

Guide to Energy Markets

Q3 2026
Data as of June 30, 2026





In This Guide

The Conflict

What the conflict broke is still broken, and the market has repriced accordingly.

The Demand Supercycle

AI and electrification were straining the system before the conflict erupted.

The Energy Value Chain

The conflict and the demand supercycle run through every link of the energy value chain.



The Conflict

Wartime Drawdowns Pulled Global Crude Inventories Below 5-Year Averages

The Buffer Built in 2025 Is Gone

Global inventories carried a buffer of ~375 million barrels above 5-year averages throughout 2025.

Drawdowns during the conflict have now pulled global inventories below five-year averages.

The Draws were Fast and Deep

Global inventories declined by an average of ~4 million barrels per day in May.

The onshore inventory drawdown continued even as spot prices eased following the memorandum of understanding

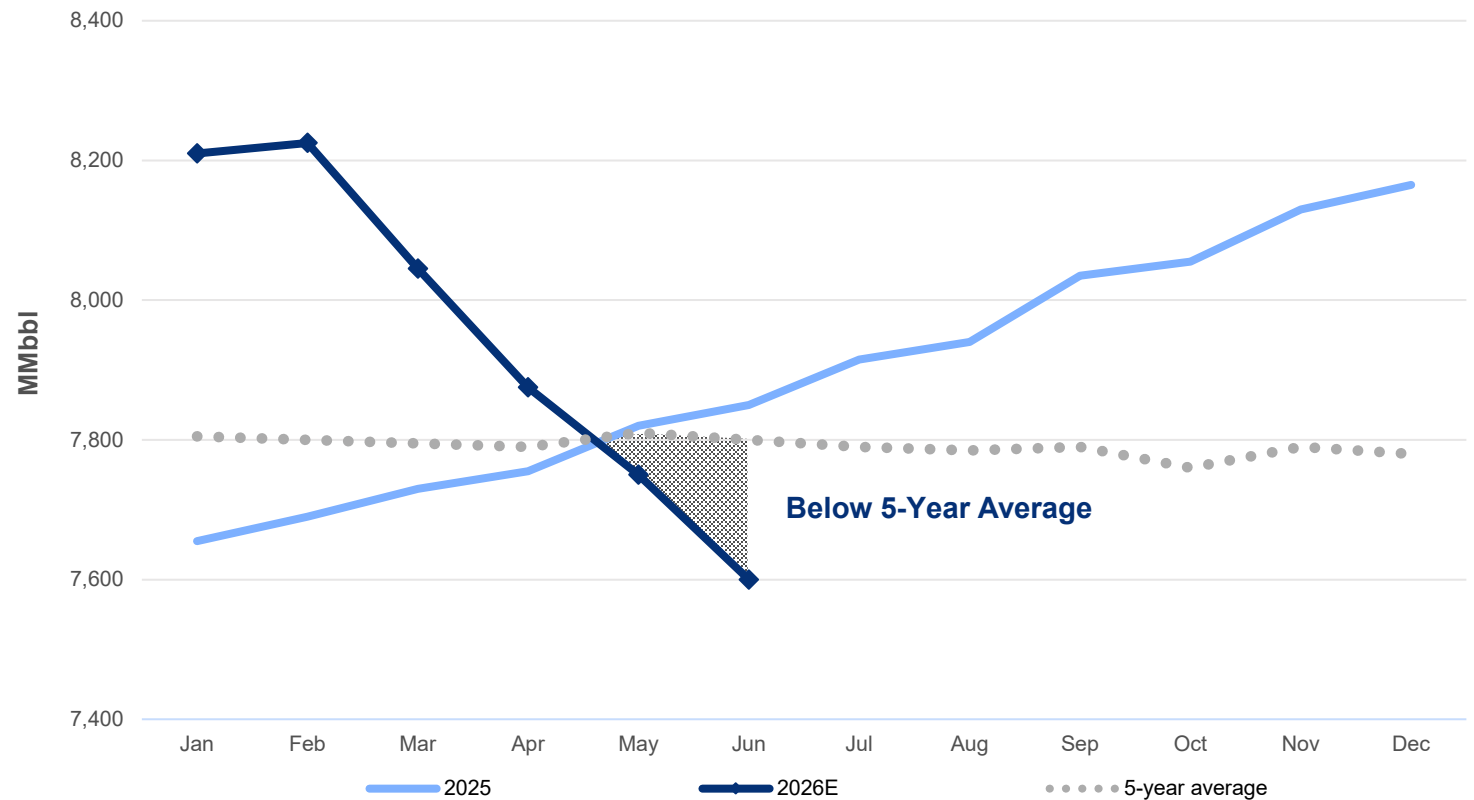
Restocking Is a Multi-Year Project

International Energy Agency (IEA) estimates suggest rebuilding inventories will take through 2028.

A prolonged restocking cycle supports a higher floor under crude prices.

Conflict Drawdowns Erase 2025 Buildup in 5 Months

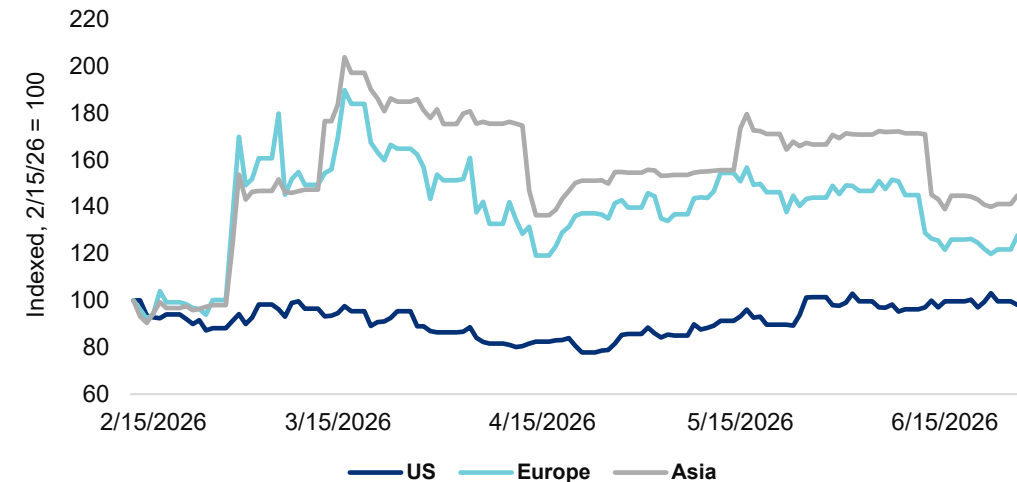
Global Crude Oil Inventories (MMbbl)



Damaged Liquefaction Capacity Means LNG Prices Have No Quick Path Down

Europe and Asia Spike vs. Relative Calm in U.S.

Historical Global Pricing (\$/mmBtu)



Even Amid Peace Treaty Negotiations, LNG Prices Have Not Recovered

As of the end of June, European and Asian gas prices are still +30%/+49% vs pre-conflict.

The response in oil markets has been very different: crude prices fell >25% in June.

For many end users, natural gas is a critical input to power production that can't be shut off.

Permanent Destruction at Liquefaction Facilities Means There Is No Quick Fix

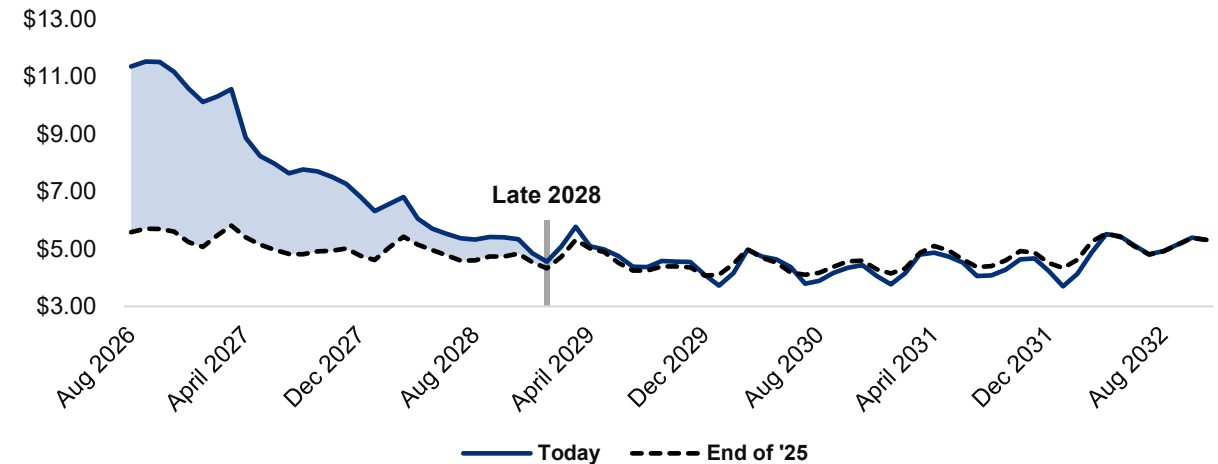
Two LNG trains at QatarEnergy's Ras Laffan facility remain severely damaged.

The damage removed roughly 13 million tons per annum (MTPA) of LNG production capacity, ~17% of Qatar's pre-strike capacity.

Given the nature of the damage, repairs will take as long as three to five years.

Spreads Highlight Shortage: Spotlight on U.S. Exporters

Europe/US Futures Spread (\$/mmBtu)



The Market Is Pricing in a Multi-Year Shortage

Natural gas futures, particularly the spread between European and U.S. benchmarks, highlight the shortage.

Current pricing suggests the spread remains elevated versus YE 2025 levels until late 2028.

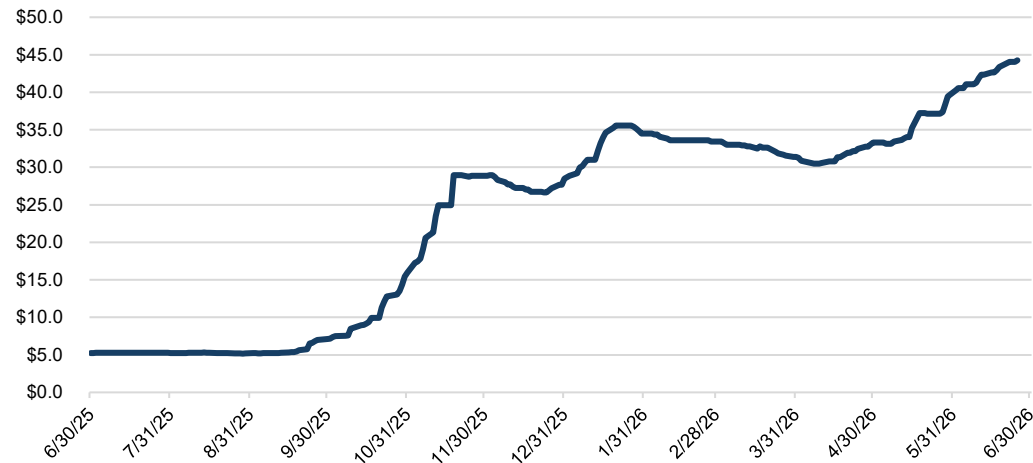
The disruption pushes U.S. exporters into the spotlight and underscores the value of reliable supply.

The Demand Supercycle

Memory Chips Are the New AI Bottleneck, but Power Remains the Binding Constraint

Working Memory Prices Up ~9x in the Past Year

DRAM Spot Price, 16GB DDR5 (\$)



Memory Is Used in Just About Everything, From Data Centers to Phones

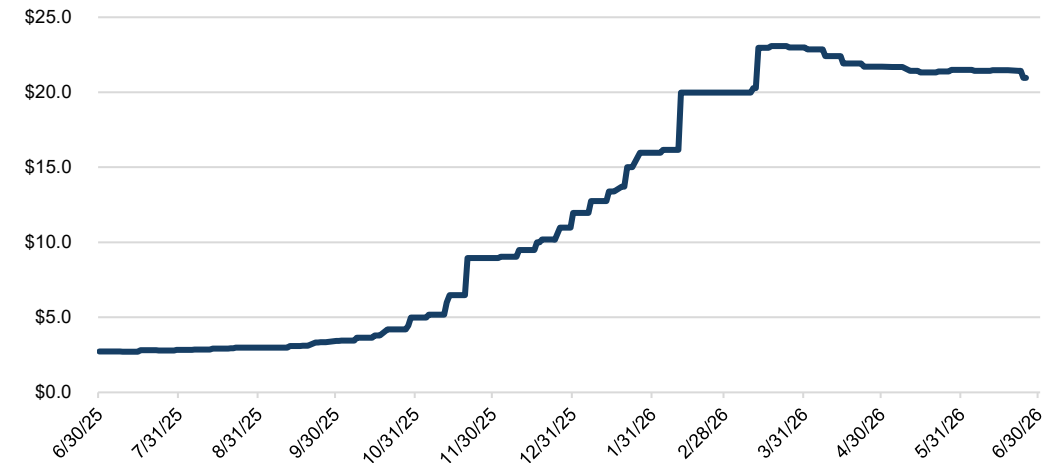
While standard DRAM is critical for personal and work devices, stacked DRAM, or HBM, is paired alongside GPUs in data center applications.

HBM is much more capacity intensive, requiring the reallocation of chip fabrication resources.

Other older storage technologies, such as HDDs, have also caught a bid in AI training data centers, causing orders to accelerate.

Data Storage Prices Up ~8x at Peak in the Past Year

NAND Spot Price, 512GB TLC (\$)



Memory Gets the Spotlight in 2026, and Rightfully So

Spot prices for key memory and storage components (DRAM, NAND) are up as much as ~8x to ~9x over the past year.

This move reflects unprecedented spend from hyperscalers, with some estimates suggesting as much as 35% of capex could go directly toward memory.

This level of spend now rivals outlays on GPUs.

But Tech Is Not the Only Gating Factor: Power Is More Important Than Ever

Executives at leading hyperscalers have identified time-to-power as their most important consideration for data center projects.

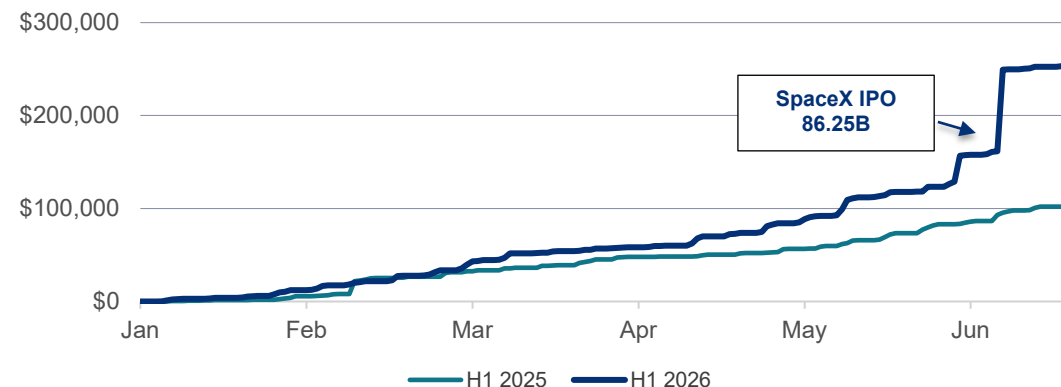
ERCOT (Electric Reliability Council of Texas) has forecast hundreds of gigawatts of new large load by the early 2030s.

Both regulated utilities and merchant producers continue to work directly with hyperscalers to help meet their power needs.

Capital Markets Reopened at Scale, and Energy Grew its Share

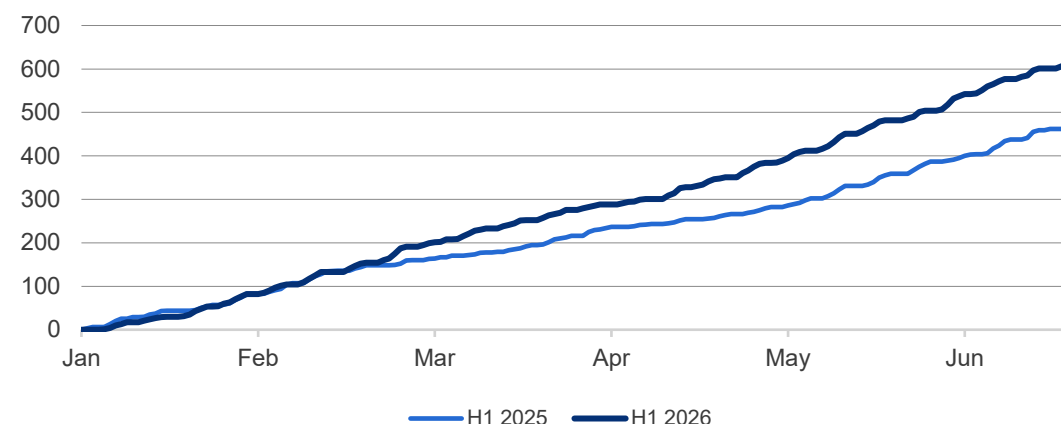
Proceeds 170%+ Ahead of Last Year, Before SpaceX

Cumulative Value Raised (IPO + AO) (\$ millions)



Deal Flow Is Broad, Not Just One Mega-Listing

Cumulative Deal Count (IPO + AO)



IPOs Reopened With Scale

IPO proceeds rose 578% year over year to \$130.8 billion.

Deal count increased 58% to 106 transactions.

SpaceX drove the June step-change with a record \$86.3 billion IPO.

Anthropic and OpenAI have filed S-1s, extending the record year.

Additional Offerings Highlight an Attractive Capital Market

AO (Additional Offerings) proceeds rose 59% year over year to \$109.0 billion.

Google parent Alphabet priced a record ~\$90 billion equity raise (with options), largest in US corporate history. ~\$20 billion of underwritten stock closed in June. Separate \$40 billion ATM program sells over time starting Q3.

Deal count increased 24% to 383 transactions.

Combined IPO and AO proceeds totaled \$239.8 billion, up 173% YoY.

AI Spending Continues to Raise Energy Capital

Energy equity issuance reached \$36.3 billion in the first half, up 3.1x from \$11.8 billion a year earlier.

Energy's share of total issuance rose to 13.7% from 10.6%, a growing but still-modest slice.

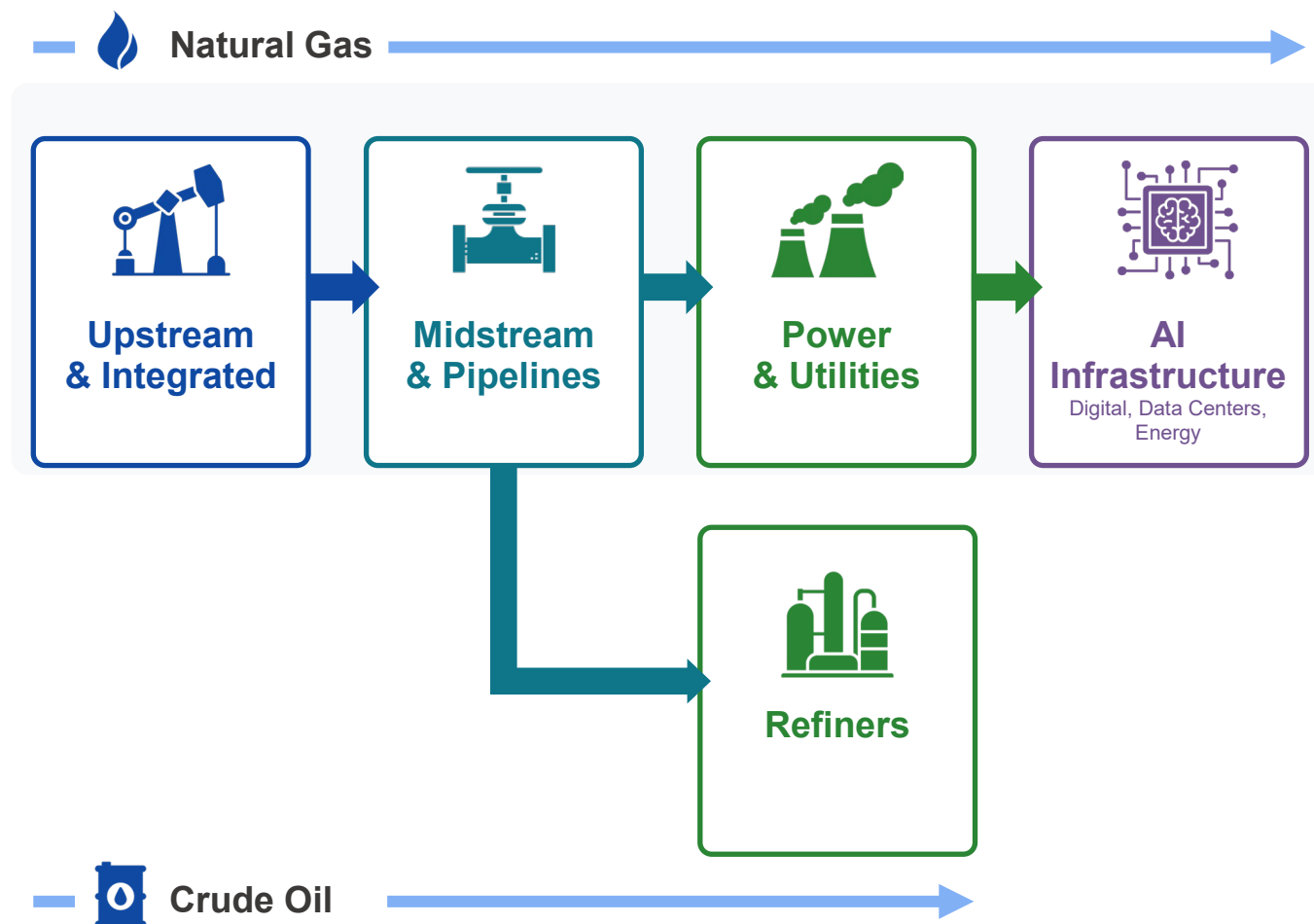
Power generation led the way, with nuclear, geothermal, and natural gas drawing capital as AI and industrial electricity demand climb. Top energy IPOs: INNIO (\$2.8 billion), FRVO (\$2.2 billion, geothermal), and XE (\$1.0 billion, nuclear).

Energy issuers also scaled through additional offerings: CEG (\$3.1 billion), AEP (\$3.0 billion), NRG (\$2.3 billion), Forgent (\$2.3 billion), and more.

The Energy Value Chain

Why the Energy Value Chain Matters

Two Shocks, One Physical System



From Wellhead to Data Center

Every watt powering AI and society traces back through extraction, processing, transportation, generation, and delivery.

Single integrated system under simultaneous demand pressure.

A Distinct Catalyst Drives Each Link in the Chain

Upstream: Record output with declining rig counts. Efficiency, not expansion.

Midstream: More free cash flow than companies can redeploy.

Refiners: Contracting capacity, particularly on the West Coast, and structurally higher margins.

Utilities: First meaningful load growth in 20+ years. Capex estimates revised upward every cycle.

The Chain Converges on AI Infrastructure

AI capex approaching \$1 trillion annually.

Every \$ requires energy infrastructure to deliver.

The case for each segment strengthens when viewed as part of a system serving this buildout.

Crude Gave Back Its War Premium, but Futures Still Price Oil Higher for Years

The MoU Calmed Prices

Crude peaked near \$110 (WTI) and \$120 (Brent) earlier in Q2 as the conflict escalated.

Prices eased after the U.S. and Iran signed a memorandum of understanding.

WTI dipped briefly below \$70 by the end of June.

But the Market Still Expects Higher Prices for Years

More than 1 billion barrels of supply were lost, and the SPR (Strategic Petroleum Reserve) and commercial inventories must be rebuilt.

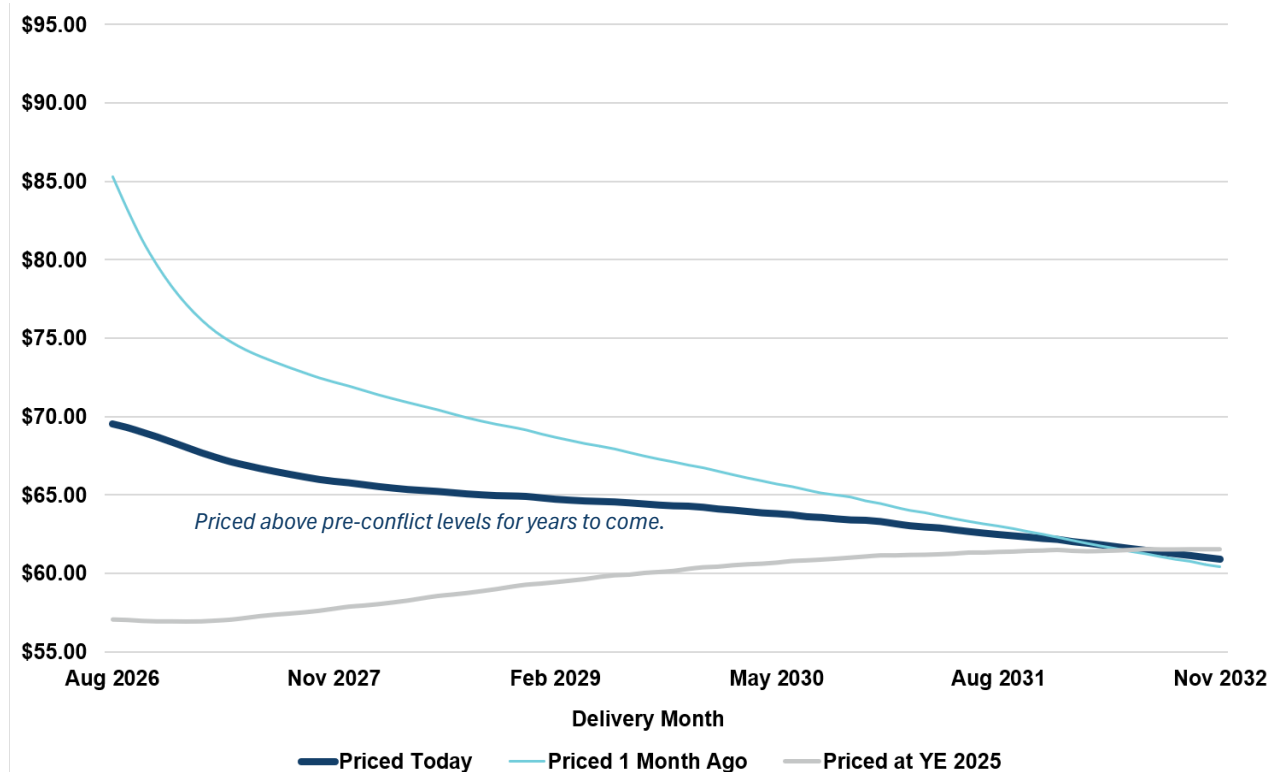
Futures now price oil above pre-conflict levels into the next decade.

What Changed Is the Floor, Not the Spike

The war premium is gone. The higher baseline remains.

The Spike Is Gone, but Higher Prices Are Not.

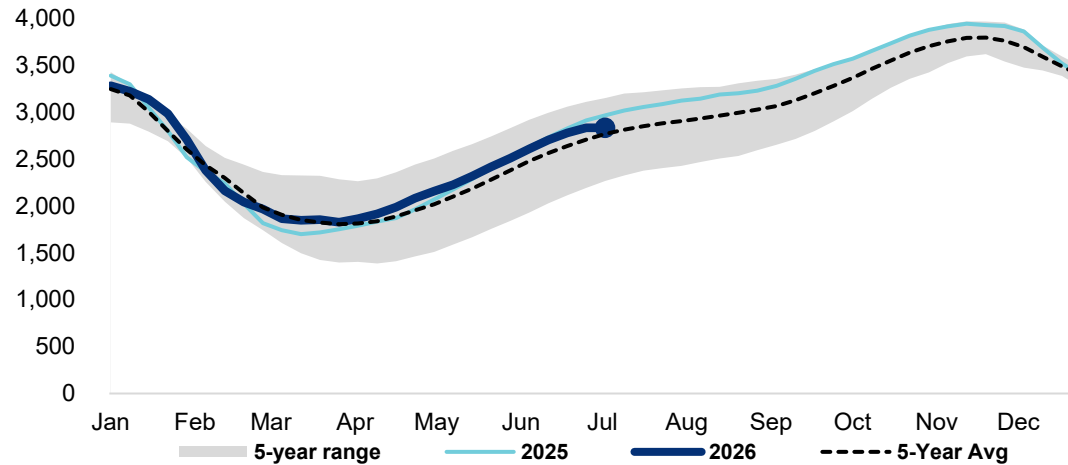
Crude Oil (WTI) Futures: What the Market Expects to Pay, by Delivery Month



U.S. Natural Gas Supply Remains Secure: The Rest of the World Competes for It

U.S. Storage Is Sitting Right on Its 5-Year Norm

U.S. Gas Storage (Bcf): 2026 vs. the 5-Year Range



Secure US Supply Prevents Domestic Inventory Drain

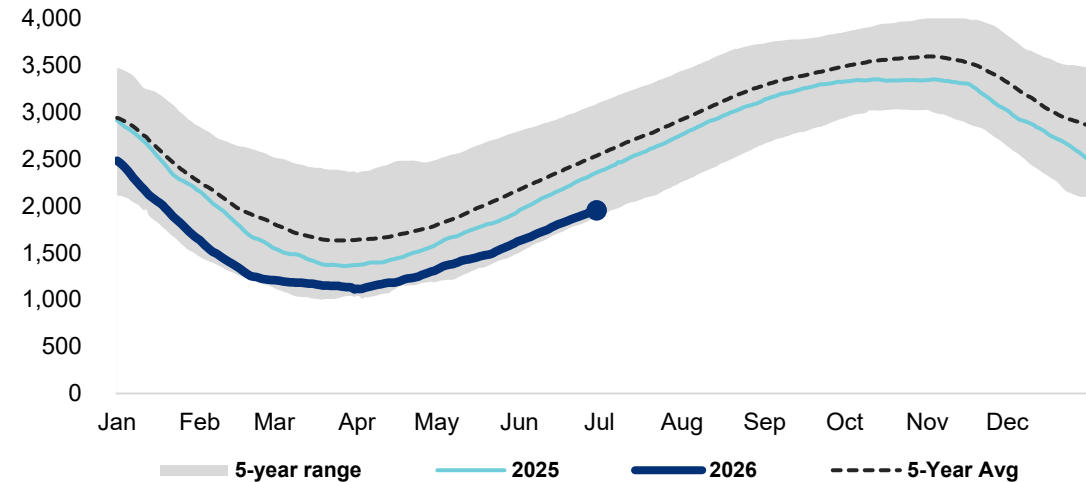
U.S. natural gas inventories have remained at five-year averages since the beginning of the conflict.

U.S. price benchmarks have also remained stable.

Stable supply ensures low-cost fuel for heating homes and generating electricity.

Europe Is Scraping the Bottom of Its 5-Year Range

European Gas Storage (Bcf): 2026 vs. the 5-Year Range



Elsewhere in the World, This Doesn't Hold True

European gas inventories are now trending at five-year lows despite calls for a record-hot summer.

What was supposed to be a refill year has turned into a fight to secure gas against other undersupplied parts of the world.

This imbalance has caused pricing spreads between U.S. and international benchmarks to widen sharply.

LNG Export Capacity Is Strained, but Expansion on the Horizon

All U.S. LNG facilities are running at or near capacity, providing a logistical cap for export capacity.

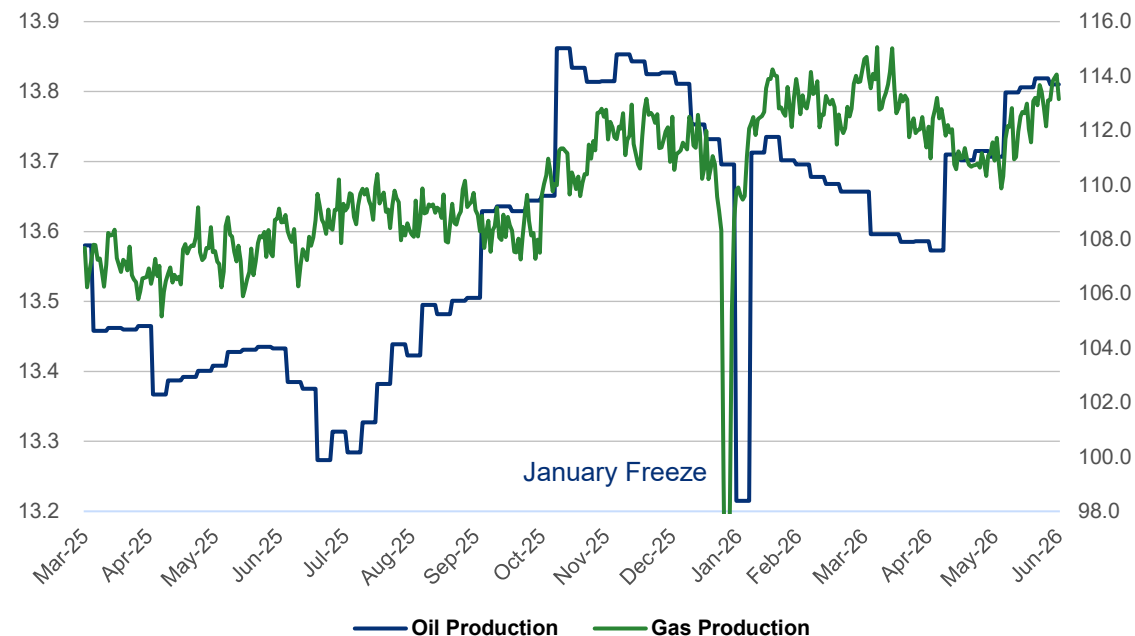
While exporters tend to lock in prices via long-term contracts, some have taken advantage of opportunities in spot markets.

With new facilities such as Exxon's Golden Pass ramping this year, the U.S. further establishes itself as a low-cost, secure supplier.

U.S. Producers Keep Setting Records With Fewer Rigs

Oil and Gas Output Keeps Hitting Records

Production: U.S. Crude Oil (LHS, MMbpd), Natural Gas (RHS, Bcf/d)



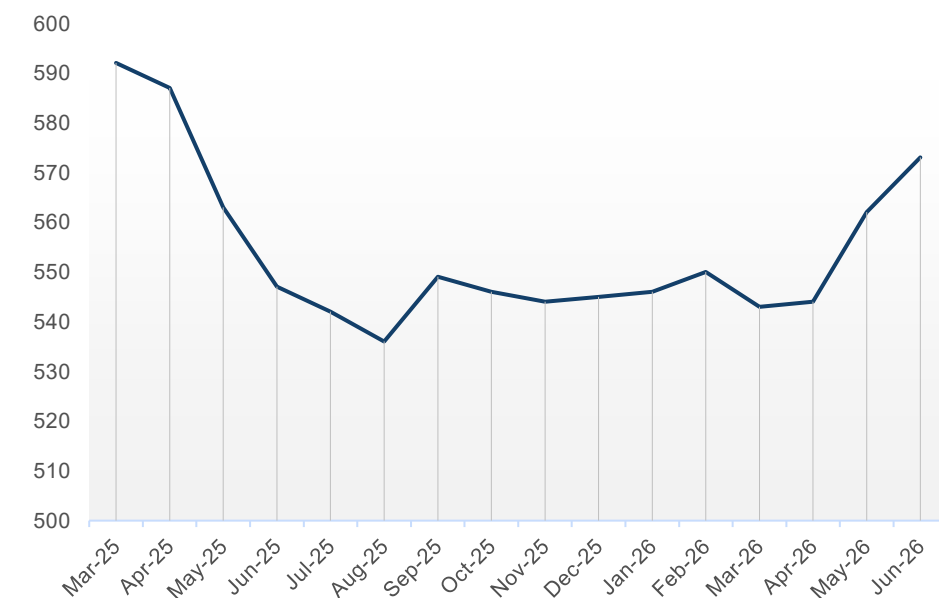
Production Sits at All-Time Highs

Crude oil production is near record highs despite fewer rigs, highlighting efficiency gains in key basins.

Natural gas output continues to climb to meet rising power demand and LNG export growth.

~30 Fewer Rigs, and Privates Are Adding Again

U.S. Rig Count, Trailing 15 Months



The Rig Count Tells the Efficiency Story

The rig count is down roughly 30 rigs from a year ago, even as output set records.

Private operators have been adding rigs since March to capitalize on higher oil prices.

Pipelines Keep Getting Paid. Cash Keeps Accumulating.

Fee-Based Revenue Means the Conflict Is Largely Noise

Midstream operators charge tolls. Volume, not price, determines revenue.

The Iran conflict creates price volatility but does not reduce volumes moving through U.S. pipelines.

The structural insulation is simple: midstream collects tolls while upstream and refining absorb price swings.

Capital Is Accumulating Faster Than It Can Be Deployed

Unallocated capital grows to \$36 billion by 2030 based on current estimates.

Capex and shareholder returns are fully funded. Acquisition capacity is reserved but untapped.

Free cash flow continues to grow, providing dry powder for future acquisitions or higher payouts.

Three Places for Capital to Go

Increased distributions to unitholders and shareholders.

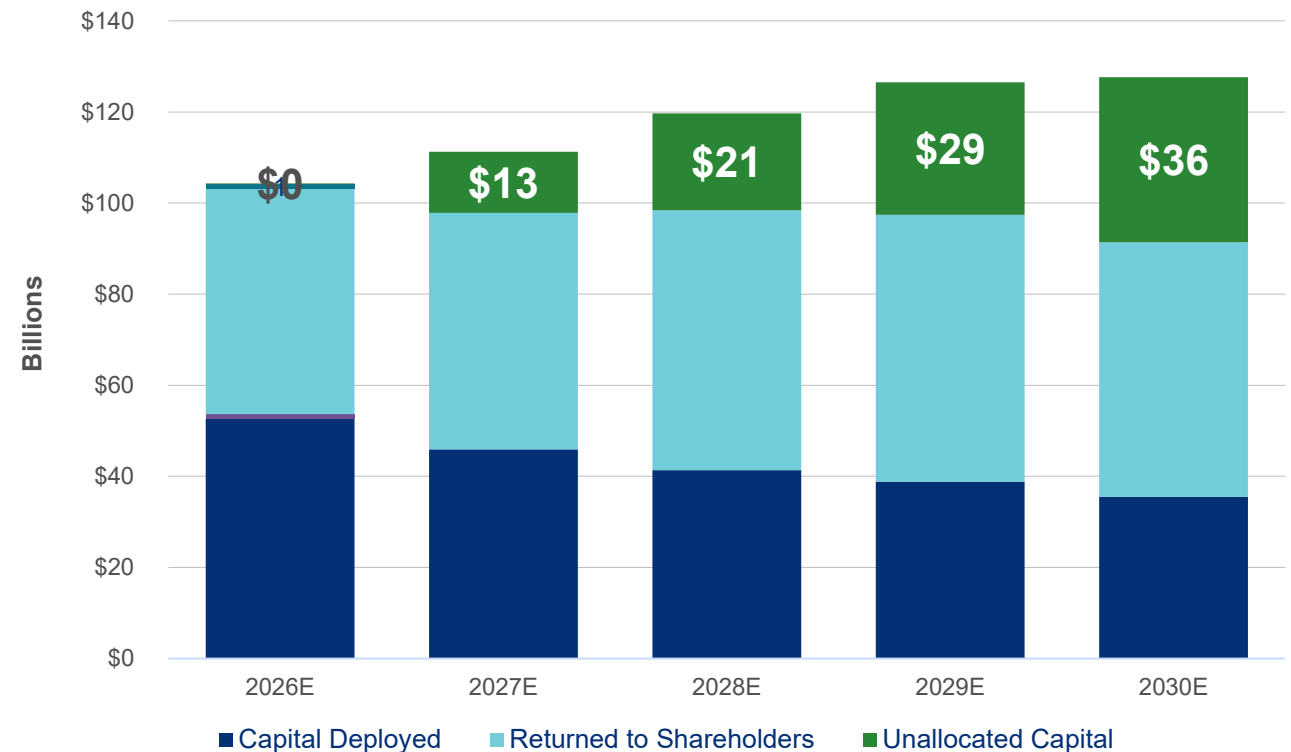
Share repurchases, which compress the float and increase per-unit economics.

Strategic acquisitions: buy infrastructure at the right price in a dislocated market.

The sector enters this period of volatility with optionality and opportunity.

Projected Cash Flows Fund Capex, Shareholder Returns, and a \$36 Billion Surplus

Annual Midstream Cash Flow by Use, 2026E–2030E (\$B)



Note: Prior edition of this guide estimated \$33B annual surplus in 2030.

Refining Margins Remain Elevated Around the World

Margins Have Eased Off Highs, but Balances Stay Tight

Asia refining margins have come off peak levels but product balances stay tight.

Demand suppression is emerging in Asia: Air India cut 22% of planned domestic flights, IndiGo cut 7% to 10%, and several Asian governments have encouraged remote work or shorter workweeks to reduce fuel use.

Western Demand Is Holding

U.S. demand has held up, with summer gasoline consumption supported by domestic travel and potentially the World Cup.

Europe's support is concentrated in jet fuel and middle distillates, with refineries raising output and imports to cover tight balances.

Supply Damage Keeps the Floor In Through Year-End

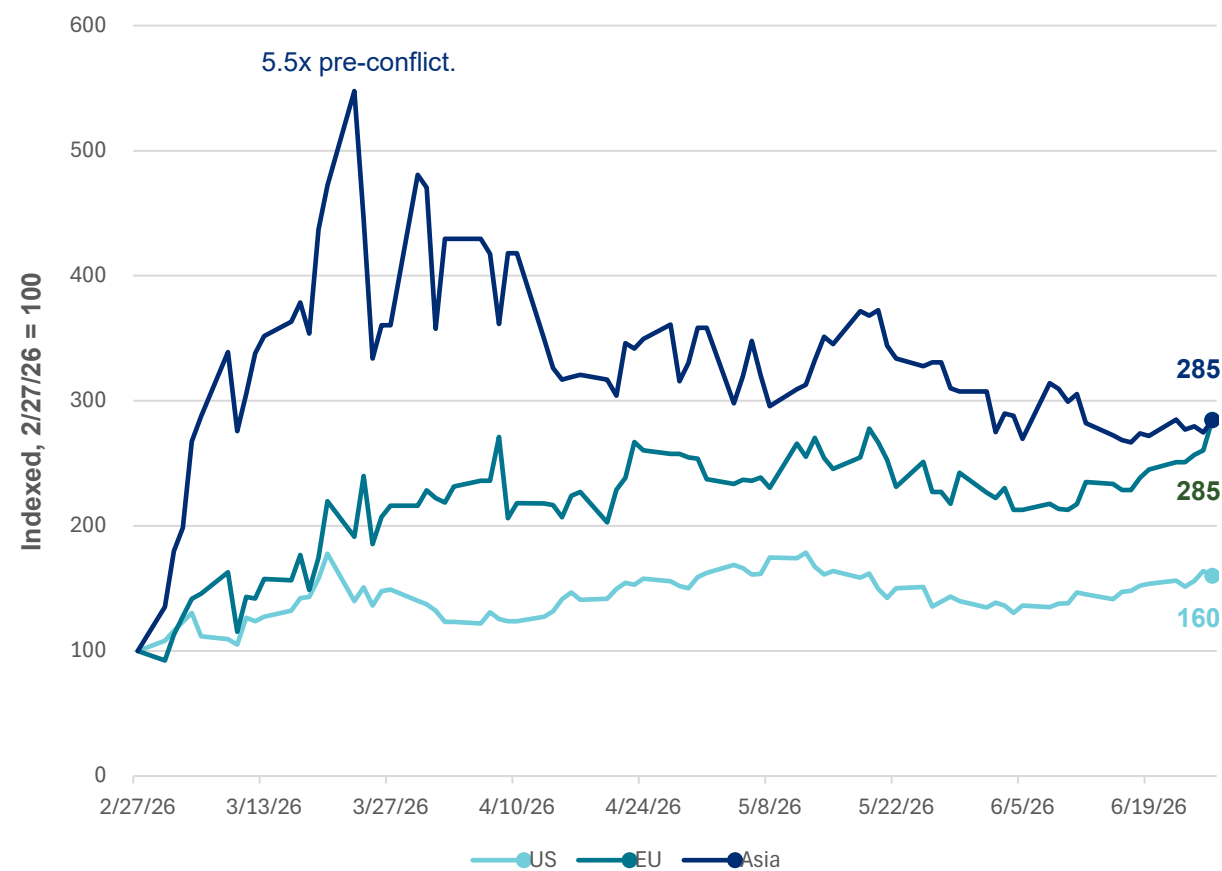
Product supply is constrained by Middle East refinery damage, lost Gulf exports, and Russian refinery outages from Ukrainian strikes.

Those outages are shifting Russia toward more crude and fewer refined-product exports, keeping balances tight.

Damage and outages mean lost capacity stays offline, supporting margins through year-end.

Margins Still Run 1.6x to 2.9x Pre-Conflict Levels

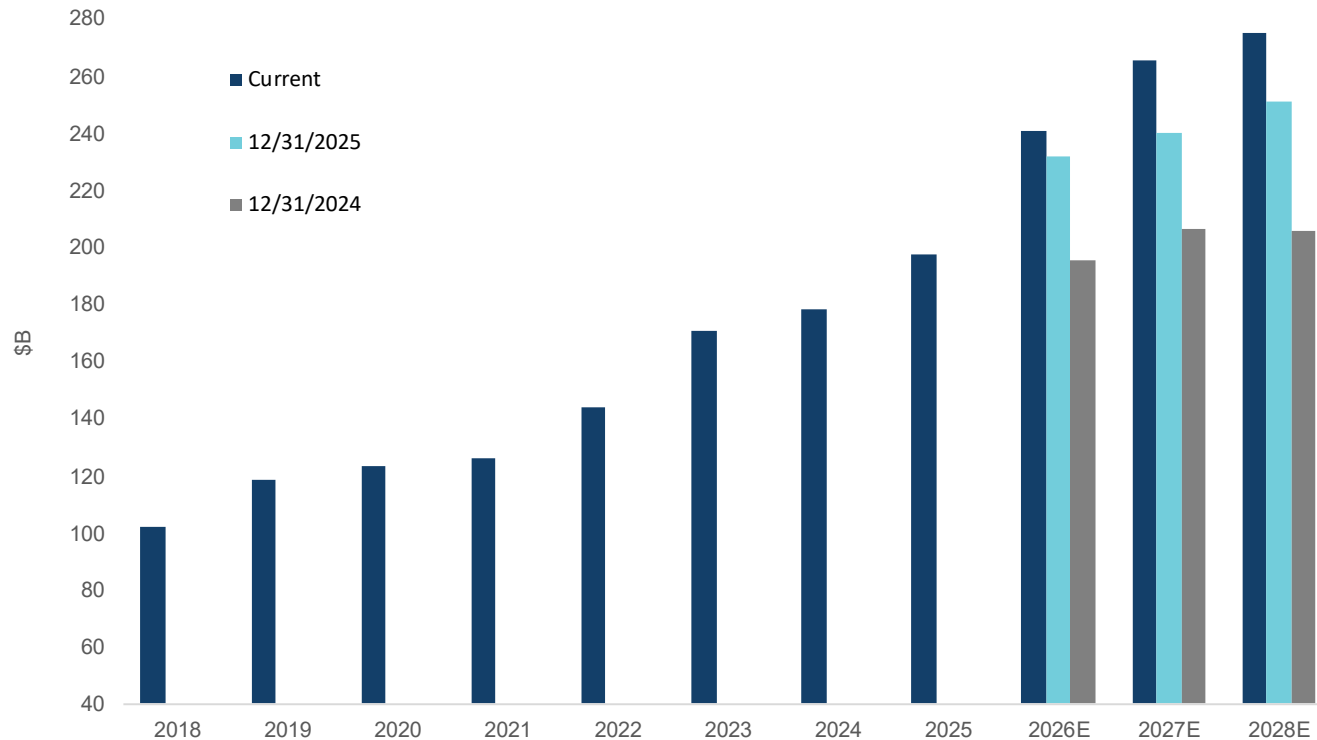
Regional Refining Margins, Indexed to 2/27/2026 = 100



Utility Capex Estimates Keep Being Revised Upward

Utility Capex: Three Forecast Vintages. One Direction.

U.S. Utility Capex, Actuals 2018–2025 and Estimates 2026E–2028E (\$B)



As of 6/30/2026. Source: Bloomberg
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 Reflects TCA views and opinions as of date herein which are subject to change at any time based on market and other conditions.

The Load Growth Is Real and It Predates the Conflict

U.S. electricity demand is now growing after flat decades.

AI data centers, reshoring of energy-intensive manufacturing, and electrification are compounding demand signals.

Utilities are responding with the largest sustained capex cycle in modern history.

The Analysts Keep Being Wrong in the Same Direction

Capex estimates as of 12/31/2024 were revised upward at 12/31/2025 and revised upward again in current consensus.

Three independent forecast vintages. Three successive increases.

Consistent underestimates signal the strength of the demand, not a forecasting error.

The Conflict Highlights the Strategic Importance of U.S. Gas Supply

U.S. natural gas prices have remained stable since the beginning of the conflict.

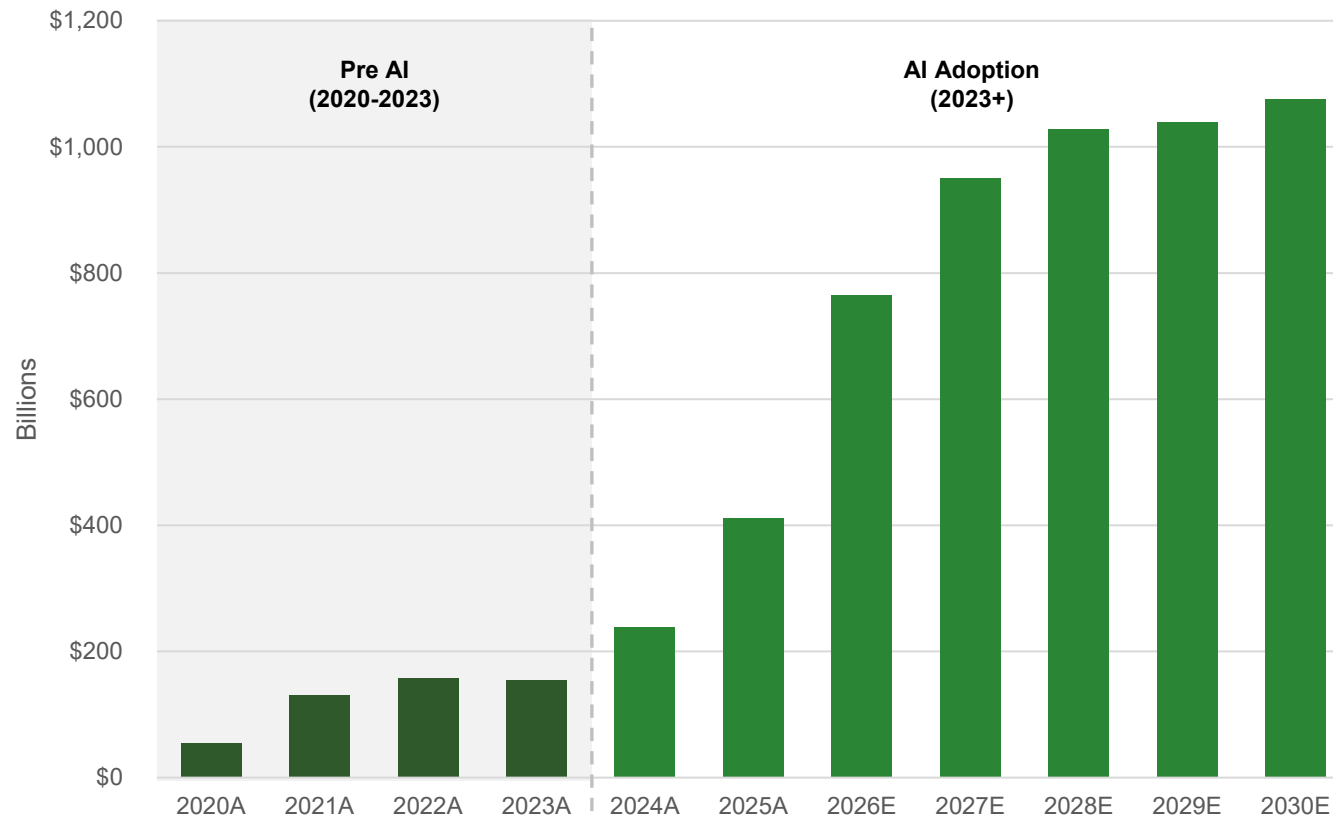
Long-term investments in natural gas infrastructure provide U.S. utilities with an added layer of energy security.

Electrification buildout was already the most durable capital story in the sector. The conflict made it more so.

AI Capex Estimates Rose Another \$90 Billion, and Every Dollar Still Needs Power

Estimate Was \$600 Billion. Then \$800 Billion. Now Approaching \$1 Trillion.

Hyperscaler AI Infrastructure Capex, Actuals and Estimates (\$B)



Every one of these dollars requires power.

Note: Prior editions of this guide showed ~\$600B (1Q) and ~\$800B (2Q) by 2027.
 As of 6/30/2026. Source: Bloomberg, AMZN, GOOG, META, MSFT, ORCL, NVDA
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Estimates Moved Up Another \$90 Billion This Quarter

Full-year 2026 AI infrastructure capex estimates have increased by roughly \$90 billion since the last Guide to Energy Markets.

Microsoft accounted for the majority of the increase, raising full-year guidance by \$50 billion to support additional data center construction and higher memory and networking costs.

Meta Platforms also increased guidance, citing higher networking and memory spending.

Negative Free Cash Flow Is Not Slowing the Buildout

Hyperscaler free cash flow is now negative across most companies yet concerns about the sustainability of AI investment remain limited.

The buildout is funded through operating cash flow and debt and equity issuance, backed by balance sheets holding hundreds of billions of dollars in cash and liquid investments.

The Runway Keeps Extending

Nvidia CEO Jensen Huang expects enterprise AI infrastructure spending to accelerate materially, estimating annual AI infrastructure investment could reach \$3 to \$4 trillion by the end of the decade.

With annual AI capex approaching \$1 trillion, that outlook implies substantial runway for continued spending growth.

Full Suite of Investment Solutions



	Mutual Fund	Closed-End Fund	Active ETF	Passive ETF	SMA
Broad Energy			Tortoise Energy Fund (TNGY)		
Energy Infrastructure	Tortoise Energy Infrastructure and Total Return Fund (TORIX, TORTX, TORCX)			Tortoise MLP ETF (TMLP) Tortoise North American Pipeline ETF (TPYP)	Tortoise Strategic Energy Infrastructure Strategy Tortoise Select MLP Strategy
Electrification Infrastructure		Tortoise Energy Infrastructure Corp. (TYG)	Tortoise Nuclear Renaissance ETF (TNUK) Tortoise Electrification Infrastructure ETF (TPZ)		
Energy Adjacent			Tortoise AI Infrastructure ETF (TCAI)	Tortoise Global Water ETF (TBLU)	

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From Wellhead to Data Center: Investing Across the Energy Value Chain

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