Disclaimer

This presentation, and any supplemental information (written or oral) or other documents provided in connection therewith (collectively, the "materials"), are provided on a confidential basis by Raymond James & Associates, Inc. ("Raymond James") and may not be shared with or relied upon by any third-party. This presentation has been prepared solely for informational purposes and is not a solicitation or an offer to buy or sell any securities or related financial instruments. The materials necessarily are based on financial, economic, market, and other conditions as in effect on, and the information available to Raymond James as of, the date of the materials. Although subsequent developments may affect the materials, Raymond James is under no obligation to update, revise or reaffirm the materials. This presentation may include logos or other words or devices that may be registered trademarks of their respective owners. Such use is solely for purposes of convenience in referring to the trademark owners and their products / services.

Ugly Oil Fundamentals & Poor Sentiment Signal Caution For Oil

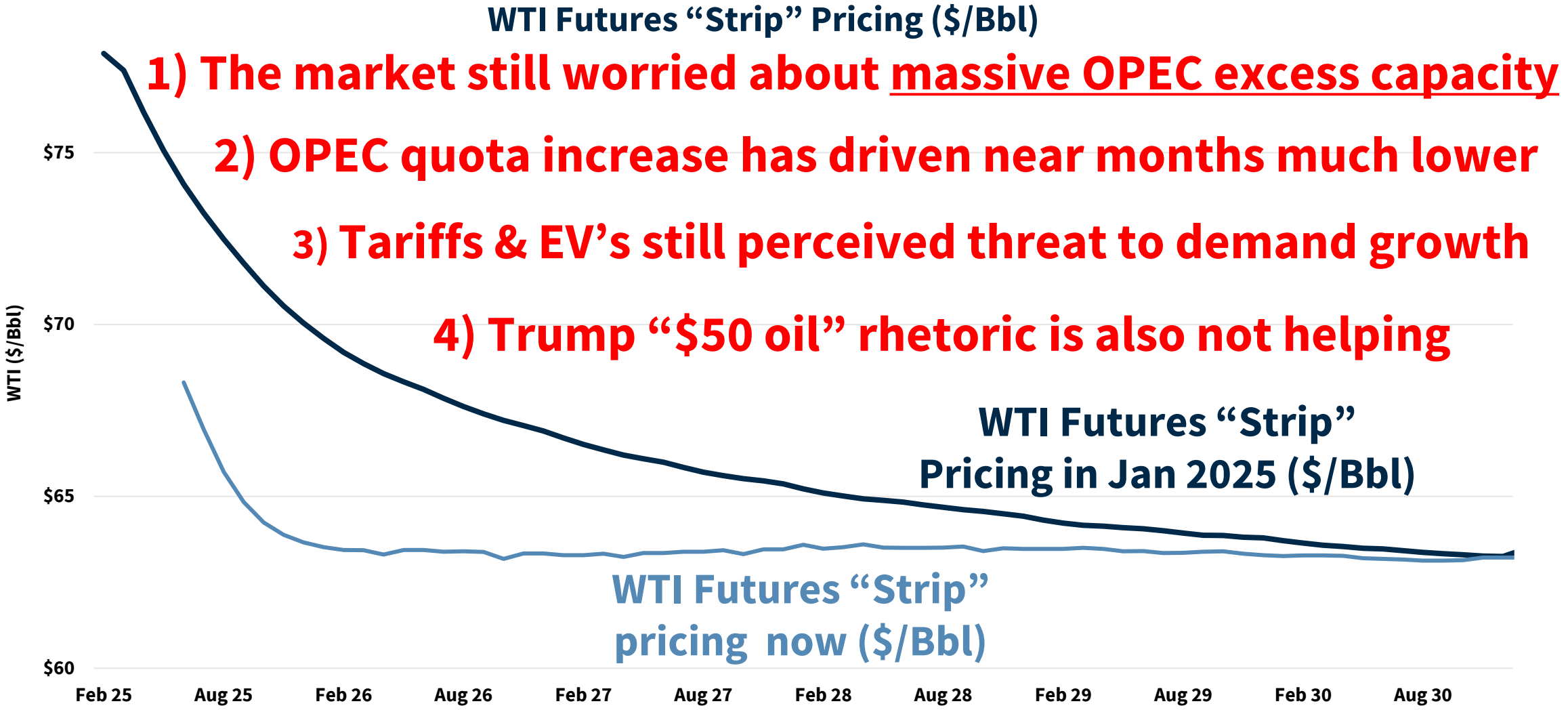
Long-term Bullish Natural Gas Outlook Keeps Getting Better!

Raymond James Energy Banking Group
August 2025

Is Bearish Oil & Bullish Gas Sentiment Fair?

- Tariffs & OPEC moves driving negative oil sentiment
- Geopolitical risk now lower and, Trump rhetoric bearish
- Tariff risk seems over-rated - jury is still out on OPEC cut reversal impact – oil model now decidedly more bearish!
- U.S. natural gas ugly in 2025 with legacy supply growth
- Post ‘25, US gas fundamentals looking VERY bullish

Post Trump, What Are Futures Saying?



Source: FactSet.

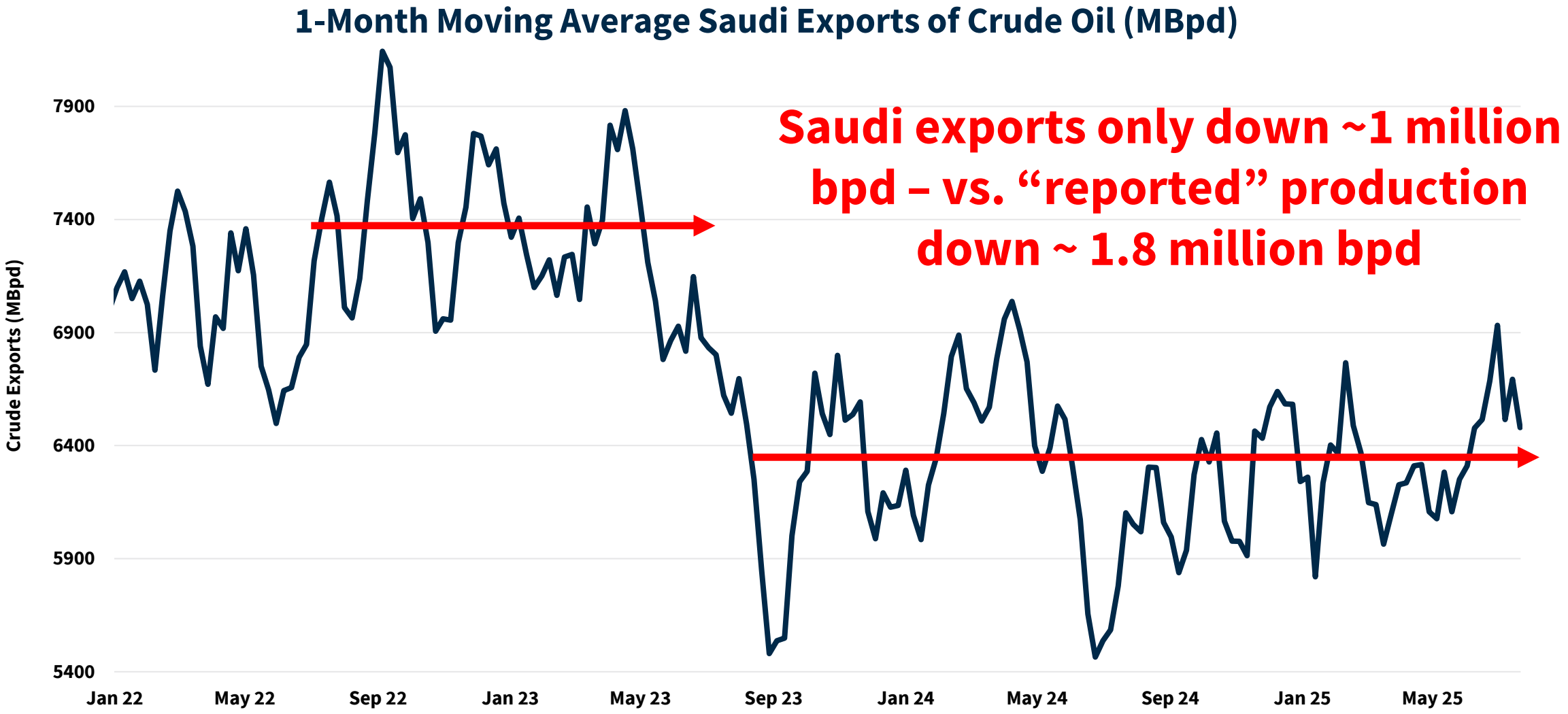
So, What Is The Bearish Case For Oil?

- Iran peace leads to more supply than most assume
- U.S. and other non-OPEC supply will be resilient
- Tariff impact slows global economy & demand growth
- OPEC supply will surge with new quotas
- Trump rhetoric keeps oil low thru ’26 elections
- Combination of above drives bearish inventory builds

What Are We Watching For Oil Insights??

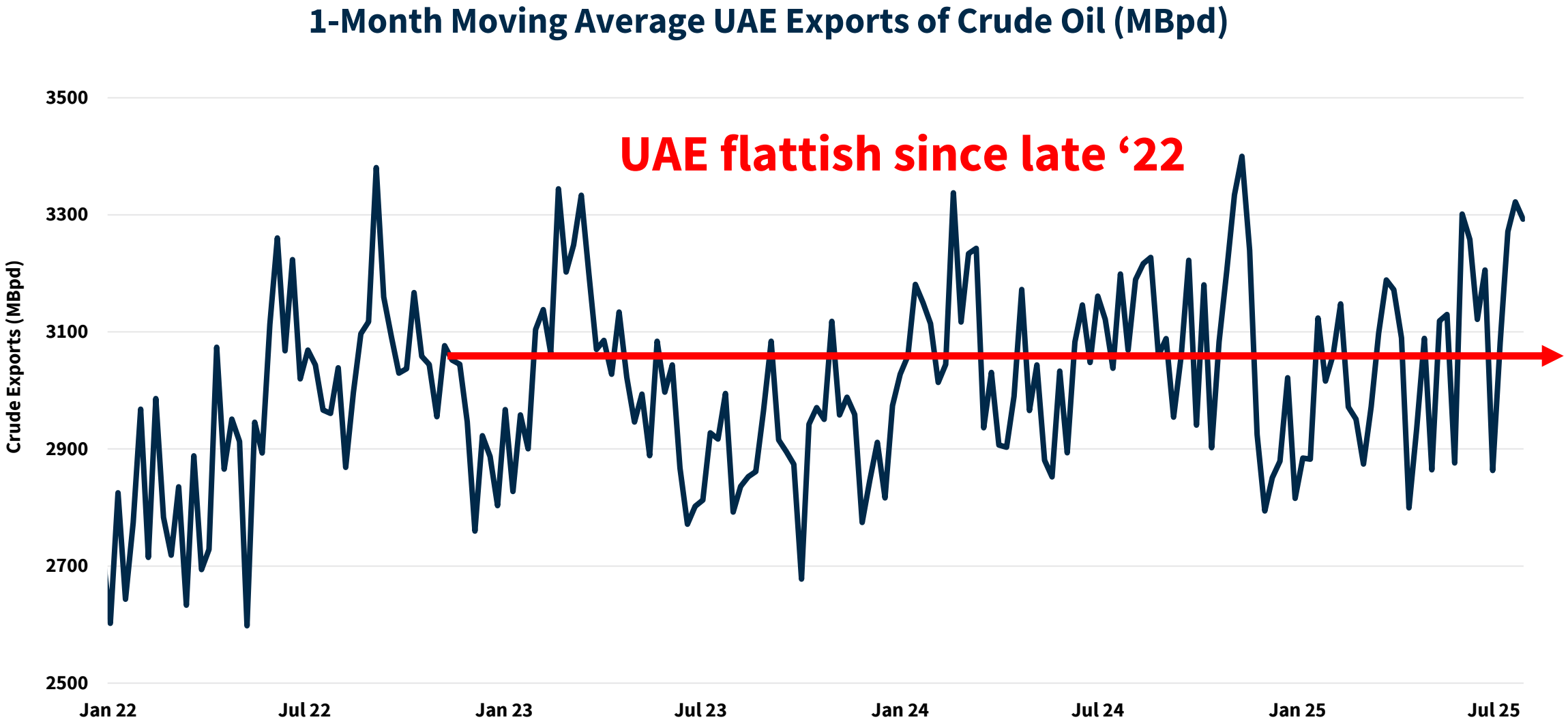
- We are closely watching OPEC+ exports, specifically:
  - *Will Saudi & UAE actually increase exports?*
  - *Will Iranian, Russian & Venezuelan exports rise or fall?*
- Geopolitical changes: Iran?, Russia?, Venezuela?
- **Will global oil inventory trends continue to look ugly?**
- Physical market: calendar/crack spreads, Saudi OSP's
- Net futures positioning (short-term only)

Saudi Export Trends Will Be Important



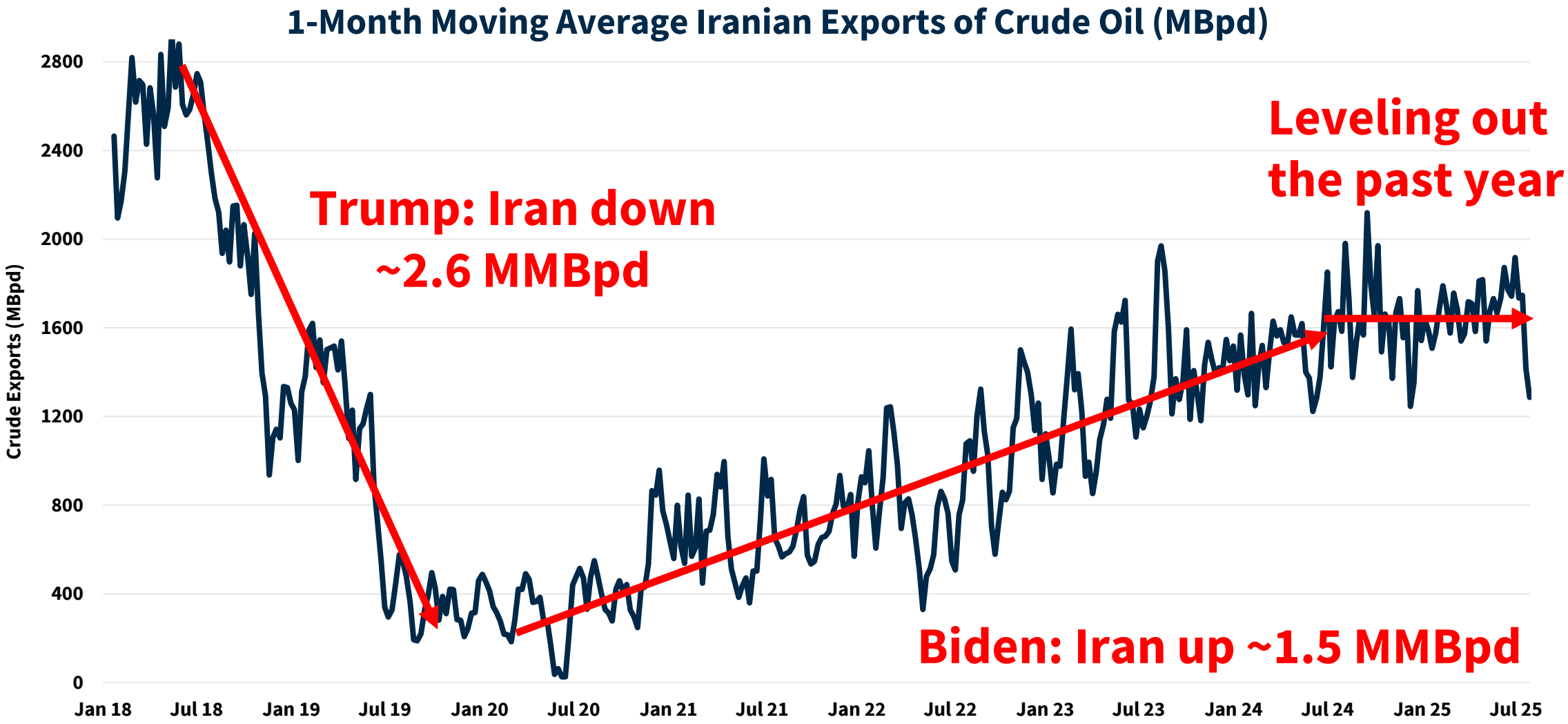
Source: Kpler.

UAE The Only Other Big Potential Grower



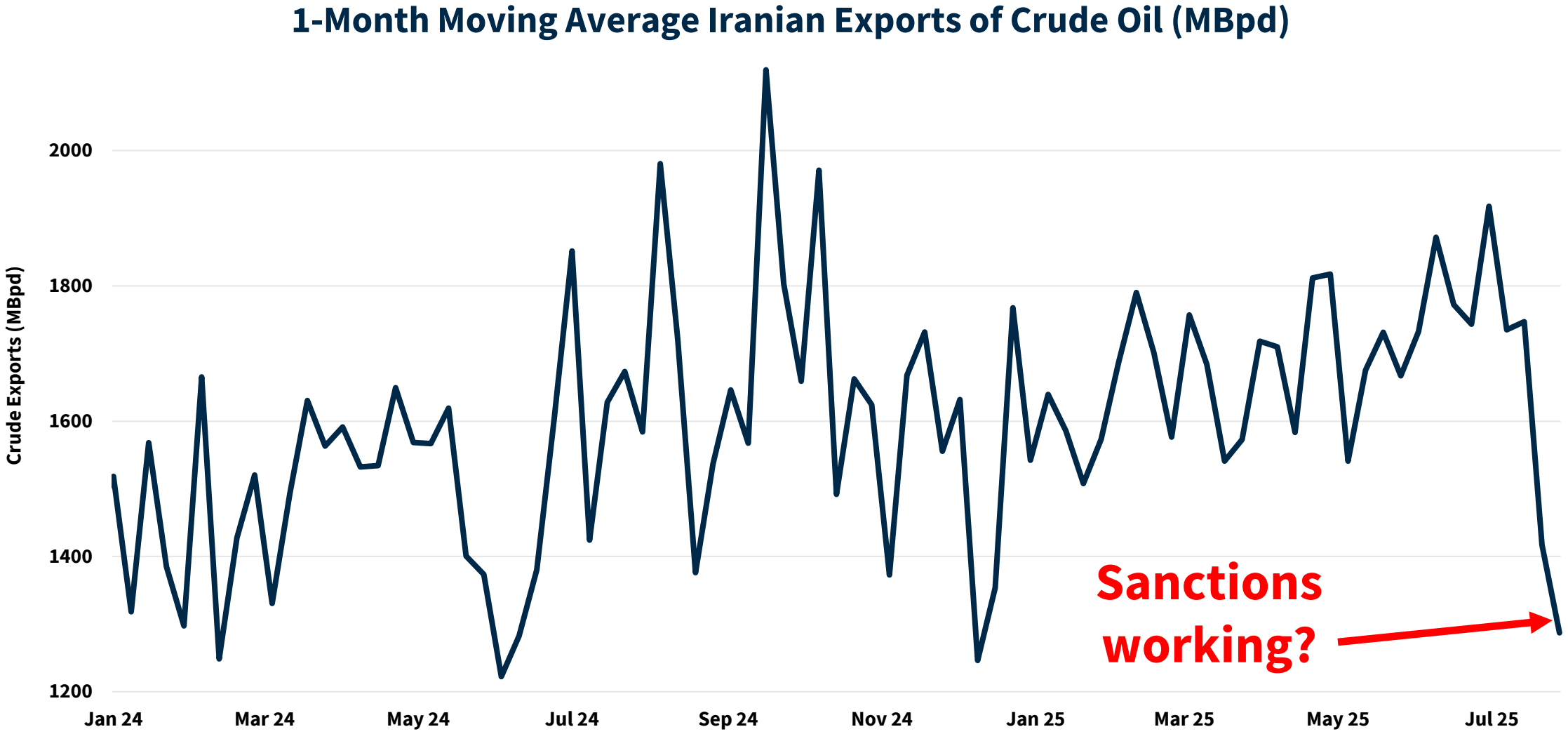
Source: Kpler.

Is ~1.5 MMBpd Of Iranian Oil Now Safe?



Source: Kpler.

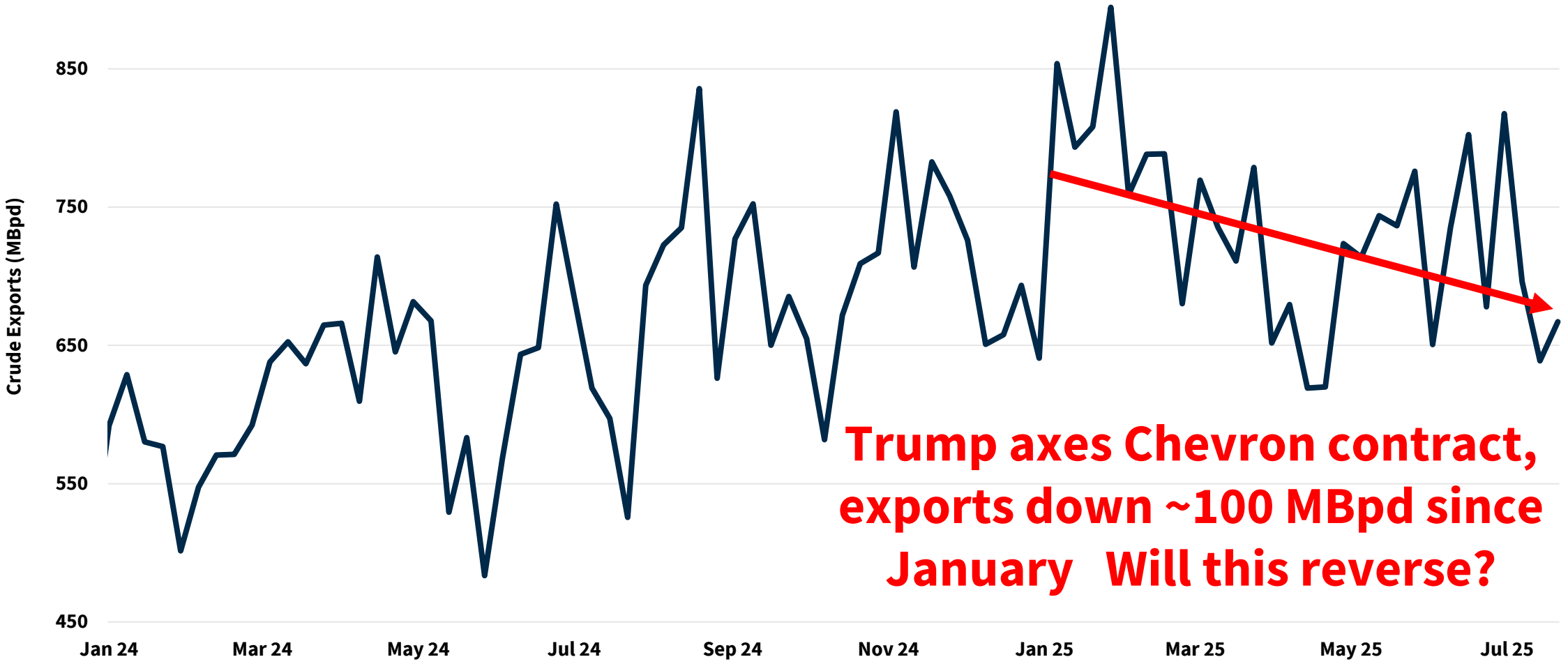
Are Iranian Sanctions Finally Working?



Source: Kpler.

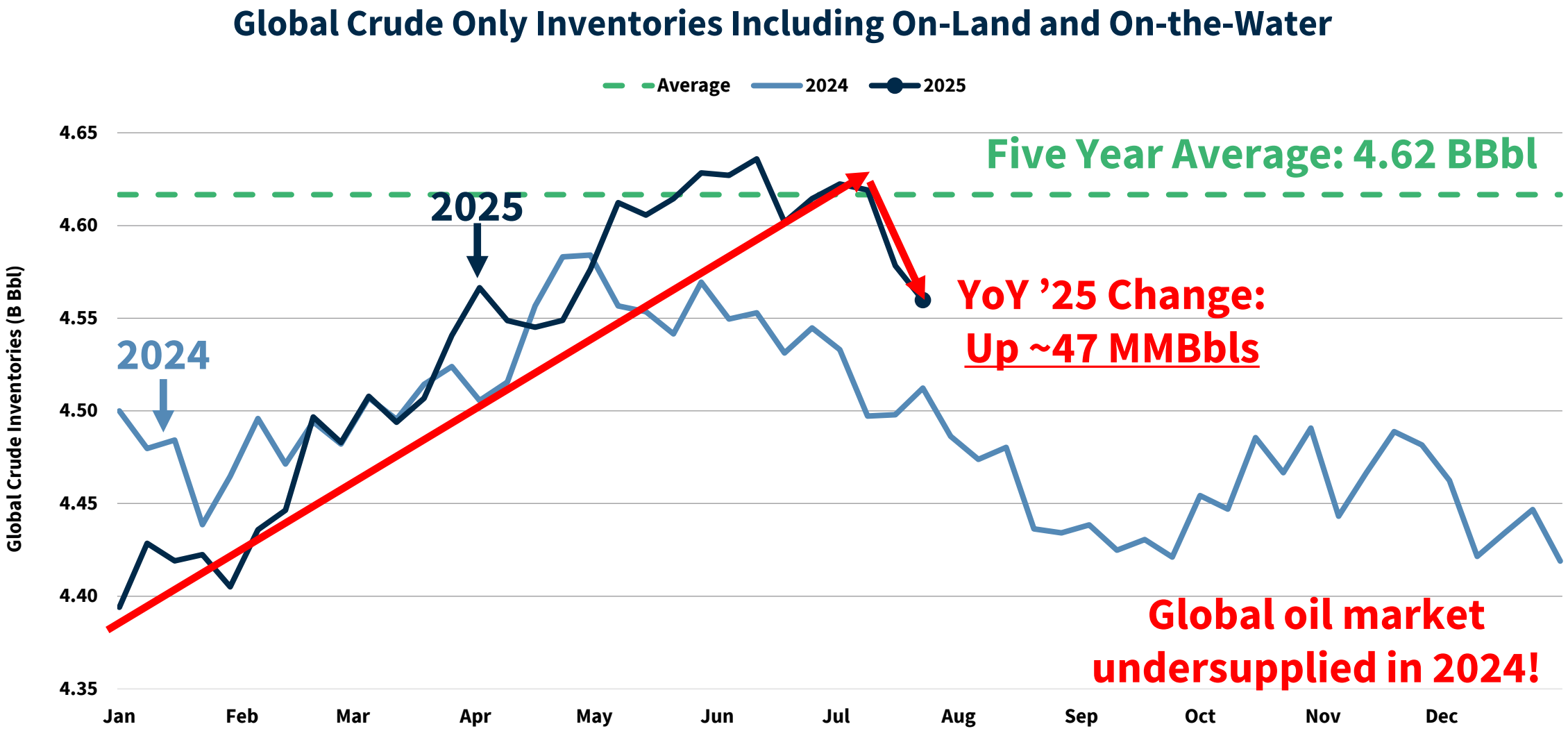
Venezuelan Exports Slowly Falling, But…

1-Month Moving Average Venezuelan Exports of Crude Oil (MBpd)



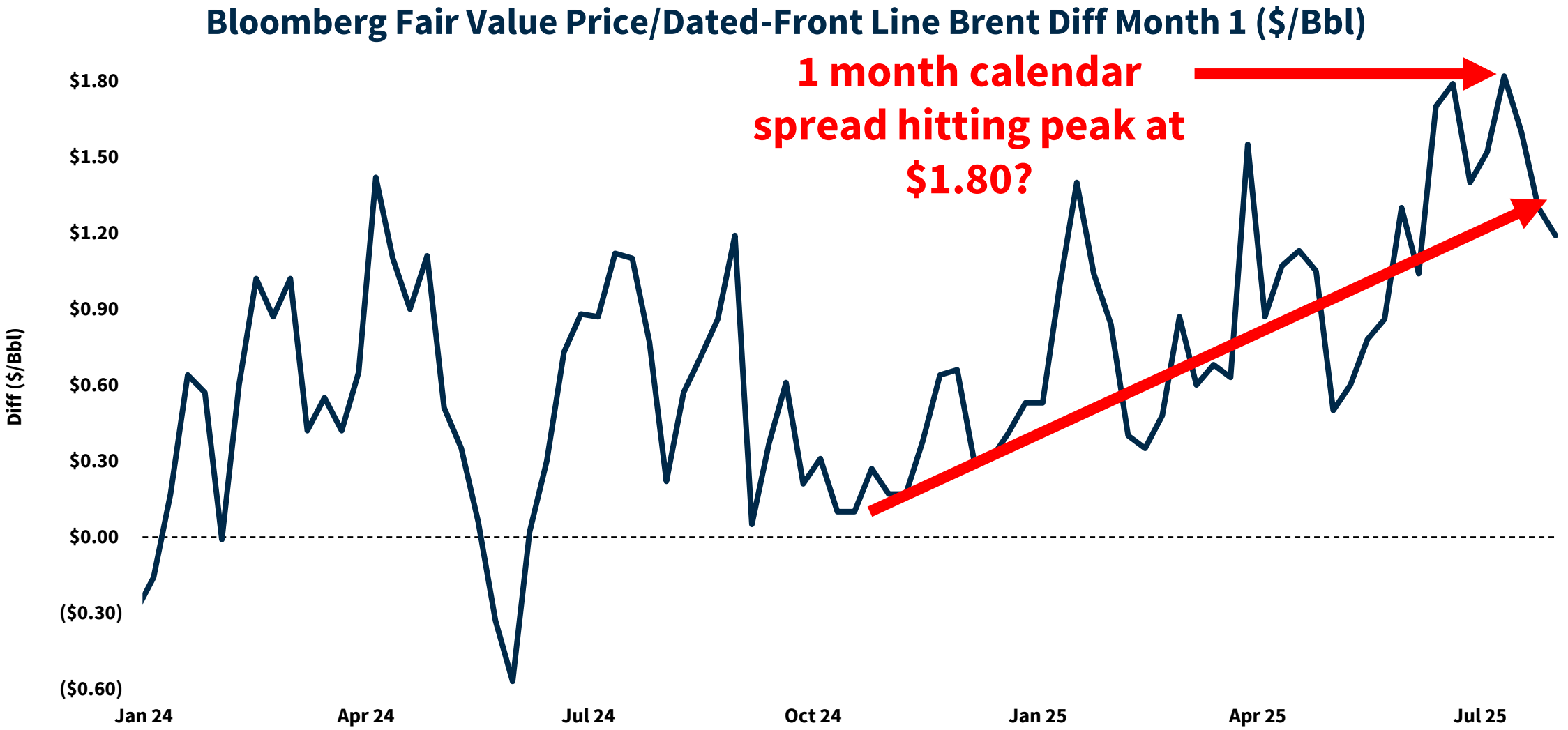
Source: Kpler.

Big ’25 Inv. Builds Finally Reversing?



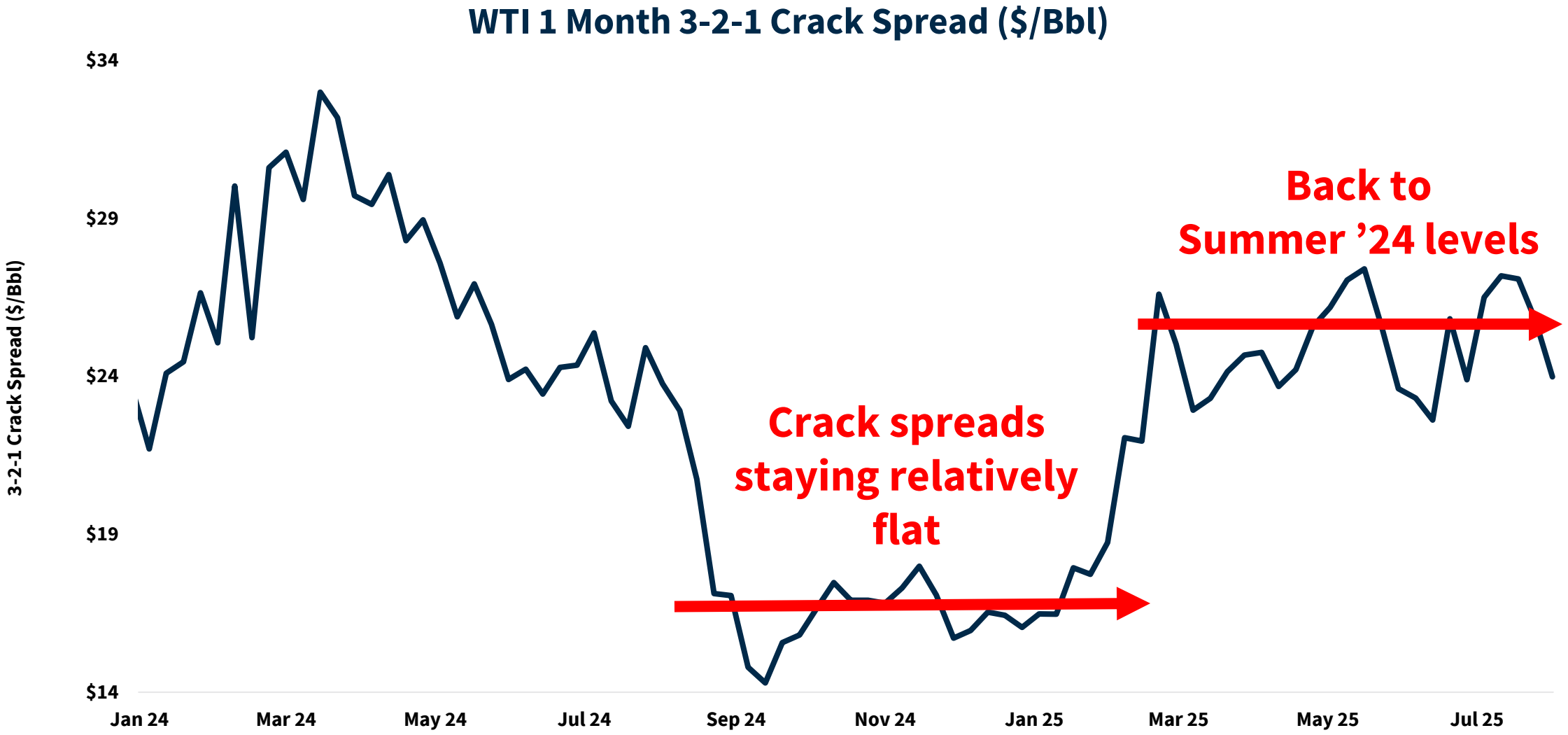
Source: Kpler.

Crude Calendar Spread Still OK



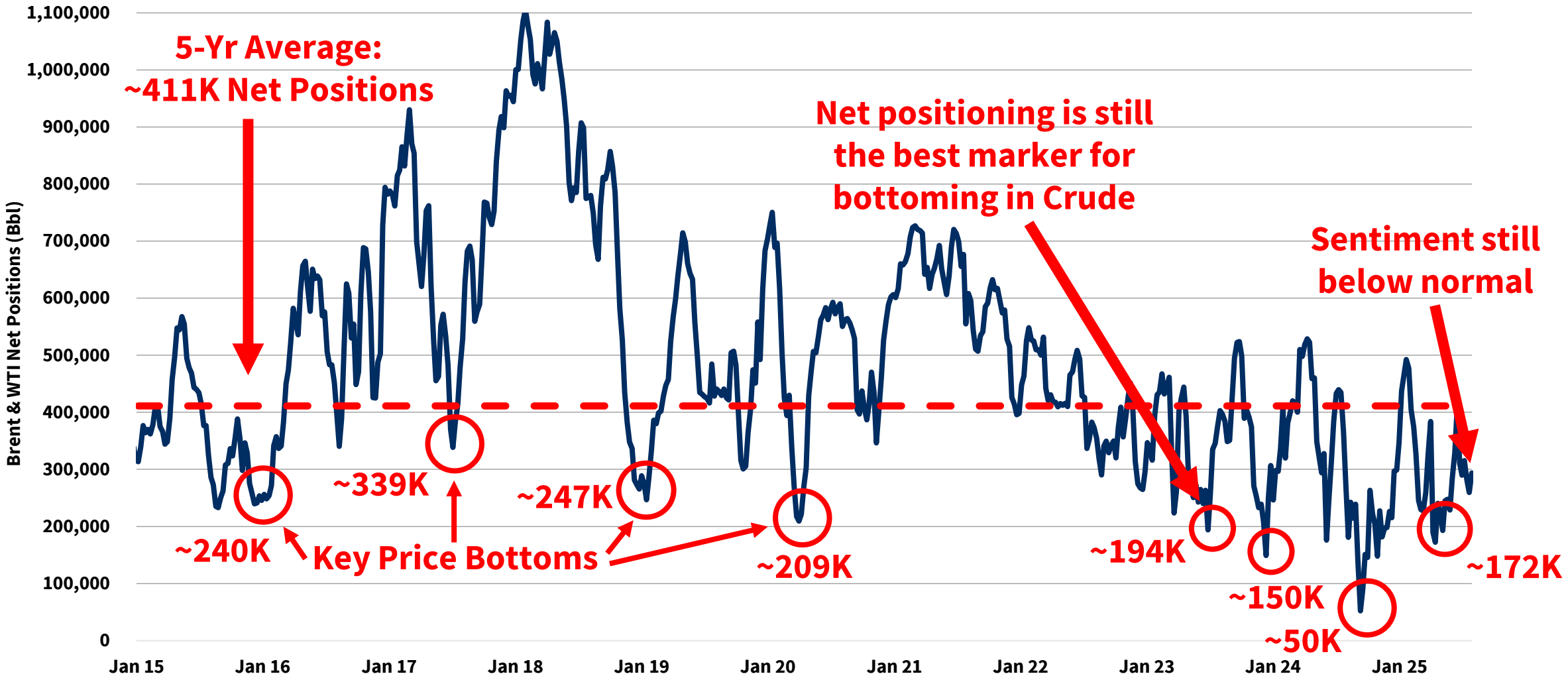
Source: Bloomberg.

And Crack Spreads Suggest Tight Market



Source: Bloomberg.

Sentiment Up, But Still Below "Normal"



Source: Bloomberg.

Is There A Bullish Case For Oil ?

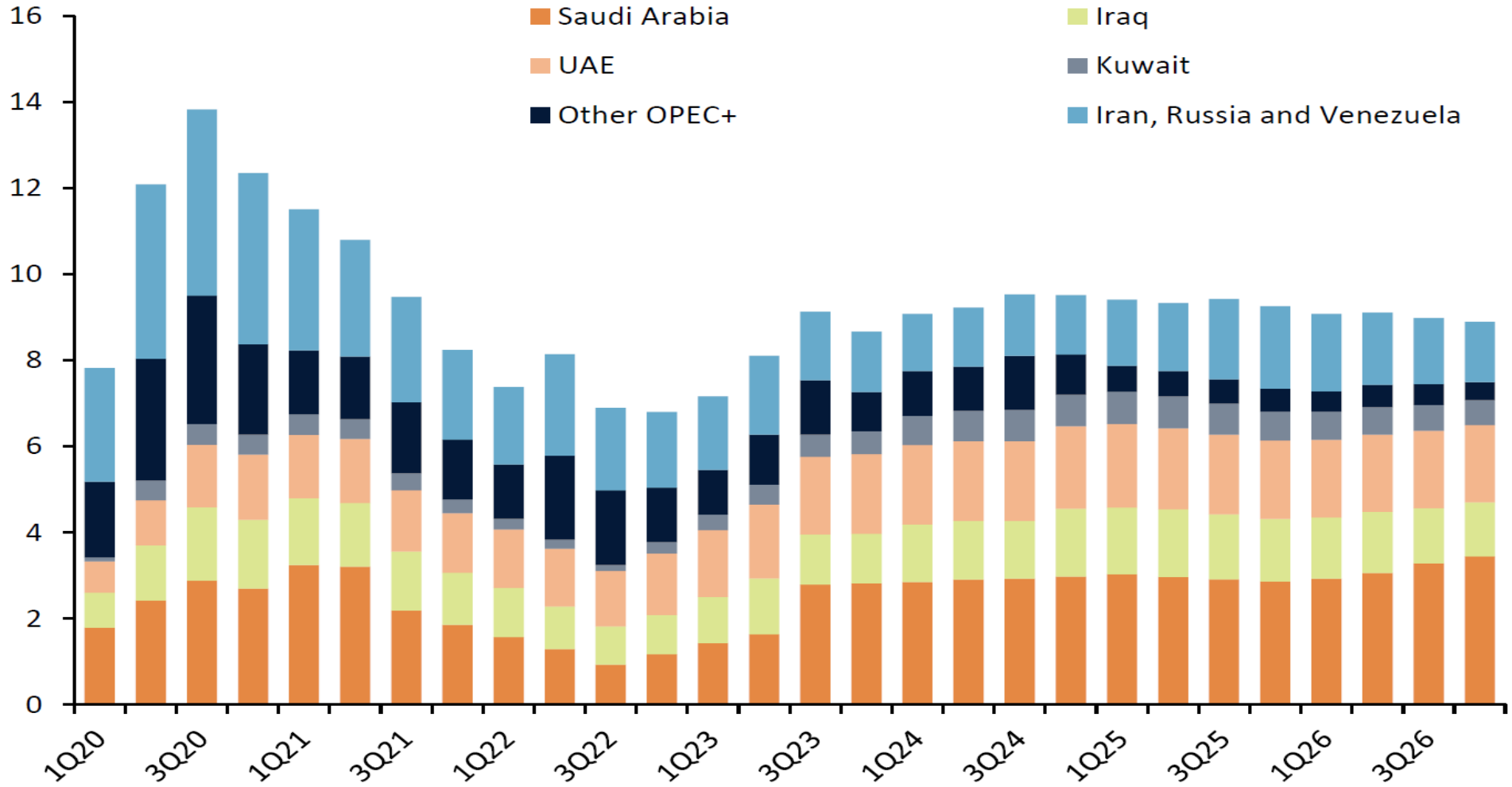
- Fear of OPEC excess capacity fades with quota surge
- I still think there is much less capacity vs. consensus
- Will Saudi be measured with production adds????
- Low oil prices (sub-$70) will pressure US oil supply
- Other non-OPEC growth always overstated--Brazil, etc.
- Street models now VERY bearish (ie huge inv. builds)

So, What Is "Real" OPEC Excess Capacity?

- OPEC countries have consistently overstated their real excess capacity to get higher allocations
- Thus, most analyst quote over 5 million bpd excess
- I think OPEC was effectively maxed out in late 2022 (when they thought Russian production would fall)
- Assuming late 2022 max, excess closer to 3.3 MMbpd
- But, export data say excess is closer to 1.5 MMbpd!

Is OPEC+ Excess Capacity Overstated?

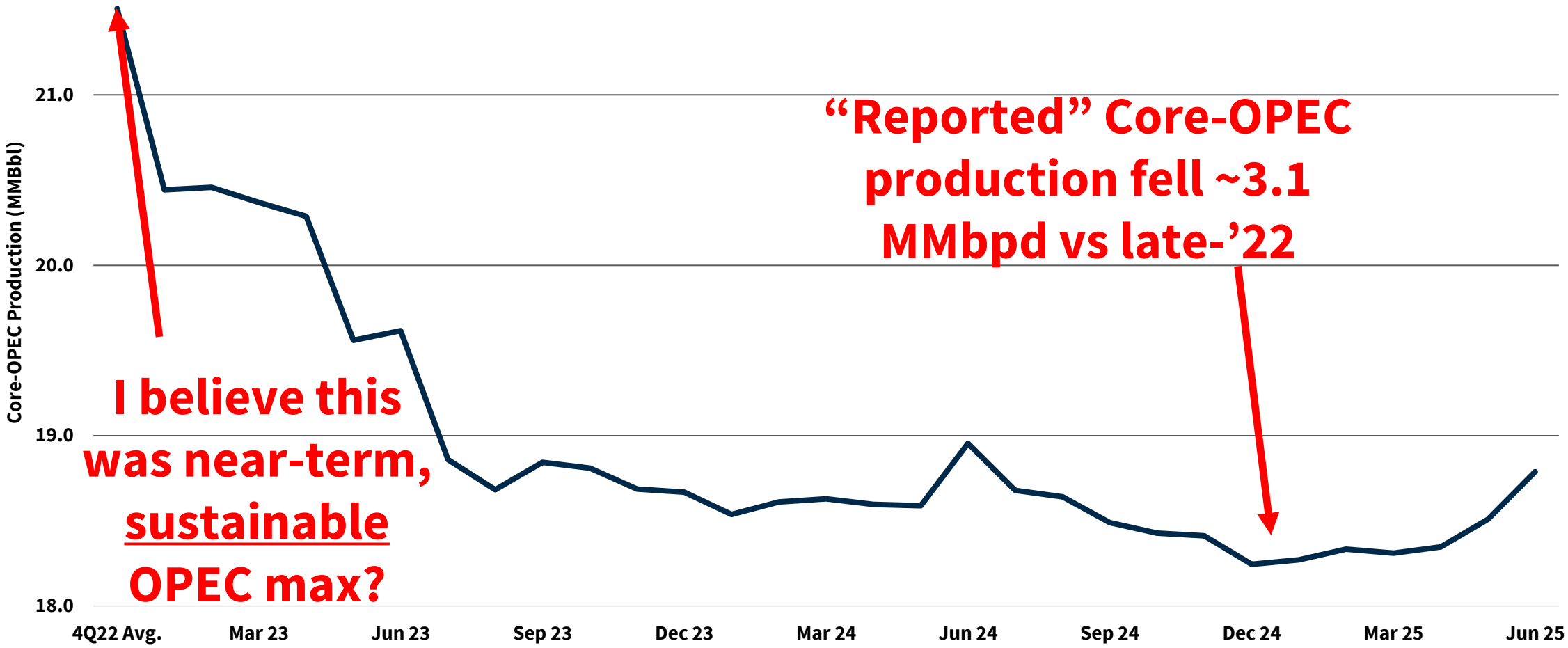
Rystad Estimated OPEC+ Plus Excess Capacity (MMBpd)



Source: Rystad Energy.

Reality Says OPEC Maxed Out Late ‘22

Core-OPEC Reported Production (Million Bpd – Saudi, UAE, Kuwait, Iraq)



Source: Ursa, IEA, EIA, Rystad, RJ Estimates.

Thus, "Reported" Excess Only ~3 MMBpd

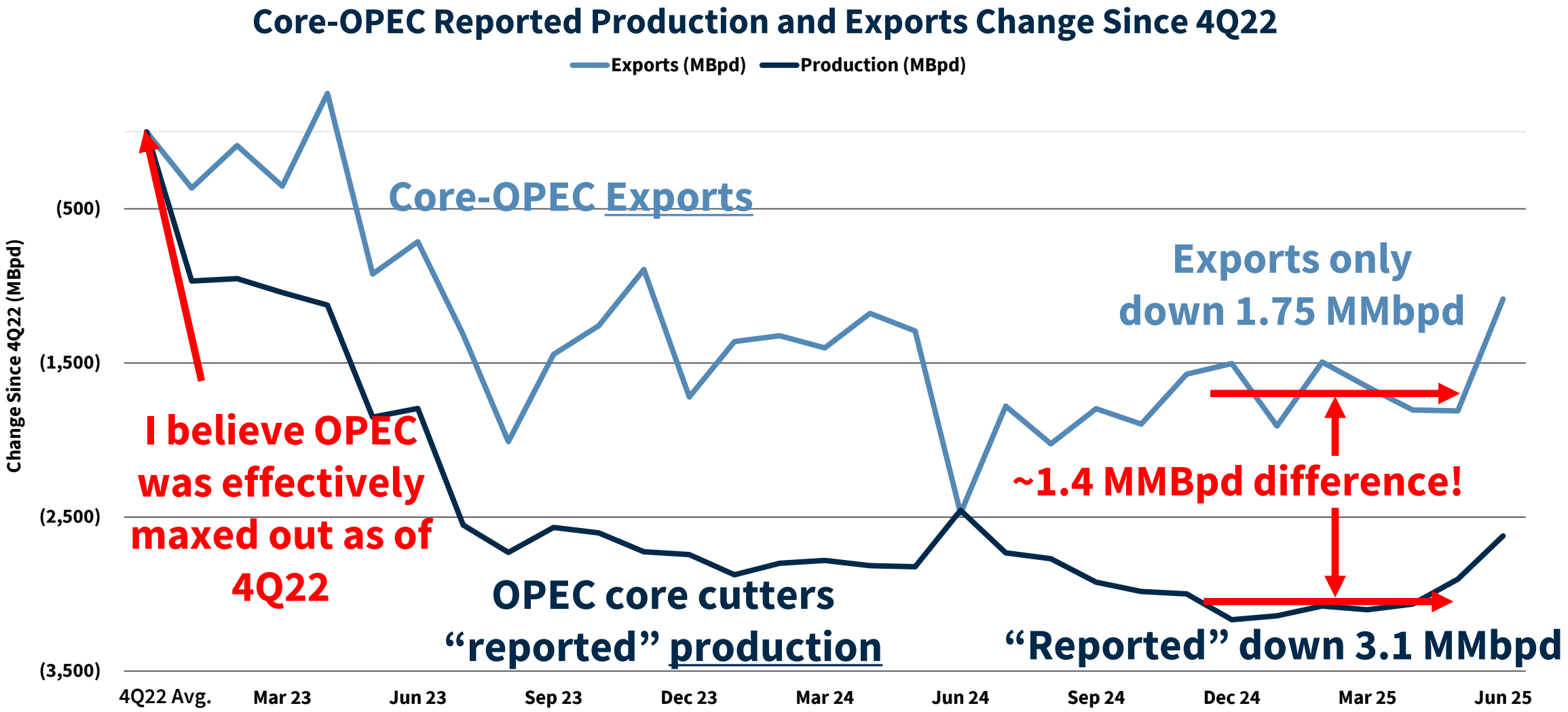
Calculated Core-OPEC Excess Capacity (MMBpd) based on "reported" supply as of 1Q25

Country	IEA Stated Excess	Vs. Late '22 Excess(1)
Saudi	2.875	1.850
UAE	1.250	.250
Kuwait	.350	.400
Iraq	.750	.570
Current OPEC Excess Capacity	**5.675**	**~3.100**

Assuming core-OPEC was producing all-out in late-'22, current OPEC sustainable, near-term excess capacity is less than half of consensus & IEA estimates

Source: IEA, Kpler.
(1) Official OPEC production based on secondary sources.
(2) Based on Kpler data.

But, Exports Do NOT "Reported" Supply



Source: Bloomberg, Kpler.
Note: OPEC+ excludes changes from Iran and Venezuela.

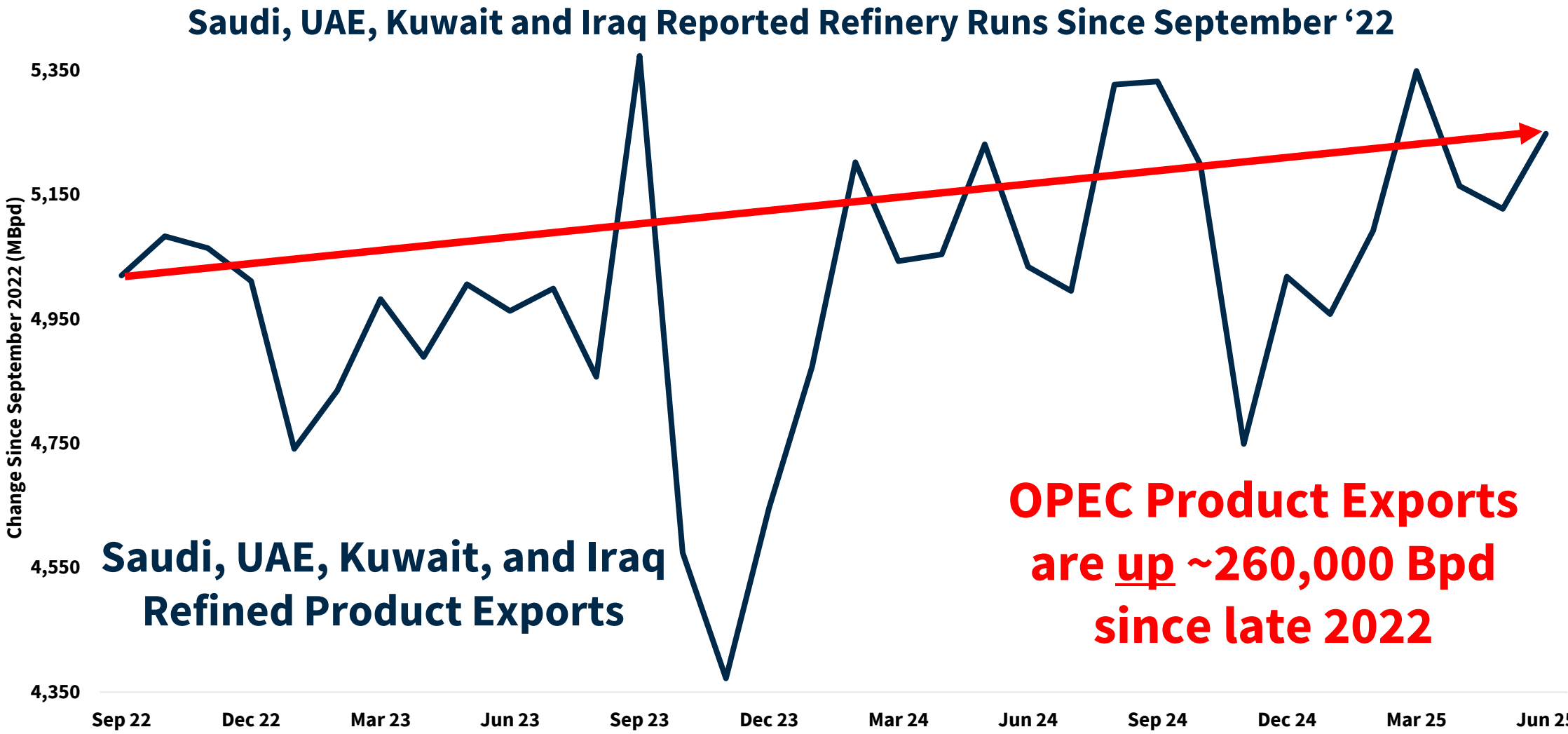
Exports Say OPEC Down Only 1.75MMBpd!

Calculated Core-OPEC Excess Capacity (MMBpd) as of 1Q25

Country	IEA Stated Excess	Vs. Late '22 Excess(1)	1Q25 Exports vs. 4Q22(2)
Saudi	2.875	1.850	1.235
UAE	1.250	.250	.100
Kuwait	.350	.400	.390
Iraq	.750	.570	.020
Current OPEC Excess Capacity	**5.675**	**~3.100**	**~1.745**

Source: IEA, Kpler.
(1) Official OPEC production based on secondary sources.
(2) Based on Kpler data.

OPEC Refined Product Exports Also Up



Source: Kpler.

Maybe OPEC Only Has ~1.5 MMBpd More?

Calculated Core-OPEC Excess Capacity (MMBpd) as of Today

Country	IEA Stated Excess	Vs 4Q'22 Excess(1)	1Q25 Exports vs 4Q22(2)	Less Changes In Prod. Exports(2)
Saudi	2.875	1.850	1.235	**0**
UAE	1.250	.250	.100	**+.040**
Kuwait	.350	.400	.390	**+.400**
Iraq	.750	.570	.020	**-.180**
Current OPEC Excess Capacity	**5.675**	**~3.100**	**~1.745**	**~1.485**

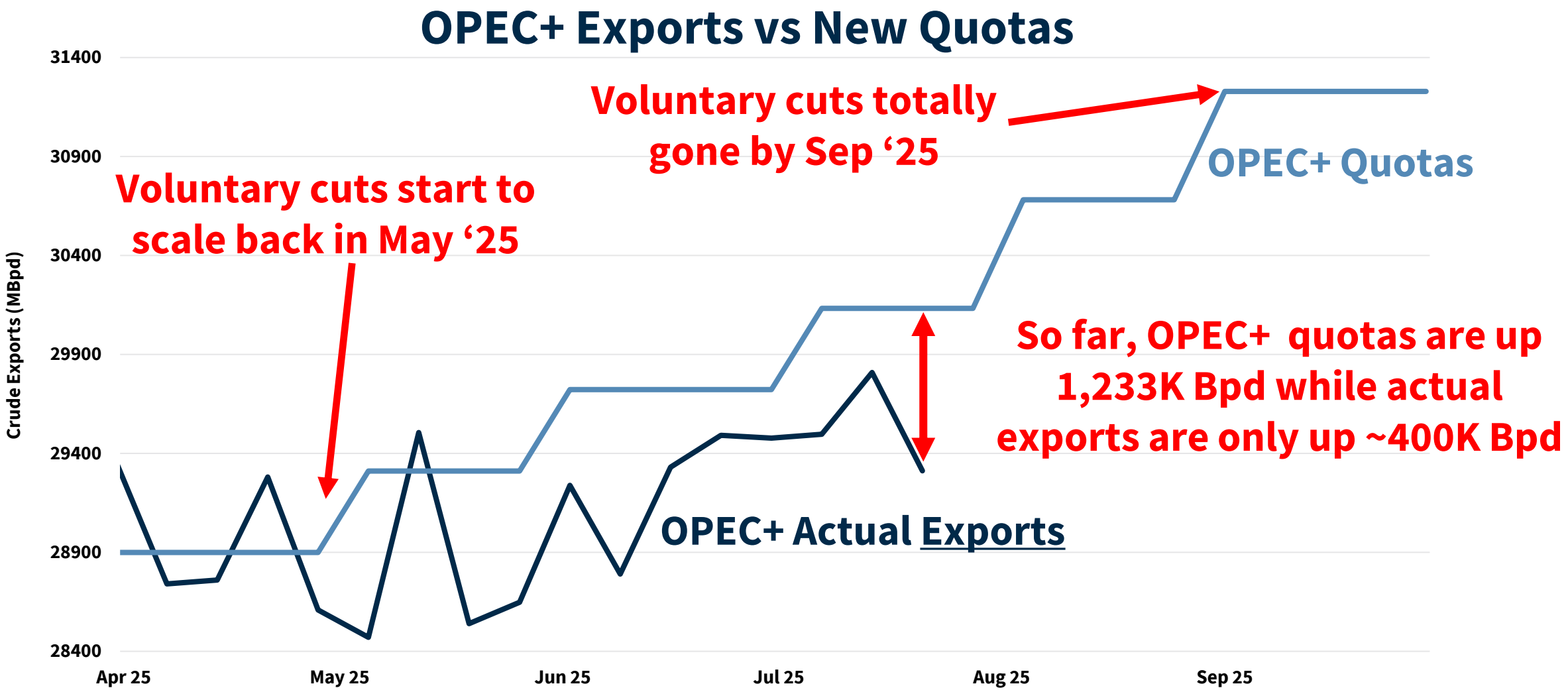
Is this "real" OPEC excess capacity?

Source: IEA, Kpler.
(1) Official OPEC production based on secondary sources.
(2) Based on Kpler data.

What Is The REAL Impact of New Quotas?

- Most are modeling massive OPEC+ increase to come
- I think this is misguided – Saudi likely more measured
- We are watching actual EXPORTS, not QUOTAS
- So far, OPEC+ exports are increasing less than quotas
- *Note: May/June export data noise due to Iran strikes*
- I suspect Saudi will try to keep oil prices rangebound

So Far, OPEC+ Increasing Less Than Quotas



Source: Bloomberg, Kpler.
Note: OPEC+ excludes changes from Iran and Venezuela.

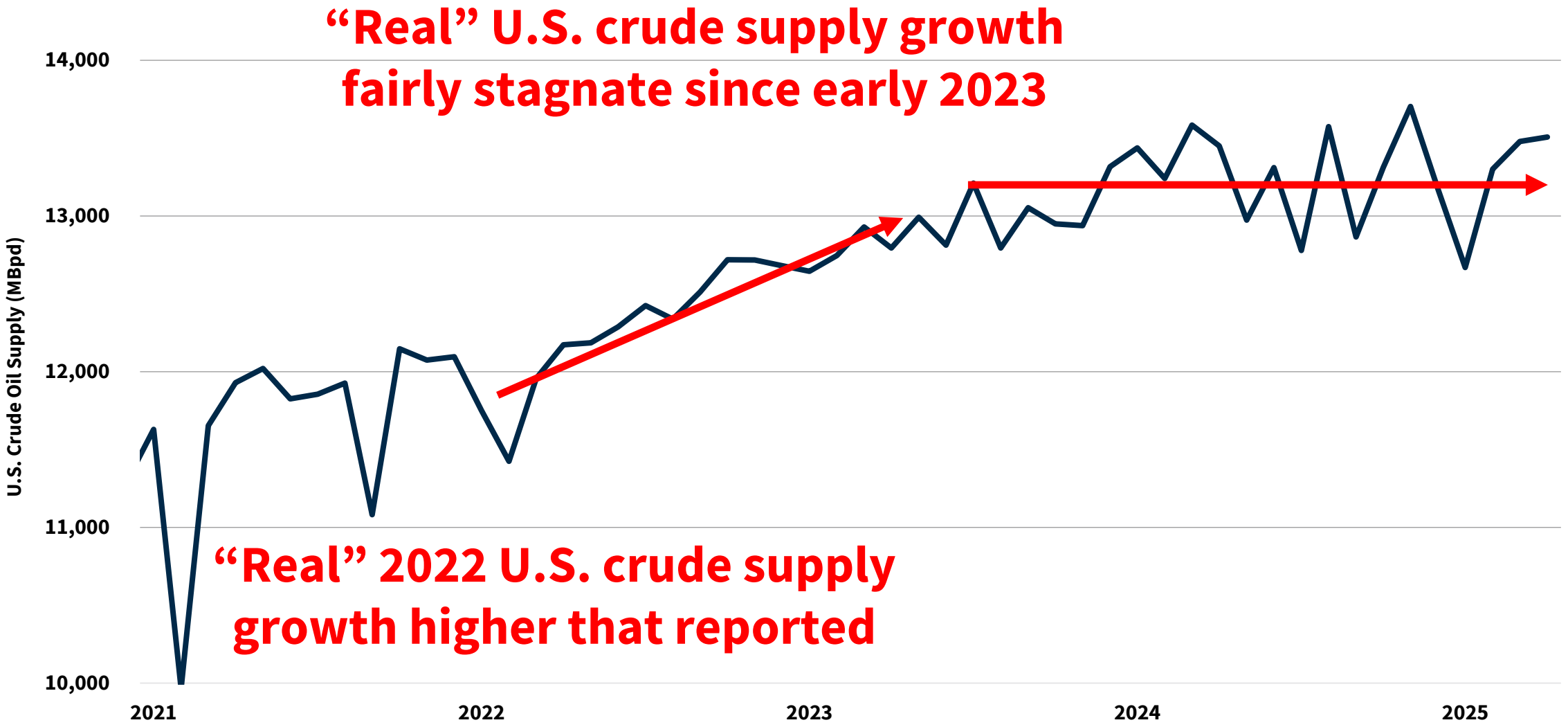
How Will Reversing OPEC+ Cuts Impact Oil?

- Announced cuts have been a BIG market overhang
- Will removing cuts reveal “emperor with no clothes”?
- How will market react if OPEC+ growth is subpar?
- I model OPEC+ up 700K bpd in ’25 and 1 MMbpd in ‘26
- Above says: Inv. builds coming, but excess gone YE’26
- Either way, reduced excess perception bullish post ‘26

But Wait, Won't We "Drill Baby Drill" At Current Prices?

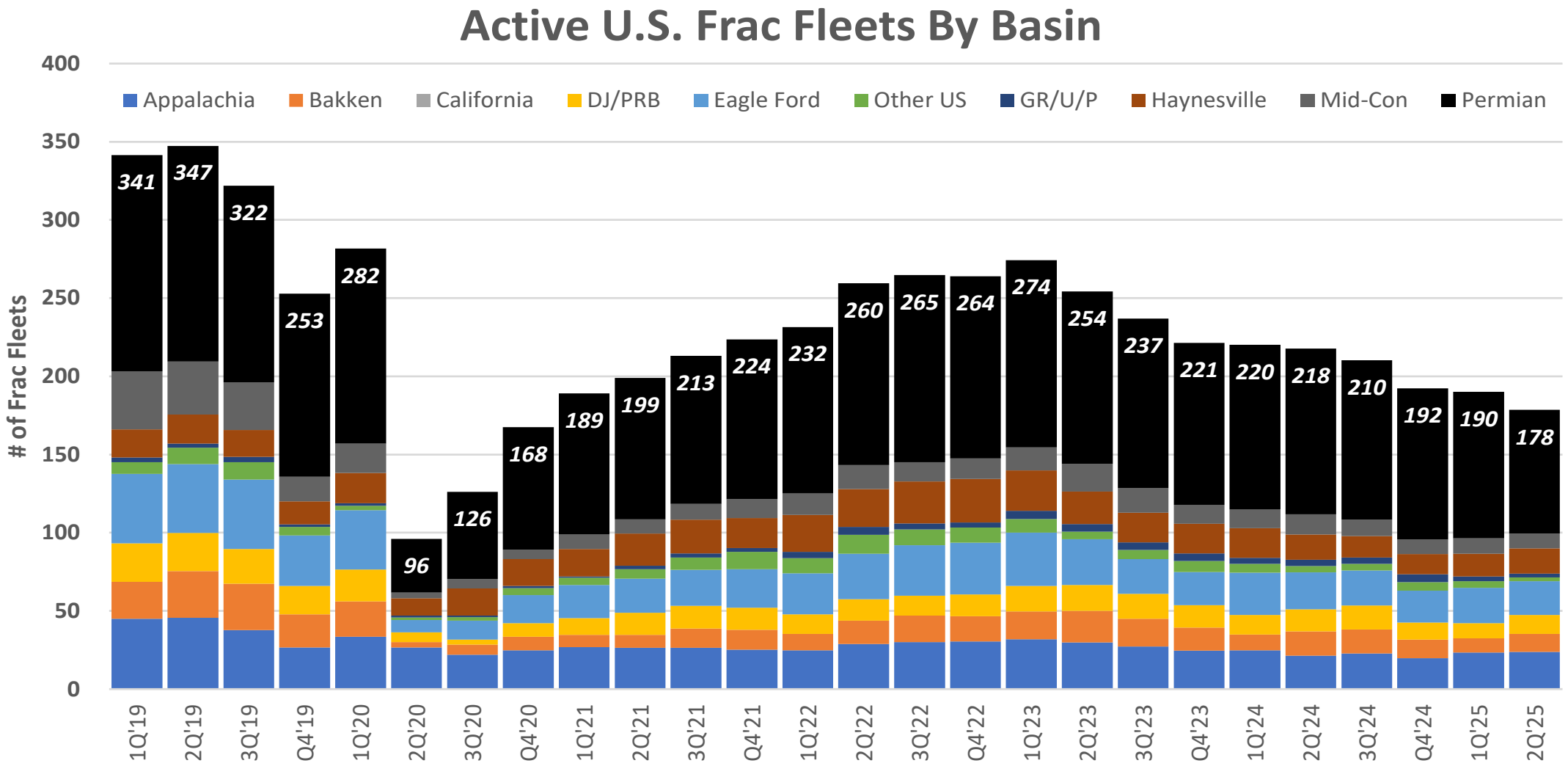
Where Is US Oil Supply Headed?

Actual Crude Growth Flat Over Past 2 Years



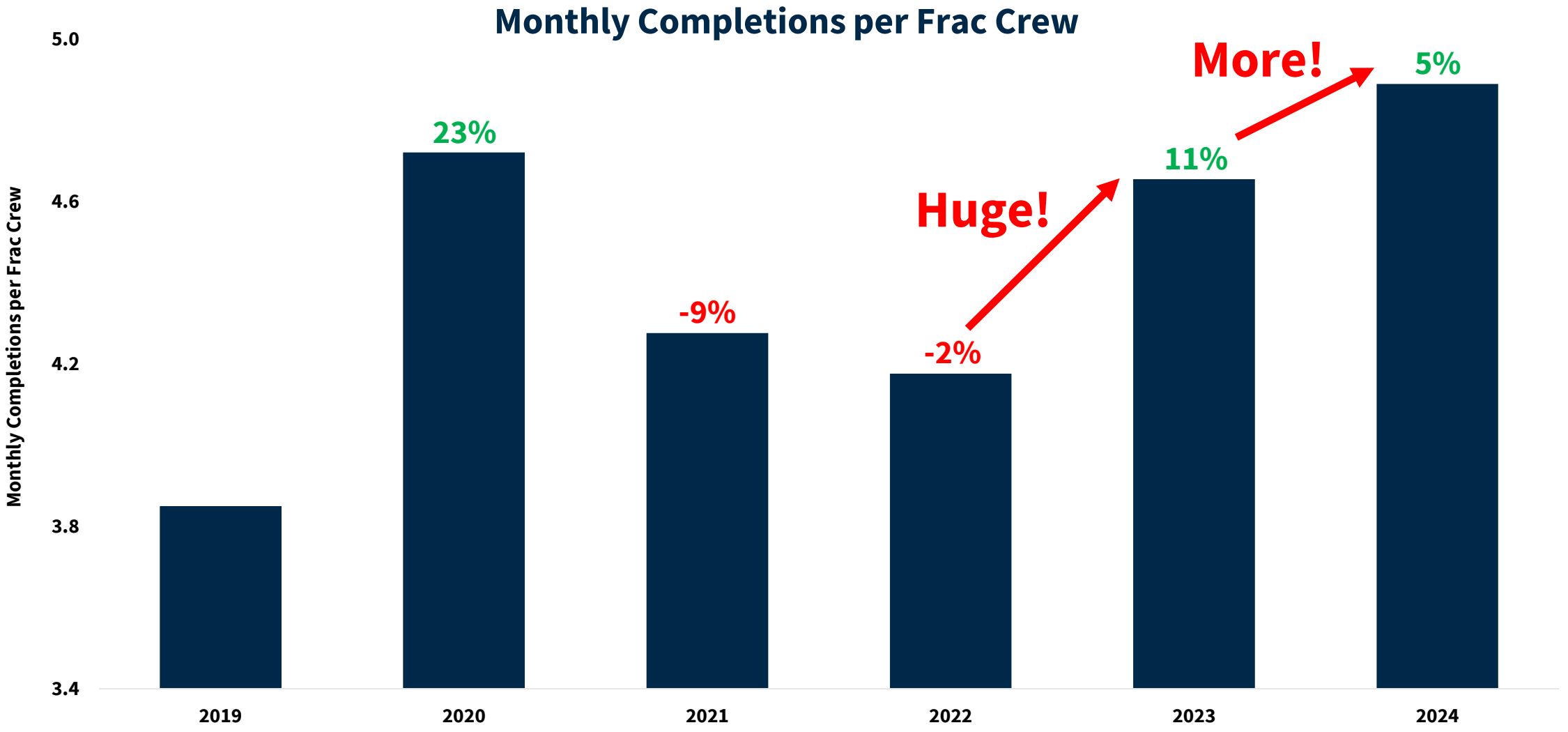
Source: EIA, RJ Estimates.

Flat Despite US Fracking Down About 35%



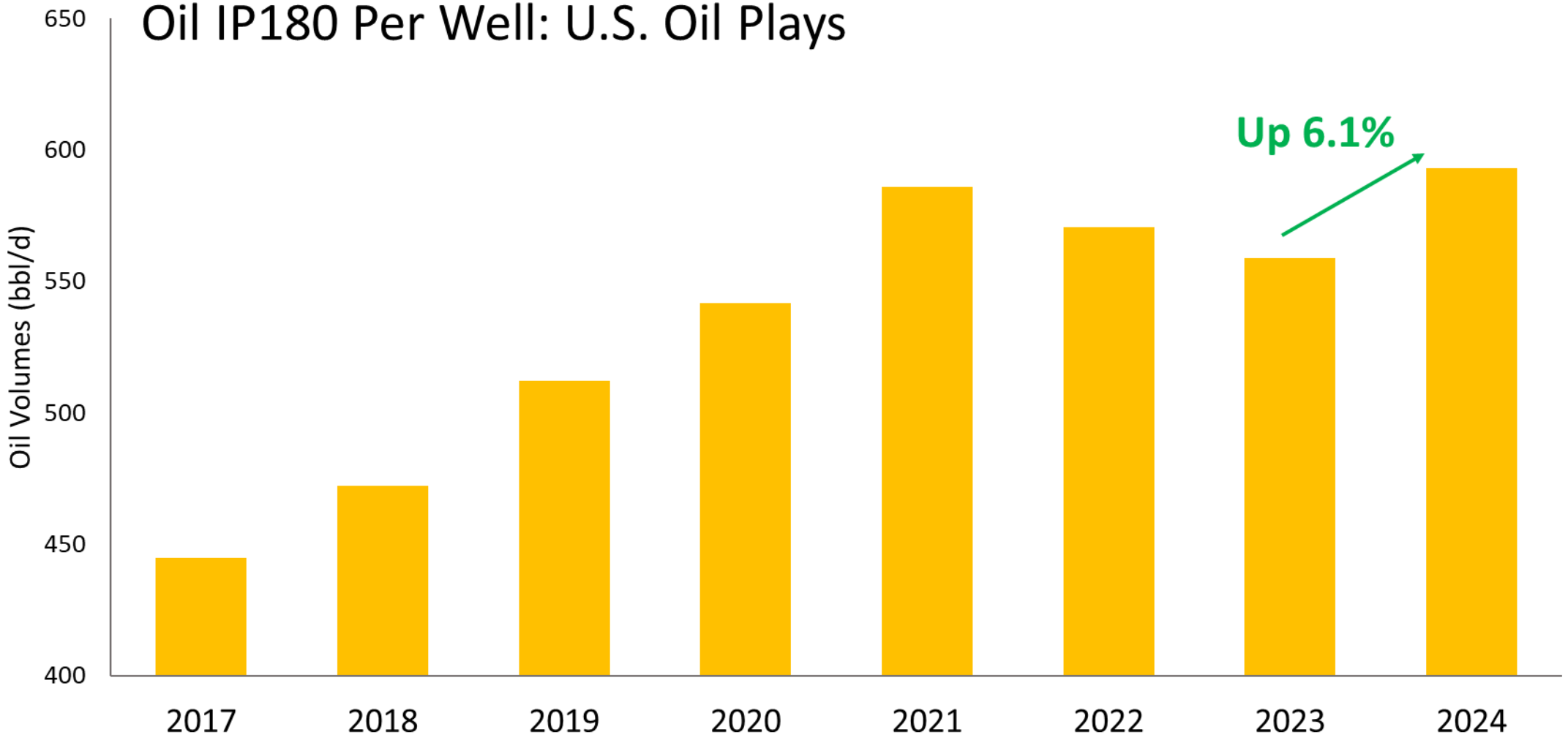
Source: Rystad.

Completions Efficiency Growing Fast



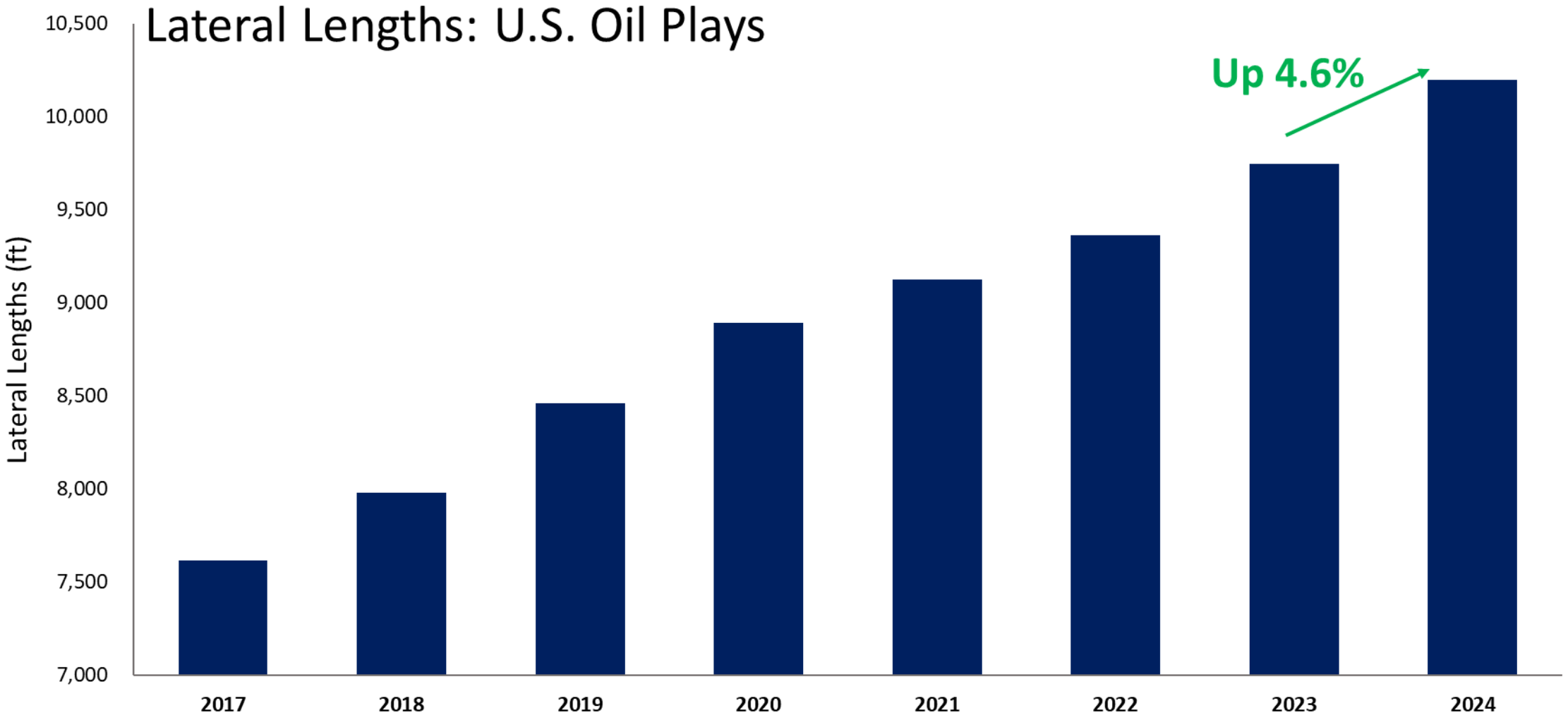
Source: Enverus, Raymond James Research.

U.S. Oil Well Productivity Flattish Since ‘21



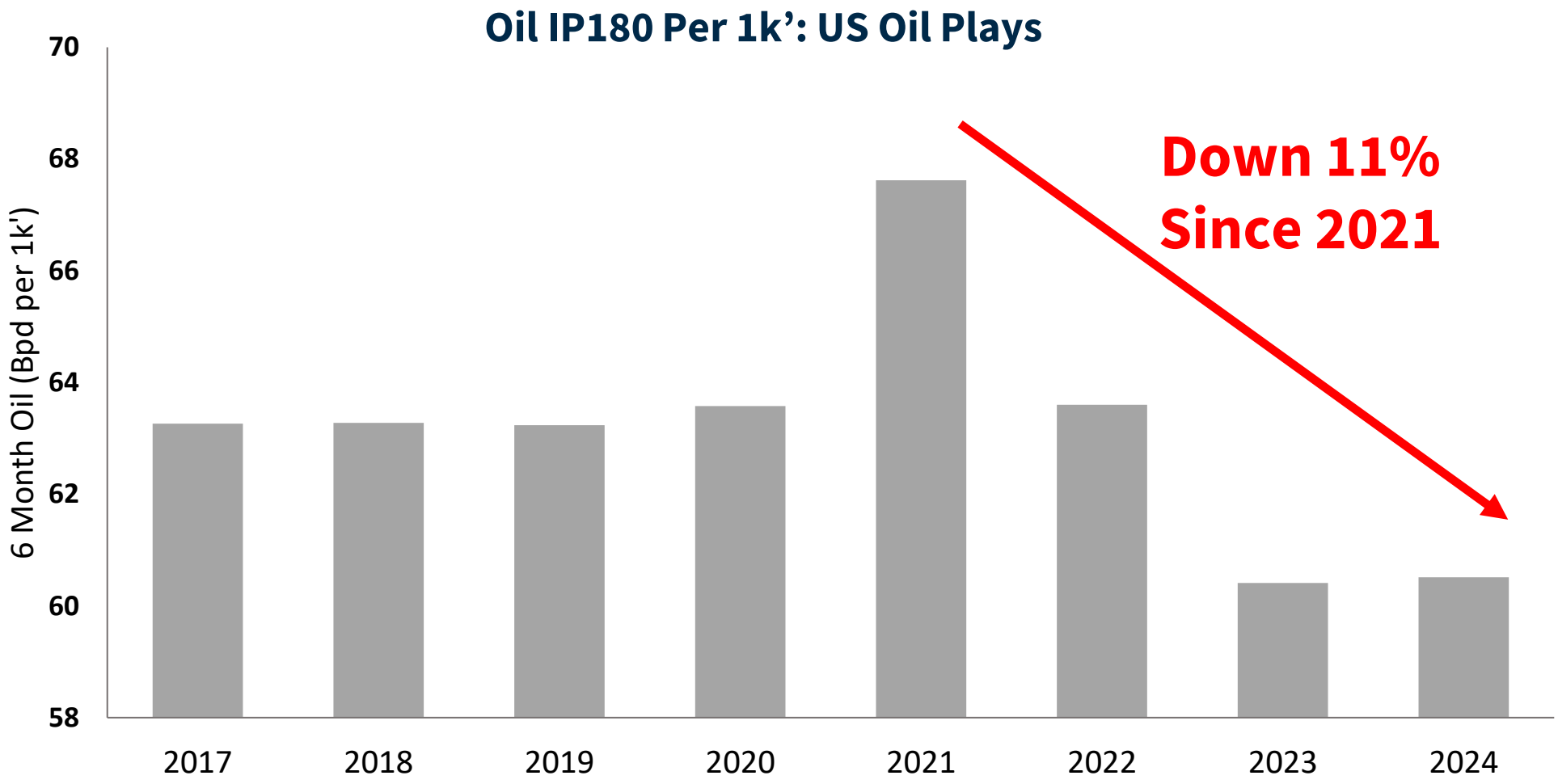
Source: Enverus, Raymond James Research.

Longer Laterals Boosting Per-Well Results



Source: Enverus, Raymond James Research.

But, U.S. Per-Foot Productivity WAY Down

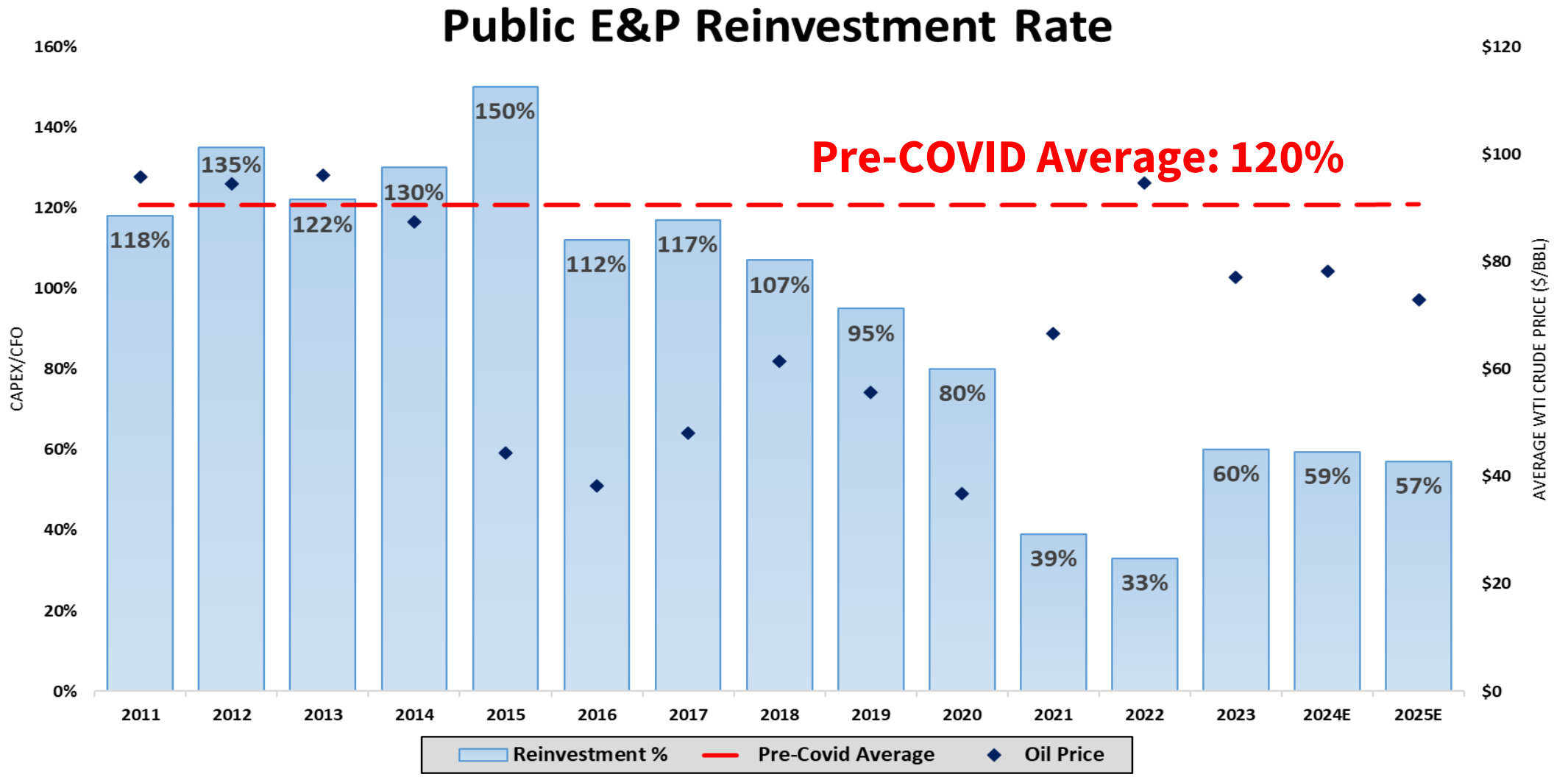


Source: Enverus, Raymond James Research.

Despite Efficiencies, Has U.S. Oil Peaked?

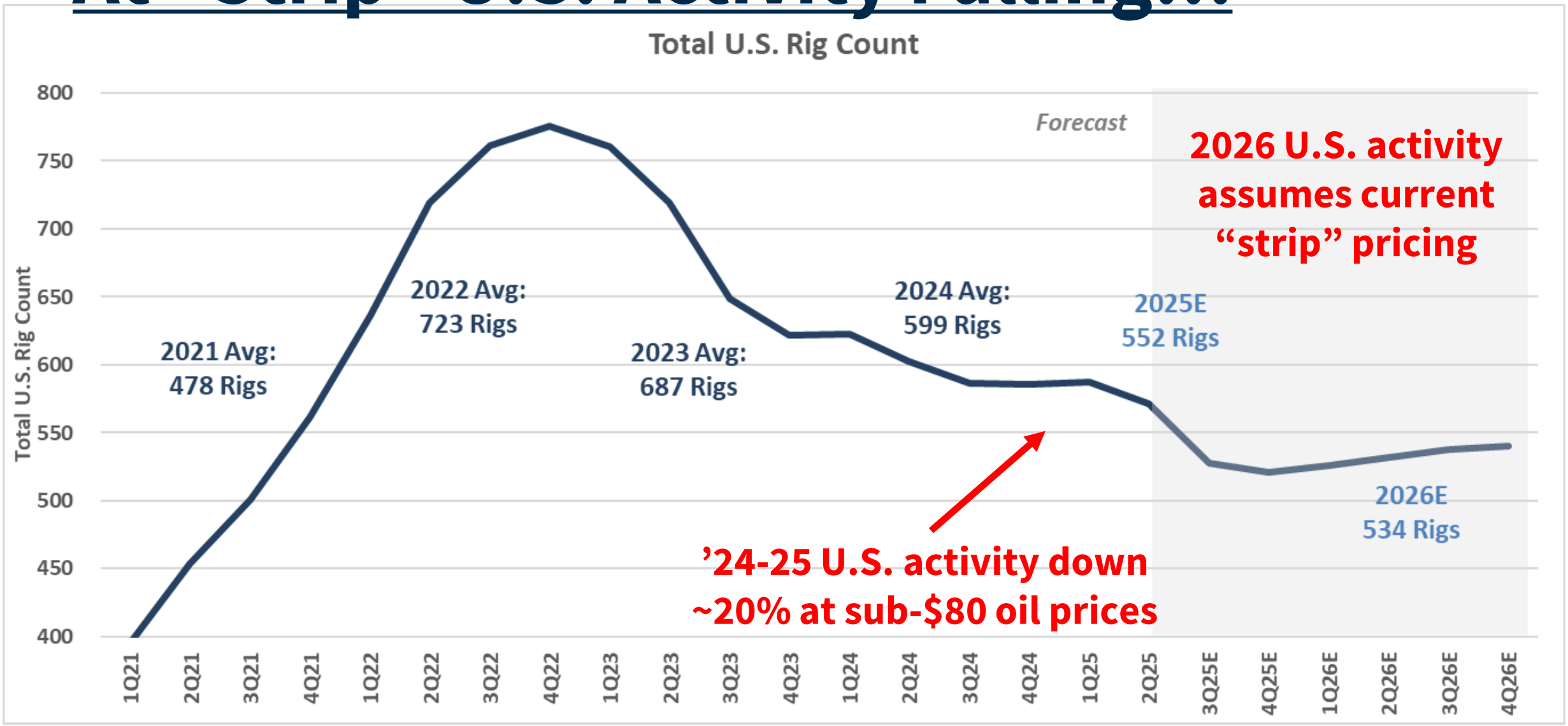
- Longer laterals & efficiency gains help economics, but
- Over past 3 years, U.S. well productivity/ft is down 11% & prod/well is flat (due to longer laterals)
- Core acreage "works" @ $60/Bbl, but rig count started falling as oil prices fell below $80/Bbl???
- US crude likely down by YE'25 & worse in 2026

Public E&Ps Likely Remain Disciplined



Source: Raymond James Research, FactSet, Rystad.

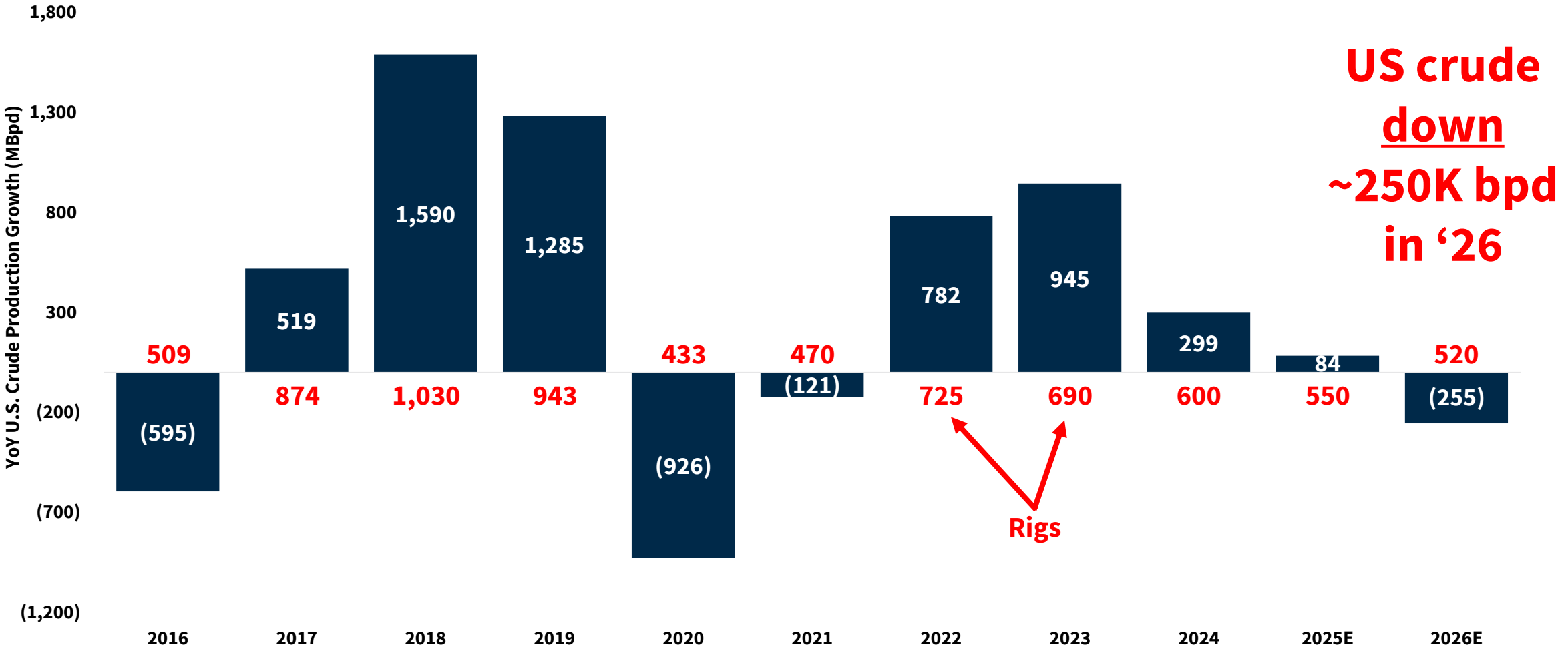
At "Strip" U.S. Activity Falling…



Source: Baker Hughes, RJ Estimates.

Crude-Only Growth Likely Disappoints

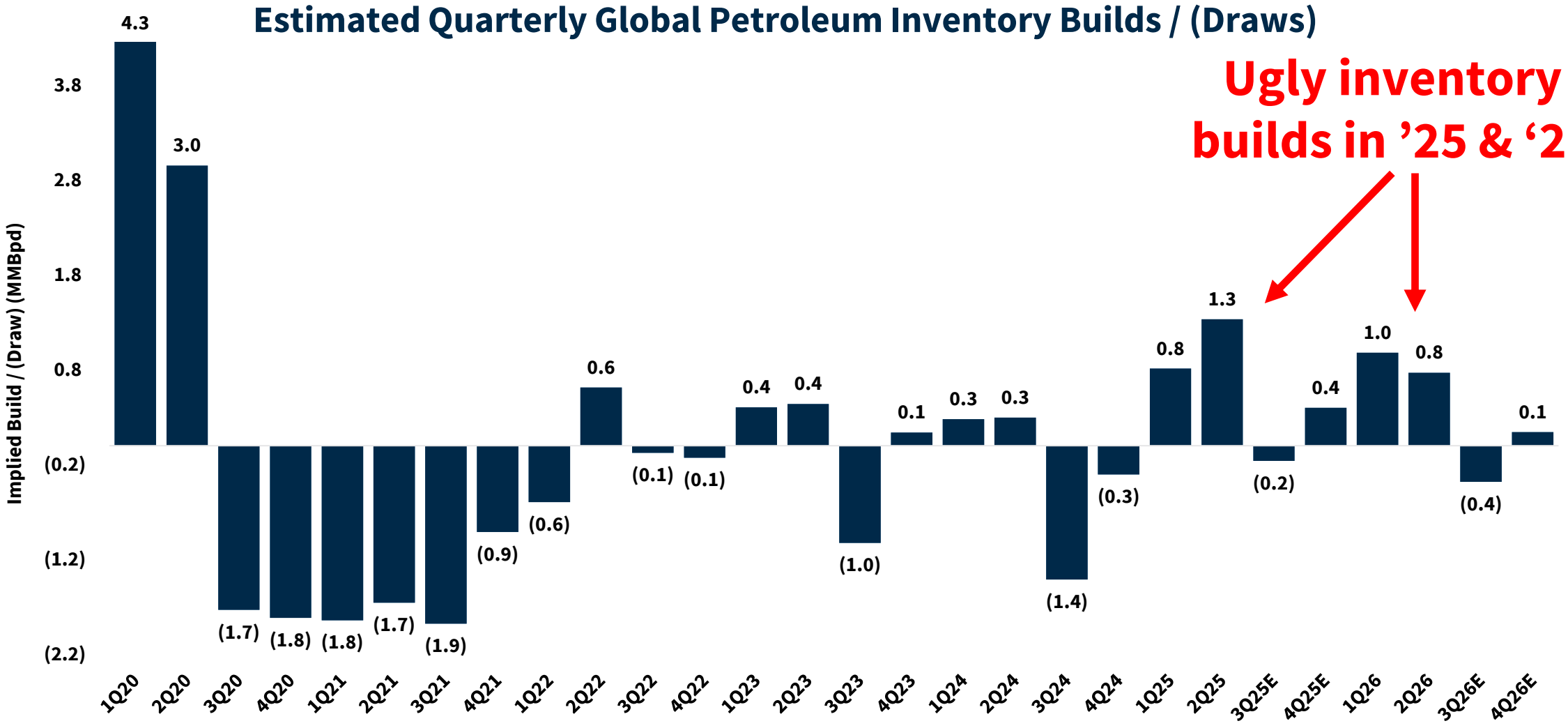
U.S. Crude Production Growth Estimates (RJ)



Source: EIA, Enverus, Raymond James Research.

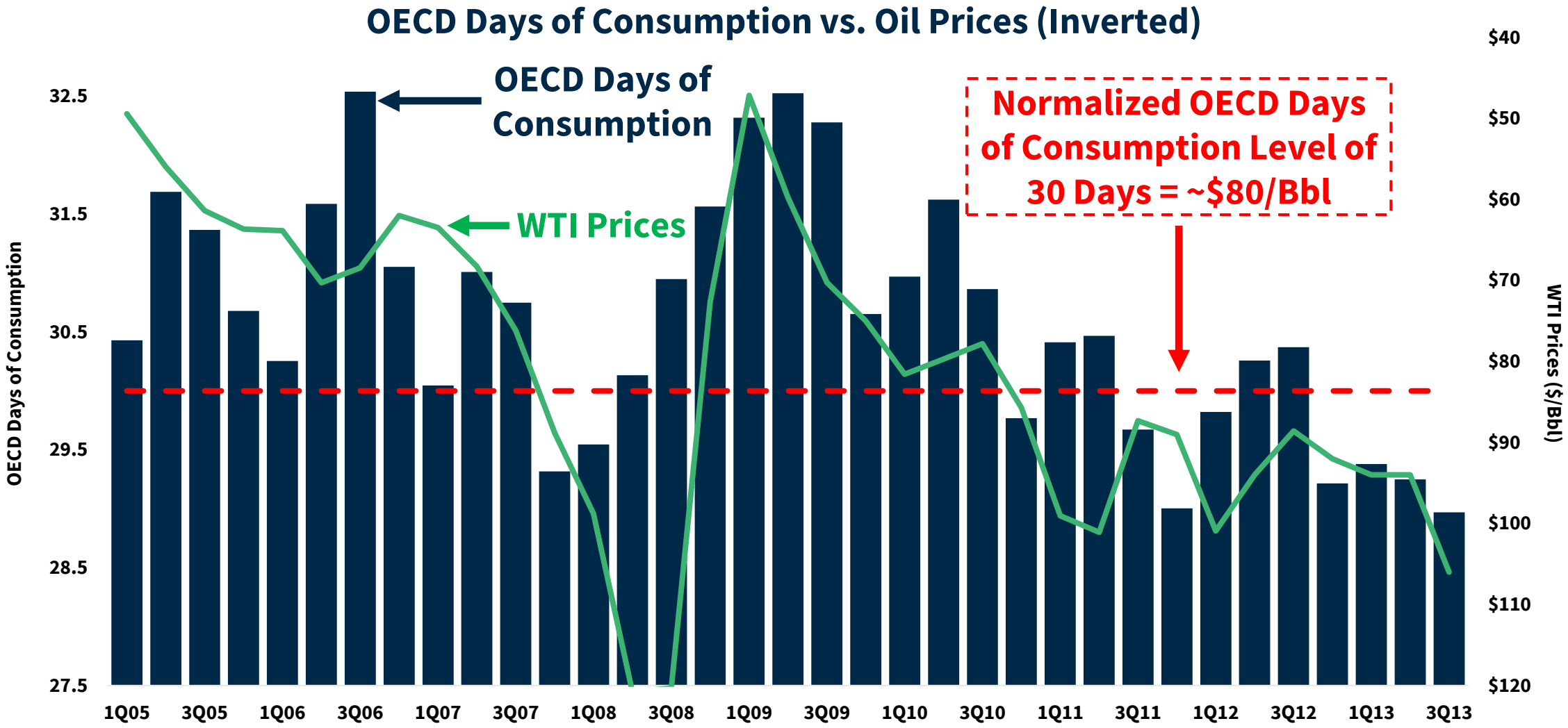
What Does All Of This Mean For Oil Prices Going Forward?

Inventory Builds Look Ugly Thru 2026



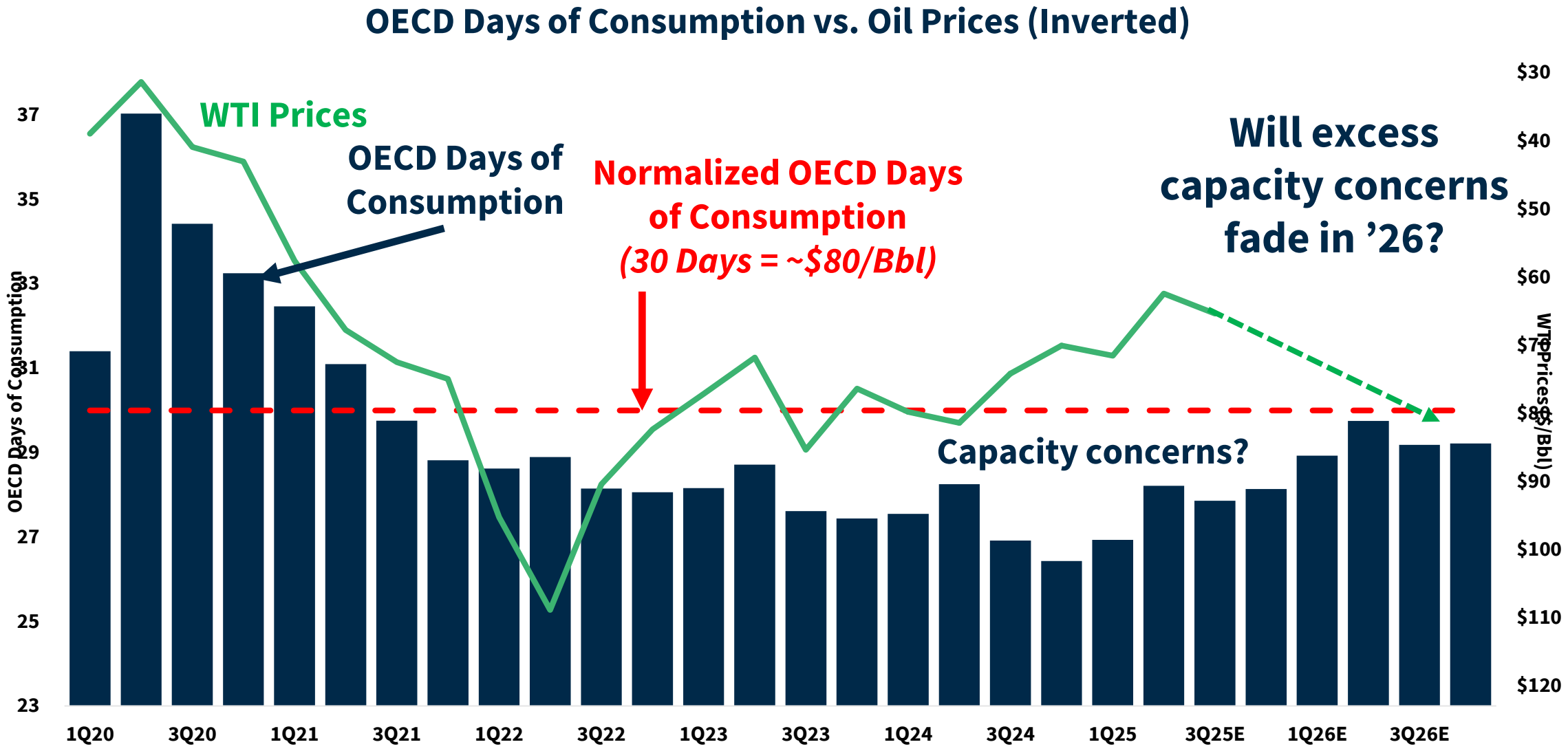
Source: IEA, Raymond James Research.
Note: Forecast assumes $70/Bbl+ oil prices.

Inventories Drive Prices (2005-2013)



Source: IEA, Raymond James Research.
Note: Assumes one-half of expected global inventory build goes to OECD inventories.

Will Oil Re-connect As OPEC Excess Fades?



Source: IEA, Raymond James Research.
Note: Assumes one-half of expected global inventory build goes to OECD inventories. Forecast assumes $100/Bbl+ oil prices.

Bottom Line on Oil Prices…

- U.S. supply falls at sub ~$70+/Bbl
- Global demand OK for now but watch tariffs
- Current model is decidedly bearish thru ‘26
- But, OPEC overhang eliminated by YE ’26
- Best guess: oil $60-$70 thru Sep, weakening late ’25 & 1H’26. Firming late ’26 and beyond

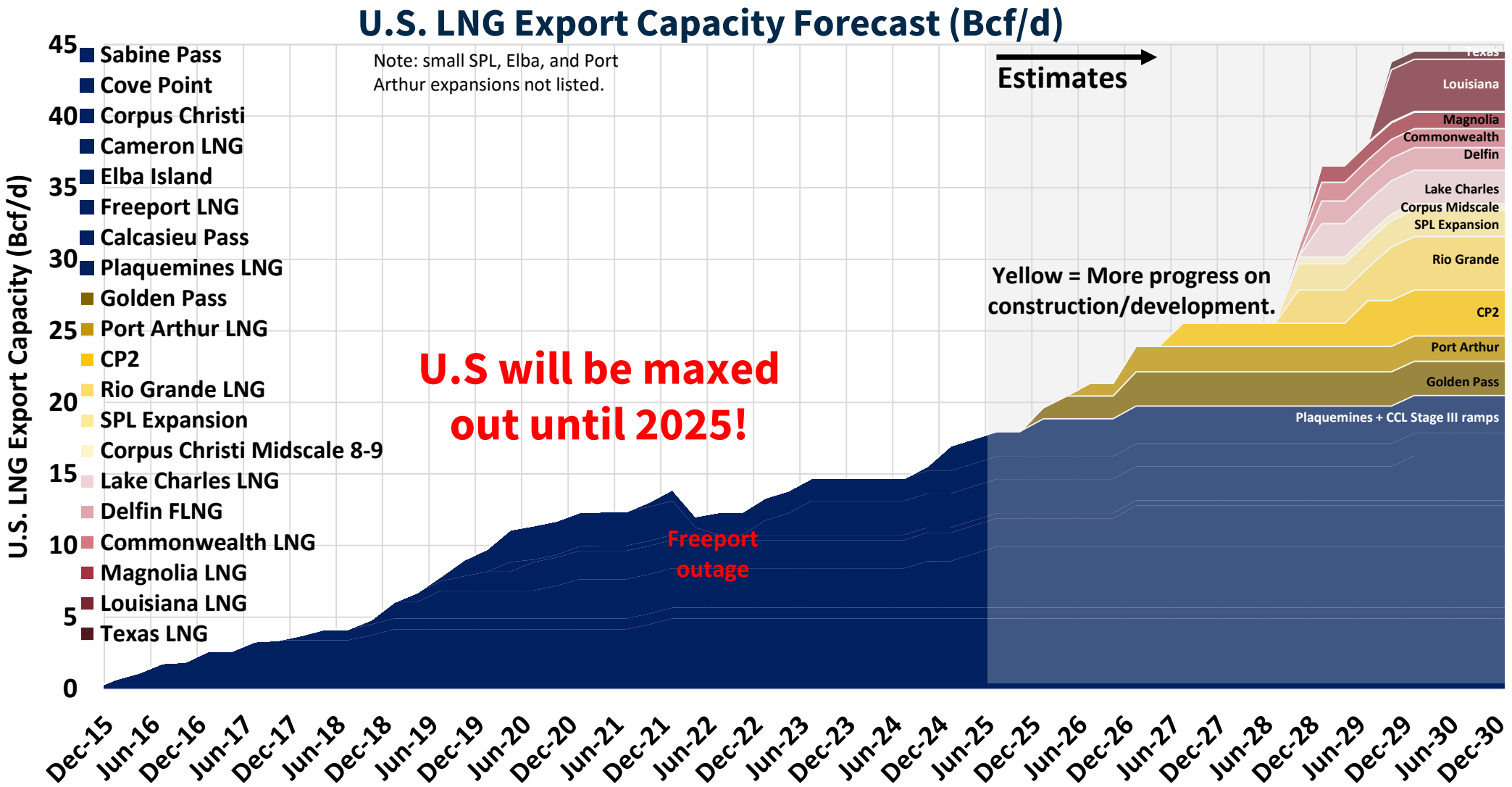
Question: Is U.S. Natural Gas Now A Better Story Than Oil?

Why?

Is US Gas Now More Exciting Than Oil?

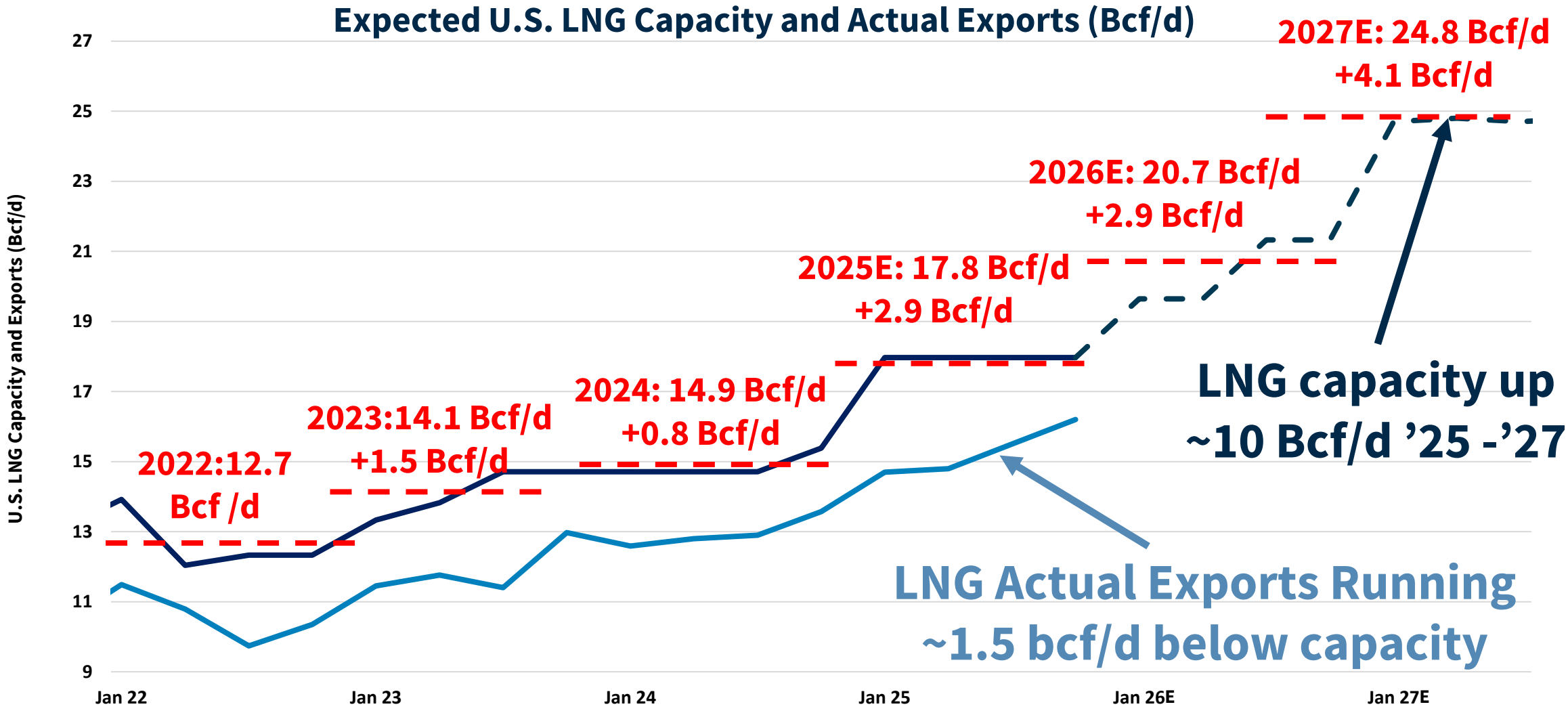
- **LNG demand surges over the next 5 years**
- **Gas demand for power (AI, etc.) is a BIG deal!**
- **U.S. natural gas drilling activity has also declined**
- **Pipe bottlenecks likely restrict supply growth**
- **Where will we get 4-6 bcf/day more gas EVERY YEAR?**
- **U.S. gas has more % upside than oil over next 5 years**

LNG Capacity Up 15+ bcf/d by YE'28?



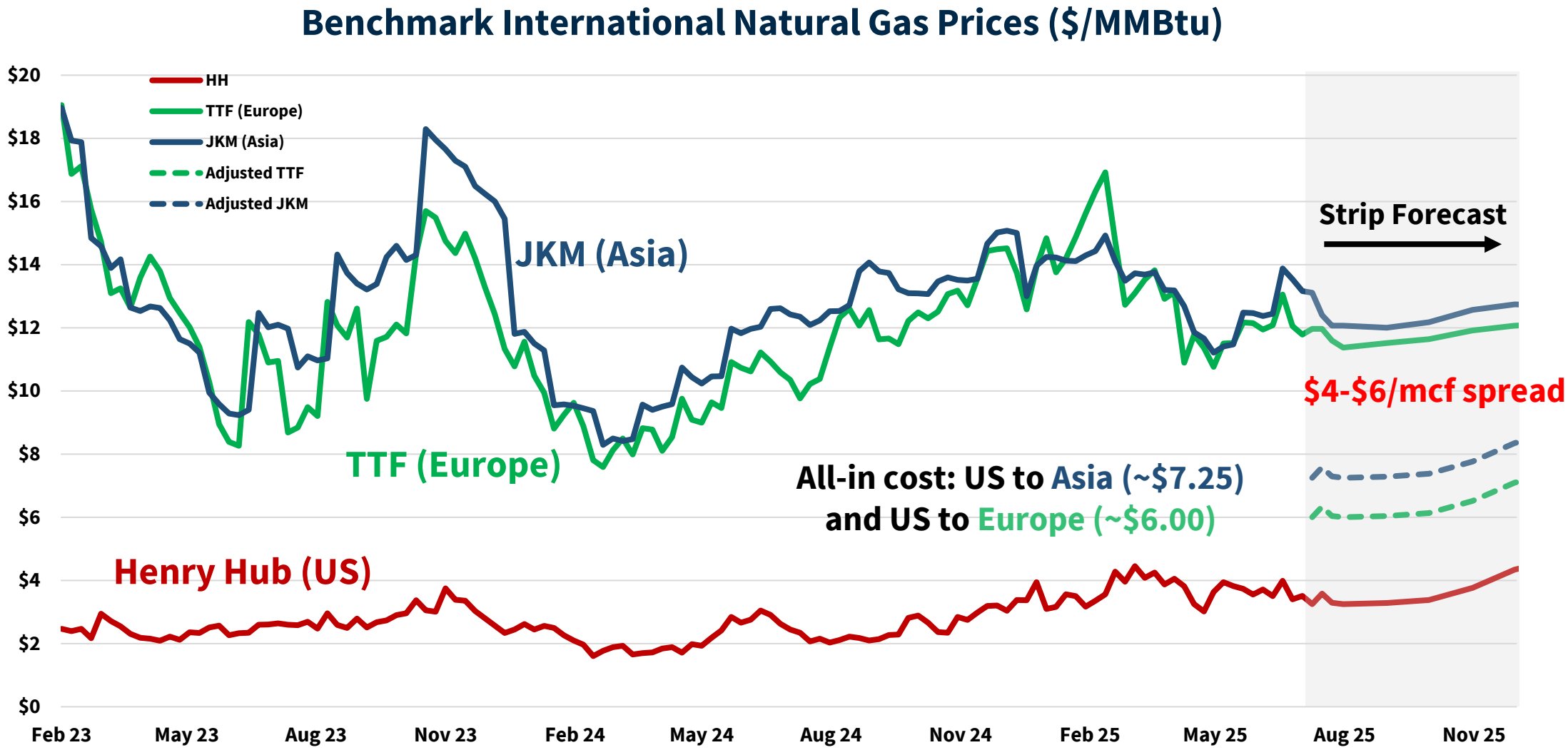
Source: EIA, Raymond James Research.

LNG Up Nearly 10 bcf/day From ’25 to’27!



Source: EIA, company materials, Raymond James Research.

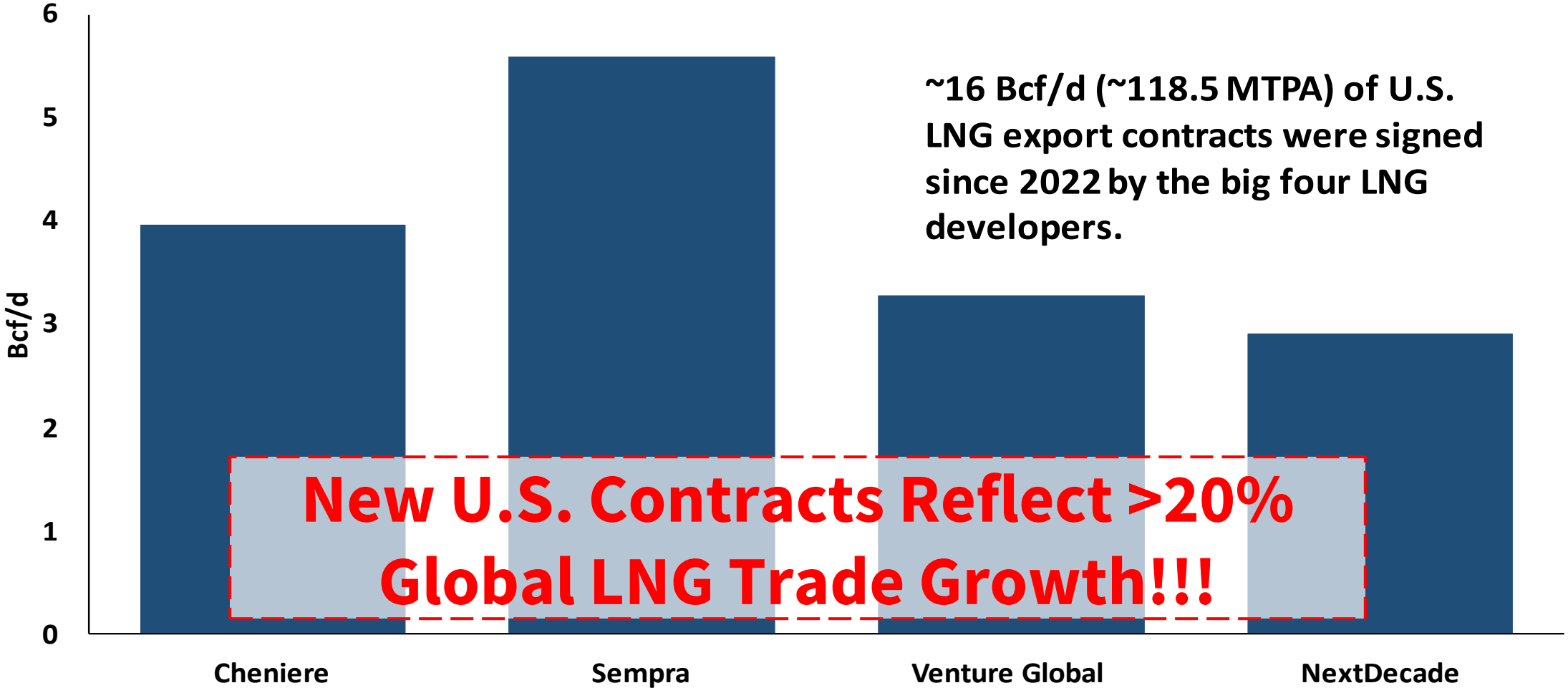
LNG Arb Still Plenty For "Max" Flows



Source: FactSet, Raymond James Research. Conversion from EUR/mwh to $/MMBtu based on forex strip.. All-in conversion costs include liquefaction and transport

And Its ~All Contracted; Huge Tailwinds

2022-25 Offtake Contracts Signed by Leading U.S. LNG Developers (MTPA)



~16 Bcf/d (~118.5 MTPA) of U.S. LNG export contracts were signed since 2022 by the big four LNG developers.

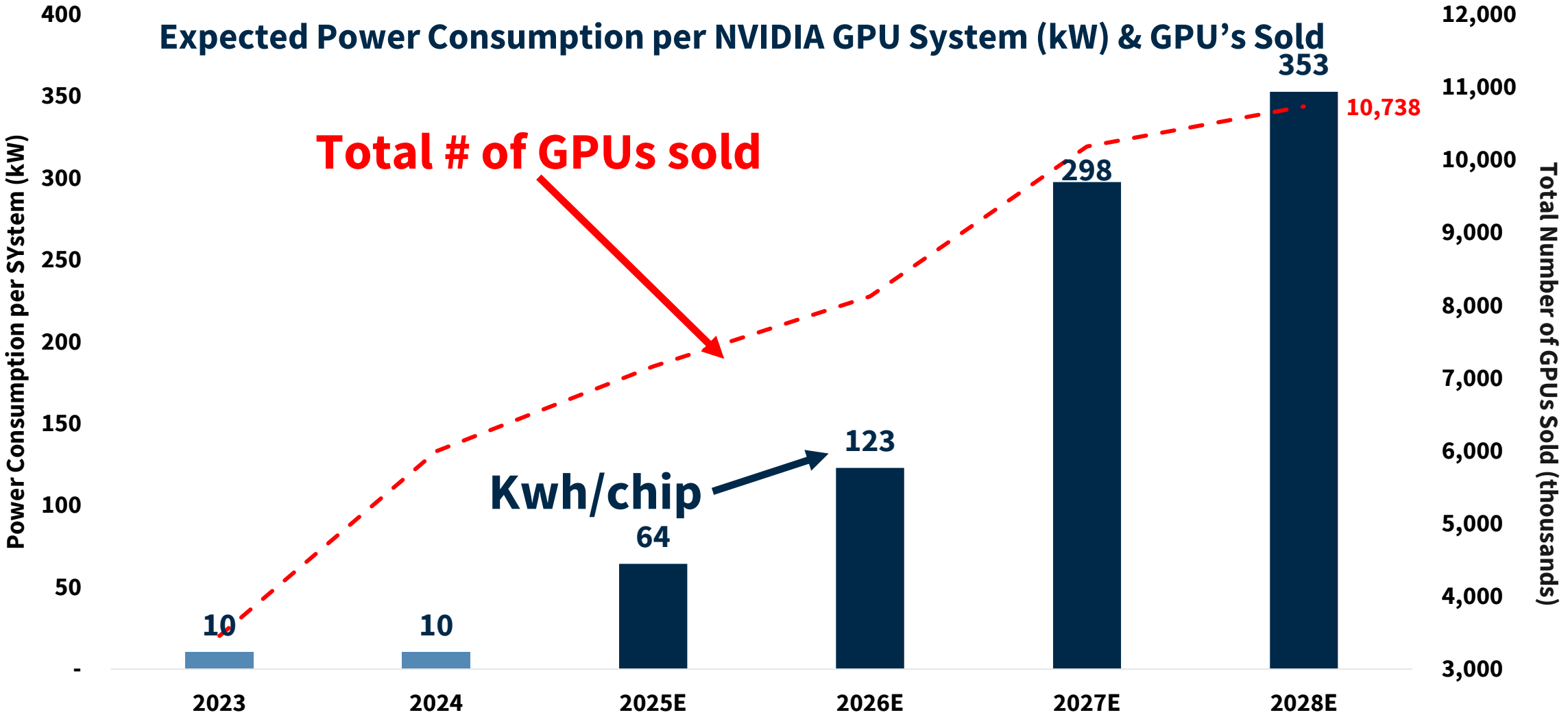
New U.S. Contracts Reflect >20% Global LNG Trade Growth!!!

Source: Company Materials, Raymond James Research.

Why Is AI Such A Game-Changer For Power?

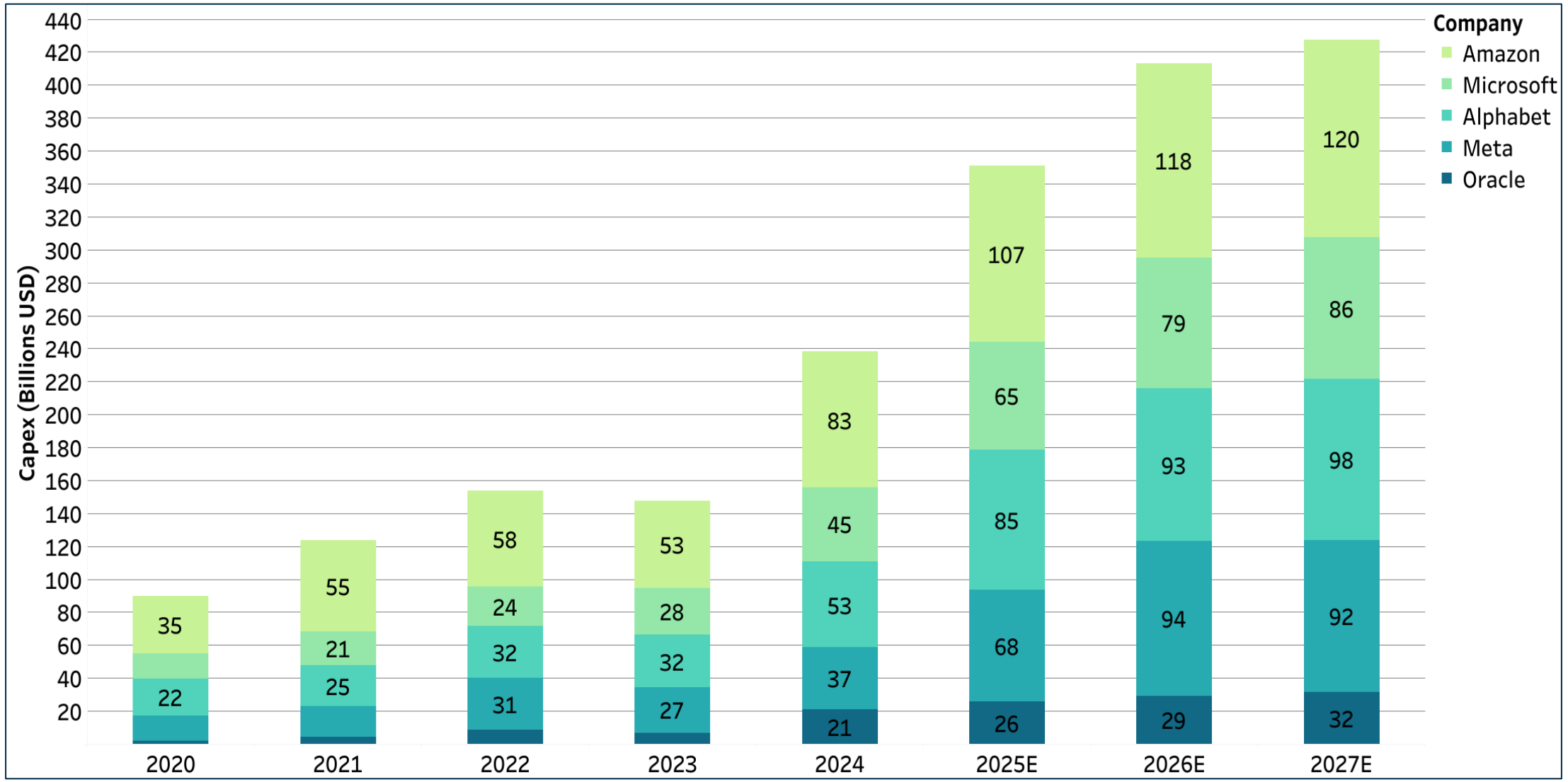
- AI chip sales exploding as EVERYONE focuses on AI
- Nvidia chips are power hogs – new Nvidia systems use 150-600KW/chip vs 2020 at 0.5KW/chip
- Power demand/chip grows as chip utilization grows – utilization per chip starts low and builds over time
- Cooling demand is roughly 2:1 ratio to chips/servers
- MASSIVE data center buildouts are just starting - New data center power demand 10-100x old centers!

Why?...It's All About The AI "Chips"



Source: Raymond James research

Big Tech Capex Spending Up BIG!



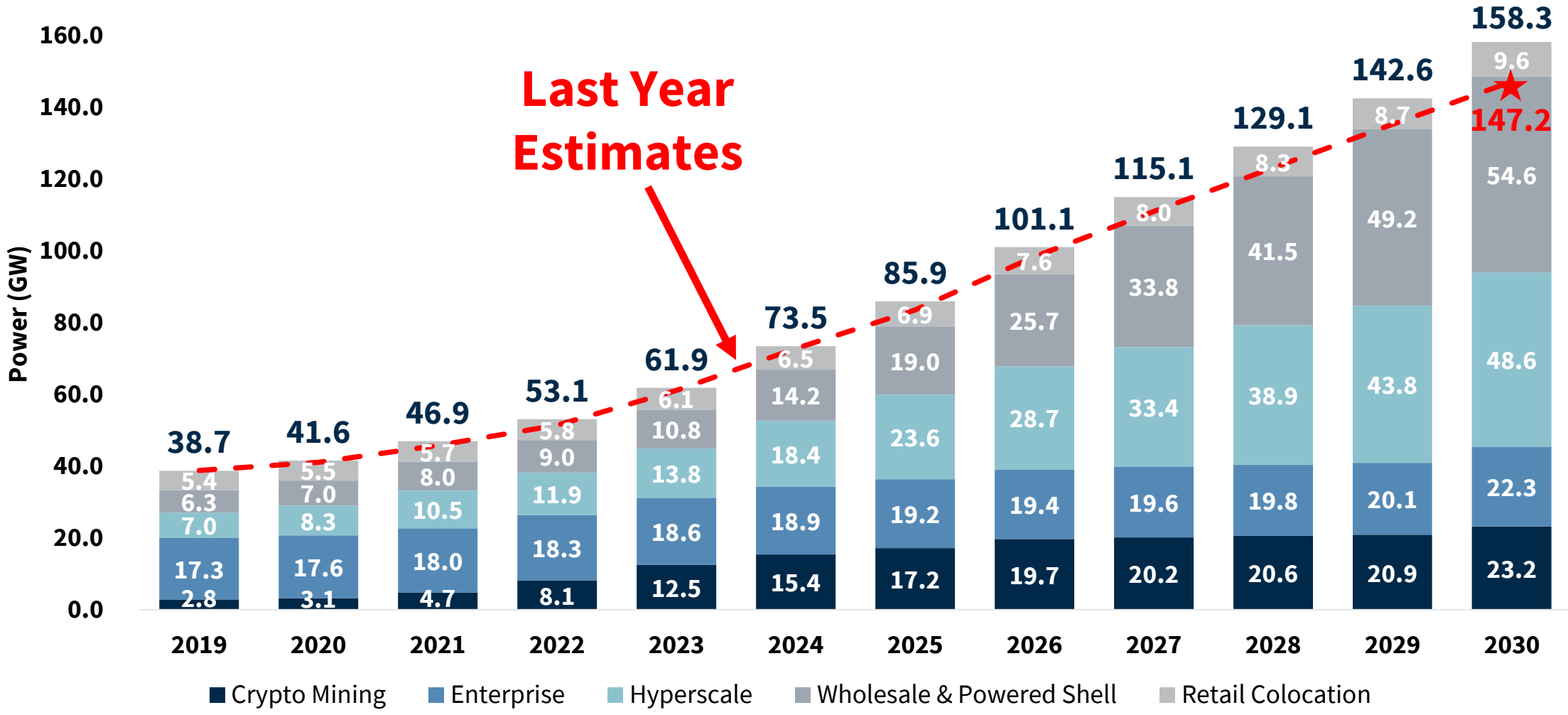
Source: FactSet, Raymond James research

100 GIGAWATTS of Power Growth?

Source: FactSet, Raymond James research

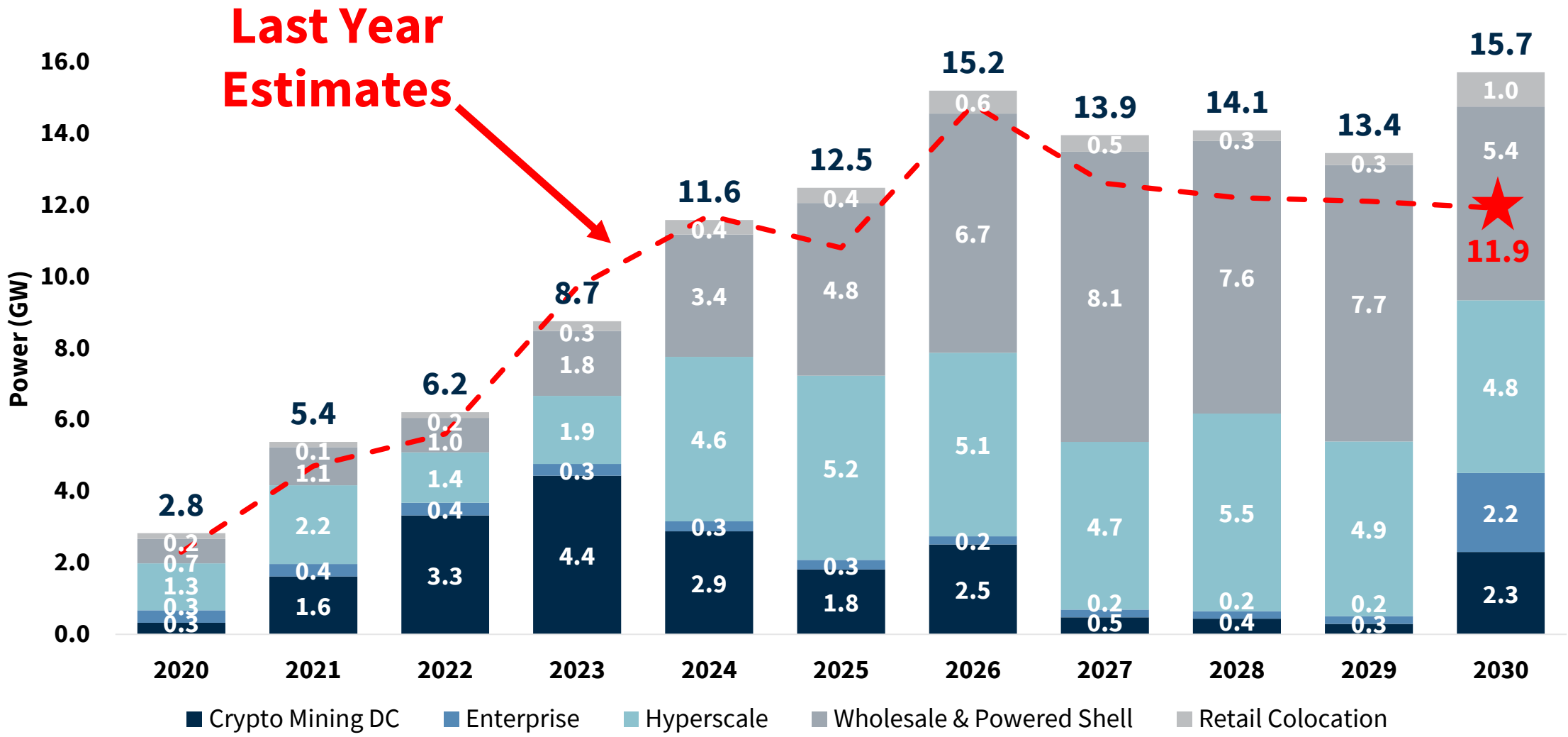
Total U.S. Data Center Power Demand

451 Data suggests a Robust **12.5% 2023-30 CAGR (vs. 11.6% est. growth last year)**



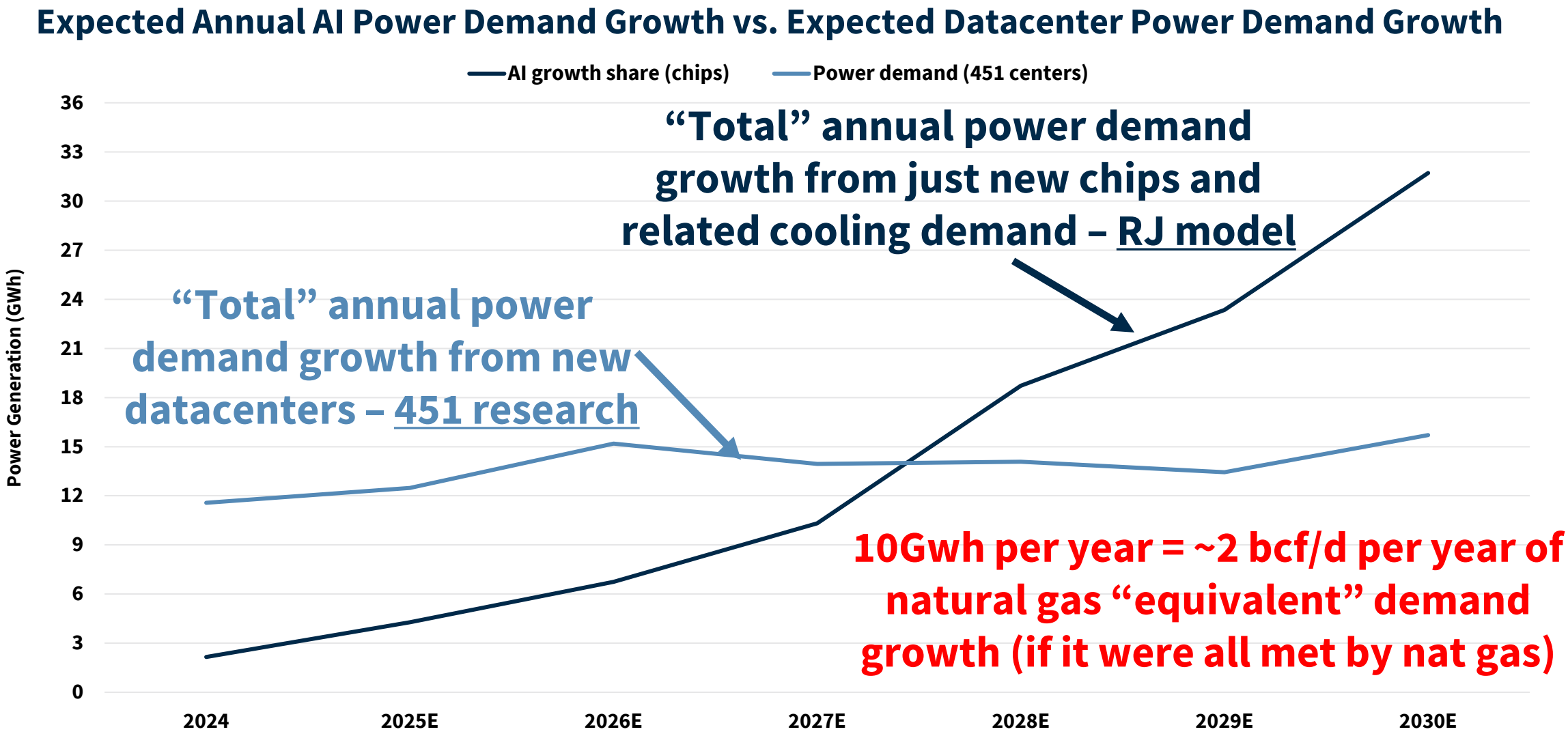
Source: 451 Research and Raymond James Research.

US Data Center Growth = ~15 Gwh/yr



Source: 451 Research and Raymond James Research.

Our "Chip Model" Shows Even More Growth

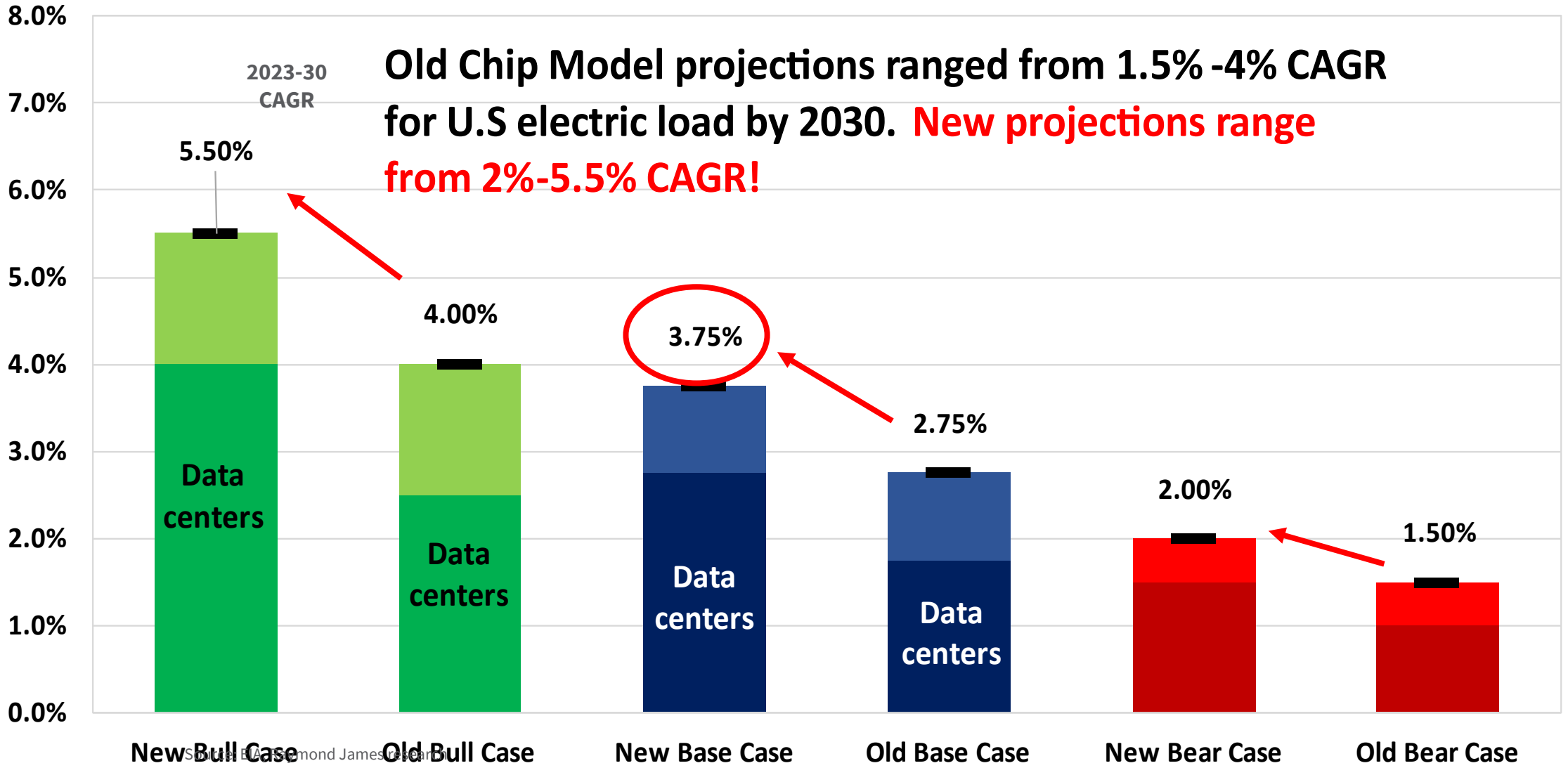


Source: EIA, 451, HFI, and RJ Estimates.

AI Only ~75% Of US Power Growth?

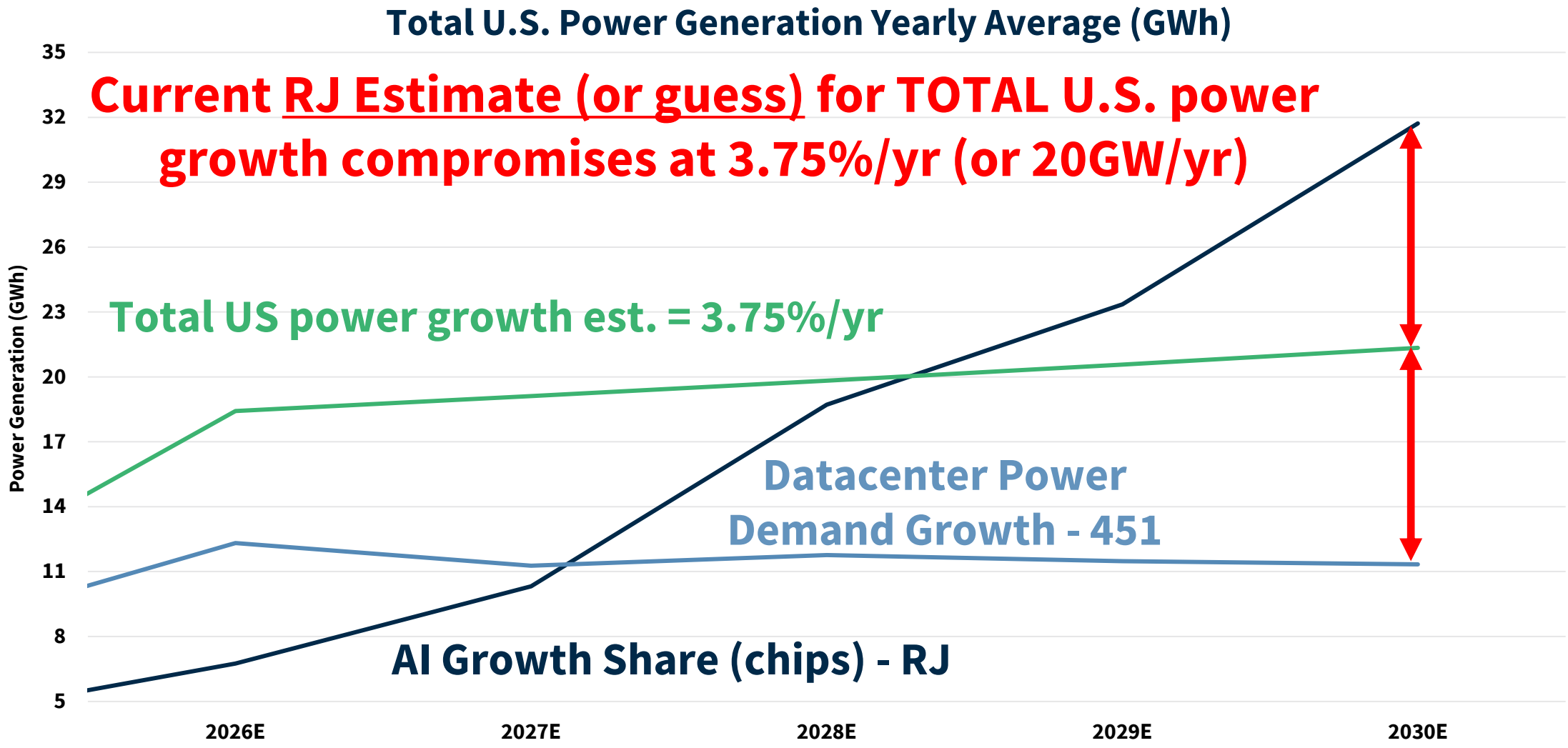
- **We estimate AI & data center power demand should be around 75% of power growth 2025-2030 – Frenzy just starting & growth is exponential (via utilization)**
- **Electrification of everything also big (cars, home heating, stoves, etc.) as push to zero-carbon hits**
- **Industrial related power demand rising (LNG plants, oilfield, steel, new chip factories, robotics, any industrial process that is trying to de-carbonize)**

New Estimates MUCH Higher vs Last Yr!



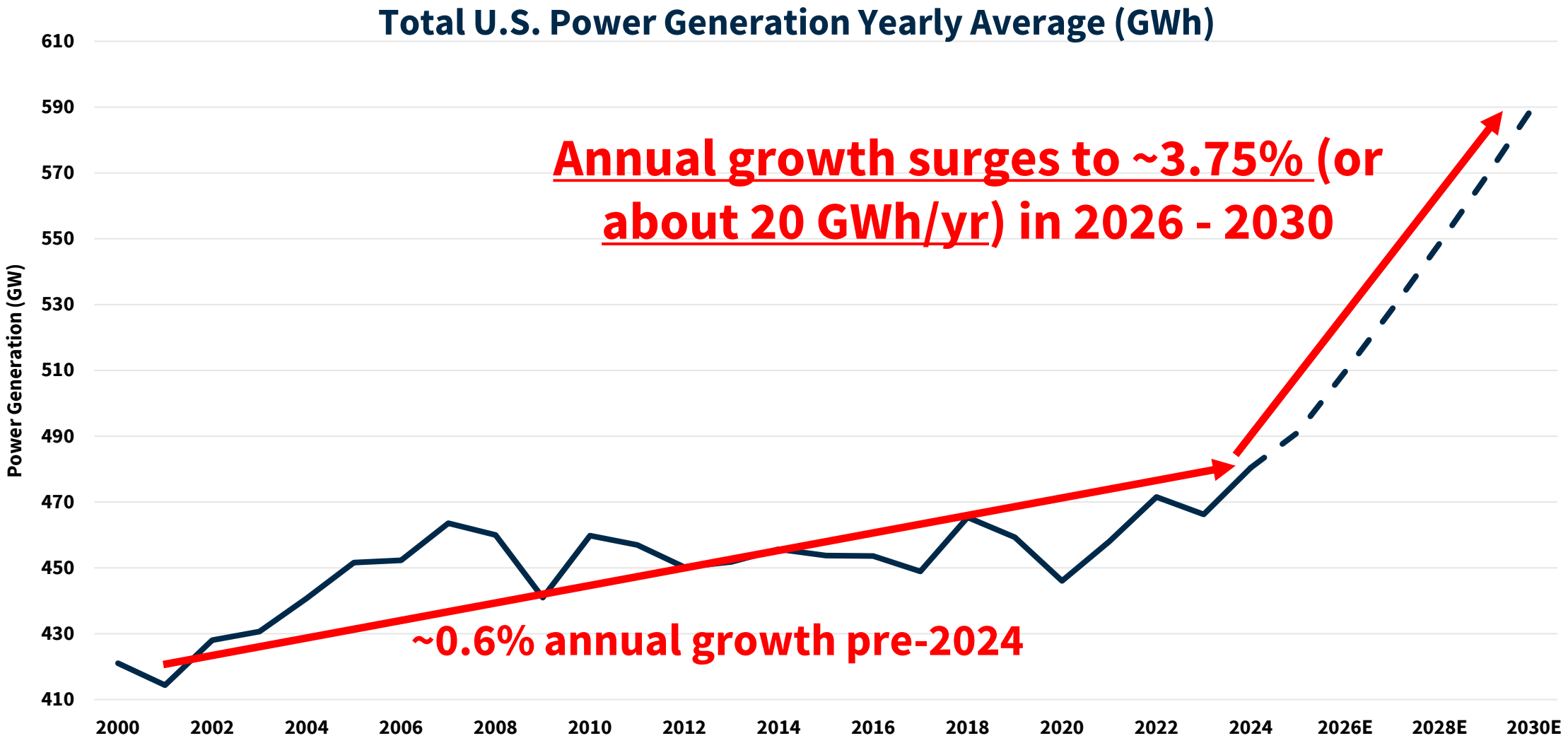
Source: EIA, Raymond James Research

3.75% Growth Est. Splits The Difference



Source: EIA.

To Put It In Perspective.....



Source: EIA.

300GW Before Skynet?

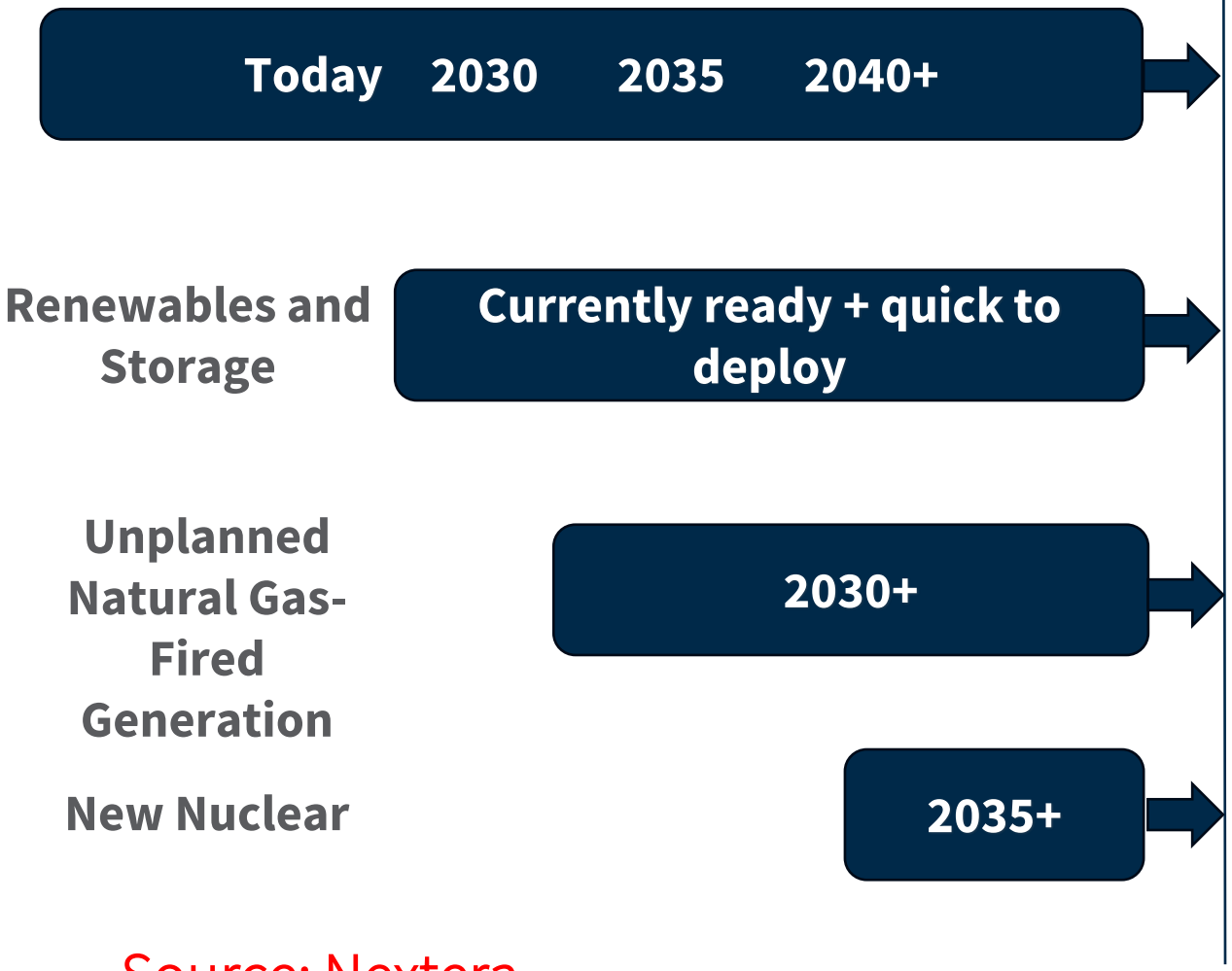
“Skynet is not a thing, a place, or a machine. It’s a system – a consciousness spread through every machine connected to the internet.”
- John Connor

Source: FactSet, Raymond James research

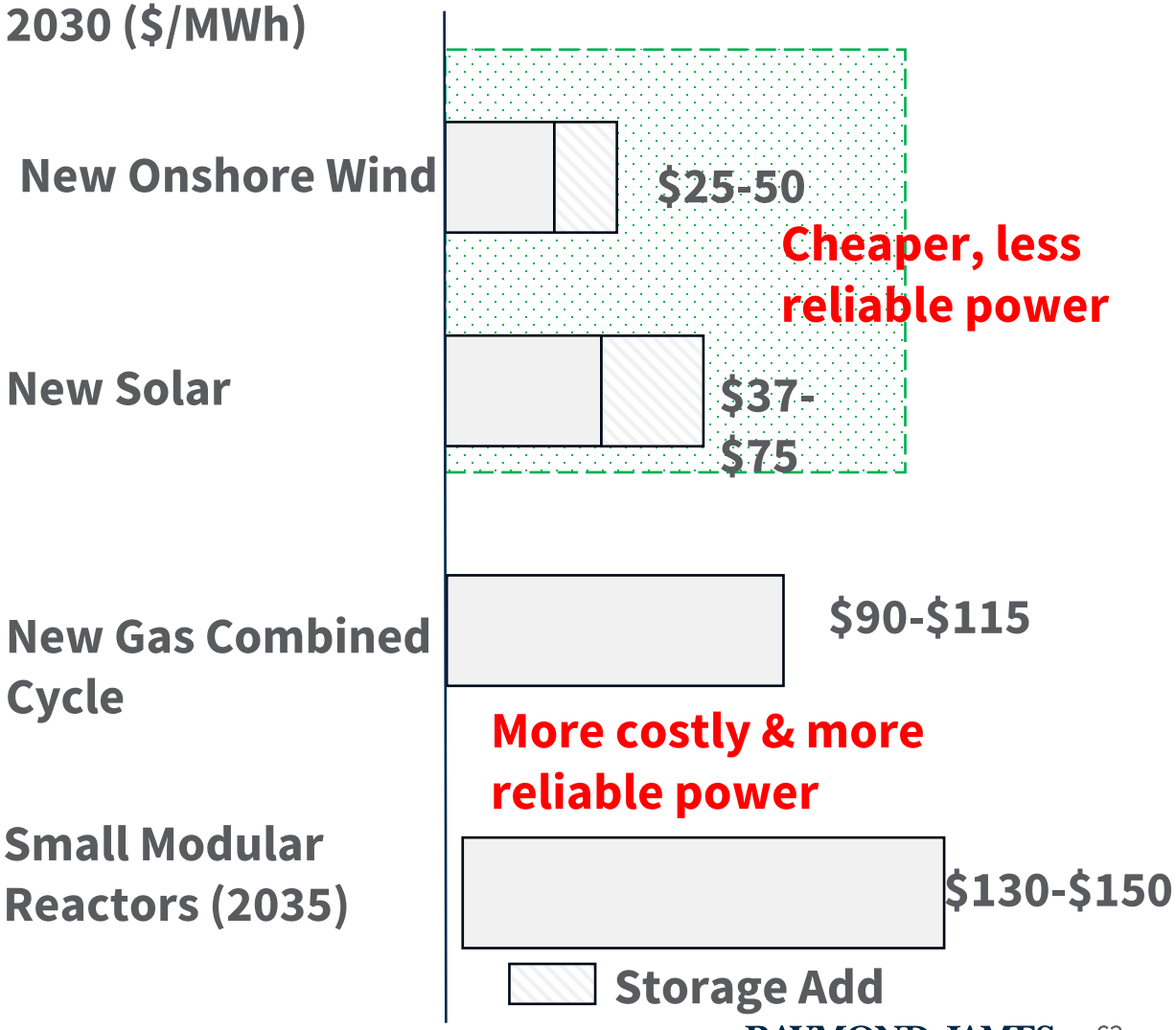
How Will Growing Power Demand Impact The U.S. Natural Gas Equation?

What Will Provide New Power - Nextera?

Expected Deployment Timelines by Generation Type

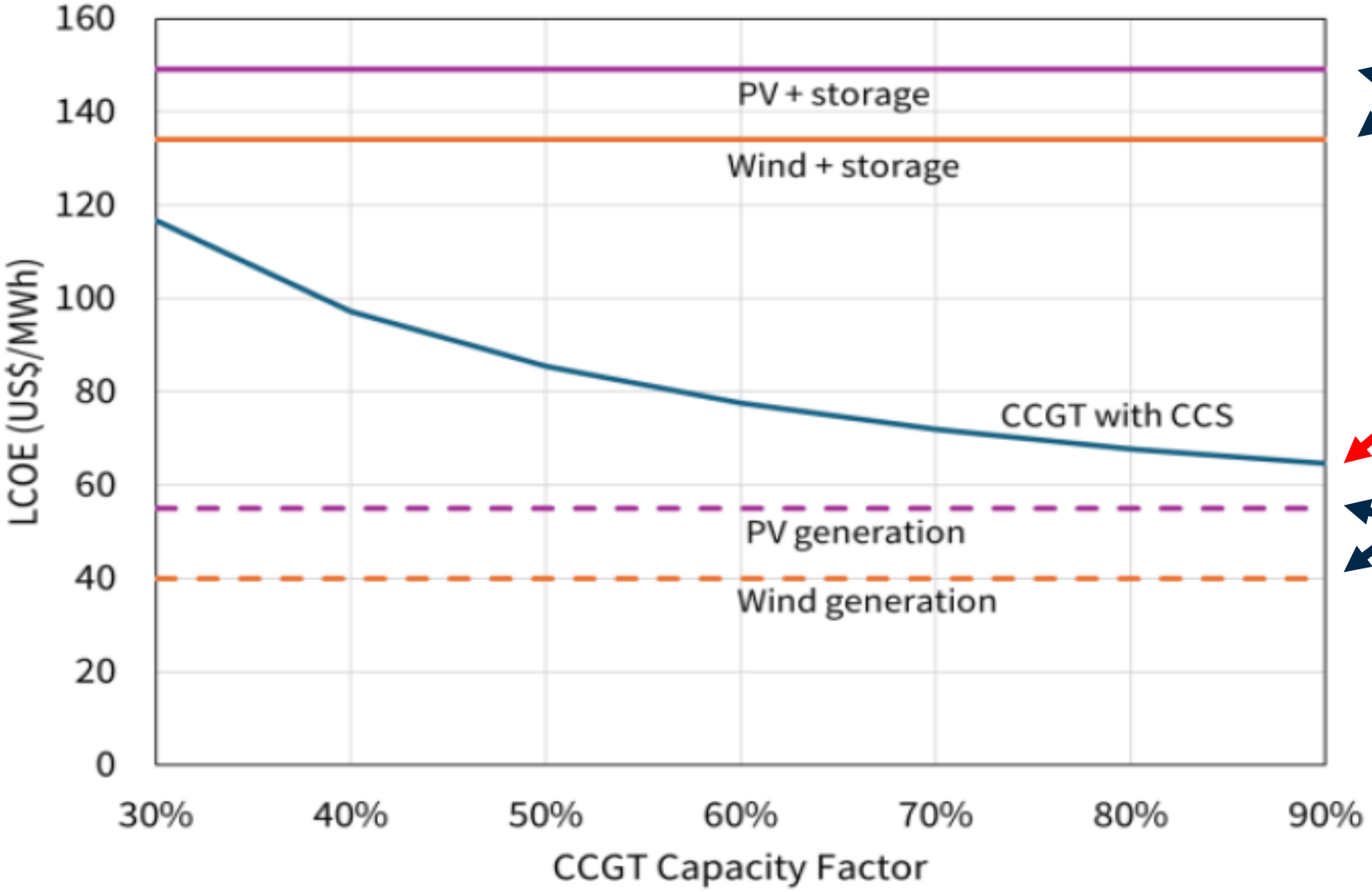


Estimated Costs of Firmed Generation Resources, 2030 ($/MWh)



Source: Nextera.

A More Realistic "Cost" Comparison?



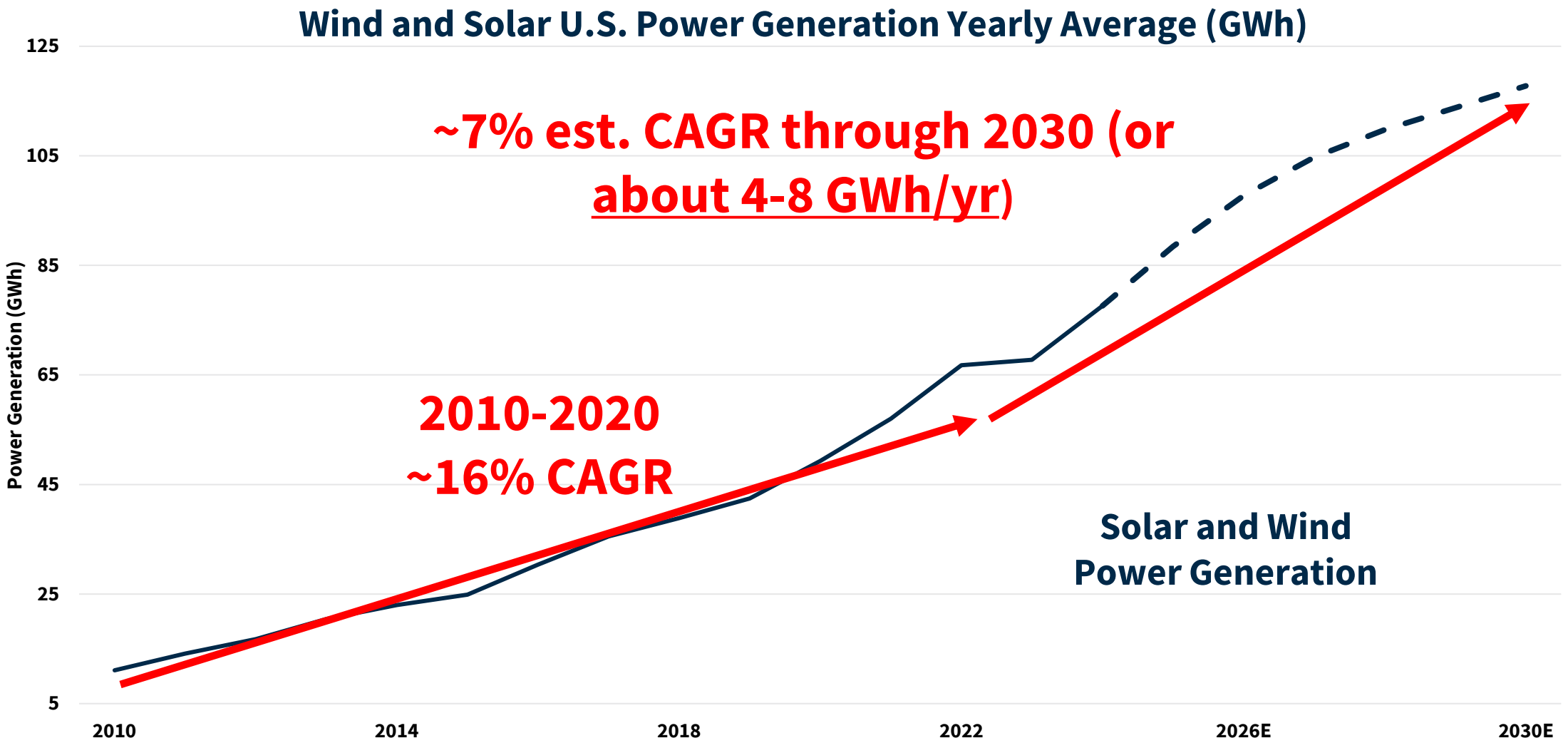
Wind/Solar Costs W/Storage

CCGT + CCS Cost

Wind/Solar Costs W/O Storage

Source: The Oxford Institute For Energy Studies May 2025 Report

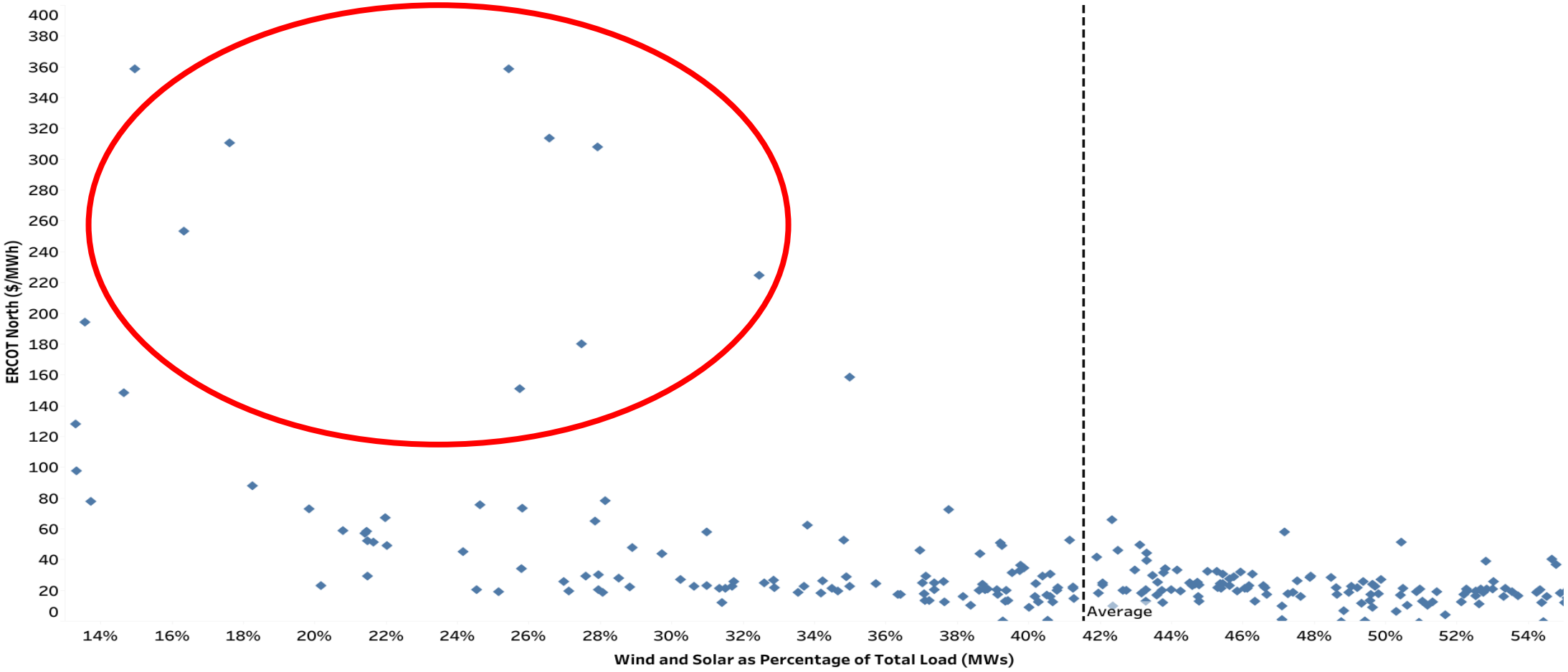
Solar Growth Strong Thru ’27, Slows ‘28+



Source: EIA.

But, What If No Sun, No Wind?

Prices Spike in ERCOT When Renewables Are Unavailable



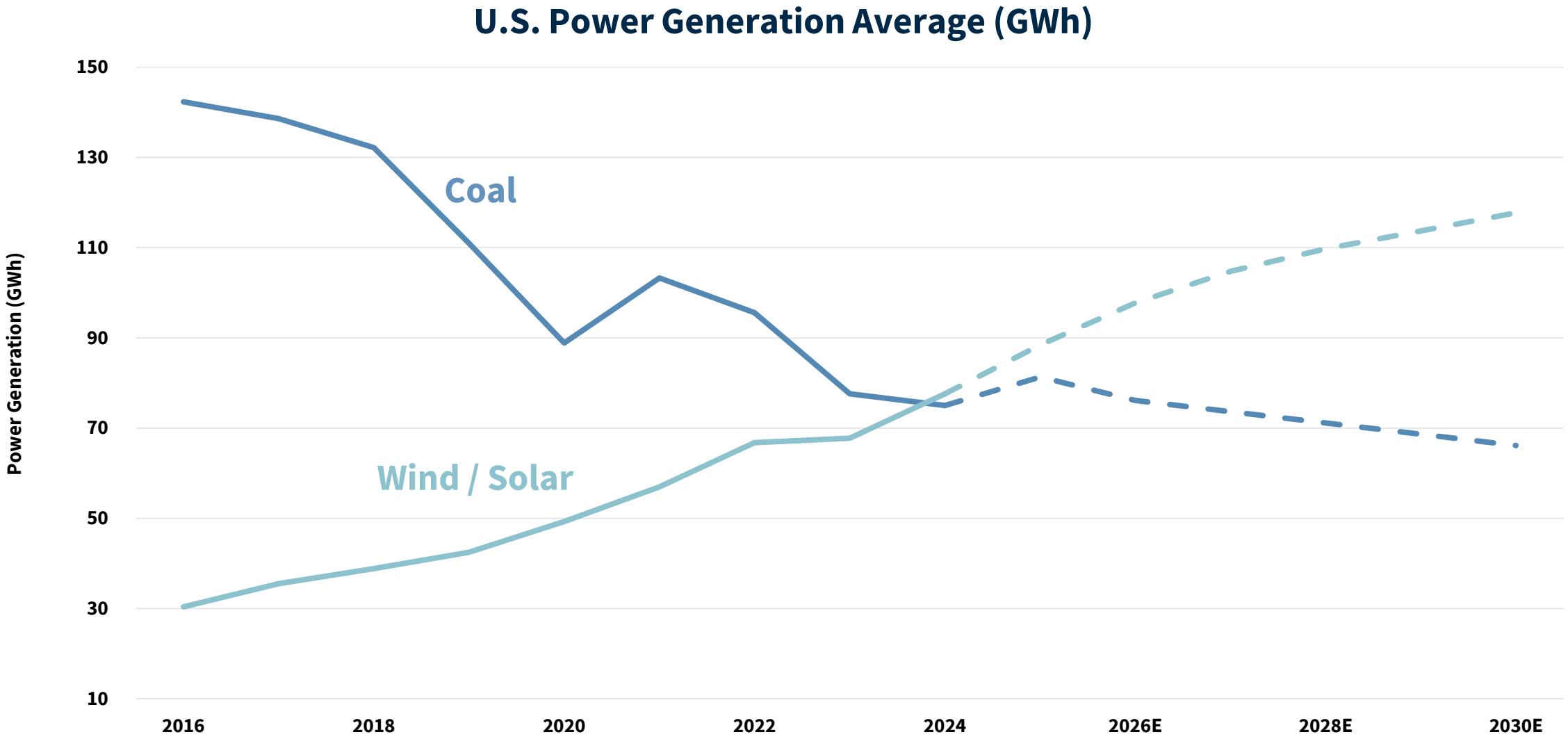
*Load Greater than 65k MW

Source: EIA, ERCOT, Raymond James research.

No AI Without MUCH More Gas Power

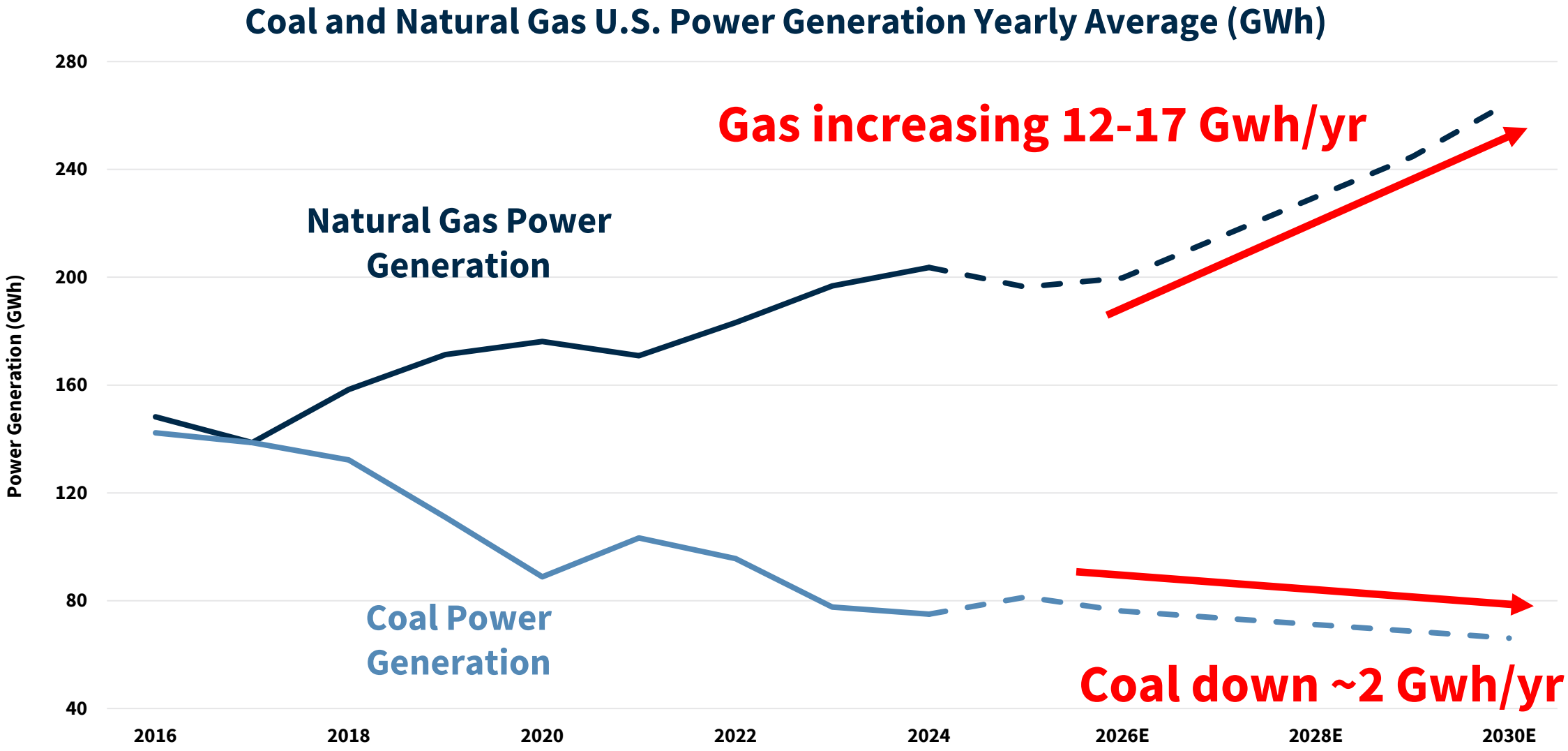
- Wind & Solar capacity additions theoretically meet ~30% of increased power demand in next five years
- But, renewable push is destroying grid reliability
- And, reliable coal fading slowly because coal can't cycle on/off with negative solar power prices
- Don't forget, data centers need 24/7 power – in the same location as the datacenters
- Thus, gas-fired power will provide most new power

Economics & Solar Slowing Reliable Coal



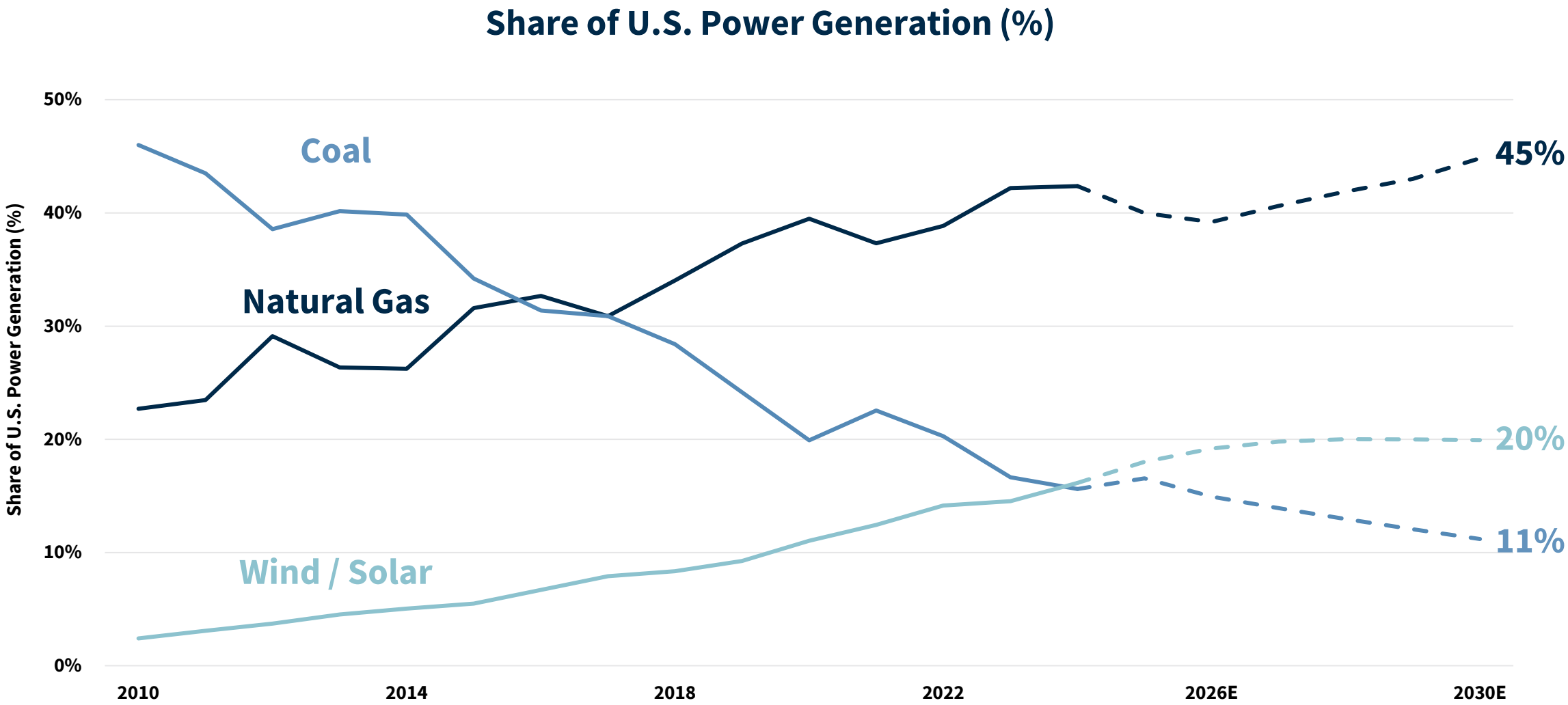
Source: EIA.

Reliable Gas To Grow & Replace Coal?



Source: EIA.

Gas-fired Power Share Grows To ~45%



Source: EIA.

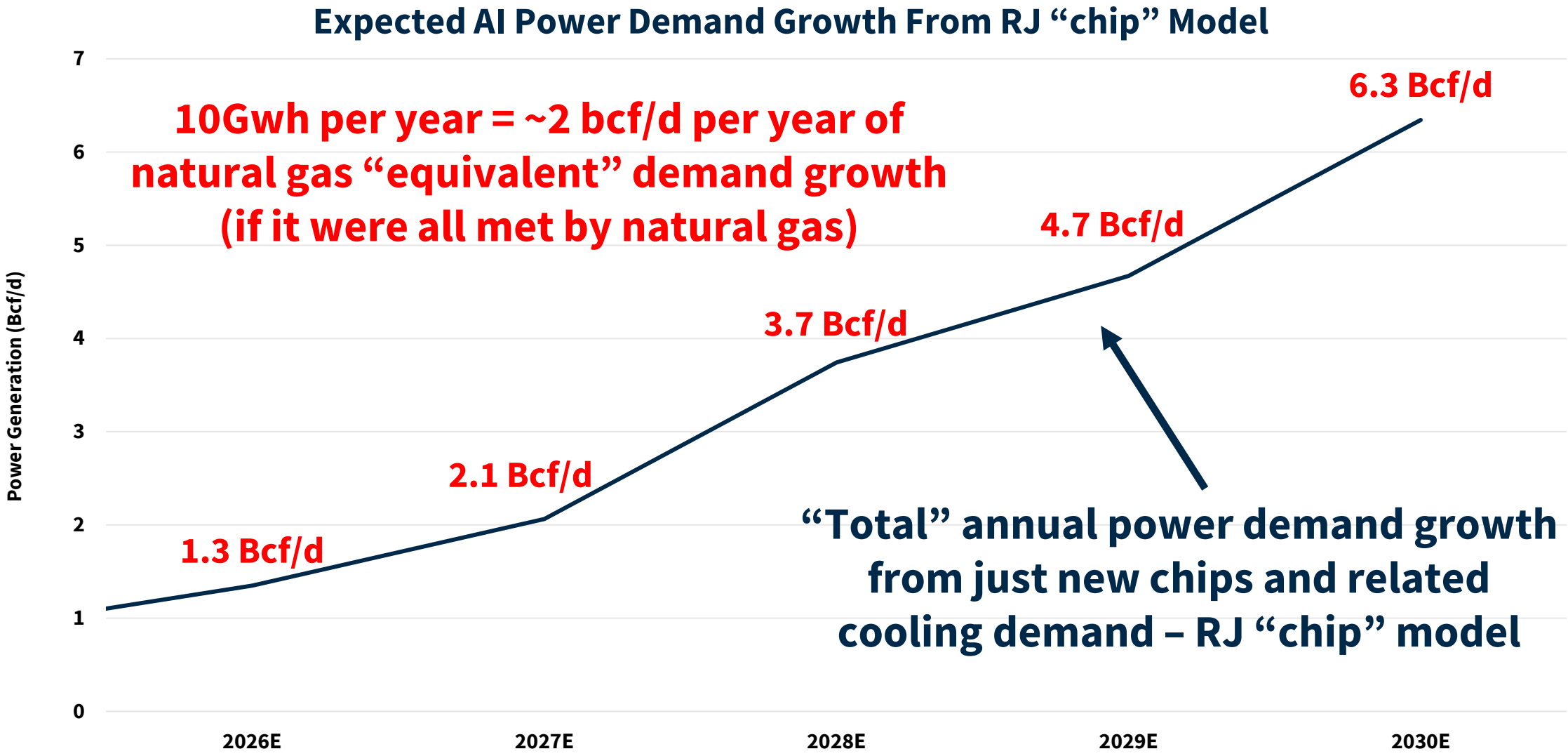
Where Will Power Come From Next 5 yr?

- **'26 -'30 total power growth = ~100+ Gwh**
- ***New estimate nearly double last year's estimate***
- **Coal falls ~10 Gwh**
- **Solar/wind grows ~30 Gwh *(down from 50 Gwh)***
- **Very modest Nuclear growth until AFTER 2030**
- **Thus, gas power grows 80+ GWh next 5 yrs**

What Is The Math For Gas Power Demand?

- ’26 -’30 total power growth = ~20 bcf/d gas “equivalent”
- Plus, coal reduction = ~2.0 bcf/d more gas demand
- Total 5 yr gas “equivalent” power growth = ~ 22 bcf/d
- But, solar likely meets (reduces) demand by ~6.0 bcf/d
- Thus, power driven gas growth = ~16 bcf/d over 5 years
- Or, power drives ~3.0 bcf/d gas demand growth thru 2030

3 bcf/d Could Be WAY Too Conservative…



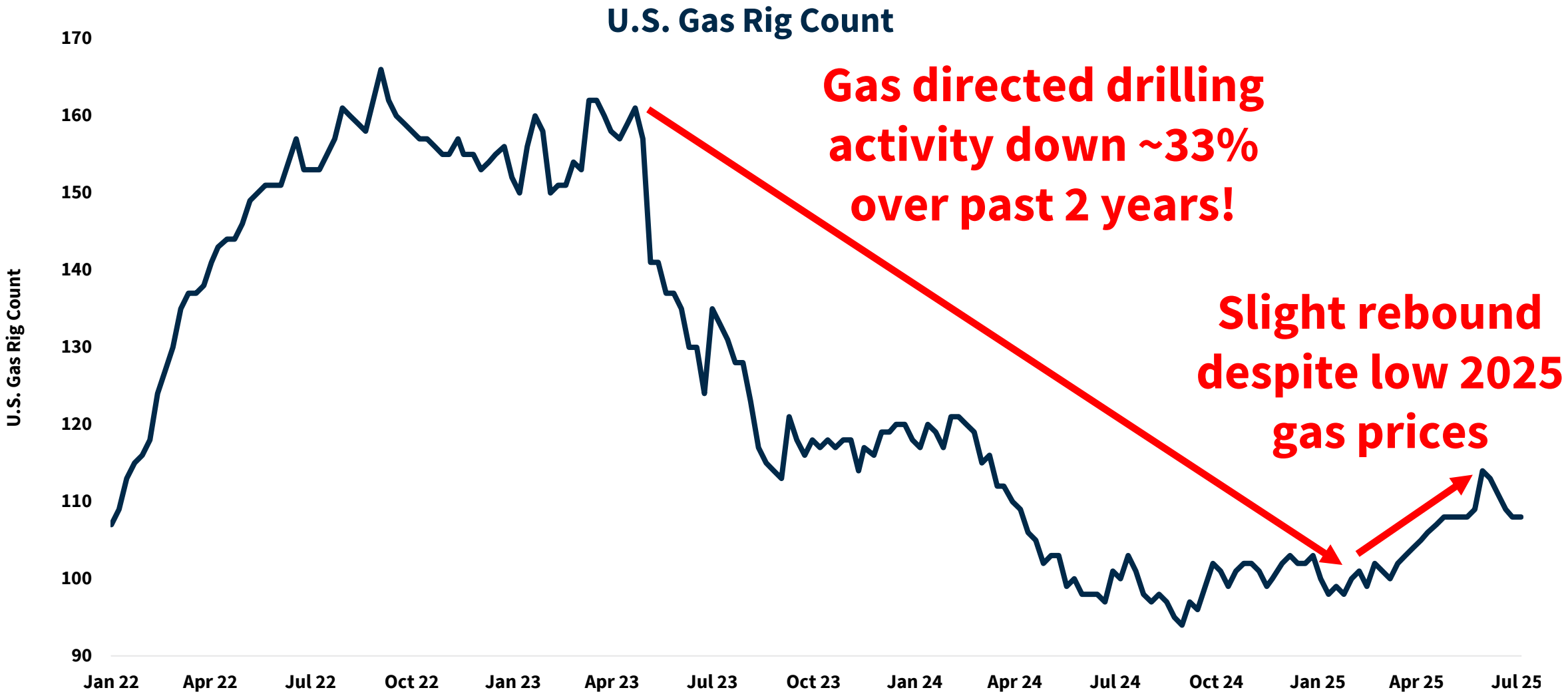
Source: EIA, HFI and RJ Estimates.

2026 Est. Nat Gas Demand Summary

- LNG up 2.5 Bcf/d
- Power up 2.5 Bcf/d
- Mexico & Canada flat
- Industrial up 0.25 Bcf/d
- **Total 2026E gas demand growth = ~5.0+ Bcf/d**

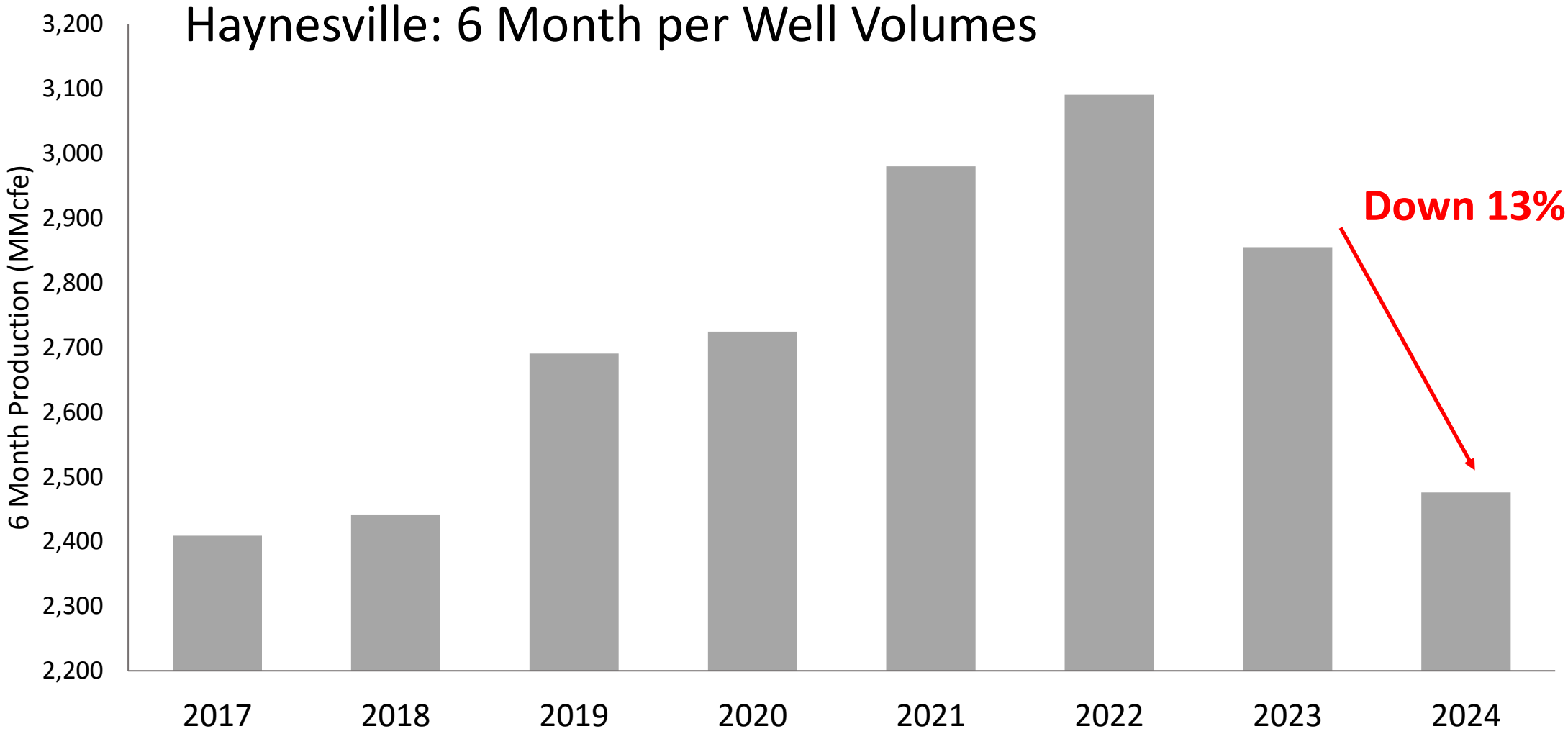
Where Will We Get 4-6 bcf/d More U.S. Gas Supply Every Year For The Next Five Years?

Gas Activity Has Fallen Hard With Prices



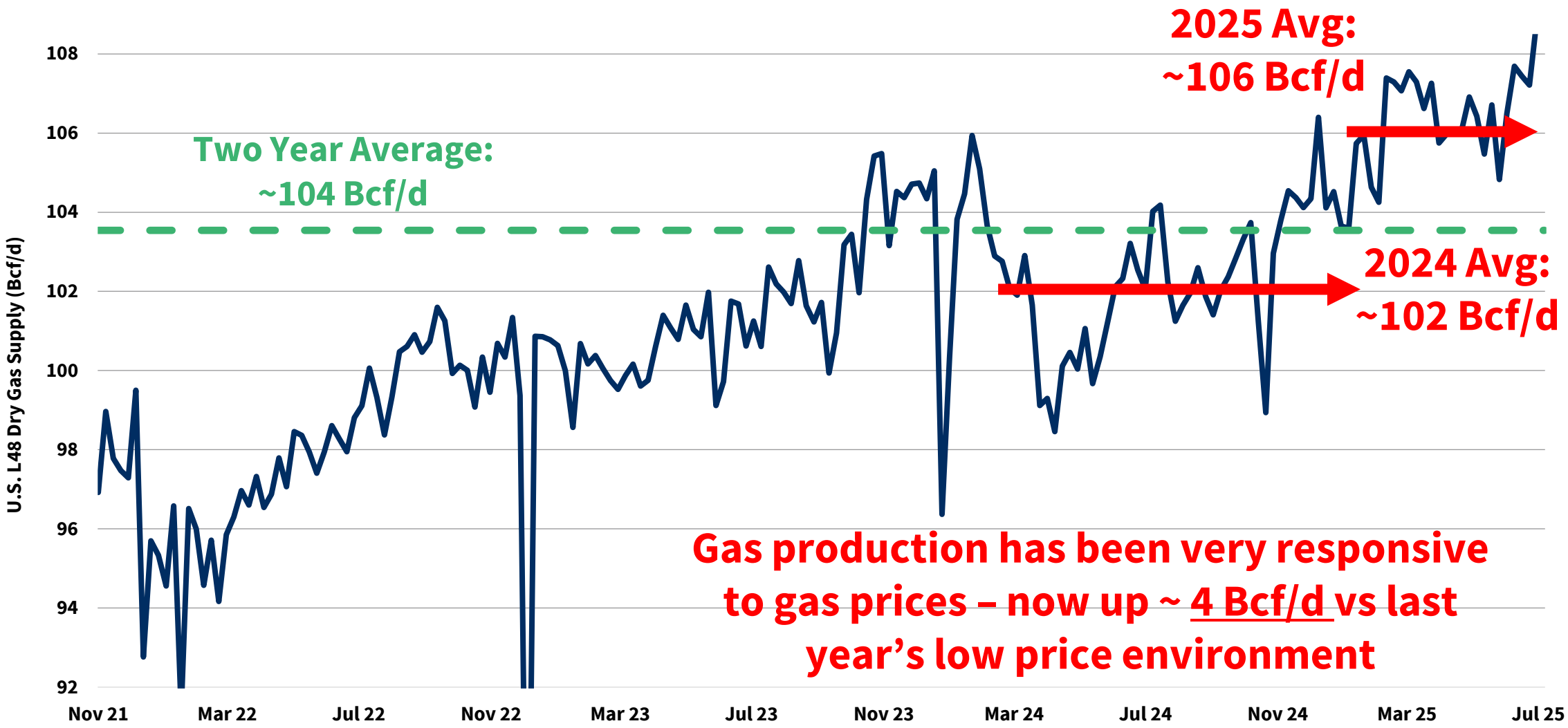
Source: Baker Hughes.

Haynesville Productivity Rolling Over?



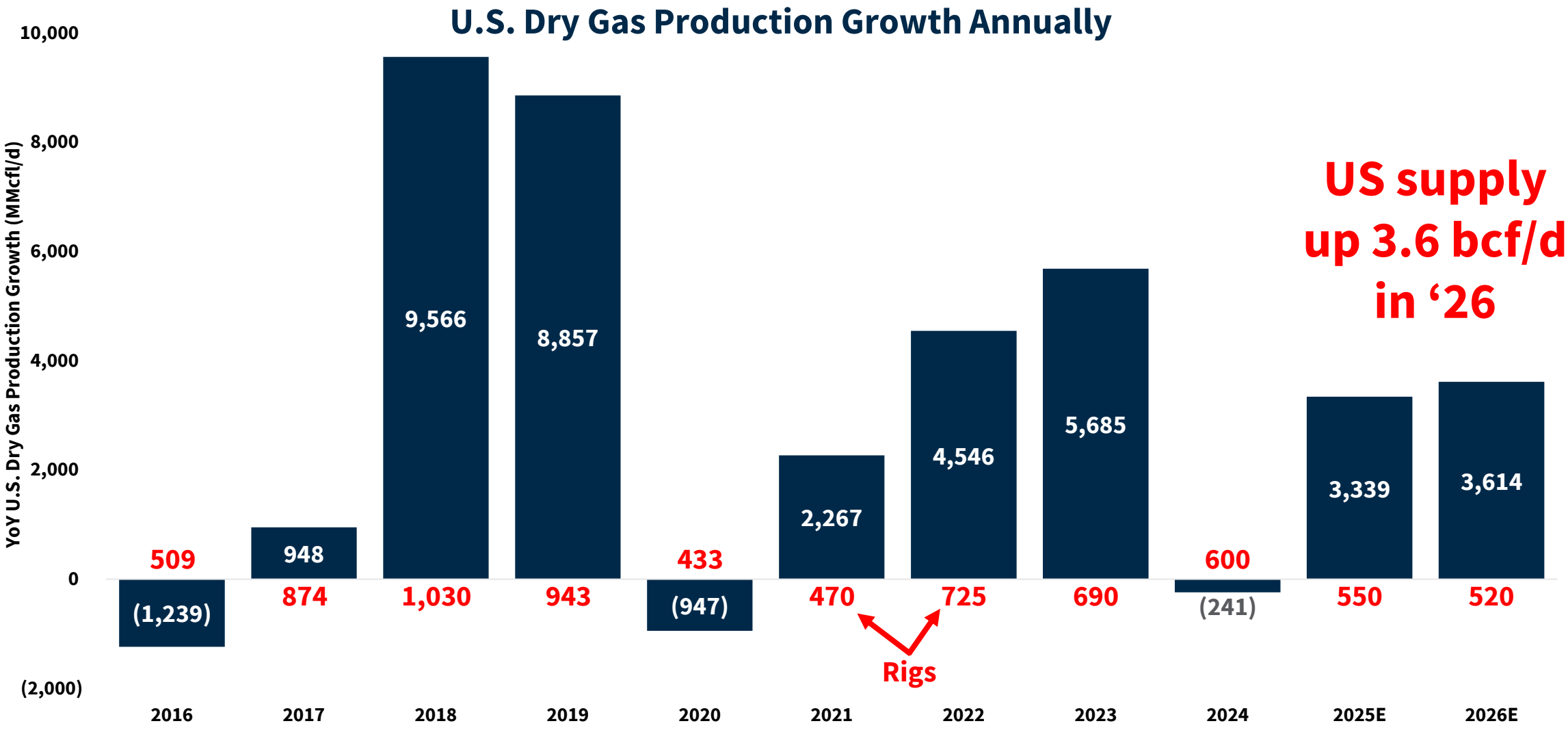
Source: Enverus

’25 Gas Supply Recovered From Shut-ins



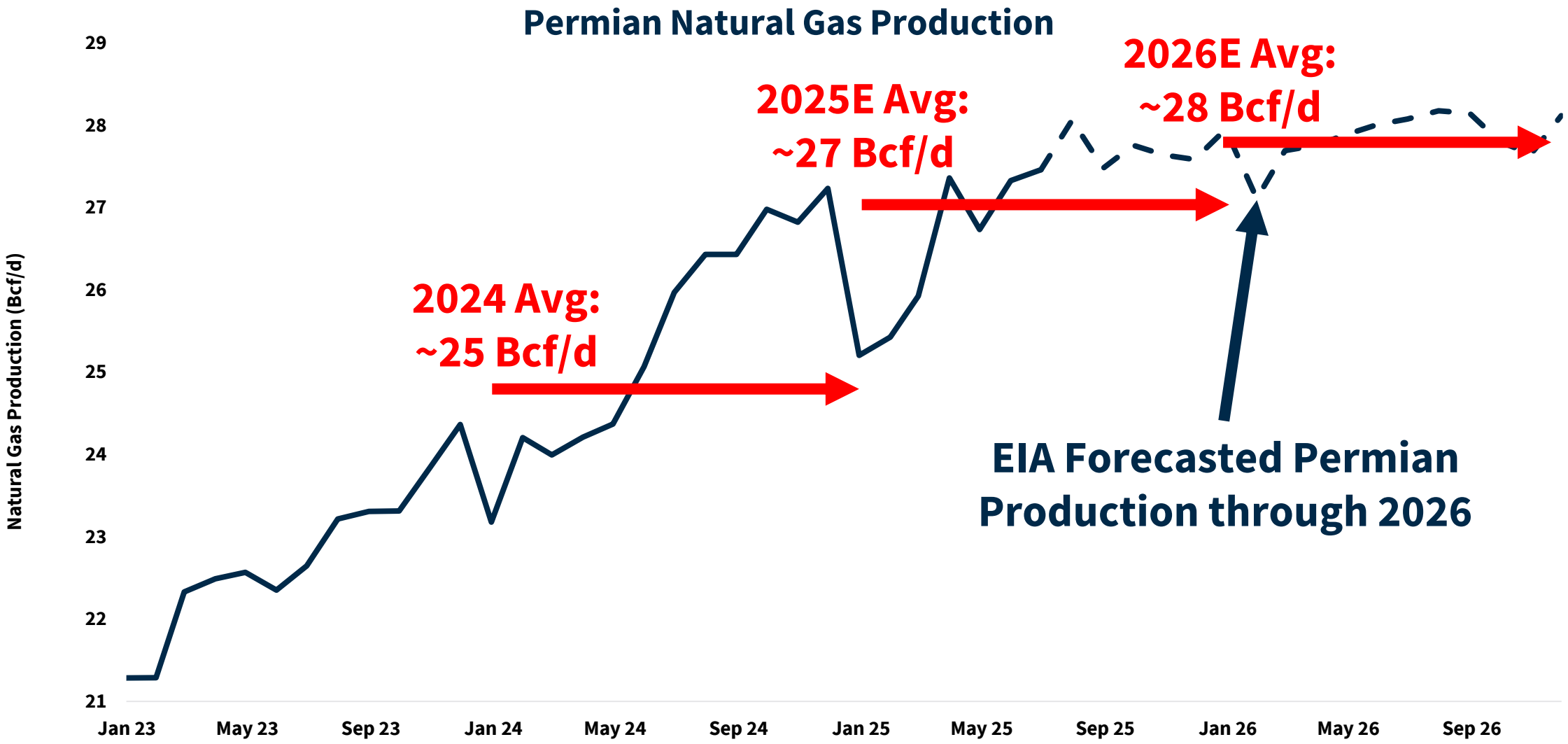
Source: Bloomberg Real Time Pipeline Scrapes.

US Supply Growth Needs to Be Even Higher



Source: EIA, Enverus, Raymond James Research.

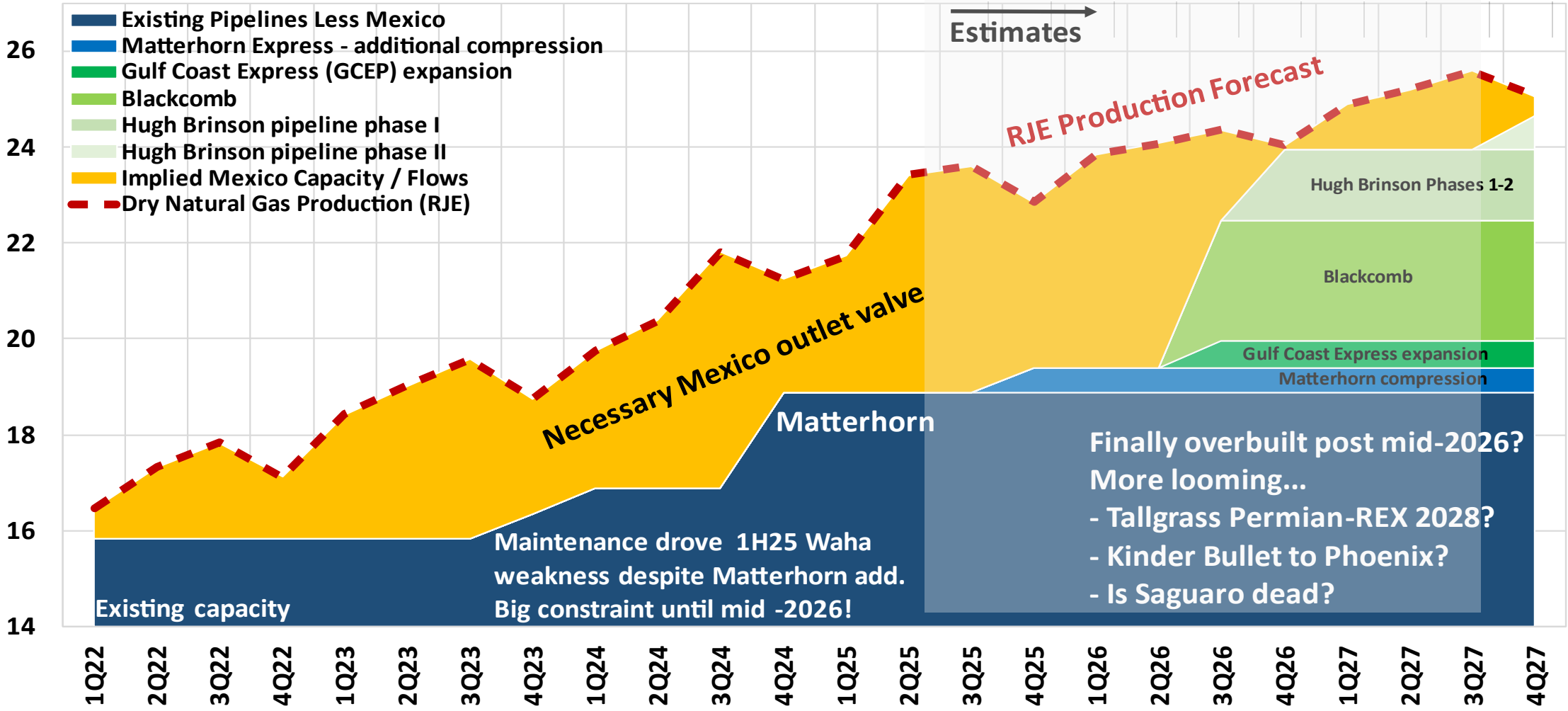
But, Permian Growth Now Slowing



Source: EIA, Raymond James Estimates.

Permian Constrained Until Late-'26?

Permian Dry Gas Pipeline Takeaway (Bcf/d)

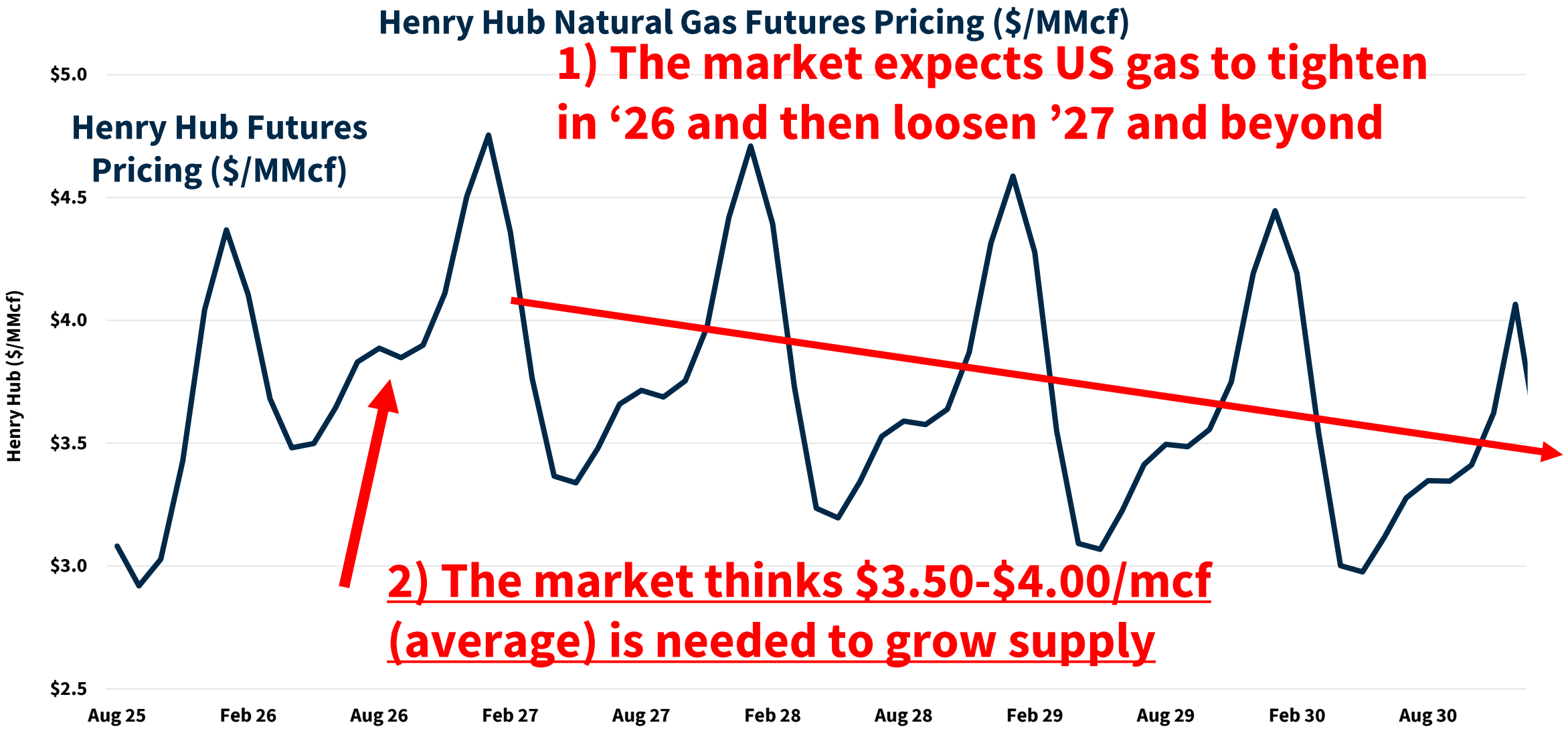


Source: EIA, Company / Partnership Data, Raymond James Research.

What Drives 2026 US Gas Supply Growth?

- New Permian pipes should unleash ~1.5 bcf/day
- But, how will low oil prices impact associated gas?
- Haynesville rigs & productivity down – what next?
- Appalachia gas is still trapped, but….datacenters?
- Overall, 2026 US gas supply growth = ~3.5 bcf/d
- ~1.0 bcf/d associated + 2.5 bcf/d gas basin growth

What Are Natural Gas Futures Telling Us?



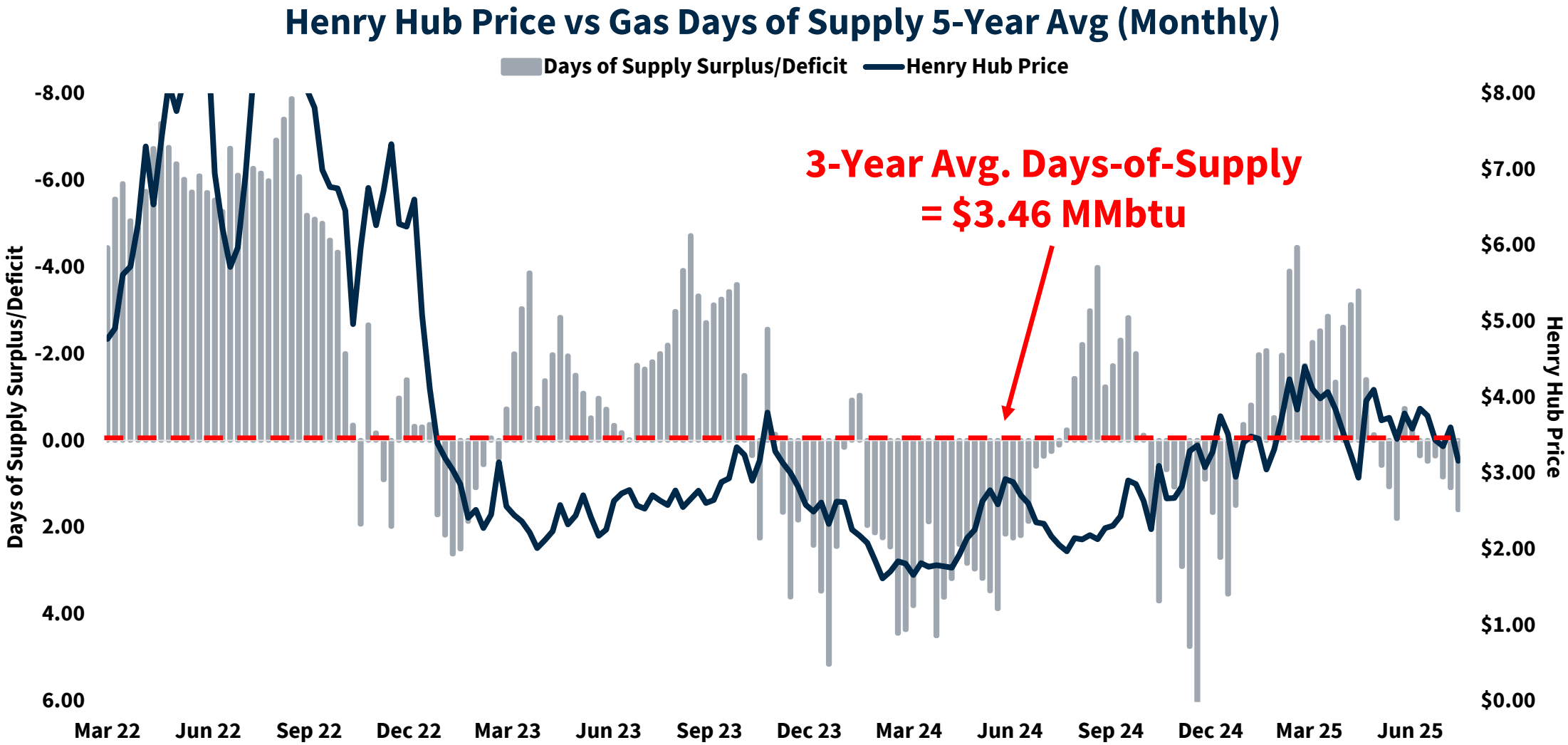
Source: FactSet.

Where Are U.S. Natural Gas Prices Headed and When?

First, Why Have'25 Gas Prices Fallen?

- Massive supply growth from '24 curtailments
- Strong Permian associated gas growth
- Freeport LNG outages again
- One-time coal switching slowed power growth
- Bearish Weather
- Slowly building inventories have been bearish

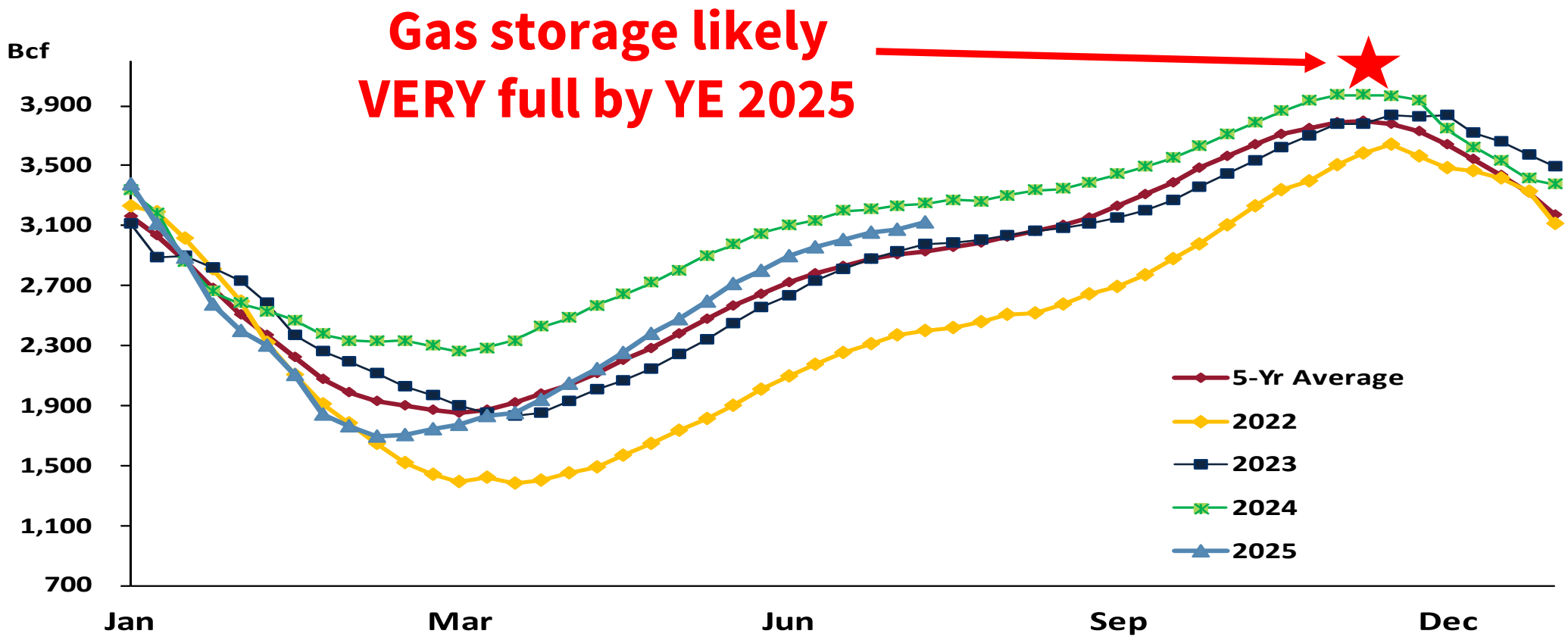
Natural Gas Inventories Matter



Source: S&P, Barra, Bloomberg, Raymond James Research.

Storage Overhang Increases In ‘25

EIA Natural Gas Storage Volumes (Bcf)



Source: EIA, Raymond James Research.

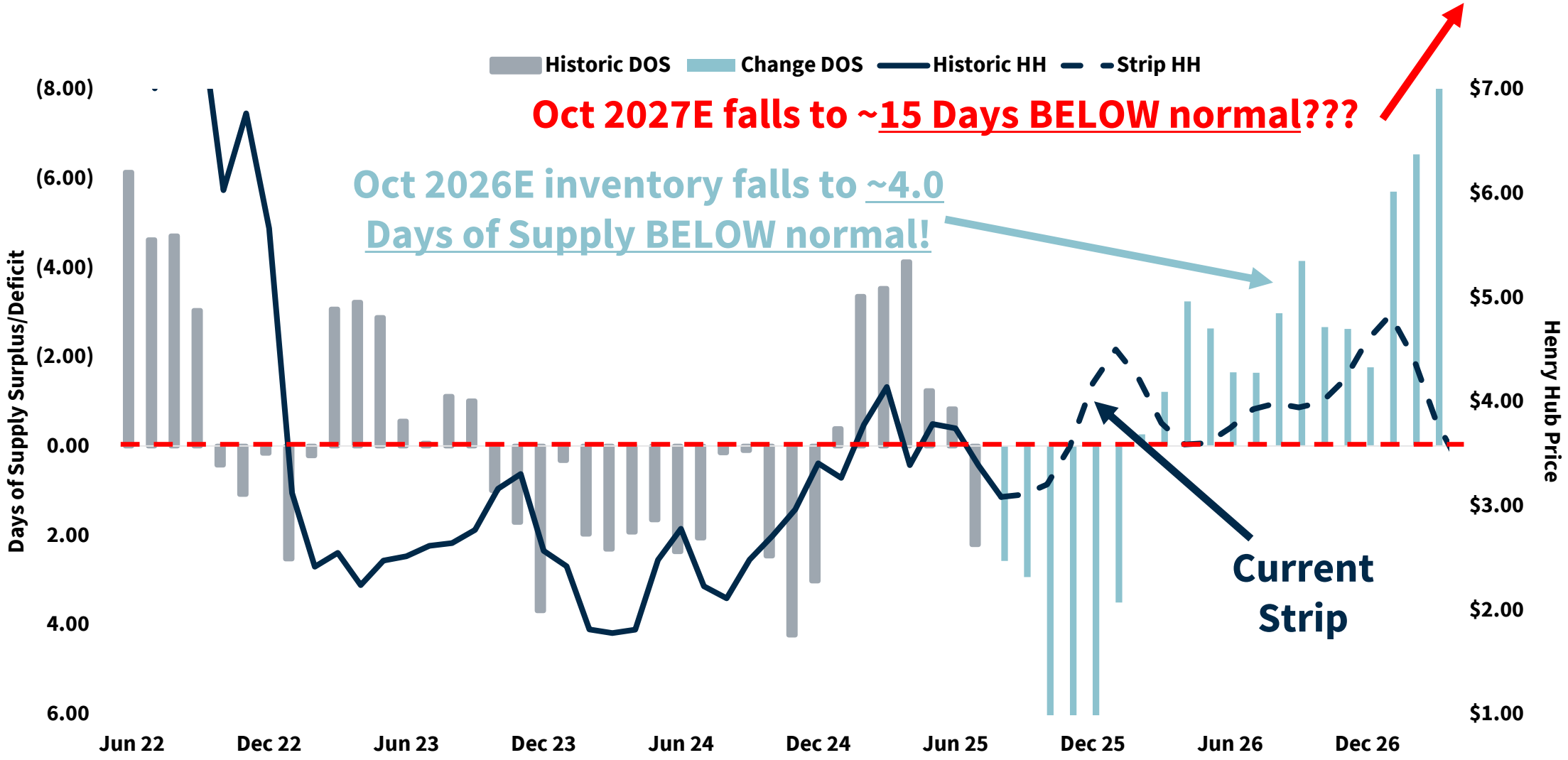
So, What Is The Gas Math For 2026….

- U.S. gas supply up ~3.5 bcf/d (Permian & Haynesville)
- LNG demand increases ~2.5 bcf/d
- Mexico/Canada/Industrial demand up ~.25 bcf/d
- Gas demand for power up ~2.5 bcf/d
- Net shortfall ~1.75 bcf/d (or, inv. fall ~600 bcf)
- Gas prices drift higher (to $5-$7/bcf) vs current strip
- Wildcard: How much will Haynesville really grow?

2027 Looks Even More Bullish

- U.S. gas supply up ~4.5 bcf/d (Permian & Haynesville)
- LNG demand increases ~4.0 bcf/d
- Mexico/Canada/Industrial demand up ~.25 bcf/d
- Gas demand for power up ~3 bcf/d
- Net shortfall ~2.75 bcf/d (inv. decline ~1,000 bcf)!!
- Thus, prices rise to rebalance system (to $6-$10/bcf??)
- Wildcards: Haynesville, In-basin Marcellus/Permian

Long-term Nat Gas Outlook VERY Bullish



Source: S&P, Barra, Bloomberg, Raymond James Research.

U.S. Natural Gas Summary

- Gas curtailment reversals and temporary coal switching have driven weaker ’25 prices
- But, LNG demand surges in 2026+, and
- Gas-fired power begins to really ramp in 2026
- What price gets 4-6 bcf/day more gas supply/yr?
- More U.S. gas % upside than oil over next 2 years

Bottom Line On Oil & Gas Next Five Years

- Power demand for US natural gas is exploding with AI
- Surging LNG demand also driving big gas demand
- Higher gas prices needed for 4-6 bcf/d supply/yr
- Oil market ugly through late-2026
- Oil prices rise 2027+ as OPEC overhang disappears
- Industry valuations are incredibly attractive

Disclaimer

This presentation, and any supplemental information (written or oral) or other documents provided in connection therewith (collectively, the "materials"), are provided on a confidential basis by Raymond James & Associates, Inc. ("Raymond James") and may not be shared with or relied upon by any third-party. This presentation has been prepared solely for informational purposes and is not a solicitation or an offer to buy or sell any securities or related financial instruments. The materials necessarily are based on financial, economic, market, and other conditions as in effect on, and the information available to Raymond James as of, the date of the materials. Although subsequent developments may affect the materials, Raymond James is under no obligation to update, revise or reaffirm the materials. This presentation may include logos or other words or devices that may be registered trademarks of their respective owners. Such use is solely for purposes of convenience in referring to the trademark owners and their products / services.