



# Natural Gas Liquids Fundamentals

March 2025

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**Antero Resources Corporation is denoted as “AR” in the presentation and Antero Midstream Corporation is denoted as “AM”, which are their respective New York Stock Exchange ticker symbols.**



# U.S. NGL Outlook

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## U.S. Export Arbs Expected to Remain Wide Until Export Capacity is Expanded in 2025

- U.S. export expansions in 2025 likely to moderate arbs, but provide tighter linkage to higher international prices, lifting Mont Belvieu pricing

## Robust Global Demand Growth Continues

- Global LPG and ethane demand will continue to grow, led by China
- U.S. will remain the sole incremental supplier

## U.S. LPG Exports to Realize Another Record Year in 2025

- U.S. propane exports expected to grow ~9% in 2025 compared to 2024, following 30% growth in the two year period 2022 to 2024

## OPEC+

- OPEC+ will attempt to control oil supply to support Brent crude oil prices above \$70/Bbl

## New Ethane Export Demand

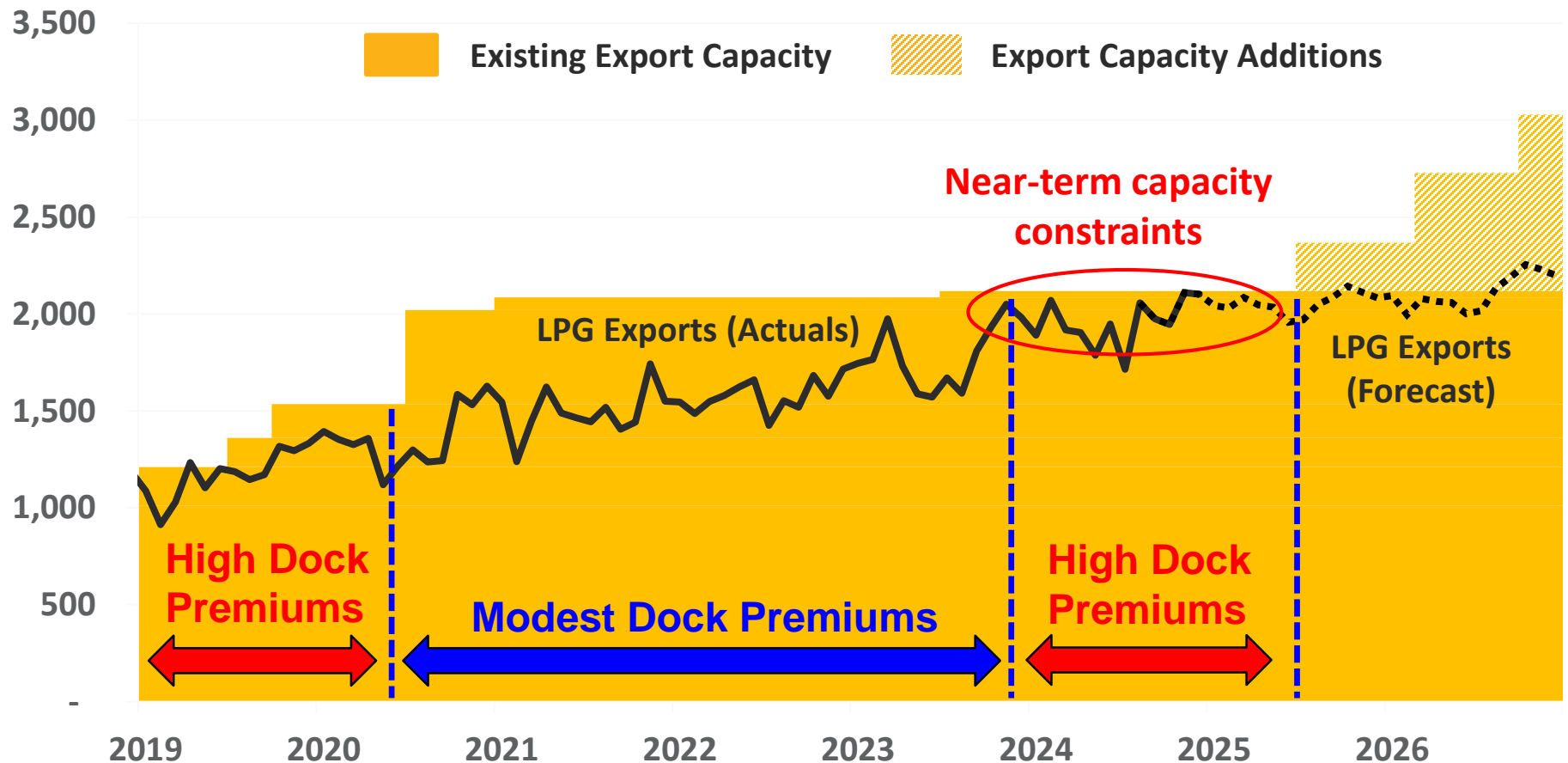
- Significant new ethane export demand will be announced from U.S. flex terminals



# Antero Holds Northeast LPG Export Advantage

AR's export capacity is not impacted by near-term U.S. Gulf Coast capacity constraints

## U.S. Gulf Coast LPG Export Capacity vs. LPG Exports (MMBbls/d)

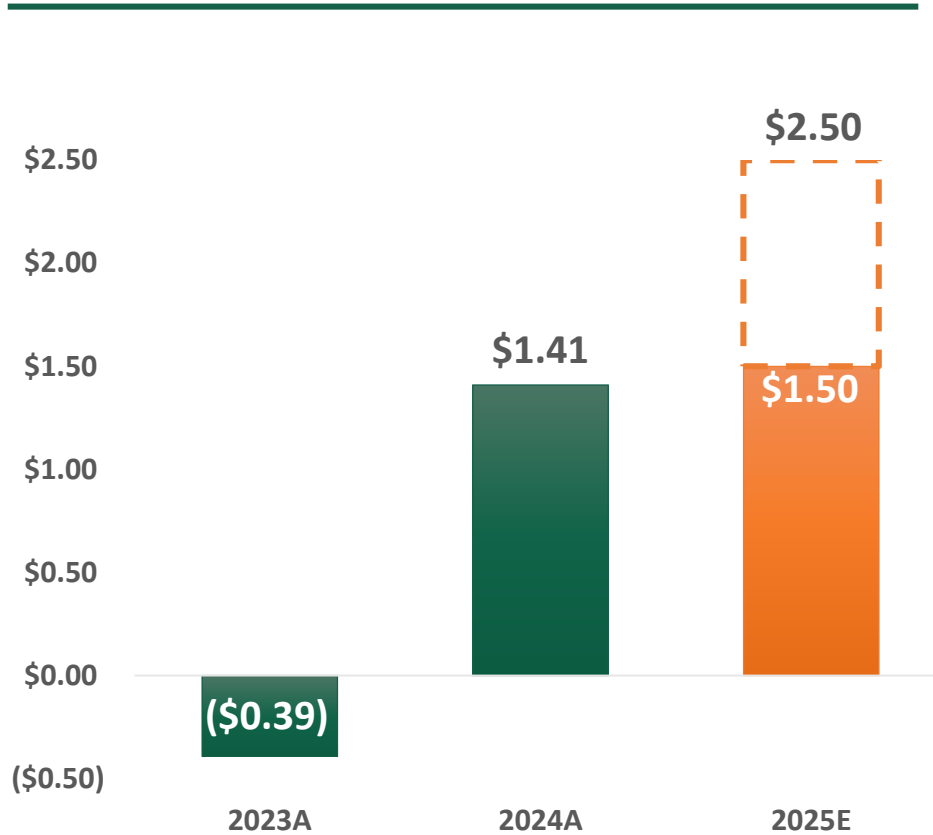


# Strong C3+ NGL Differentials

Antero's strong C3+ NGL premium to Mont Belvieu in 2024 is expected to increase further in 2025

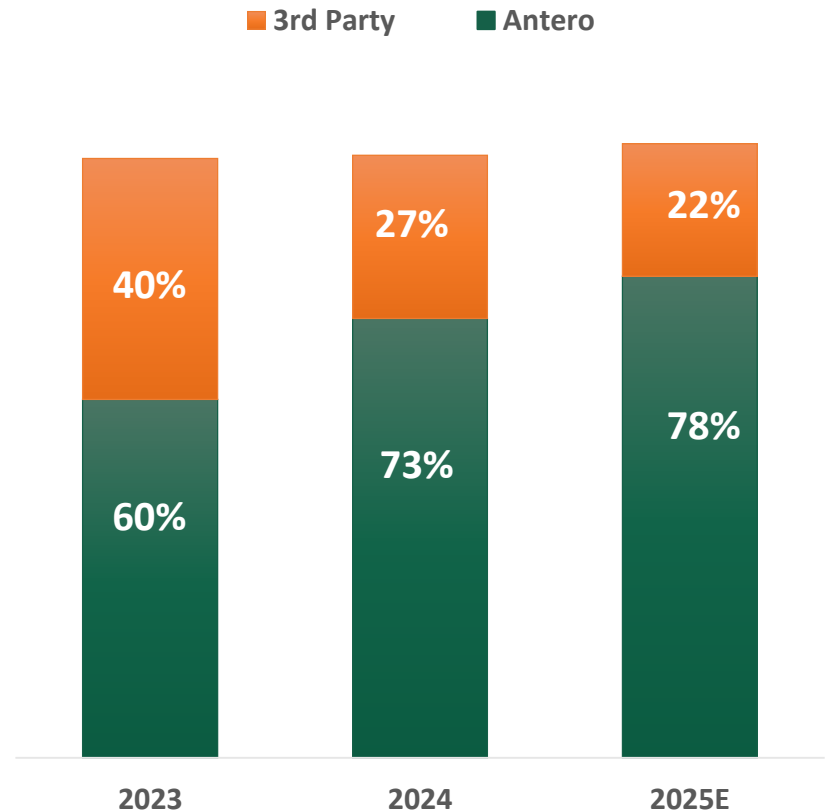
## AR Realized C3+ NGL Differentials to MB.

(\$/Bbl)



## AR C3+ NLG Marketing Volume

(% Marketed)



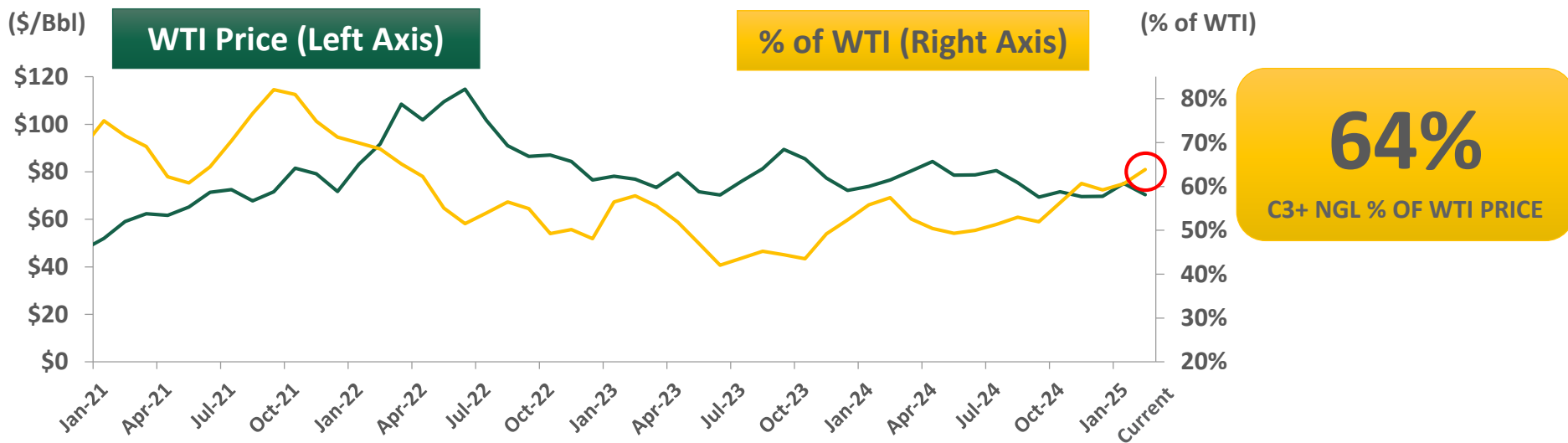
Note: C3+ NGL differentials to Mont Belvieu based on AR NGL component barrel consisting of 57% C3 (propane), 9% isobutane (Ic4), 17% normal butane (Nc4) and 17% natural gasoline (C5+). Weighted Mont Belvieu benchmark price based ICE settlement OPIS futures average price for the front month contract as published on the last trading day of the month. Propane and isobutane reflect TET prices, and normal butane and natural gasoline reflect non-TET prices.



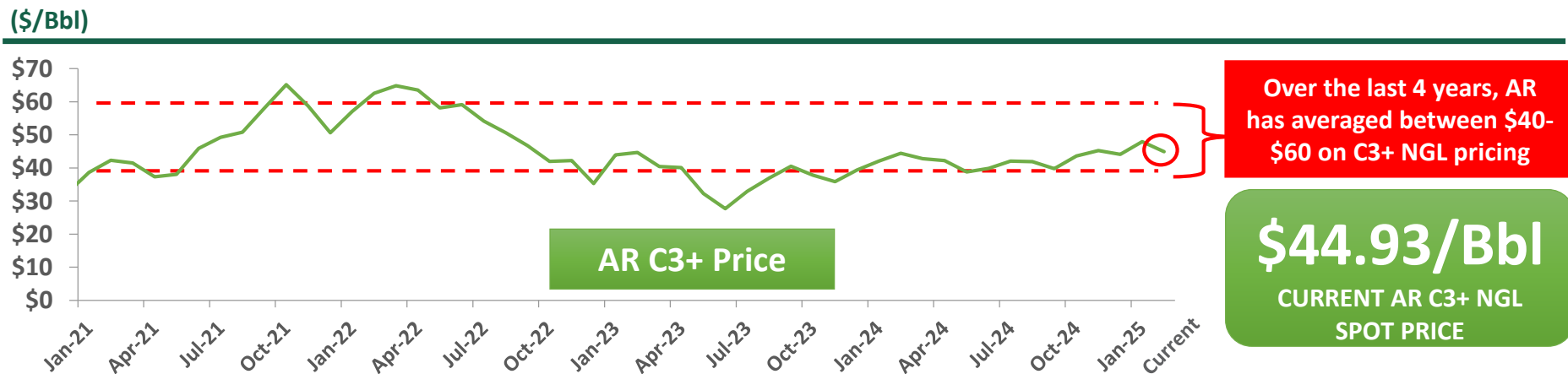
# NGL Price Trend

Driven by strong exports, C3+ pricing as a percentage of WTI is trending back to historical norms

## WTI Oil Price vs. C3+ NGL Price as a % of WTI



## AR Monthly Realized C3+ NGL Price



Antero Resources (NYSE: AR)

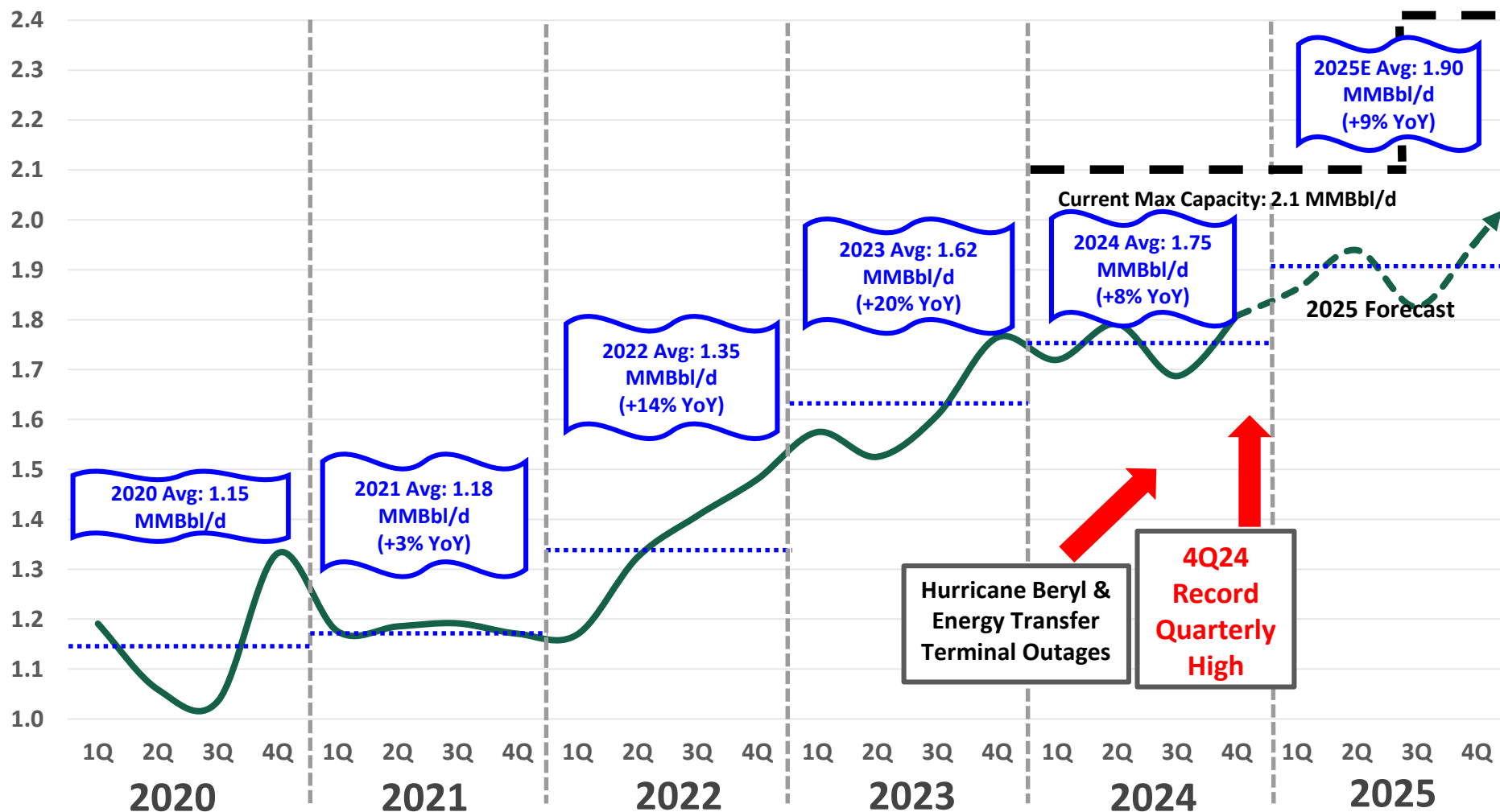
Source: Bloomberg actuals through January 2025. Pricing based on Antero C3+ NGL component barrel consisting of 57% C3 (propane), 9% isobutane (Ic4), 17% normal butane (Nc4) and 17% natural gasoline (C5+). Assumes blended sales of 50% domestic and 50% international.

# U.S. Propane Exports Continue to Move Higher

## U.S. Exports of Propane, Quarterly Average

(MMBbls/d)

★ Weekly Record High Set on April 19, 2024 of 2.335 MMBbl/d ★



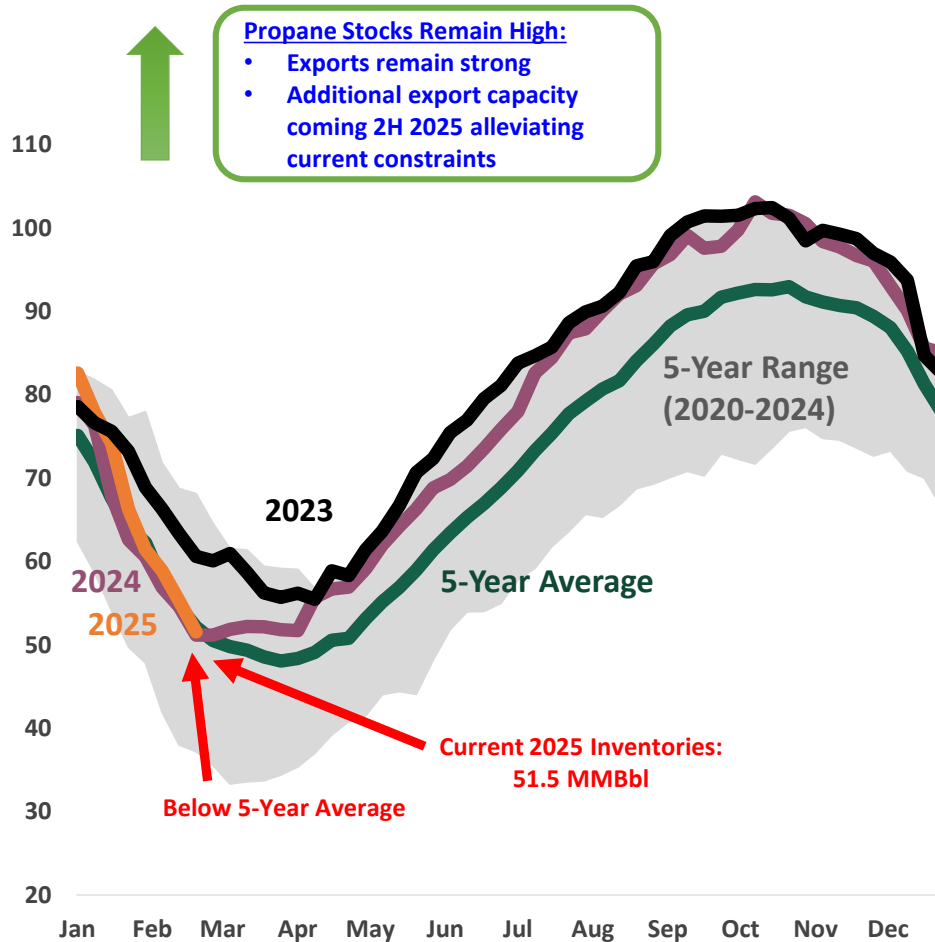


# U.S. Propane Stocks and Propane Days of Supply

Strong Exports Have Resumed Following Terminal Outages and Hurricane Impacts

## U.S. Propane Stocks

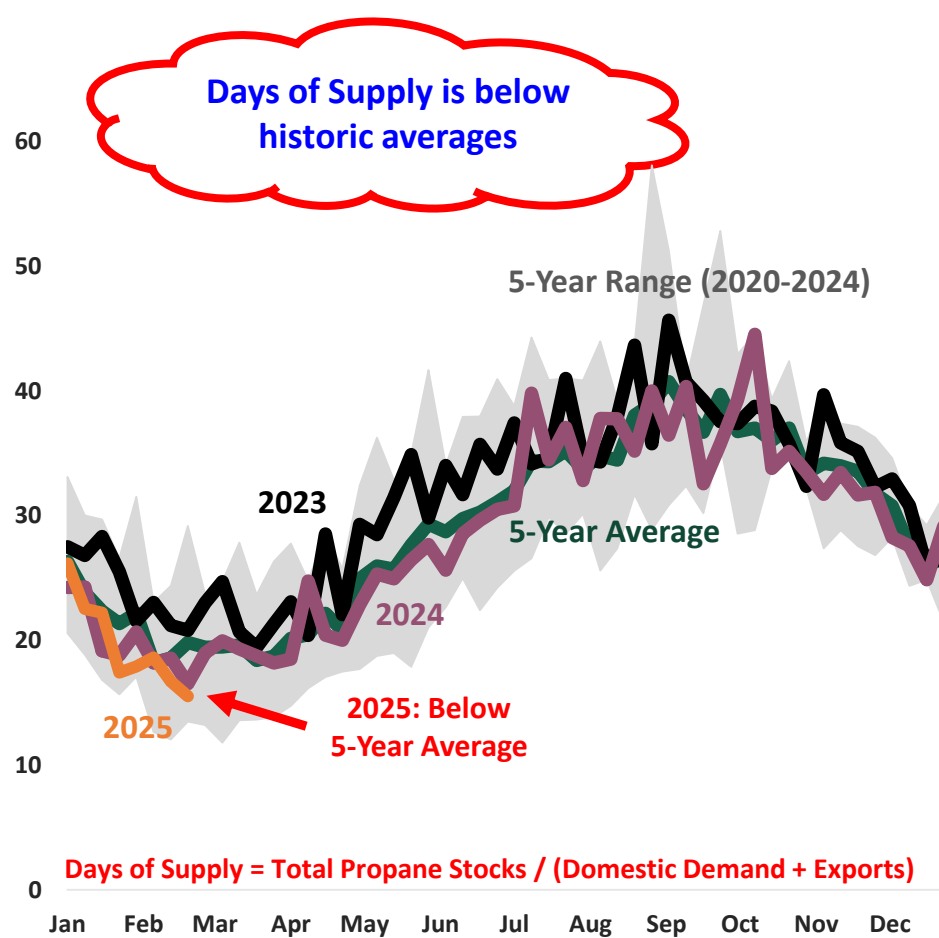
(MMBbls)



Record Total Demand (Domestic Demand + Exports) Drops Days of Supply Below 5-Year Average

## U.S. Propane Days of Supply

(Days)



Days of Supply = Total Propane Stocks / (Domestic Demand + Exports)



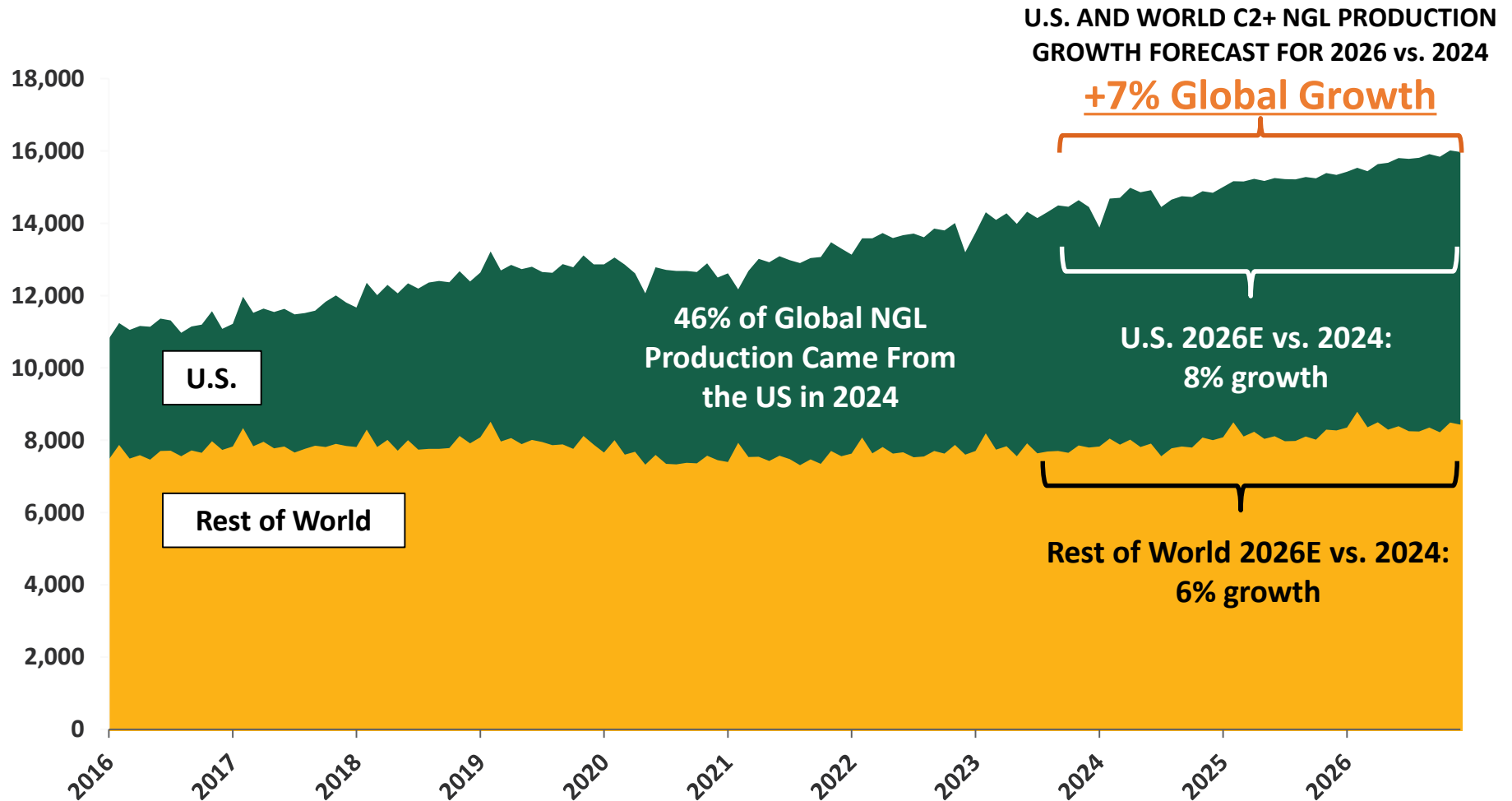


# The U.S. is the Prominent Incremental NGL Supplier

The U.S. is the incremental supplier and exporter of NGLs for growing global demand

## World C2+ NGL Production

(MBbl/d)



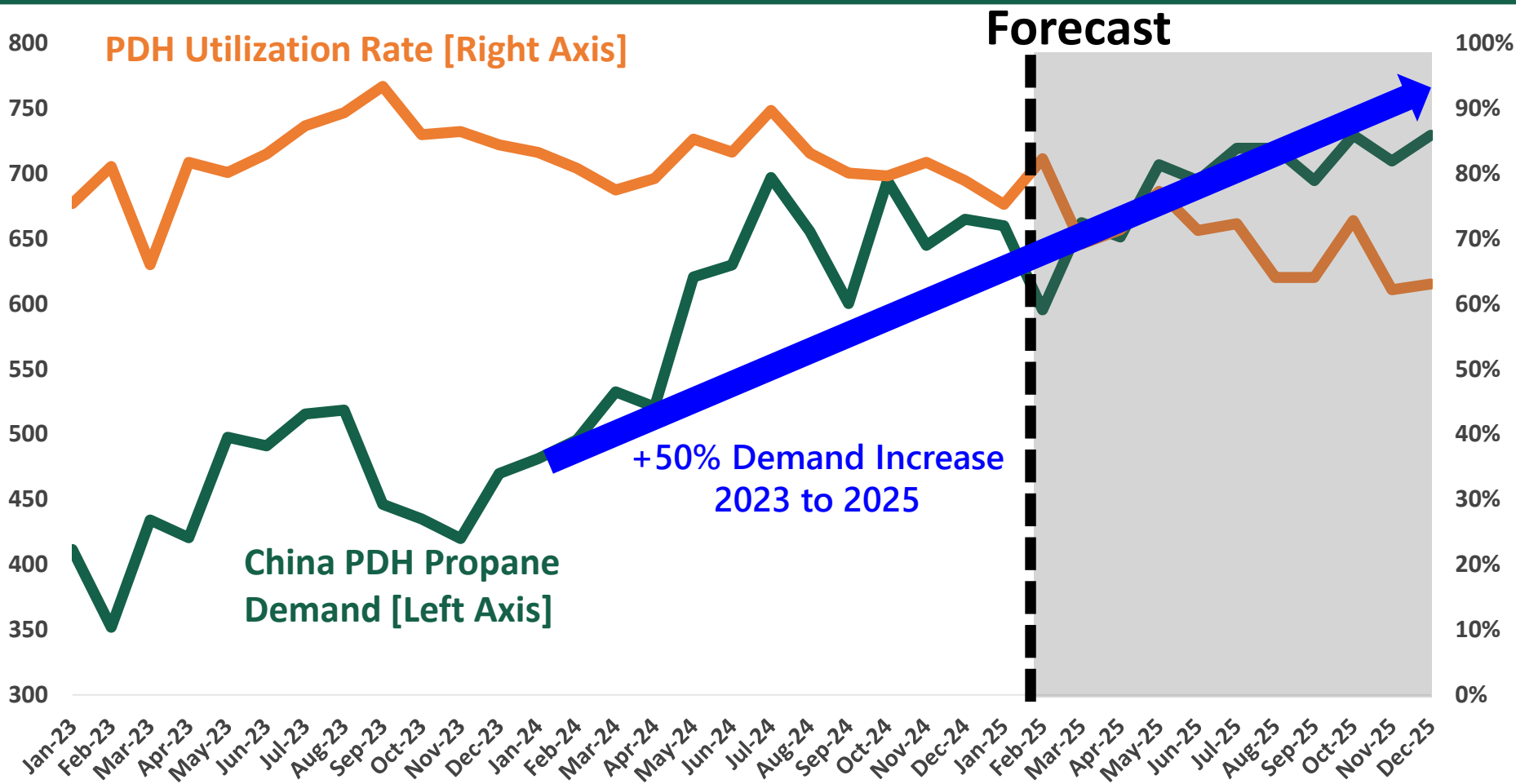
# China PDH Propane Demand and PDH Utilization

While China PDH utilization may flatten out from significant capacity additions, outright China PDH propane demand is expected to increase 50% by year end 2025 vs. 2023

## China PDH Propane Demand and PDH Utilization

(MBbl/d)

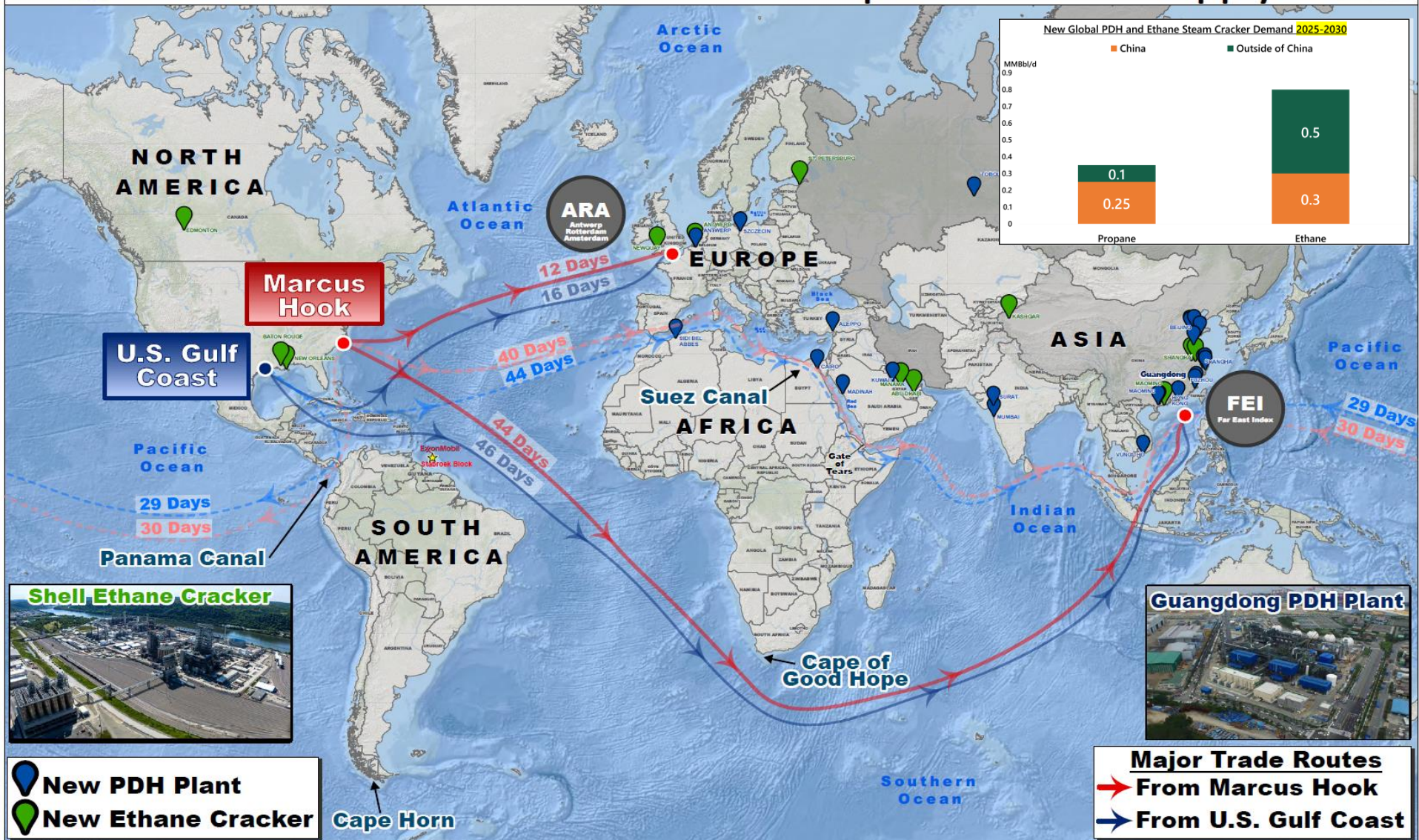
(PDH Utilization Rate)



# Global NGL Demand Buildout Continues



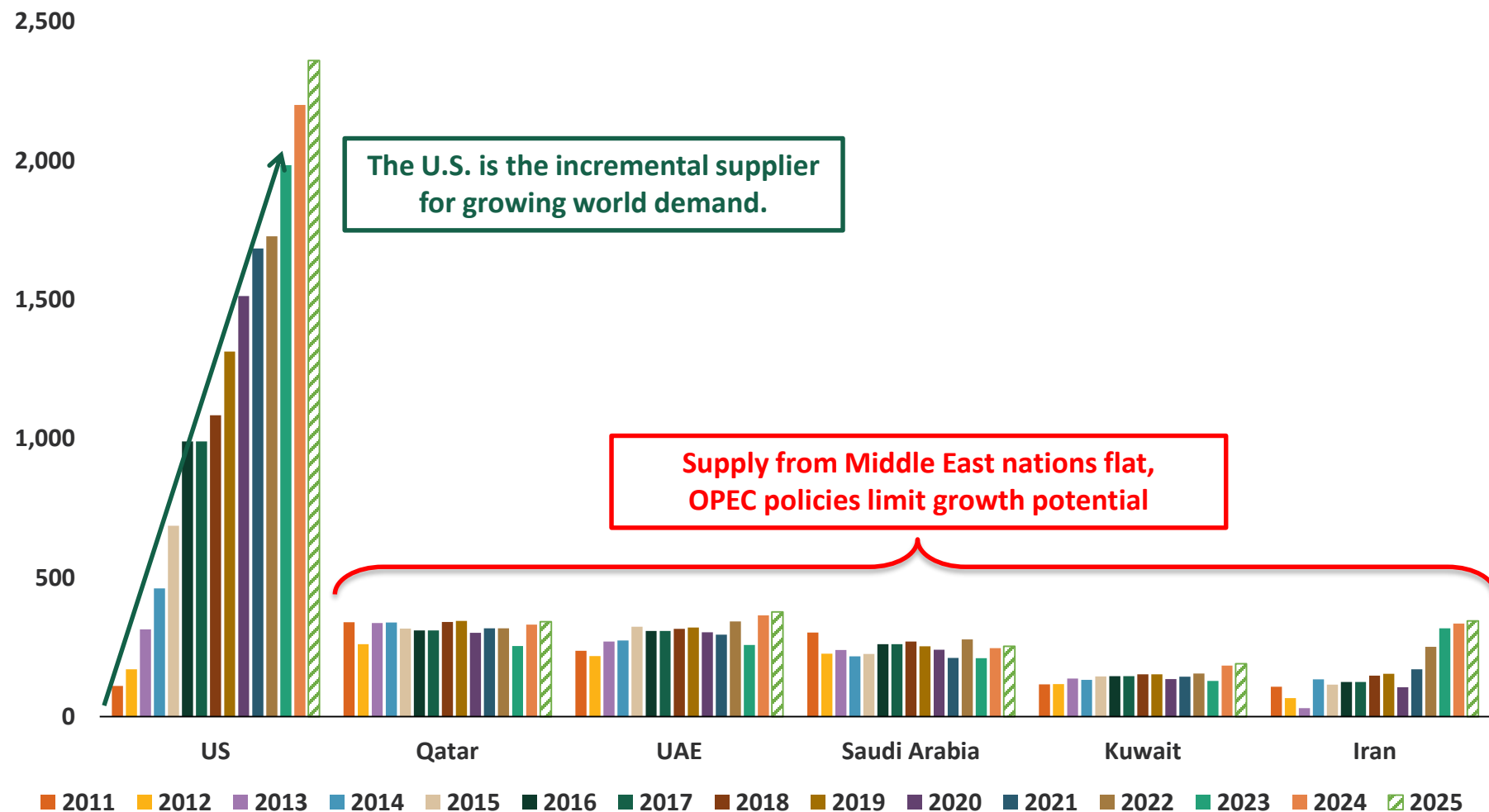
## C2+: International Demand Growth Dependent On US Supply



# The U.S. is the Prominent Incremental LPG Supplier

## LPG Exports

(MBbl/d)

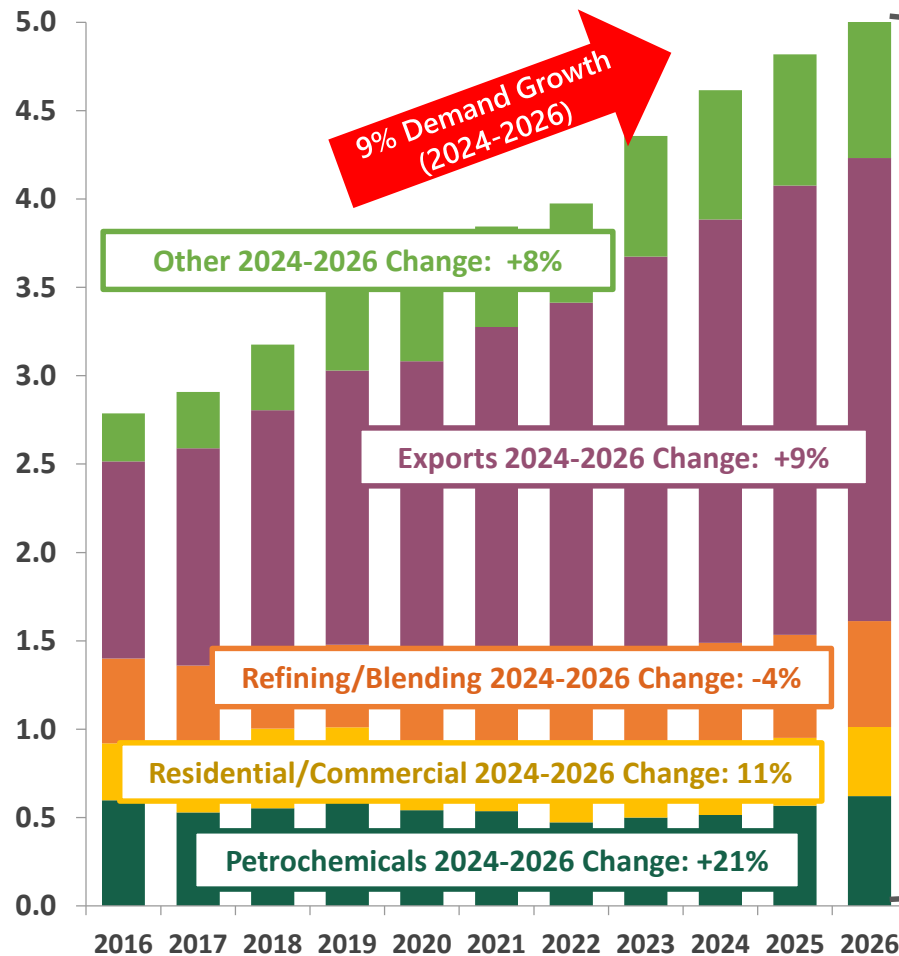




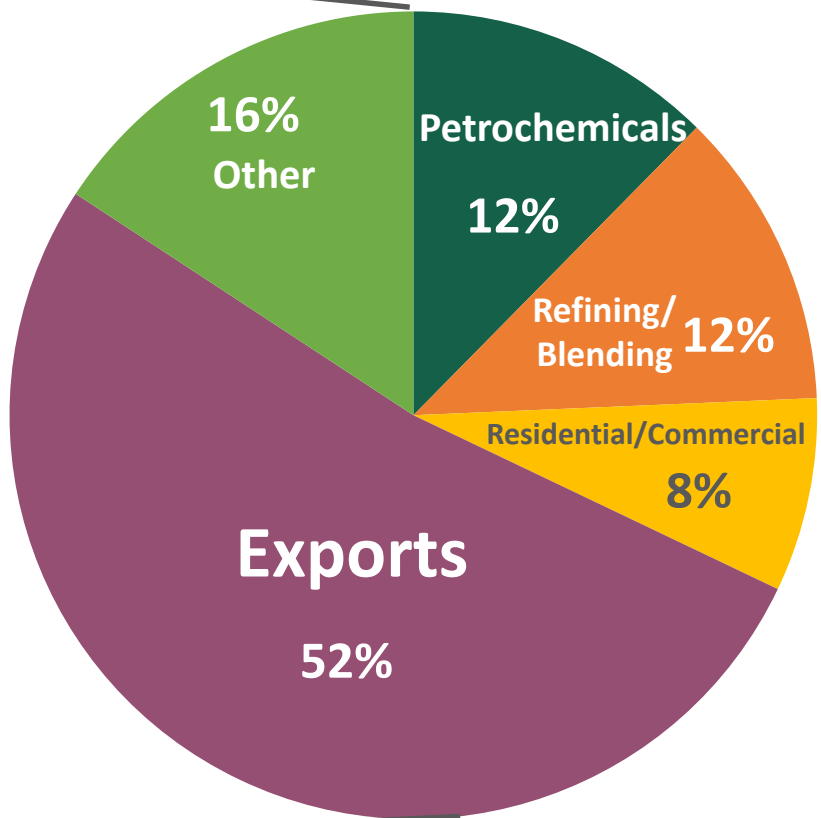
# U.S. NGL Demand

US NGL demand growth driven primarily by exports of LPG (propane/butane)

## U.S. C3+ Demand by Sector (MMBbl/d)



## Estimated U.S. C3+ Demand – 2026

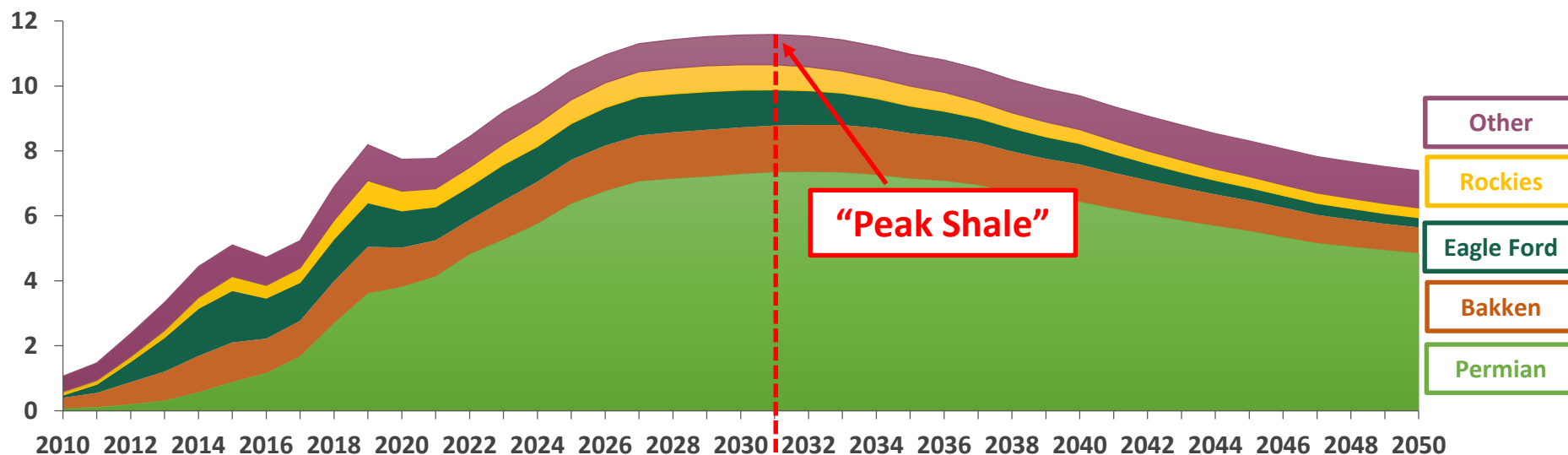


# U.S. NGL Supply Growth Expected to Peak by 2030

U.S. shale crude and condensate growth is expected to decline after 2030

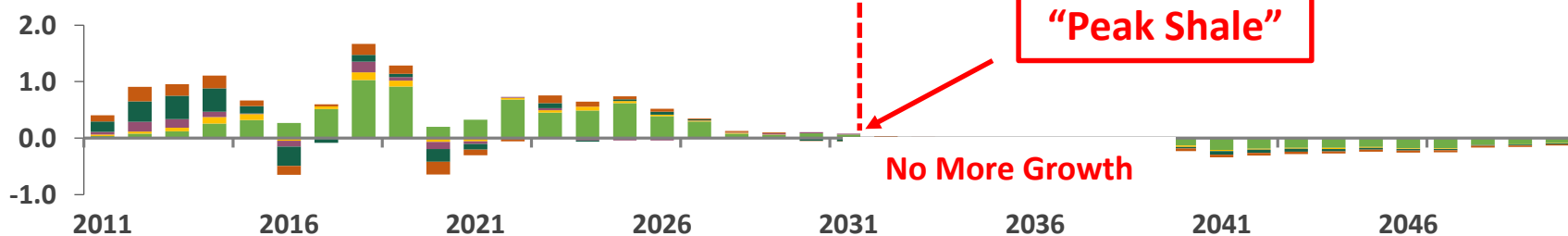
## U.S. Shale Crude and Condensate Production Forecast to 2050

(MMBbl/d)



## Year on Year Growth by Basin

(MMBbl/d)



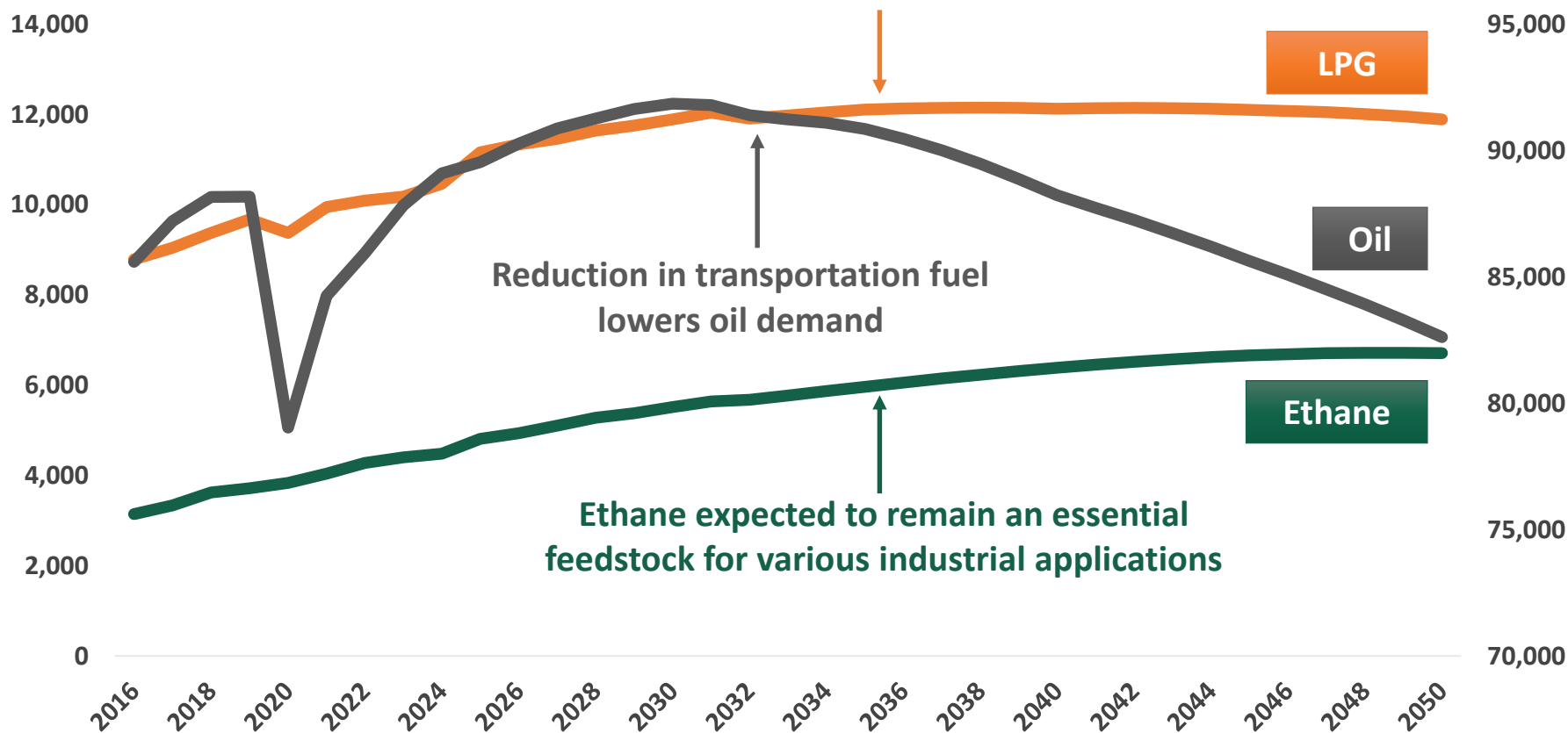
# NGLs Remain Essential for Decades

Demand for NGLs will continue to grow to meet the needs of the energy transition and growth in global petrochemical demand while oil demand rolls over

## Change in Demand by Liquids Product

(MMBbl/d)

Growing Petrochemical and Res/Comm Demand Increases NGL Demand

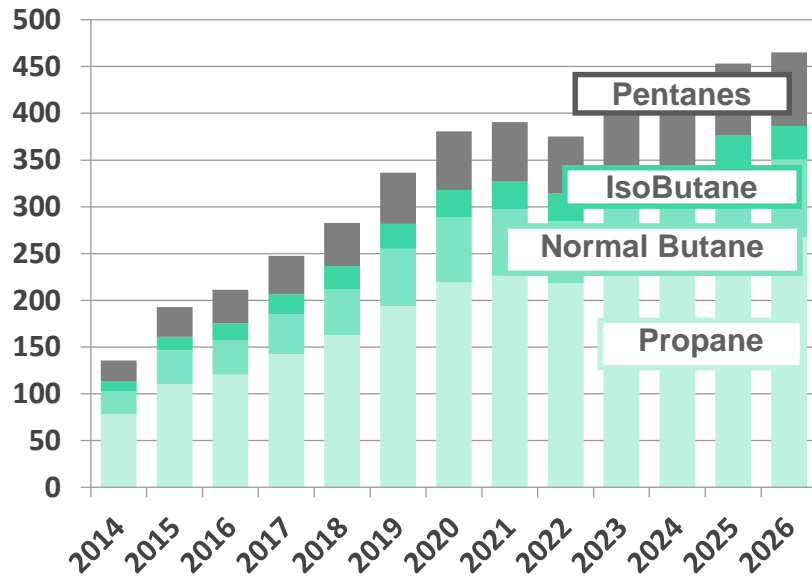




# C3+ NGLs: Northeast Market Dynamics and Supply

Antero's C3+ blended differential to Mont Belvieu has improved with Mariner East 2 export takeaway and ability to access international markets

## Northeast C3+ NGL Supply (MBbl/d)

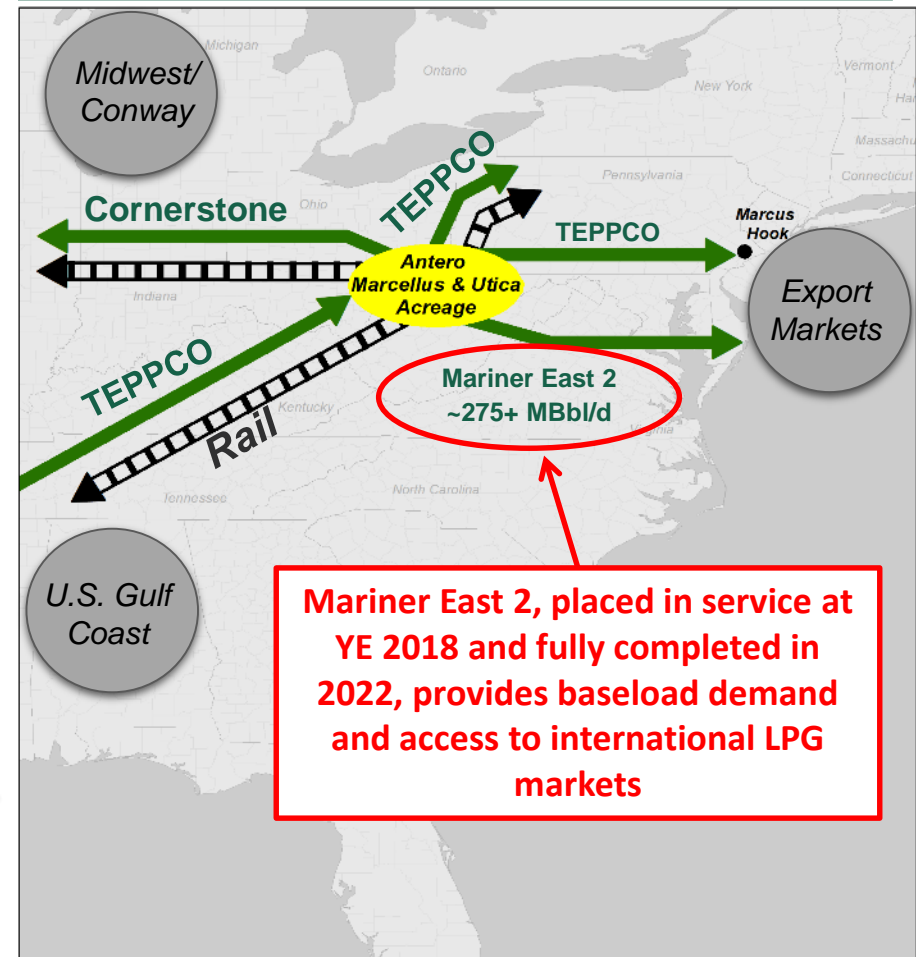


~243 MBbl/d of Northeast C3+ demand vs.

~411 MBbl/d of Northeast supply in 2024

- Resulted in **61%** of production consumed locally
- Remainder moved primarily by rail and exported

## Northeast C3+ NGL Takeaway



Mariner East 2, placed in service at YE 2018 and fully completed in 2022, provides baseload demand and access to international LPG markets



# Ethane: Northeast Market Dynamics & Supply

Antero's ethane has a natural gas value pricing floor; pricing improvements from additional petrochemical and takeaway demand is all "Upside"

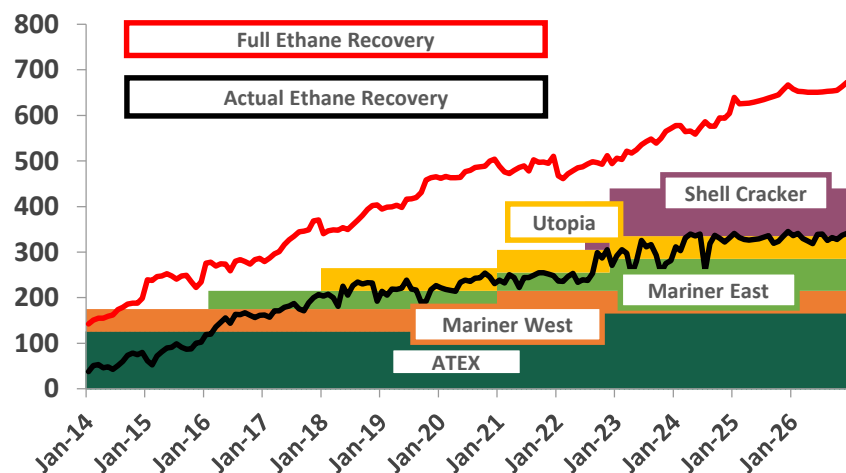
~273 MBbl/d of ethane currently rejected in Northeast (~45% of potentially recoverable ethane)

Antero is an anchor supplier to Shell's cracker which began operations in 2022

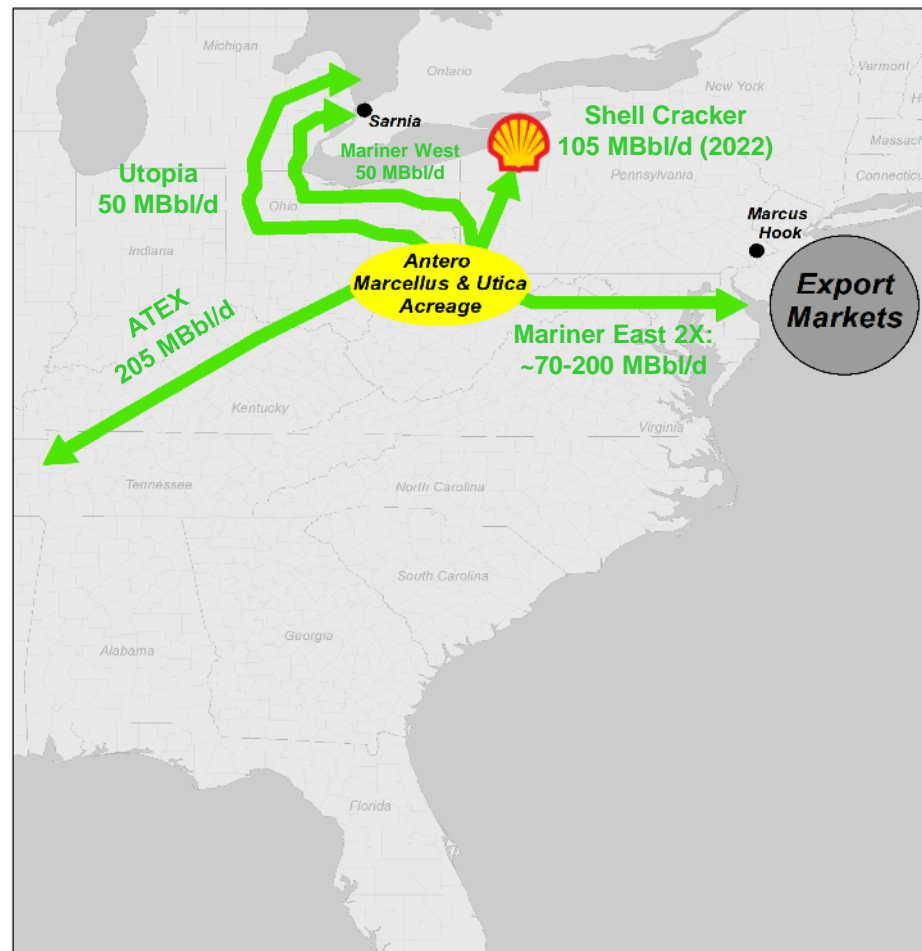
Antero ethane firm sales contracts ~2/3<sup>rd</sup> gas-linked and ~1/3<sup>rd</sup> Mont Belvieu-linked

## Northeast Ethane Supply

(MBbl/d)



## Northeast Ethane Takeaway and Capacities



# U.S. LPG is a Transformational Fuel for the World

## INDUSTRIAL / PLASTICS

Durable products, consumer packaging & pharmaceuticals



## RESIDENTIAL

Provides fuel for various applications (heating & cooking)



## VEHICLE FUEL

Preferred blending feedstock for gasoline



## ENERGY POVERTY

1/3<sup>rd</sup> of the earth's population lacks access to fuel for basic human needs



## QUALITY OF LIFE

~700 MM people have gained access to clean cooking through LPG since 2010



NGLs play an essential role in industrial, residential, commercial and transportation industries and can improve the quality of life around the globe







**APPENDIX**



# Antero Resources: Advantaged NGL Producer

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**Antero sells export volumes on a spot basis  
based on ARA and FEI pricing**

## **Antero Advantages:**

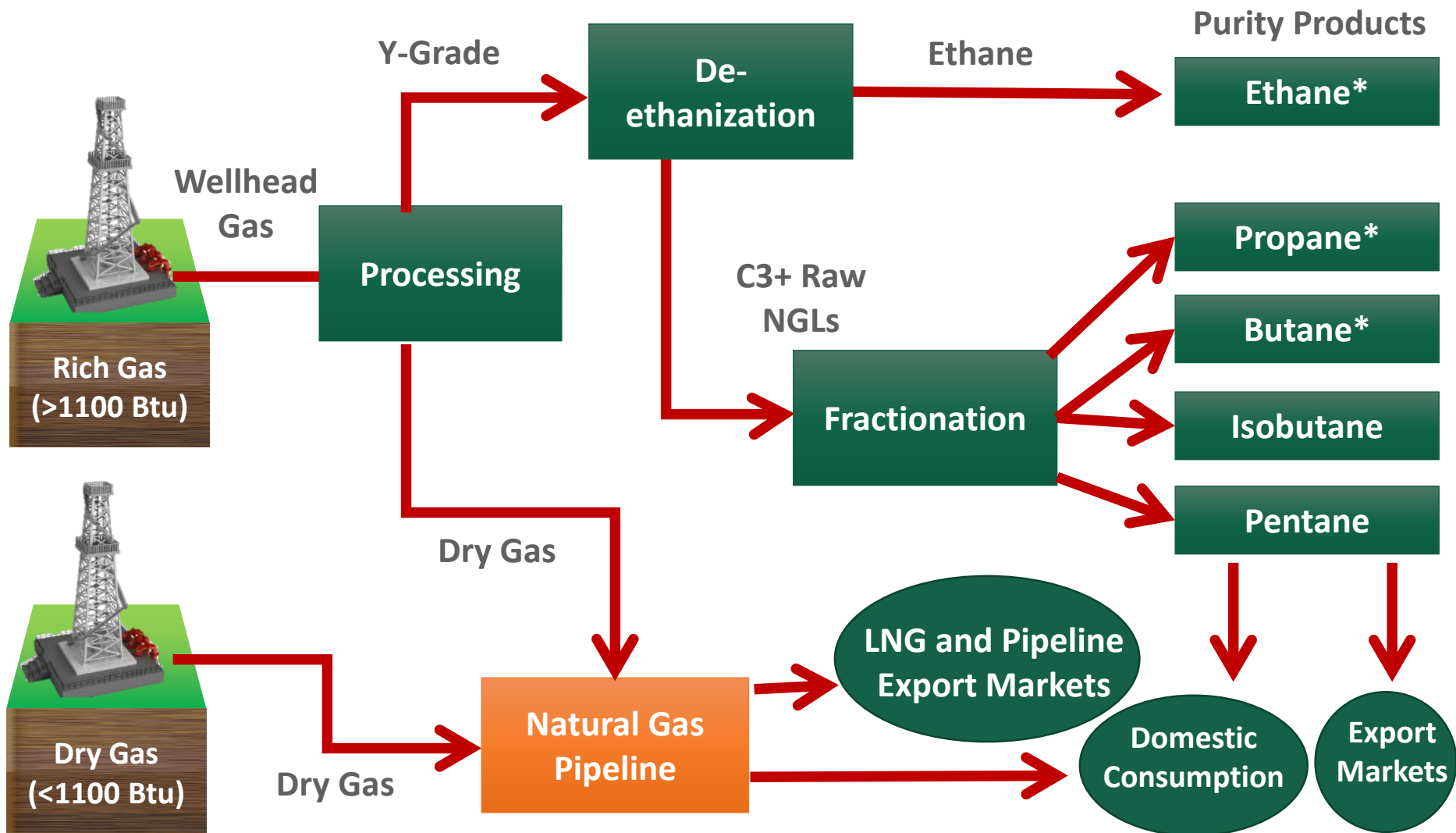
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- Antero exports the majority of its propane and butane production out of Marcus Hook, Pennsylvania
- Gulf Coast export capacity constraints expected to keep international arbs wide, a benefit to Northeast exporters, like Antero
- Antero sales at Marcus Hook are driven by international index pricing (ARA or FEI)
- Antero liquids production includes approximately 40,000 Bbls/d that is closely linked to WTI prices



# Natural Gas Liquids Primer

Natural Gas Liquids “NGLs” are contained in the rich natural gas stream, but after processing, condense into liquid form for storage, shipping and consumption



# Natural Gas Liquids Primer

NGLs play an essential role in the domestic and international industrial, residential, commercial and transportation industries

Gas Linked Pricing				Crude Linked Pricing		
	Methane	Ethane	Propane	Butane	Iso-Butane	Pentane
	Natural Gas	C2	C3	C4	IC4	C5
Primary Sectors	All	Chemical Industrial	Industrial Residential Commercial, Chemical	Industrial Transportation	Industrial	Transportation
Primary Uses	Power	Ethylene Production (For plastics)	Heating, Crop drying, Commercial, Propylene	Winter Gasoline Blending	Alkylate feed to produce gasoline	Gasoline blend and diluent





# Appendix and Supporting Information

**This material is intended for benchmark pricing estimates only and does not reflect Antero actual contracted prices**

## Key Terms and Definitions:

- ARA** – “Amsterdam-Rotterdam-Antwerp.” ARA is a port and refining area in the Belgian-Dutch region of Europe.
- CIF** - “Cost, Insurance, Freight.” CIF means that the seller delivers the goods on board the vessel or procures the goods already so delivered. Note that the CIF ARA LPG prices represent a delivered cargo into Europe.
- FEI** – “Far East Index.” The Argus Far East Index is the average of the Argus Japan CFR propane quotation and the Argus South China CFR propane quotation. Note that the FEI LPG prices represent a delivered cargo into Asia.
- CFR** - “Cost and Freight.” CFR means that the seller delivers the goods on board the vessel or procures the goods already so delivered.
- Baltic LPG Index** - The Baltic LPG Index is a shipping cost estimate based on a voyage from Ras Tanura, Saudi Arabia to Chiba, Japan round trip, laden (full) on the outbound journey and ballast (empty) on the return trip, carrying a fully refrigerated cargo of 44,000 MT (+/- 5%) propane, butane, or a mixture. The index is published by the Baltic Exchange.

**Intercontinental Exchange (ICE) provides the benchmark pricing Information used in this presentation. For more information, visit <https://www.theice.com/energy/natural-gas-liquids>**

	ICE Definition	
ANTERO LABEL	HUB	PRODUCT
ARA C3	CIF ARA	Propane Argus Futures
ARA C4	CIF ARA	Butane Argus Futures
FEI C3	Far East	Propane Argus Futures
FEI C4	Far East	Butane Argus Futures
MB C3	MT.B-ENT	Propane OPIS Futures
MB C4	MT.B-ENT	Normal Butane OPIS Futures

## Relevant Conversions:

- Propane = 521 gallons per metric ton
- Butane = 453 gallons per metric ton

**Antero Internal Shipping Estimates are derived by Antero using several sources, including Baltic LPG Index Futures and broker estimates.**

- Rates are adjusted based on travel time from Marcus Hook, PA to Northwest Europe (Amsterdam-Rotterdam-Antwerp Region) and Marcus Hook, PA to Asia (Chiba, Japan).
- Antero’s actual shipping rates may differ from these estimates.

