction	Reducing external dependency
US helium reserves	Depleted / privatized	Cannot backfill Qatar loss
S. Korea/Taiwan fabs	Seaborne helium	Vulnerable to maritime disruption

“The missile didn’t hit a chip factory. It hit the gas facility the chip factories cannot operate without. Three channels converge on the physical substrate of AI.”

2. The Memory Compounding Effect

Signal	Data	Source
HBM supply	Sold out	SK Hynix CFO
Samsung+SK HBM	70% global	TrendForce
HBM3E price	+20% for 2026	Samsung/SK
DRAM YTD	+50%	Market data
DDR5 contracts	+100%	Industry
Samsung 32GB	$149→$239	Samsung
NVIDIA RTX 50	–30–40%	GDDR7 shortage
HBM TAM 2028	$100 billion	Projections
Shortage duration	Through 2026–27	IDC

Layer	Pre-Helium	Post-Helium
HBM supply	Sold out	Production at risk
DRAM pricing	+50% YTD	Further pressure
Fab operations	At capacity	Defects rise; yield drops
GPU production	30–40%	Additional constraint
AI infra	$450B committed	Chips may not arrive on schedule
Delivery	Tight but manageable	2–4 week buffer = hard constraint

90% of HBM comes from the fabs most dependent on Qatari helium. The compounding effect is not additive. It is multiplicative.

"HBM sold out. DRAM +50%. DDR5 +100%. Now the helium the fabs need is disappearing. The compounding is multiplicative."

3. The Energy Asymmetry

Function	Location	Energy	Qatar Exposure
Fabrication	S. Korea, Taiwan	Imported LNG + nuclear + renewables	High (He + LNG)
AI training	US (primarily)	Natural gas + renewables + nuclear	Moderate (LNG price)
He production	Qatar (offline), US, Algeria	Byproduct of gas processing	Direct
Russian gas	Russia → China	Pipeline (not seaborne)	Zero (landlocked)

Factor	Western Fabs	Chinese Fabs
Energy source	Seaborne LNG (spot market)	Pipeline gas (contracted)
Energy cost	+60% and rising	Stable or declining
Supply security	Maritime vulnerable	Landlocked pipeline
Helium access	Seaborne (Hormuz-dep.)	Domestic + Russian
Duration	Until Hormuz normalizes	Structural (permanent infra)

"The LNG expansion that was supposed to make energy cheap by 2028 is not coming on time. The asymmetry is structural."

4. OECD Context: Physical Substrate Risk

Factor	Data	Implication
Broadband	98.9% (adv.)	Digital ready; physical at risk
Unemployment	5.0% (stable)	Labour healthy; compute uncertain
Helium removed	27–30%	Fab ops at risk within weeks
S. Korea dep.	>70% Qatar	Highest-risk OECD member
HBM	Sold out	Cannot absorb any loss
Capex	$500–602B	Not helium-risk-priced
DRAM	+50% YTD	Cost pressure acute
LNG	+60% EU	Energy costs compounding
Fab buffer	2–4 weeks	Hard constraint approaching

Transparency note: OECD does not directly measure helium supply dependencies, fab gas inventories, or LNG-to-compute transmission. Indicators combine OECD data with commodity and semiconductor analyses.

5. The Honest Pushback

Counterargument	Response
Recycling fills the gap	Recovers fraction. Air Liquide is start, not solution. Scaling: months. Buffer: weeks.
US reserves can backfill	BLM depleted + privatized. US declining. Cannot replace 30%.

SEMI says no shortage yet	Existing pipelines adequate — for now. 2–4 week buffer hits April if unresolved.
China also needs helium	True, but investing domestic + Russian. Asymmetry is in trajectory.
Conflict will resolve quickly	200 containers vaporizing. Ras Laffan partially destroyed. Rebuild: months–years.

6. Practical Actions

1. Map physical substrate dependencies. Every chip requires helium. Identify supplier fab exposure, helium inventory, contractual risk.

2. Scenario-model 3–6 month chip delay. 5–10% output reduction ripples through sold-out HBM. Price the delay.

3. Evaluate energy cost exposure. 60% LNG surge hits operating costs Apr–May. Model impact on inference/training costs.

4. Track geopolitical restructuring. Russia-China pipeline = decade-long advantage. Factor into compute sourcing strategy.

5. Diversify helium + memory supply. Engage suppliers on helium sourcing. Evaluate Micron as partial hedge against S. Korean He dependency.

Action	Owner	Timeline
Substrate audit	CTO + Supply	Immediate
Chip delay scenarios	CFO + CTO	Q2 2026
Energy exposure	CFO + Ops	April 2026
Geopolitical intel	Strategy + Gov	Q2 2026
Supply diversification	CTO + Proc	Q2 2026

What to Watch

- April buffer window: fab helium inventory exhaustion
- HBM allocation triage under helium constraint

- Hormuz reopening timeline as macro signal

The Bottom Line

33% offline. **27–30%** removed. **40–100%** surge. **200** containers. **48 days**. **>70%** S. Korea. **90%** HBM. **Sold out**. **+50%** DRAM. **+100%** DDR5. **+60%** LNG. **$1.15T** committed. **2–4 weeks** buffer. **Zero** substitutes.

The $1.15T AI buildout did not price in a noble gas dependency. The noble gas just went offline.

Your AI plan assumes chips arrive on schedule. The chips require helium. The helium is offline. The containers are vaporizing. The clock is running. Update your plan.

The clock is running. Update your plan.

Thorsten Meyer is an AI strategy advisor who notes that "no substitute for helium in EUV lithography" sounds like a chemistry fact until it becomes a $1.15 trillion infrastructure risk — and that "force majeure" has never been more literally about force. More at ThorstenMeyerAI.com.

Sources

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