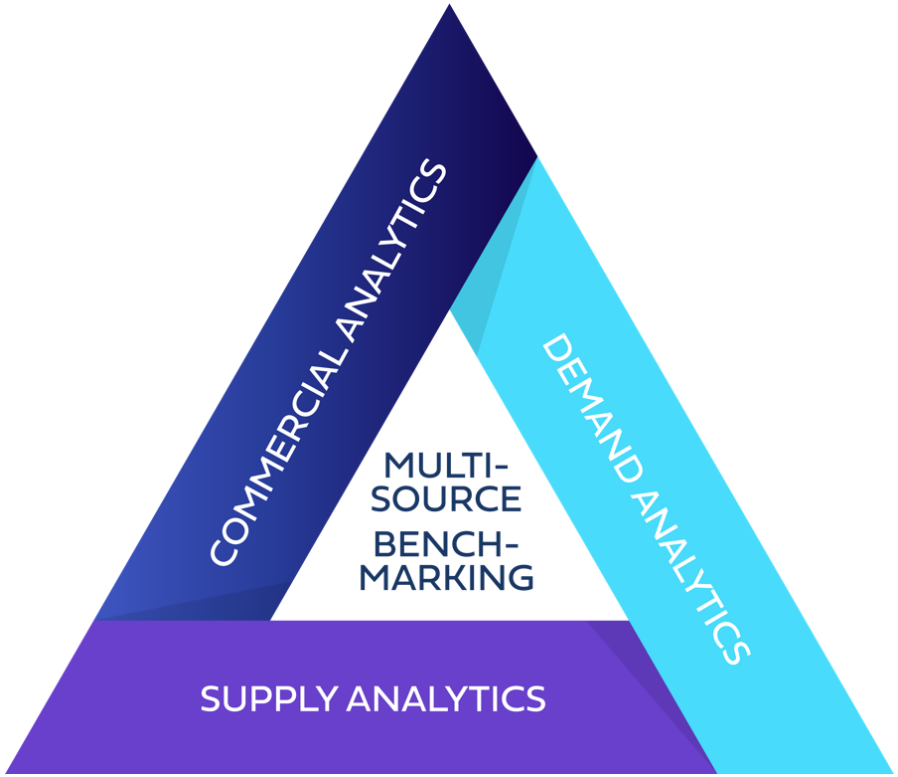
DLS
2024

EAST DALEY
ANALYTICS

DIRTY LITTLE SECRETS

Volatility Will Continue Until Morale Improves

What We Do **IS** Who We Are



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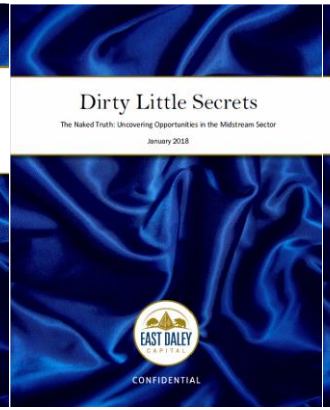
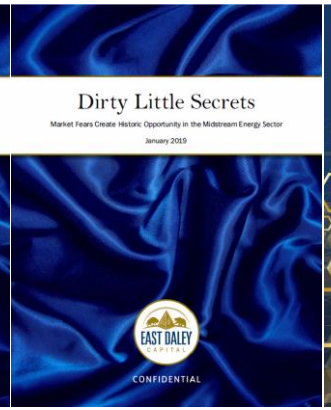
2017 2018 2019 2020 2021 2022 2023 2024





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900+ registered for this webinar and hundreds more will see the recording and benefit from the detailed presentations our analytics team will be giving in the months to come.
The work we all do together, benefits the entire sector and the people in it.

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Thank You
Justin Carlson
Founder and CCO

Key Energy Market Headlines

Volatility will be a dominate feature for Oil/Gas/NGLs in the U.S. over the short to mid-term as demand perceptions and realities tied to exports, energy transition, infrastructure development and consolidation fluctuate against a tempered supply response.

- **Gas: Tighter Fundamentals Lead to Heightened Volatility:** Volatility will be a defining theme in gas markets through 2030 due to growing LNG demand, limited storage expansions, new infrastructure builds and capital discipline driving a more reactive production response.

- **NGLs: The Best Defense is a Good Offense:** This rush to defend territory against competition will create an overbuild that favors the large integrated companies and leaves others pondering options including G&P M&A and alternate pipeline use.

- **Crude: Tighter Supply Demand Balance and Shifting Flow Dynamics:** US market tightens, driven by changes in crude oil flow dynamics and less reactive supply push.

- **Midstream: Consolidation is the Strategy:** M&A will dominate the midstream conversations as cash flow-heavy companies look for scale, growth and long-term value in an environment where large-scale newbuild opportunities are harder to come by and even harder to build.

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Natural Gas

Tighter Fundamentals Lead to Heightened Volatility

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Key Takeaways

Macro Themes

1. In the near term, **elevated production** and supply in storage lead to **downward pricing pressure through mid-2024.**

2. From **mid-2024 through 2026. LNG exports are the most prominent cause of concern** for a market that is focused on keeping up with demand.

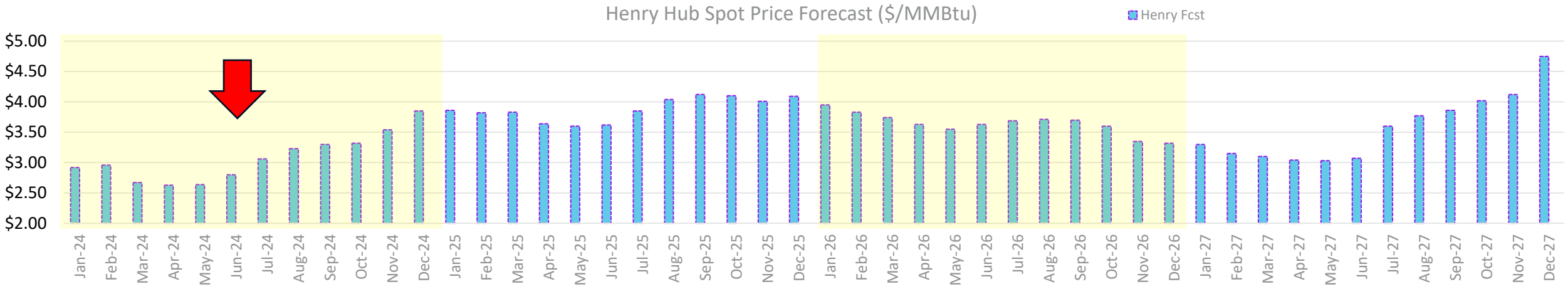
3. From **2027 to 2030, volatility is subject to the completion of liquefaction** that may achieve FID in the coming months and the pipeline infrastructure associated with those facilities.

Regional Themes

1. **Local basis markets from the West Coast to the Northeast will be more volatile** as markets react to LNG-driven price changes.

2. **Flexible high-turn storage must be an infrastructure priority** as storage capacity is simply not keeping up with production or demand. (Provided in Natural Gas Detailed Market Update Deck)

Macro Outlook for Natural Gas Prices



Tale of 2024: Volatility Reigns Supreme

- Significant downward pressure to start the year. Prices fall to $2.63 in April '24.
- The ramp begins in June '24 and starts in earnest in July/August when storage inventories approach a deficit vs the 5-year average due to falling production and below-average injection rates.
- Henry Hub spot price ends the year closing in on $4.00 as Lower 48 storage inventory struggles to keep pace with the 5-year average and production is still gaining momentum.

Tale of 2025: Upward Price Pressure Sustained

- As production plays catch-up, higher LNG export demand arrives in the form of Golden Pass and Plaquemines liquefaction facilities in Q1.
- The storage inventory deficit vs the 5-year average balloons to over 400 Bcf in September as early year production begins its ramp.
- LNG export demand averages 14.6 Bcf/d in 2025, or 2.8 Bcf/d higher (24%) than the '23 average.
- Average Henry Hub spot price for the year is $3.88, 26% higher than 2024.

Tale of 2026: A Momentary Pause Begins

- Downward pressure re-emerges as spot price slips below $4.00 on production refill and a dwindling storage inventory deficit to the 5-year average.
- Production will average 109.8 Bcf/d in 2026 to support ramping LNG export demand as 3.9 Bcf/d of incremental liquefaction could be in service by the end of the year.
- Henry Hub spot price will average $3.64, $0.24 lower than 2025, but still higher than 2023-24 average prices.

Tale of 2027: Volatility Persists in Robust Market

- Downward price pressure evident in 1Q and 2Q27 as market returns to a storage surplus to the 5-year average.
- LNG start-ups in 2H27 could total over 5.4 Bcf/d. This emerging demand source begins to erode the storage surplus once more, even in the face of production levels that sustain above 111 Bcf/d for the year.
- The Henry Hub spot price will average $3.57 for the year but will average over $4.30 in Q4.

What Really Matters Today - Weather

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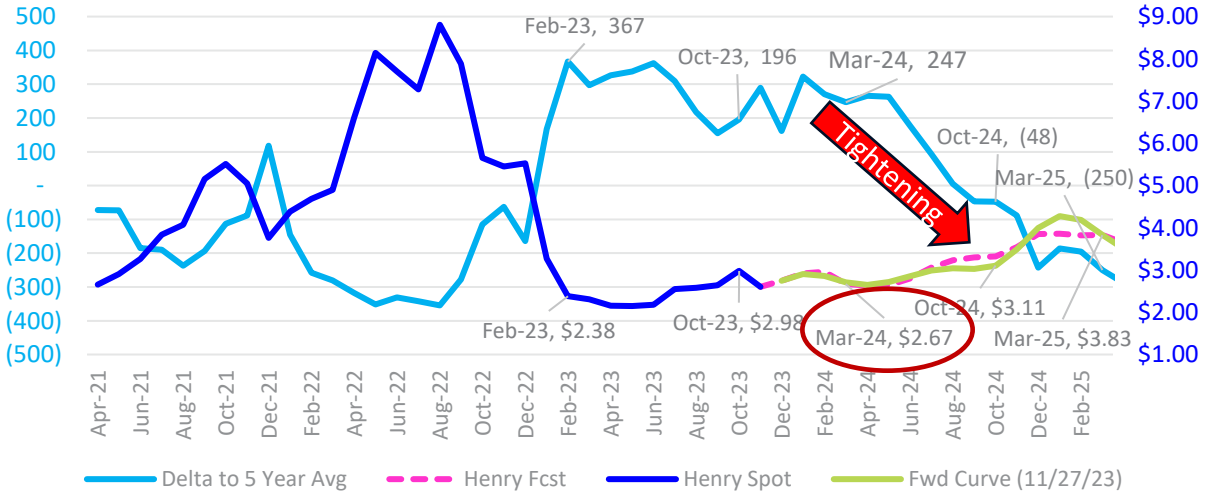
Spot prices remain weak through winter before a modest rally at the end of 2024

- **Storage inventory will finish the winter withdrawal season at 1,780 Bcf**, about 250 Bcf above the 5-year average of 1,533 Bcf.
  - Net November withdrawals have fallen to just 24 Bcf as production has held its ground and weather has been mild to start winter.
- East Daley forecasts **Henry Hub to average $2.78/MMBtu for Winter 23-24**. We see more reasons for prices to decline this winter given our weather and production assumptions.
  - **Should an above normal weather pattern persist this winter, storage inventories finish March 2024 above 2 Tcf and exert significant downward pressure on prices**.

Henry Hub Spot ($/MMBtu) vs Storage Delta (Bcf)

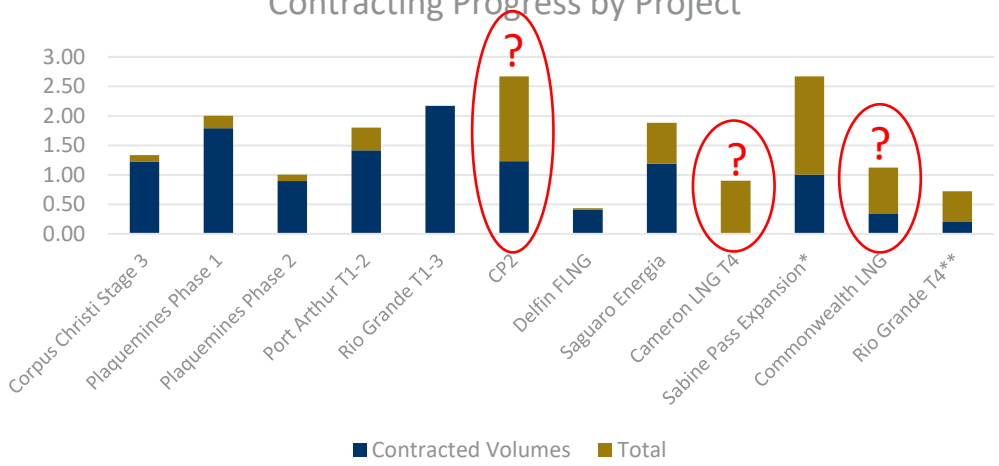


Winter 23-24 versus Winter 22-23 (Bcf/d)

The Bull and The Bear Case For LNG

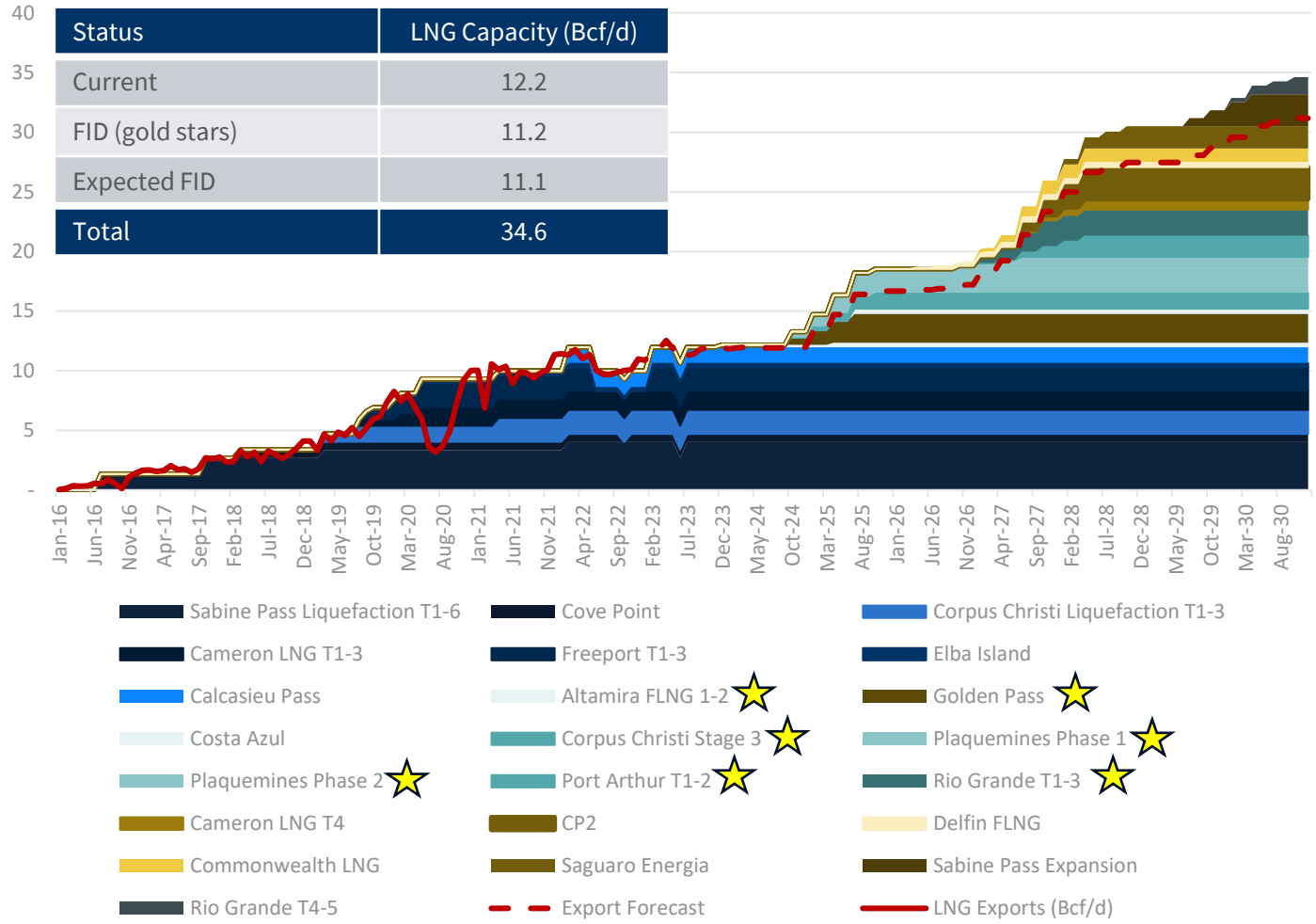
- **The bull case calls for 34.6 Bcf/d of LNG Capacity by YE2030**
  - 28 Bcf/d of LNG export flows to be realized by 2029 at 90% utilization, this is over 16.0 Bcf/d higher than current levels.
  - 15.7 Bcf/d of SPA offtake agreements are in place, so another 5-10 Bcf/d of SPAs are needed to defend East Daley's long-term LNG outlook.
- **The bear case calls for 27 Bcf/d of LNG Capacity by YE2030**
  - **CP2**: No new contracting since June '23. Controversial extended commissioning at Calcasieu Pass.
  - **Cameron T4**: Only non-binding agreements. Optionality to transfer to Sempra's Port Arthur. Sempra seeking an extension on DoE export authorization,
  - **Commonwealth LNG**: only 30% contracted, not including non-binding agreements.

Contracting Progress by Project



LNG Export Capacity vs Actuals and Forecast

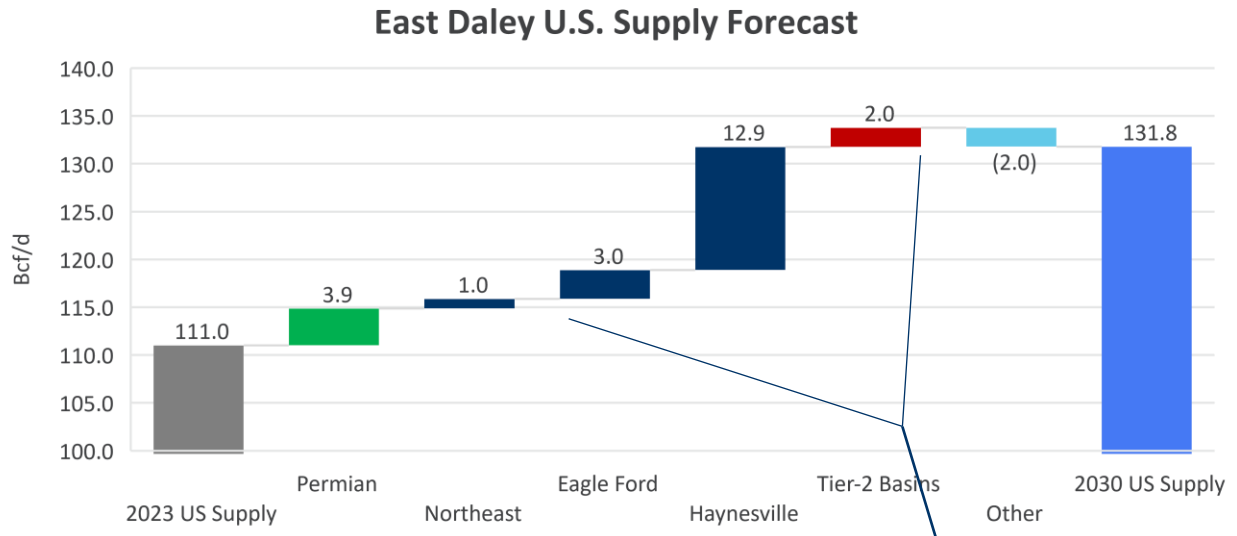
Status	LNG Capacity (Bcf/d)
Current	12.2
FID (gold stars)	11.2
Expected FID	11.1
Total	34.6

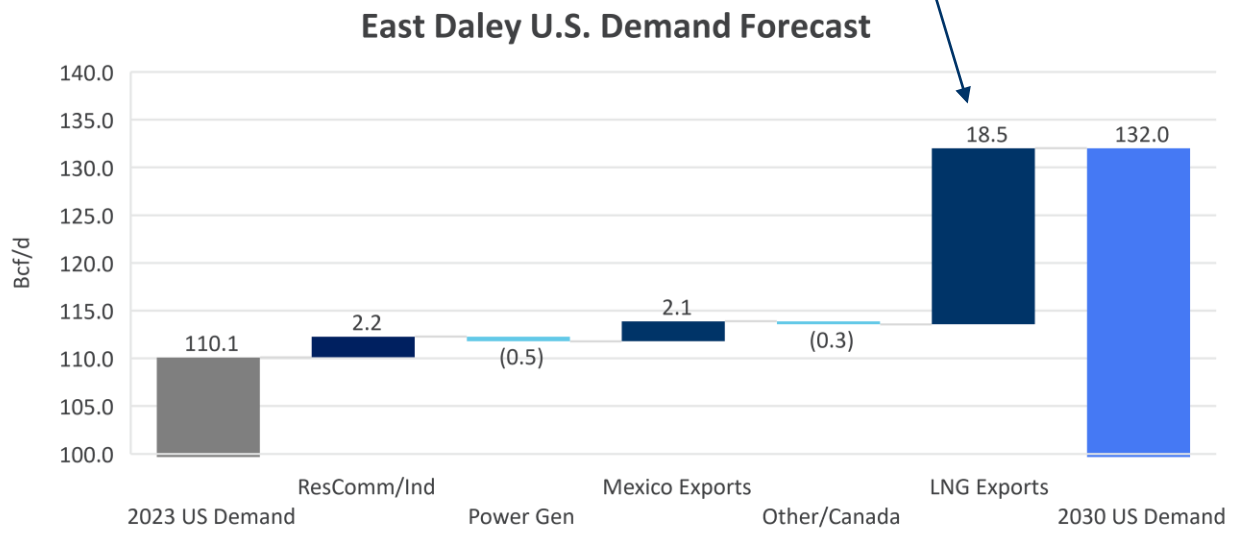


Access LNG Data HERE

Through 2030, Production Must Grow to Keep Up

- In sum, US demand increases by 22 Bcf/d by 2030 over 2023 levels, led by growth in LNG Exports.
  - LNG Capacity increases 21.2 Bcf/d by 2030, including LNG projects in Mexico.
  - LNG Exports increase 18.5 Bcf/d based on a 90% utilization assumption.
  - EDA assumes 1.5 Bcf/d of additional feedgas for LNG facilities as Industrial demand in our outlook.
  - Exports to Mexico (non-LNG related) increase by 2.1 Bcf/d, with 1.9 Bcf/d of exports shipped to Mexico in South Texas out of Agua Dulce.
- East Daley assumes gas-focused basins ramp up drilling in response to higher prices as LNG demand comes online. ArkLaTex and Eagle Ford are expected to increase by 12.9 Bcf/d and 3.0 Bcf/d, respectively. ArkLaTex/Haynesville rigs are capped at ~100 rigs in the forecast.
- Tier-2 basins like the Anadarko, W Rockies, and Barnett are also expected to collectively accelerate drilling activity in response to LNG exports to fill in a 2.0 Bcf/d gap in supply and demand by 2030.
- Permian residue gas production increases by 3.9 Bcf/d as growth slows in 2026-2030. The slowdown stems from downside risk to drilling activity due to a backwardated WTI curve and E&P consolidation.

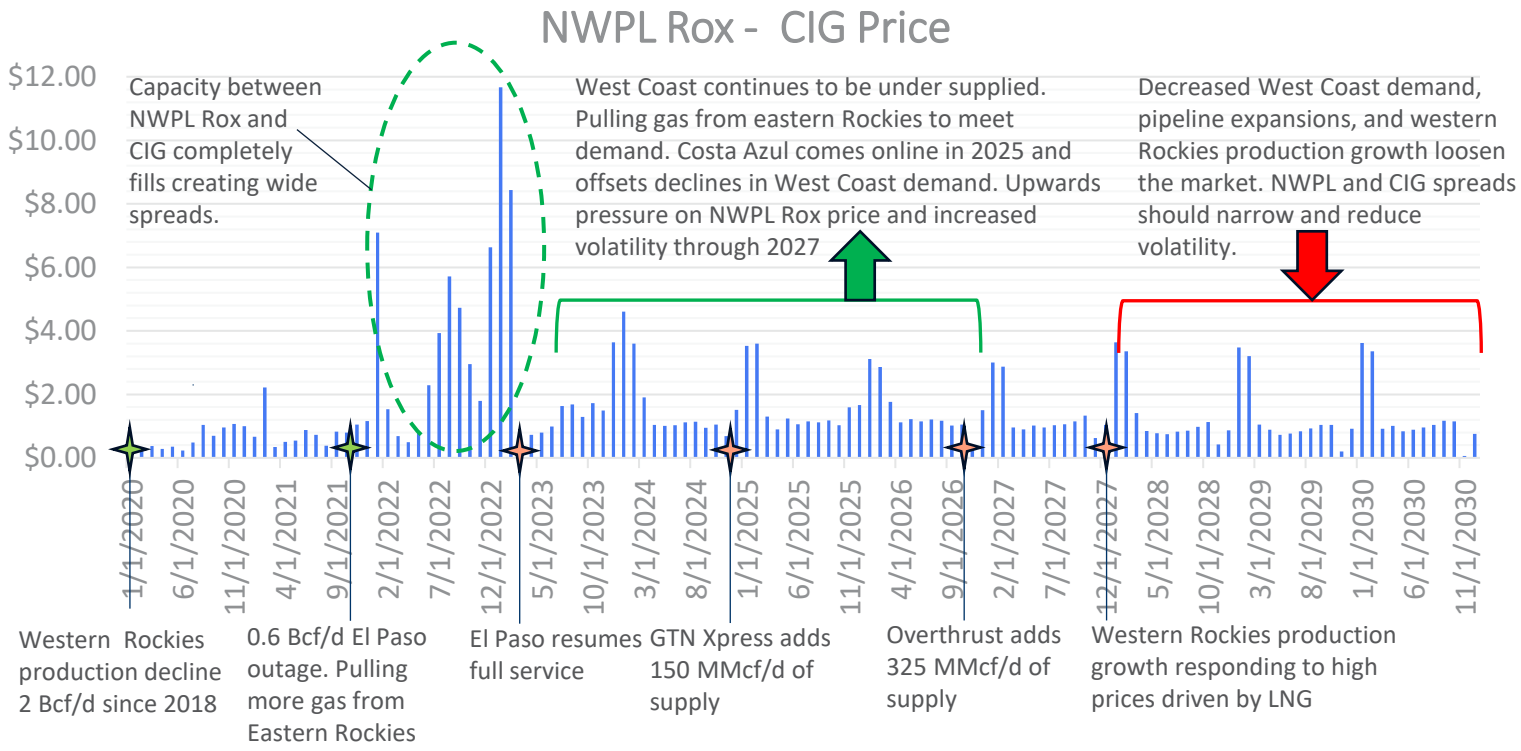


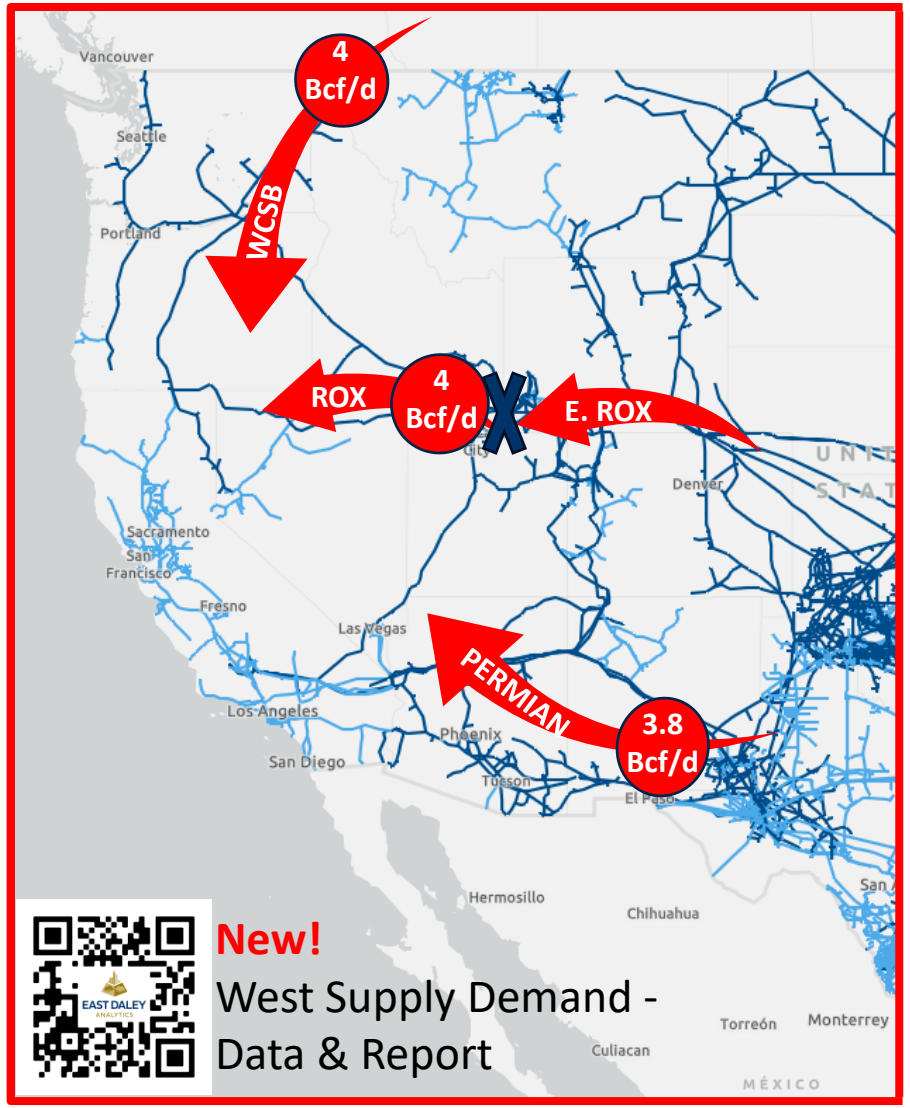


Access Macro Supply & Demand Report HERE

How the West Was Won

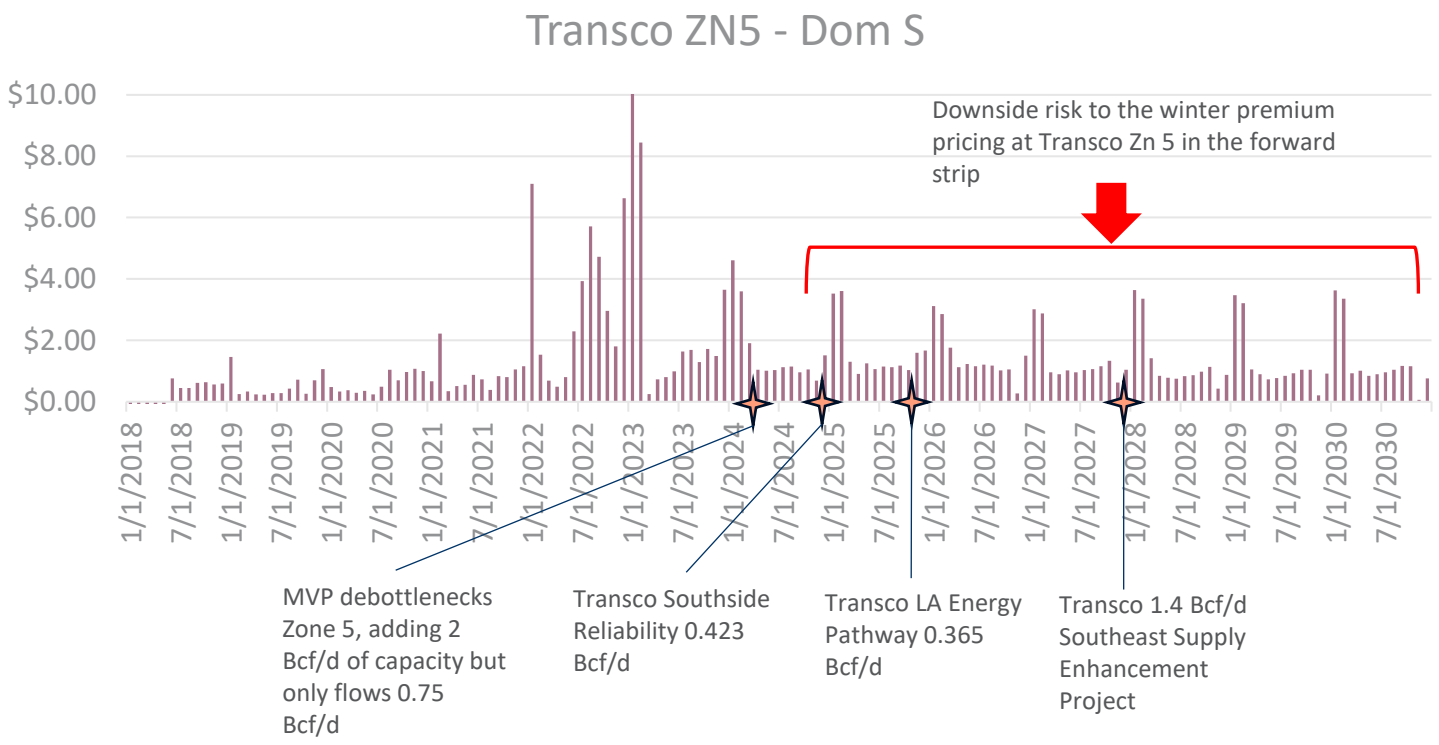
- The West Coast has been and will continue to be short natural gas through 2027.
- The ongoing deficit primarily stems from declining Western Rockies production and tight capacity.
- This dynamic will lead to continued volatility and wider basis spreads between CIG and West Coast.
- Post-2027, a combination of decreased West Coast demand, pipeline expansions, and increased Western Rockies production (a result of higher prices driven by LNG) will loosen markets again.

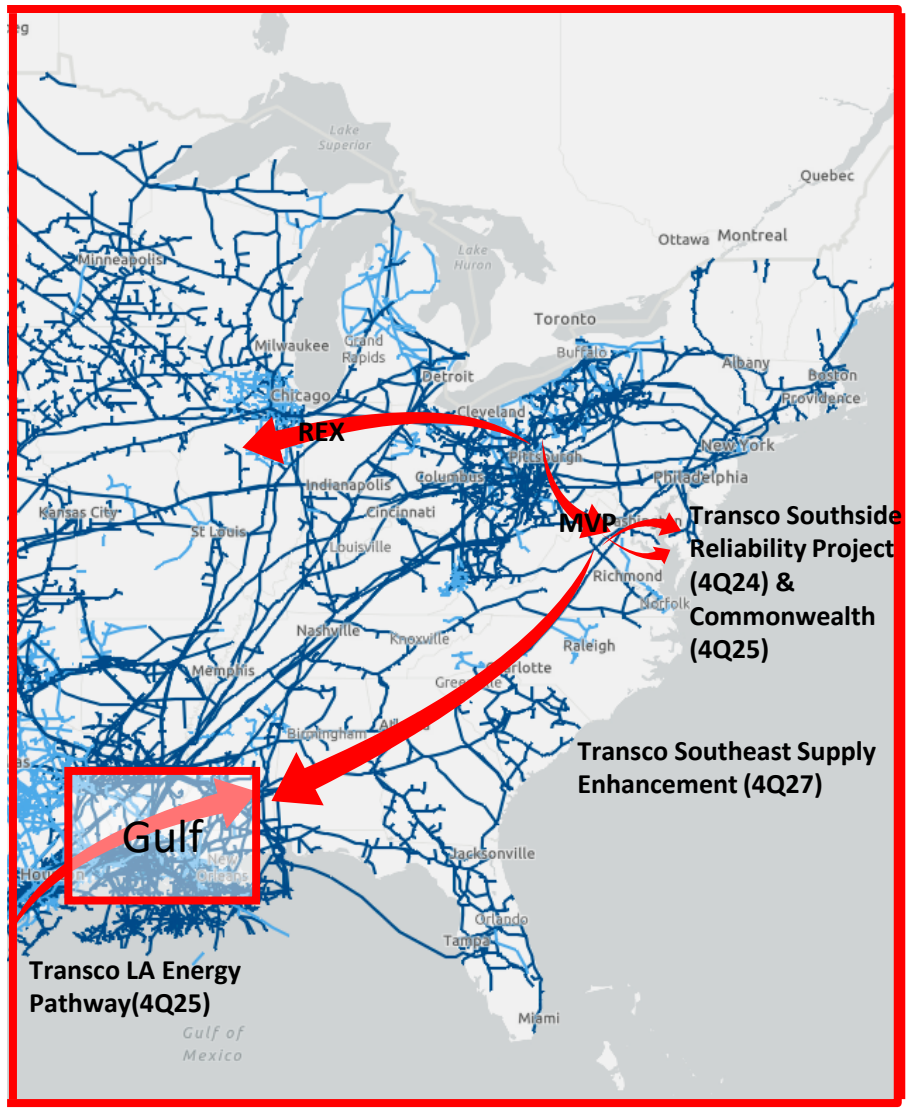




Return of the Mac – NE Production

- MVP will begin service in April 2024 in line with ETRN's latest guidance, opening capacity from Dom S. to Z5 and collapsing spreads to variable. MVP Southgate Ext (0.5 Bcf/d) into N. Carolina would increase throughput, if it can overcome permitting issues.
- Northeast production has a path to grow again.
  - Tallgrass a potential 320 MMcf/d East to West expansion from Ohio through Indiana.
  - Transco conducted a successful open season for 1.4 Bcf/d on the Southeast Supply Enhancement Project.
- **Transco's SE Supply Enhancement will fundamentally shift dynamics, allowing more gas to stay in the Gulf and relieving pricing pressure in premium Southeast markets.**





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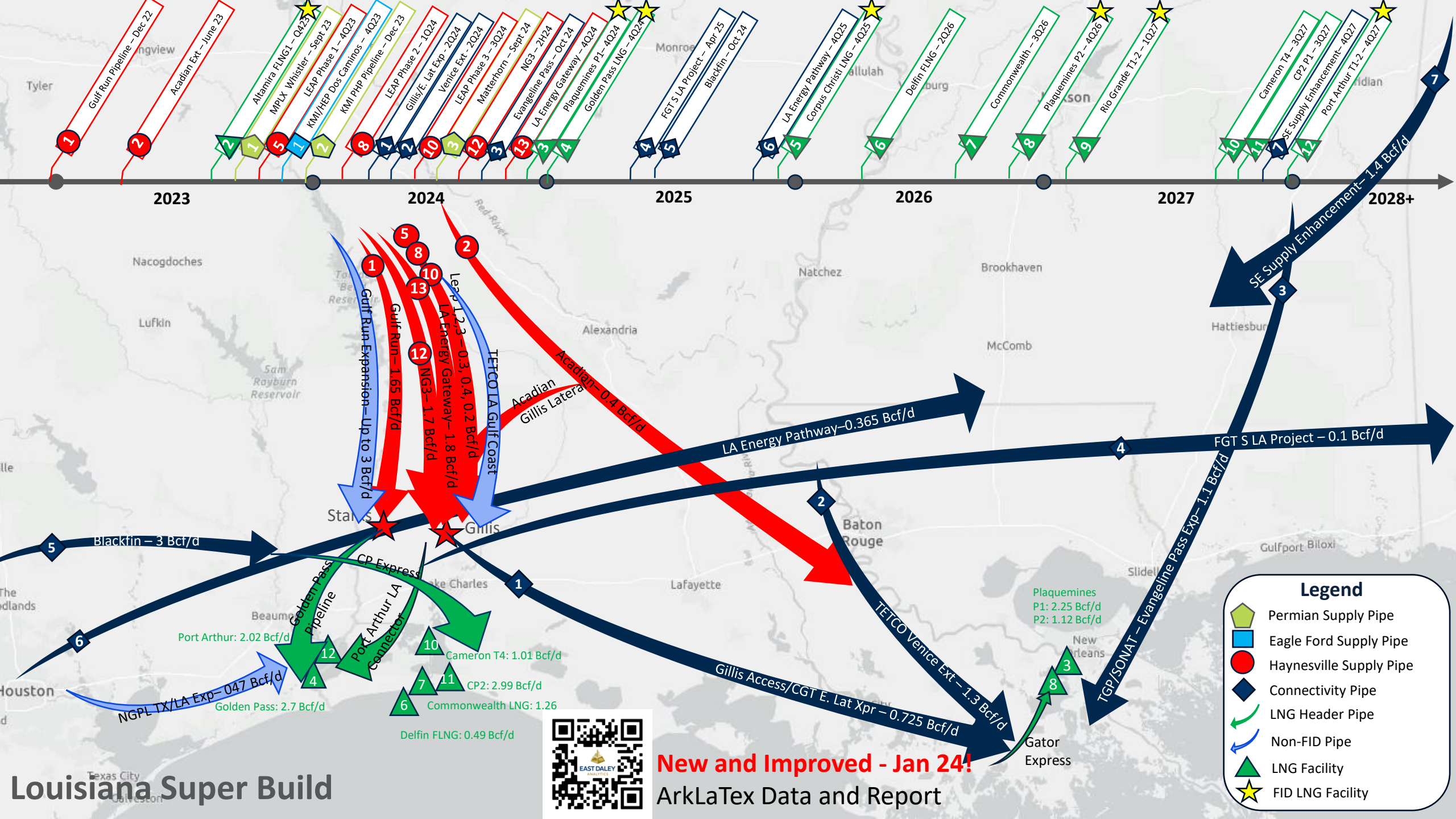
Gulf Run Pipeline – Dec 22
Acadian Ext – June 23
Altamira FLNG1 – Q4'23
MPLX Whistler – Sept 23
LEAP Phase 1 – 4Q23
KMI/HEP Dos Caminos – 4Q23
KMI PHP Pipeline – Dec 23
LEAP Phase 2 – 1Q24
Gillis/E. Lat Exp - 2Q24
Venice Ext - 2Q24
LEAP Phase 3 – 3Q24
Matterhorn – Sept 24
NG3 – 2H24
Evangeline Pass – Oct 24
LA Energy Gateway – 4Q24
Plaquemines P1– 4Q24
Golden Pass LNG – 4Q24
FGT S LA Project – Apr 25
Blackfin – Oct 24
LA Energy Pathway – 4Q25
Corpus Christi LNG – 4Q25
Delfin FLNG – 2Q26
Commonwealth – 3Q26
Plaquemines P2 – 4Q26
Rio Grande T1-2 – 1Q27
Cameron T4 – 3Q27
CP2 P1 – 3Q27
SE Supply Enhancement– 4Q27
Port Arthur T1-2 – 4Q27
2023
2024
2025
2026
2027
2028+
Gulf Run Expansion– Up to 3 Bcf/d
Gulf Run– 1.65 Bcf/d
NG3– 1.7 Bcf/d
LA Energy Gateway– 1.8 Bcf/d
Leap 1,2,3 – 0.3, 0.4, 0.2 Bcf/d
TETCO LA Gulf Coast
Acadian Gillis Latera
Acadian– 0.4 Bcf/d
SE Supply Enhancement– 1.4 Bcf/d
LA Energy Pathway–0.365 Bcf/d
FGT S LA Project – 0.1 Bcf/d
Blackfin – 3 Bcf/d
CP Express
Golden Pass Pipeline
Port Arthur LA Connector
Port Arthur: 2.02 Bcf/d
Golden Pass: 2.7 Bcf/d
NGPL TX/LA Exp– 047 Bcf/d
Cameron T4: 1.01 Bcf/d
CP2: 2.99 Bcf/d
Commonwealth LNG: 1.26
Delfin FLNG: 0.49 Bcf/d
Gillis Access/CGT E. Lat Xpr – 0.725 Bcf/d
TETCO Venice Ext – 1.3 Bcf/d
TGP/SONAT – Evangeline Pass Exp– 1.1 Bcf/d
Plaquemines
P1: 2.25 Bcf/d
P2: 1.12 Bcf/d
Gator Express
Legend
Permian Supply Pipe
Eagle Ford Supply Pipe
Haynesville Supply Pipe
Connectivity Pipe
LNG Header Pipe
Non-FID Pipe
LNG Facility
FID LNG Facility
Louisiana Super Build
New and Improved - Jan 24!
ArkLaTex Data and Report
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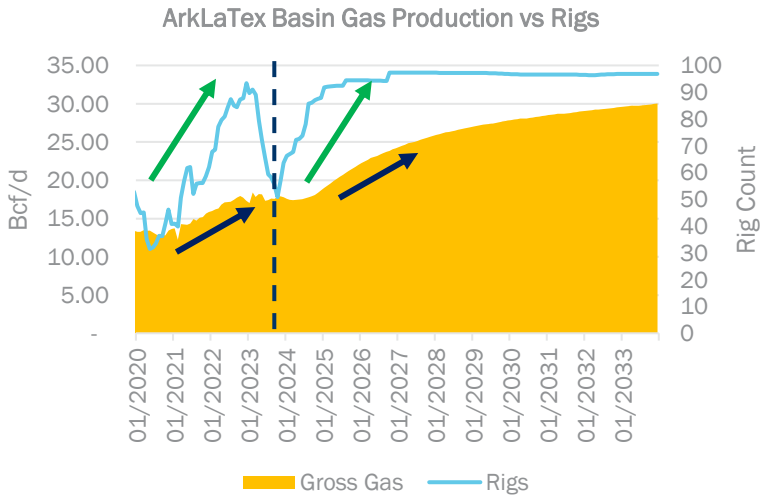
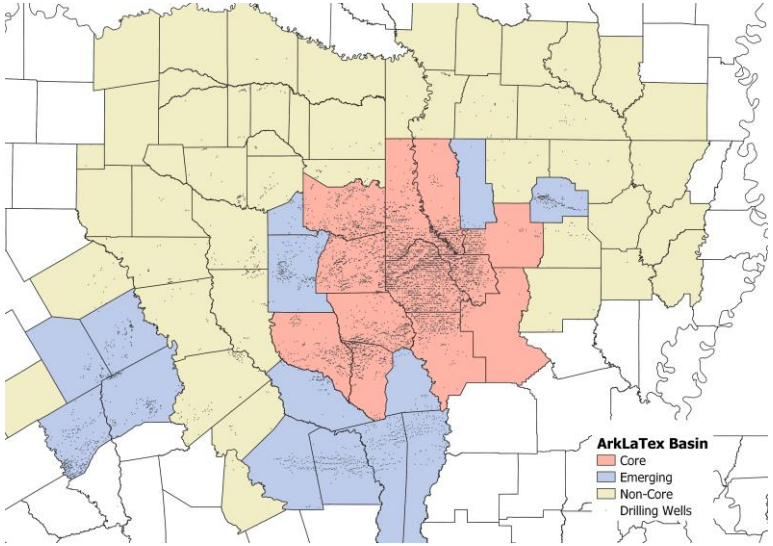
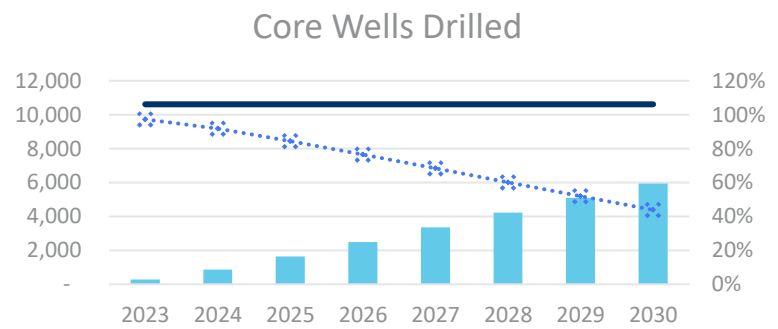
Deciphering Inventory

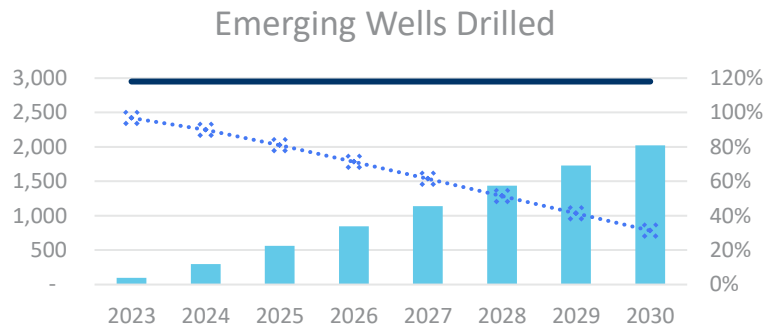
Haynesville Inventory Calculations

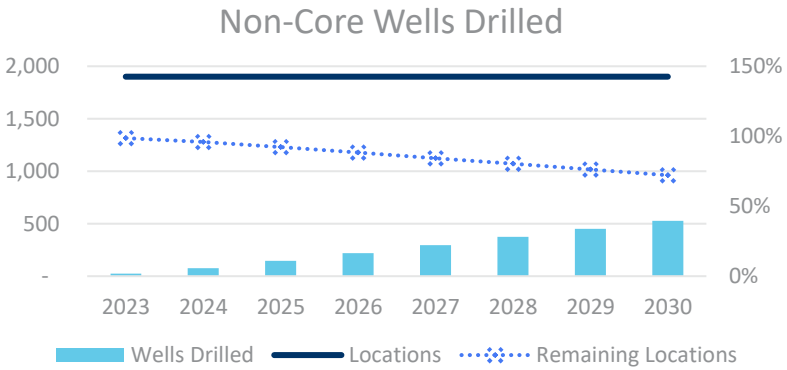
- East Daley forecasts rapid growth from the ArkLaTex region through 2030 to meet new demand from LNG facilities. Under these growth assumptions, we estimate the ArkLaTex Basin has a core drilling inventory lasting 12-15 years with total drilling inventory locations lasting 20 years.
- Drilling locations are classified as core, emerging, and non-core. Inventory is ample across all locations to sustain drilling through 2030, making the ArkLaTex Basin a reliable supply source to respond to new LNG demand.
- Drillable areas is the section/area of the county that has had drilling activity historically. EDA then uses spacing to estimate drilling locations and back out what has been drilled to determine the remaining locations. Finally, we use our rig count forecast to calculate years of inventory.
- While we believe in the ArkLaTex's ability to grow, factors like capital discipline, frac crews, and other resources will prevent highly accelerated growth to keep up with LNG demand
- Tier 2 basins will need to contribute to supplement supply, but these basins will react slower than the ArkLaTex as they are driven by higher prices.





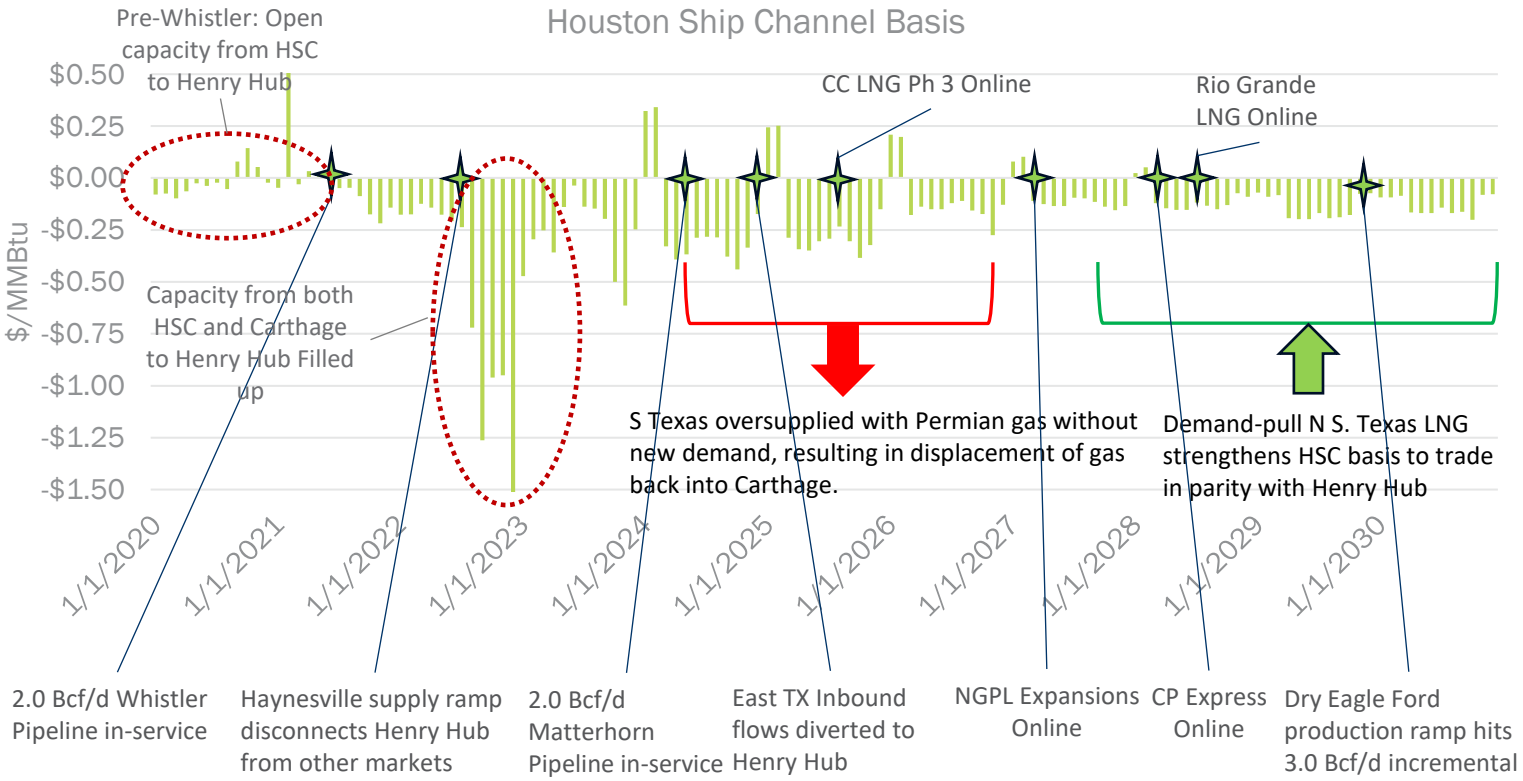


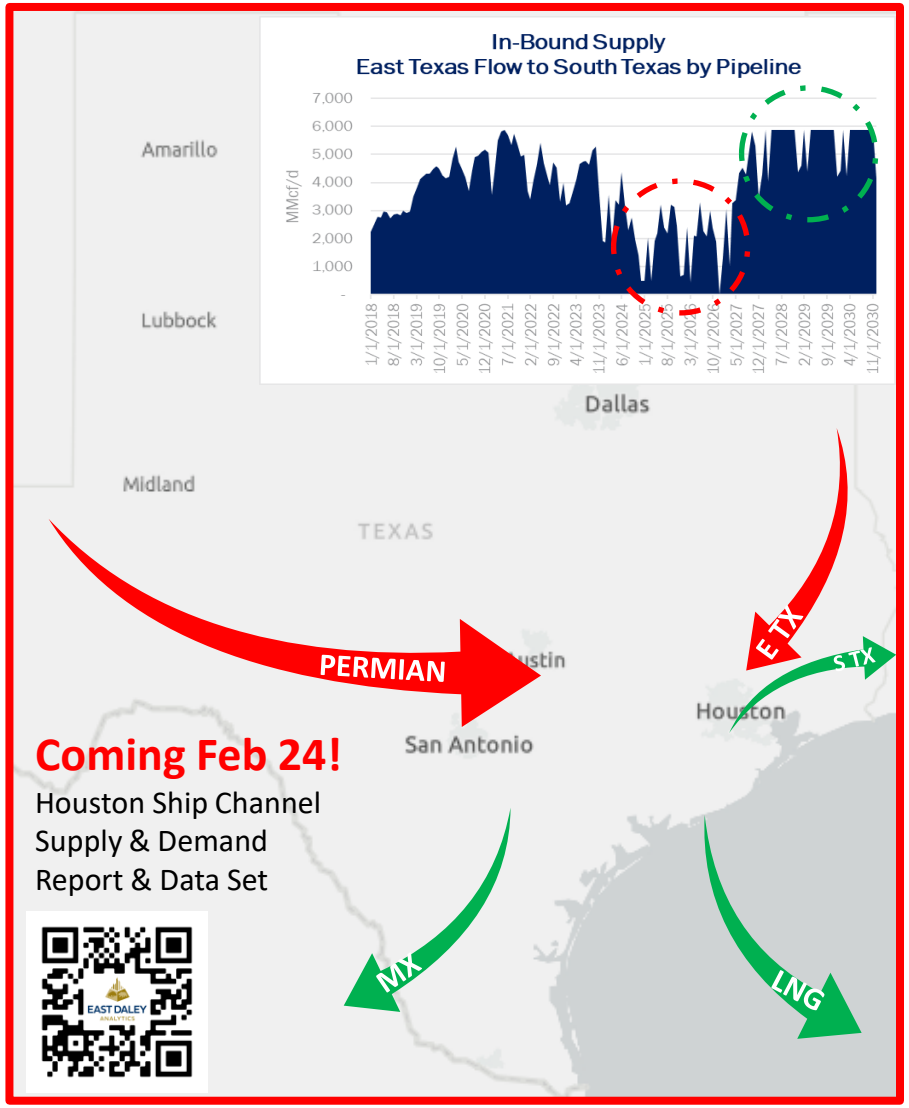




Houston Ship Channel Basis Outlook

- Permian supply will flood into South Texas, putting downward pressure on HSC basis as gas is displaced back into the Haynesville.
- In 2H 2027, South Texas will flip from oversupplied to undersupplied, resulting in upward pressure on pricing.
- From pipe outages, LNG delays, LNG outages and power demand fluctuations, there is the potential for significant volatility.





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Crude Oil

Crude Oil Markets Plows Forward

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Key Takeaways

Crude Oil Markets Plow Forward – Tighter Supply Demand Balance and Shifting Flow Dynamics

1. US crude oil market remain tight as supply trails export demand and producers continue to prioritize capital discipline and inventory building over market capture.

2. Changes in crude oil flows will create opportunities as US markets adapt to refinery supply changes and export infrastructure efficiencies.

3. The Permian-to-USGC corridor continues to tighten on the heels of steadily increasing Permian production.

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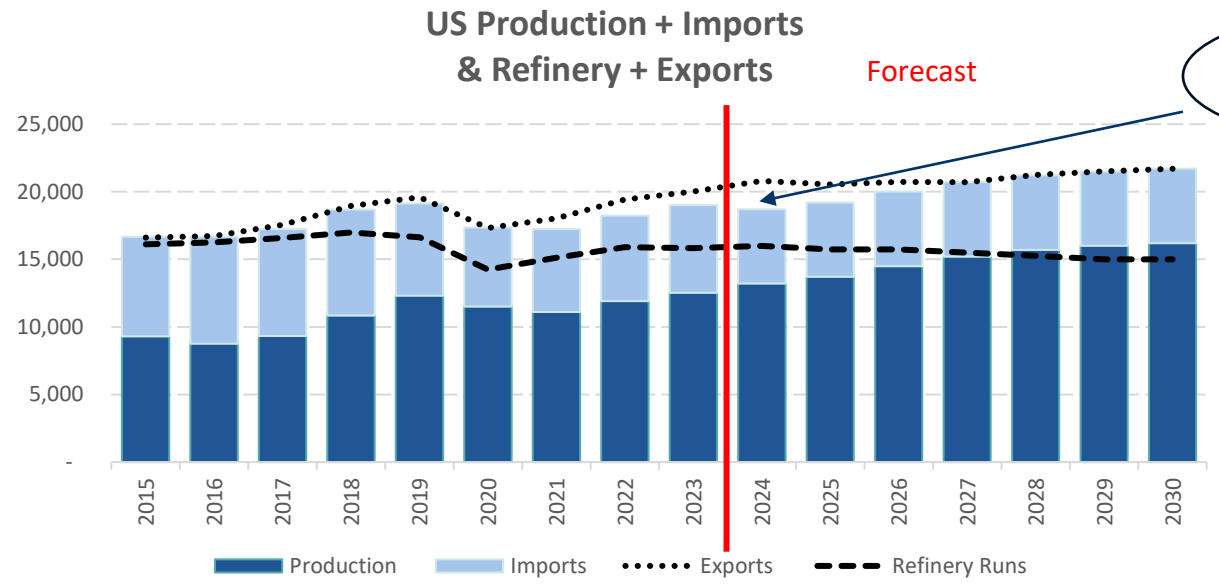
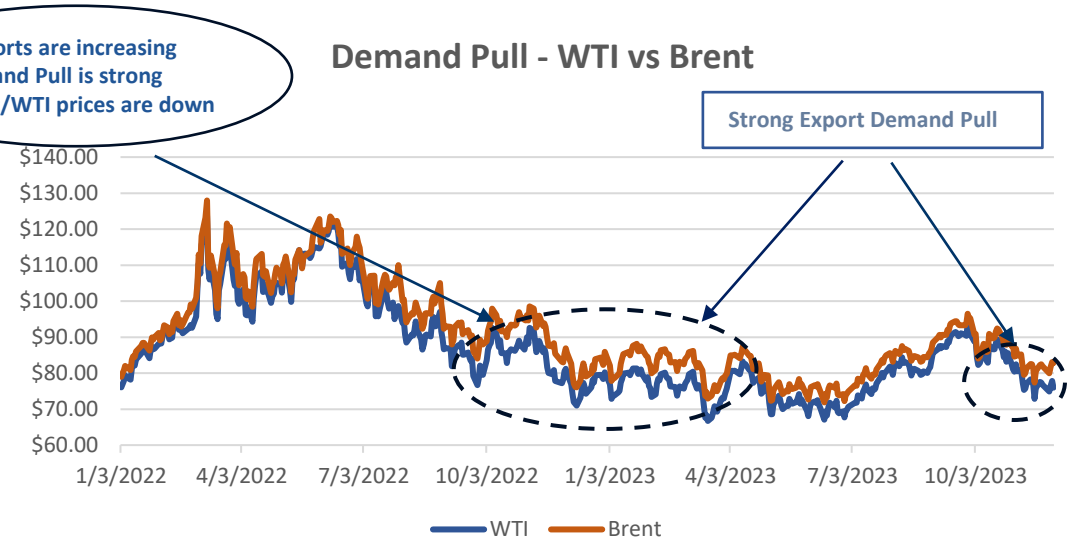
US Oil Production Sets its Own Agenda

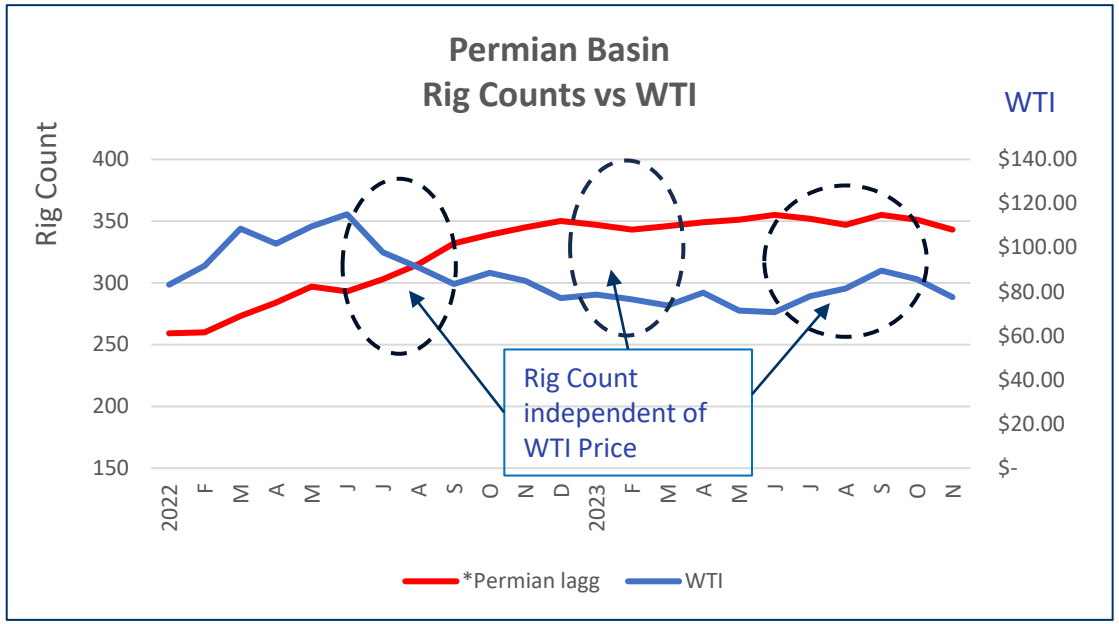


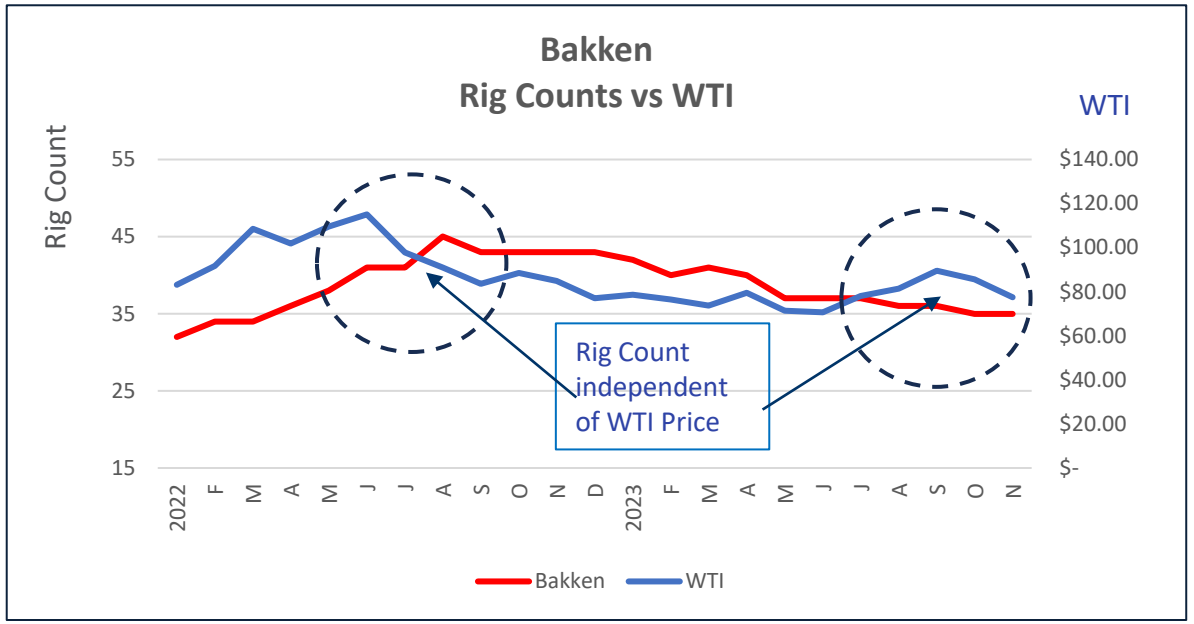


Independent of global supply and demand fundamentals US producers are propelled by a strong demand pull for exports combined with a strict capital discipline environment. As the global community reacts to supply and demand balances the US relies on its own internal economics and investor sentiment.

- Western Texas Intermediate, WTI, is the US benchmark for a US light barrel of oil. Brent is the benchmark for an Atlantic Basin light sweet barrel of oil and is used to price 2/3s of the world's internationally traded crude. The differential between WTI and Brent equates to the strength of the demand pull for US exports.
- 2023 has seen an exceptionally strong and consistent demand pull for a US barrel. **Export demand will continue to propel US production growth given WTI stays above a price ceiling as dictated by capital discipline strategies along with influence of OPEC.**
- The strength of export demand is seen through all production of refinery runs, 'excess production', in addition to storage pulls resulting in tight a tight US market.

US Producers Less Reactive



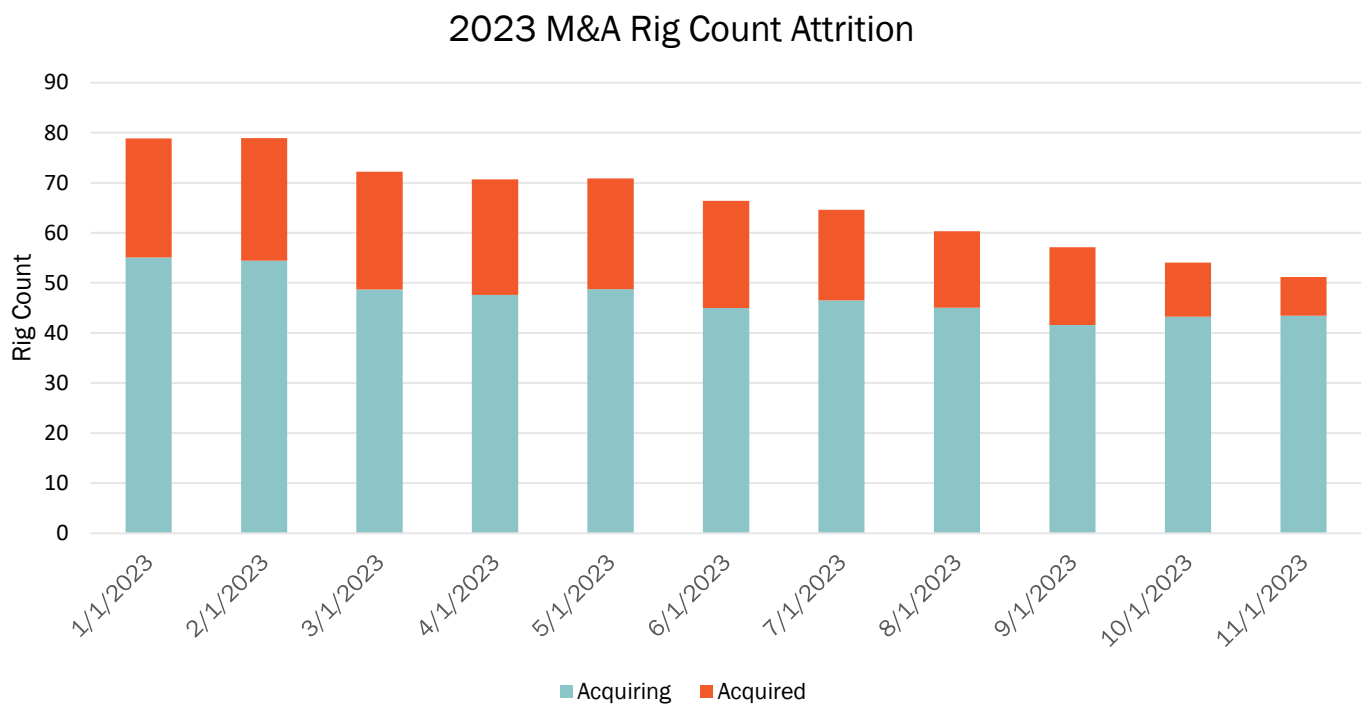


Note *denotes rig count 6 months after WTI price

Additional independence and a reliance on internal capital discipline strategies is seen when looking at rig counts. US production has acted counterintuitively to fundamentals as rig counts break correlation with WTI prices. **Capital discipline has superseded reactivity to market fundamentals.**

- US production has achieved record volumes with a steady rig count. Increasing rig counts are no longer needed for production to increase.
- US rigs are less responsive to price changes, so long as price stay above a price floor determined by internal economics.

Permian Basin M&A Rig Attrition



Understanding Permian Rig Reduction

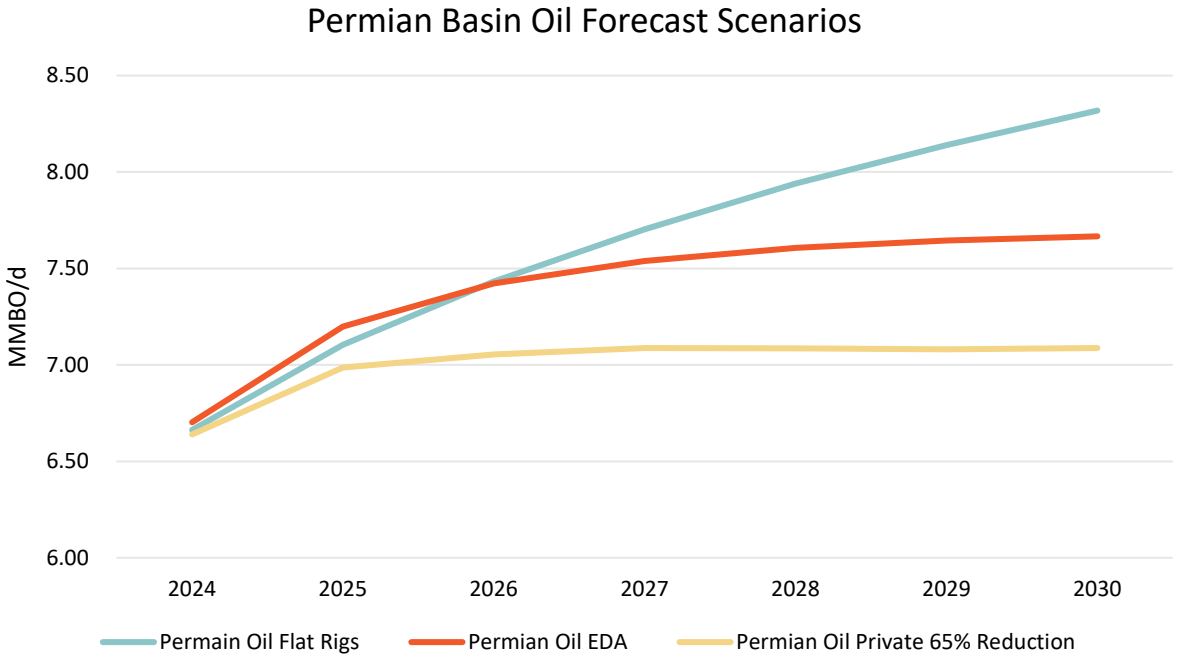
- Acquisitive upstream operators laid down many of the rigs on acquired assets while keeping their rig counts mostly steady.
- Primary motivation of larger companies is to acquire inventory while maintaining positive cash flow.
- In contrast to rising commodity prices, the Permian Basin rig count declined by 24% from January through November 2023.
- Industry consolidation continues to be a factor in our Permian Basin forecasting.

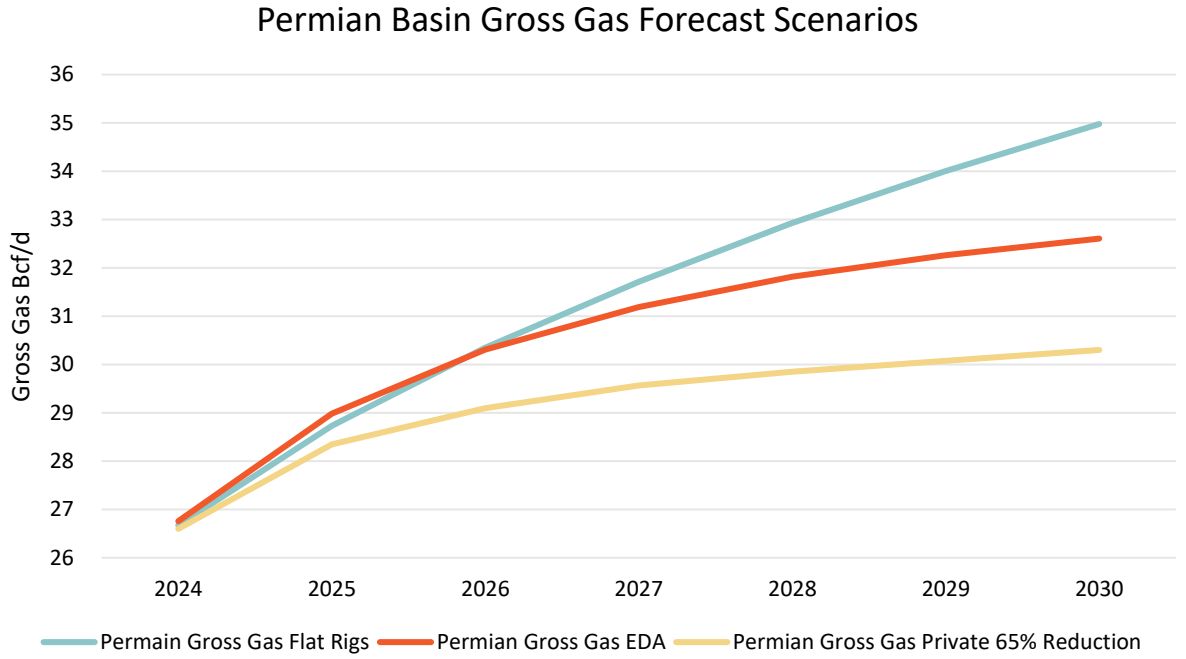
Date	Delaware Public	Delaware Private	Midland Public	Midland Private	Permian Total
January 2023	136	68	74	88	366
November 2023	116	50	67	67	296
Gross Rig Change	-19	-18	-7	-21	-70
Percent Rig Change	-17%	-36%	-10%	-30%	-24%

Headline:

Acquired private operator rig counts were reduced by nearly 70% in 2023.

What does this mean for Production





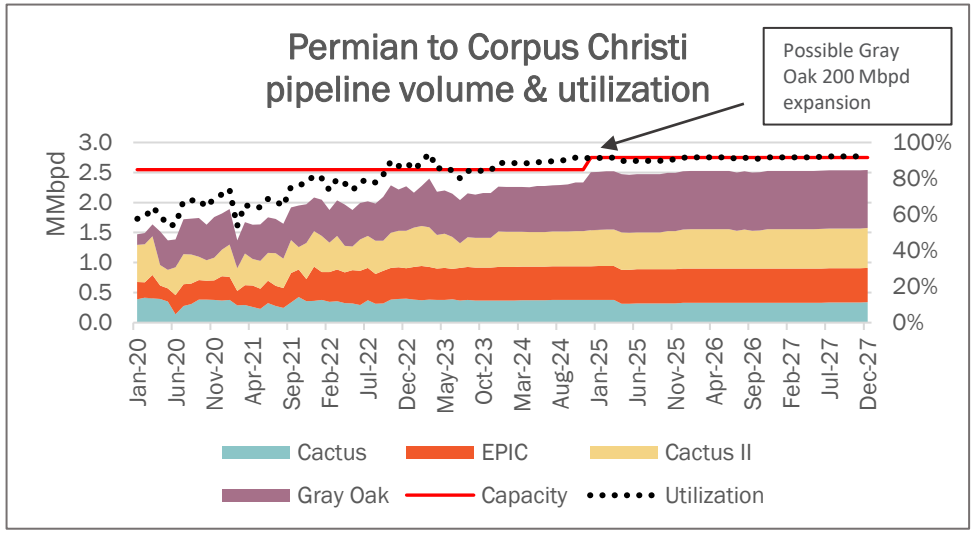
Scenario	Avg 2024 Rig Count	Average 2030	% Change (Rigs)	Gross Gas Growth	Gross Oil Growth
Permian Basin Flat Rig Case	338	338	0	31%	25%
Permian Basin East Daley	328	273	-17%	22%	14%
Permian Basin Private Reduction Case	325	249	-23%	14%	7%

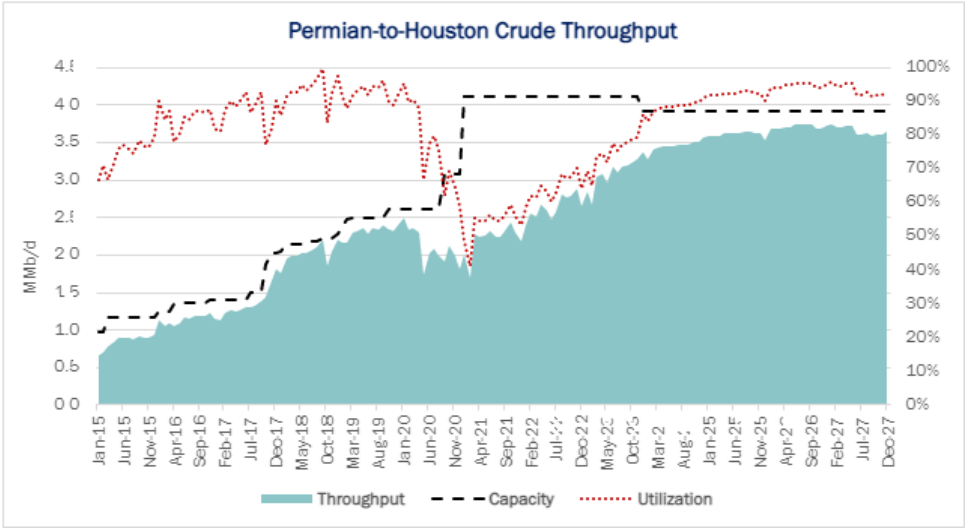
- East Daley anticipates consolidation to continue and further reduce rig count across the Permian Basin through 2030.
- This will result in more tempered growth from the Permian Basin. We model gross natural gas and oil production to grow by 22% and 14% respectively from current levels.
- If the Permian Basin experiences a 65% decline of all private rigs by 2030 (similar to the decline in private rigs seen in 2023), East Daley projects gas and oil volume growth would be reduced to 14% and 7% respectively.

Permian Crude Bottlenecks

Permian Basin production is forecast to grow 34% to 7 MMb/d by YE2027.

- At this growth rate, East Daley forecasts the Permian Basin to be at 90% utilization for all egress pipelines by mid-2025.
- **Corpus Christi** has been the destination of choice for Permian production. It has in-market tariff rates combined with direct access to export docks and can load 'neat' barrels. Corpus Christi is 1 of 2 US export docks that can fully load a VLCC. Additionally, the Corpus Christi port is less congested than Houston to provide better efficiencies.
- Egress for Permian became fully utilized (~85%) in mid-2023 at which time additional Permian growth being shipped to Houston.
- Enbridge recently announced an open season to expand Gray Oak Pipeline by 200 Mb/d from the Permian to Corpus docks. Any capacity for Permian barrels to reach Corpus is a bonus but 200 Mb/d is a ways from providing significant production to Corpus' underutilized docks (48%). However, it is questionable if the Gray Oak expansion will happen as tariff rates to support a DRA may be more costly than Houston economics.
- East Daley forecasts shipping barrels to **Houston** will be **fully utilized by mid-2024**. Houston was initially impacted this December when Enterprise converted Midland-to-Echo II back to NGL service, removing 210 Mb/d of capacity. The remaining egress will be filled with new production.





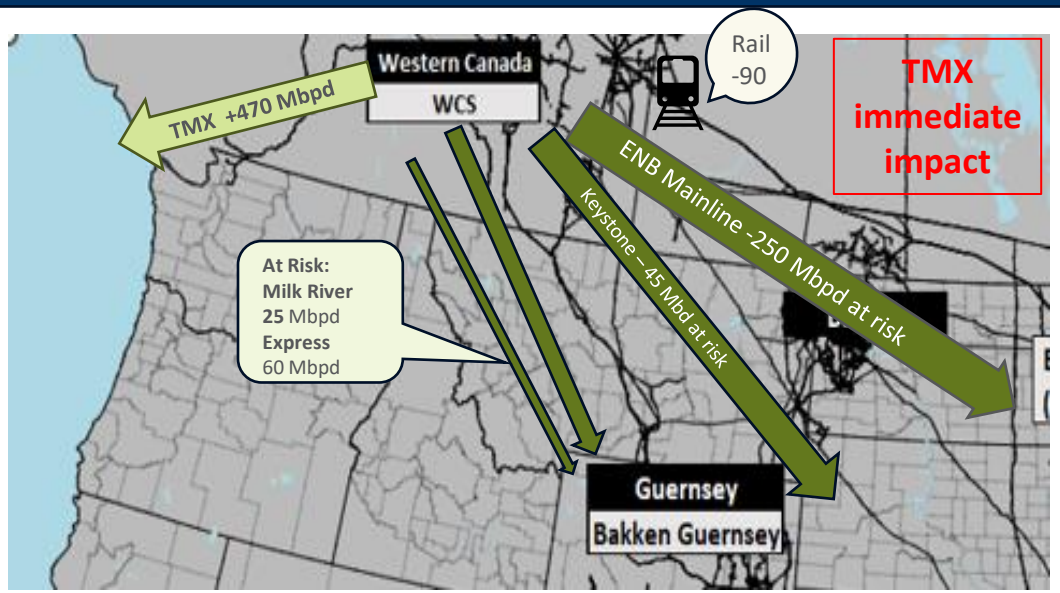
Trans Mountain Pipeline Expansion's (TMX) Removes ~470 Mb/d of US supply

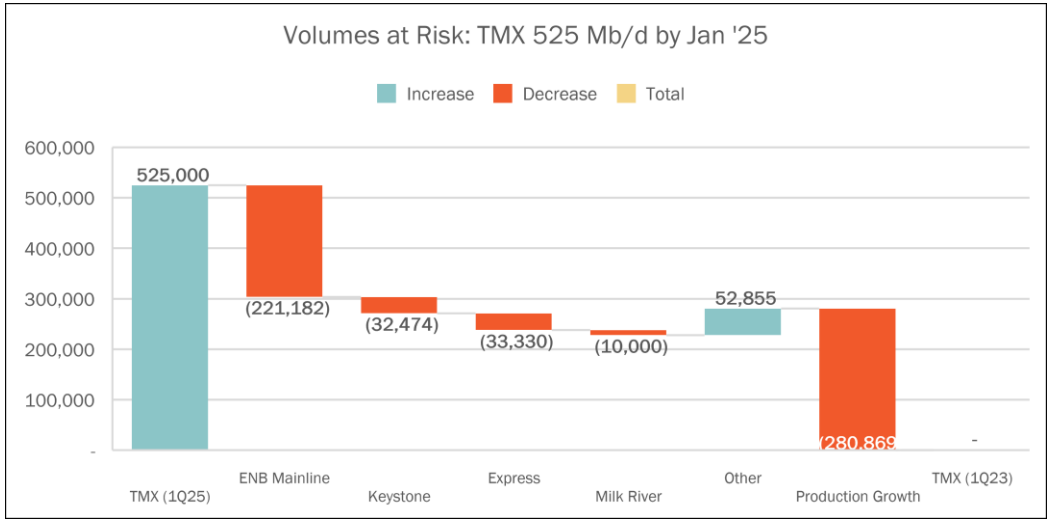
Trans Mountain Expansion (TMX) Project

- The Government of Canada bought the TMX from KMI in 2018 to ensure the completion of the expansion project. Service spans Edmonton to Vancouver boosting capacity to 890 Mb/d from ~300 Mb/d.
- **TMX expansion is critical to allow Canadian producers to grow production and 'receive fair market value for its resources' as stated by the Canadian federal government.**
- Westridge Marine Terminal provides the **only Canadian access to markets without going through US.**
- TMX's is a twin line, primarily for heavy sour exports and was intended to reach Asian and Indian markets. However, EDA believes a significant amount of crude will continue delivering to US Pacific Coast refiners.

The Effect of TMX on US Supply

- The immediate impact of TMX is expected to be a loss of 470 Mb/d, the total of TMX MCVs. By 1Q25 East Daley forecasts TMX volumes to be ~525 Mb/d.
- Enbridge Mainline volumes will see the biggest effect from TMX. Enbridge has communicated it anticipates losing up to 250 Mb/d. Due to a large portion of Keystone Pipeline's volume being committed, EDA believes the pipe is only at risk of losing ~45 Mb/d. The other older and smaller pipelines, Milk River and Express Pipelines, are at risk of losing ~85 Mb/d. Other reductions will come from railed and trucked barrels to US markets.
- **Gulf Coast docks currently export ~250 Mb/d of Canadian heavy crude. The remaining 275 Mb/d is refinery supply.** EDA expects PADD 2 refiners will retain their supply and Gulf Coast refiners must find replacement bbls.
- By 1Q25, East Daley's Crude Hub Model forecasts Canadian production will replace ~280 Mb/d of the TMX volumes and GC refiners will have secured the additional 245 Mb/d replacement bbl.



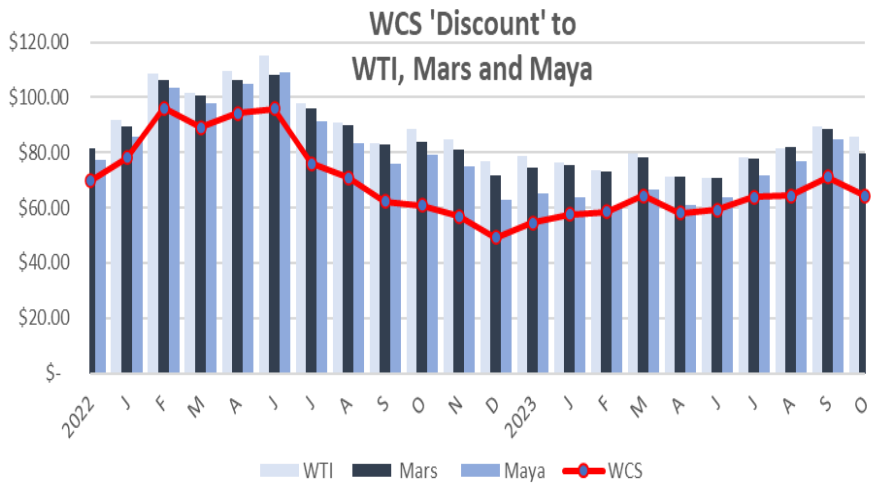


Source: Energy Data Studio: Crude Hub Model

TMX: Good for Canada, Not so Good for the US

Loss of a *cheap* heavy, sour barrel

- Western Canadian Select (WCS) is the price for the Western Canadian Sedimentary Basin heavy sour production. The WCS Cushing quote shows the discounted value of the WCSB bbl vs other Gulf of Mexico and Mexican heavy sour barrels. US refiners have been able to take advantage of this additionally discounted heavy bbl.
- As Canada develops a new market for the WCSB bbl the WCS differential will tighten.
  - EDA forecasts the WCS Cushing value to be sub $10 (compared to $12 today) as TMX begins transporting at committed values.
  - The WCS differential will become more in-line with other sour grades;
    - Mars & Poseidon - Gulf of Mexico heavy sour grades
    - Maya – Mexican heavy sour bbl
- The TMX expansion will result in US refiners paying higher prices for ~3.36 MMbbl of refinery supply.
- The loss of the discounted bbl will result in tighter refinery supply & low stock level ultimately causing increased market volatility.



Loss of Refinery Supply & GC Volume

- EDA forecasts Canada-to-Patoka pipeline volumes will decrease by 250 Mb/d impacting balances for PADD 2 refiners and volumes on egress pipelines headed to Cushing and the USGC.
- Downstream pipelines such as Enbridge's Flanagan and Spearhead, as well as the Capline pipeline system pose the most risk to lose volumes because of TMX.
- This will result in lower supply balances at Cushing and St. James.

Everything is replaceable …. at the right price

Immediate Replacement bbl

- **Gulf Of Mexico Exports**: Current Gulf of Mexico sour production is being exported from the LOOP. These exports will be rerouted for GC refinery supply.
- **Internal Niche Markets:** As the sour bbl becomes more valuable, it will be aggregated in the Permian and Eagle Ford and shipped to GC refiners. Recently, two niche markets have developed in Eagle Ford aggregating and shipping niche batches to the GC and Europe.
  - Port of Victoria
  - Port of Calhoun
- **Venezuela –** In November 2023, the Biden administration eased sanctions on Venezuela to allow Venezuela to produce and export oil to its chosen markets for the next 6 months. Venezuela currently produces ~700 Mbpd and it is forecasted to grow by 3% to 900 Mbpd by 2024. The US currently imports ~150Mbpd. The political landscape in Venezuela is unpredictable, however, East Daley believes it is not unreasonable to attribute 50 Mbpd growth in US imports.
- **Maya Mexican Production:** The US is 1 of 3 importers of Mayan oil at 650 Mb/d. The US can increase imports of Mexico's Maya.

Longer Term Replacement bbl

- **Gulf of Mexico Production**: Gulf of Mexico production is forecasted to grow by 150 Mb/d by YE25. Offshore projects including Mad Dog, Shenandoah, Salamanca will be coming online 2023-25.
- **Canadian Growth Forecast**: Canadian WCSB production is forecasted to grow ~275 Mb/d by YE2027.

Promising Projects

Announced Projects

SPOT – Sea Port Terminal, Enterprise Products

+ 2 Bilateral lines connecting **ECHO Terminal** (8.4 MMBbl storage) and a proposed new Oyster Creek Terminal (4.38 MMBbl storage) connecting to the Houston Market.

+ **ROD** (Record of Decision) permit granted. Expects to be fully permitted by YE23 and commercially viable by YE26.

Project Volume Pulls

- To fill SPOT EDA is forecasting the volume to pulled from the other Houston Export docks and Corpus Christi to remain at current levels. Current Houston Export levels are at 1.6 MMb/d

BMOP – Blue Marlin Offshore Port, Energy Transfer

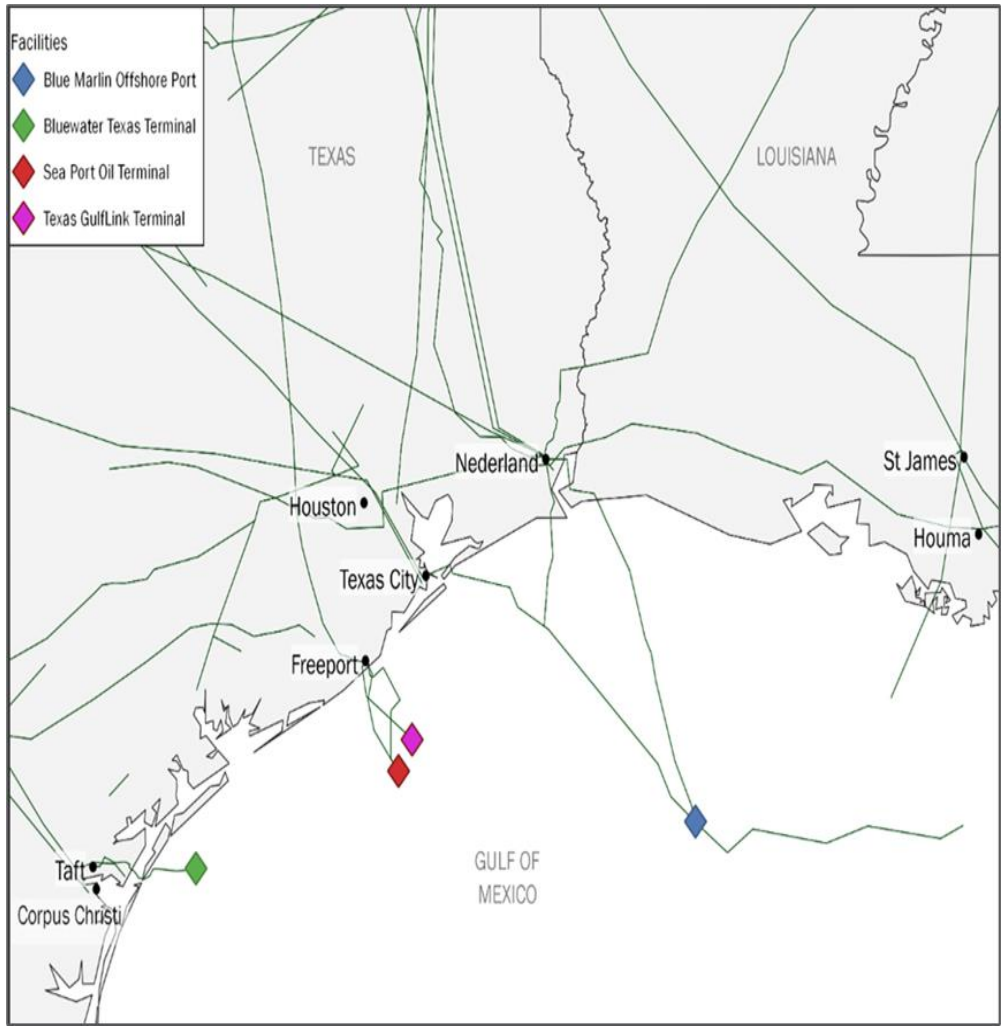
+ **Converting existing Stingray gas pipeline** and production platform. Adding 42" from Nederland to Stingray.

+ Connects to **Nederland Terminal**, has 90 MMbbl of storage and DAPL and Permian Express connectivity.

+ Project Complete Time: **24-30 months from FID**

Project Volumes Pulls

- BMOP will have optionality to pull barrels from almost supply area via the Nederland Terminal. Nederland is the terminus for Bakken barrels via DAPL, Stringray will provide offshore bbls, Houston and Permian bbls.



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EAST DALEY ANALYTICS

Natural Gas Liquids

The Best Defense is a Good Offense

Request a Detailed NGL Market Update Scan Me or Click Here

Takeaways

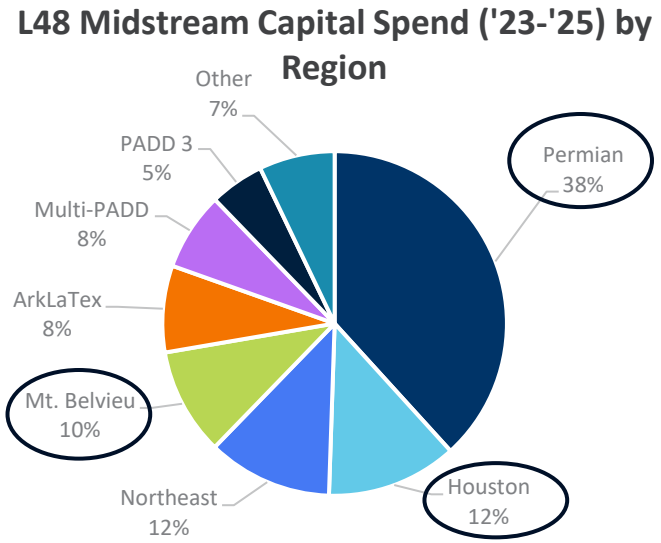
- **The Fight is on for NGL Barrels:** Midstream is using free cash flow to build pipelines that will transport NGL production growth out of the Permian for the next 5-10 years. Capacity looks ample, driving heavy competition for molecules and leading to downward pressure on Transportation & Fractionation (T&F) rates.

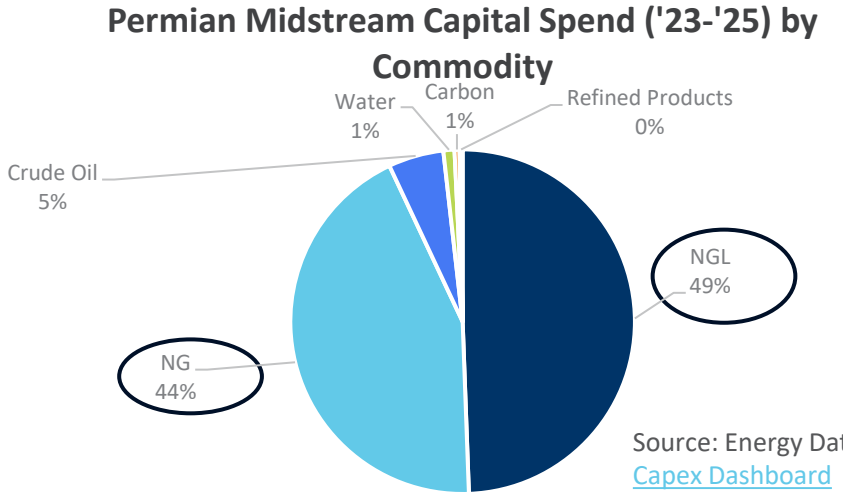
- **A Molecule Lost Means $0.50 on the Dollar Gone:** Spending capital ahead of demand is necessary to grab as much market share as possible from producers, thus limiting the risk of losing out on the downstream dollar.

- **Downstream Opportunity from Midstream Prematurity:** Enticing producers to commit as shippers on expanded NGL pipelines de-risks capital spend for fractionation and LPG export terminals.

- **Logistical Path Ripe for M&A**: ET, EPD and TRGP have benefited from integrated value-chain economics in NGLs. A 'Fourth Alliance' could be formed if a competitor steps up to link assets from the wellhead to export docks. Otherwise, it could be irrelevance or domination for other companies in the NGL space.

A Bet on Growth – Permian Supply to World Demand



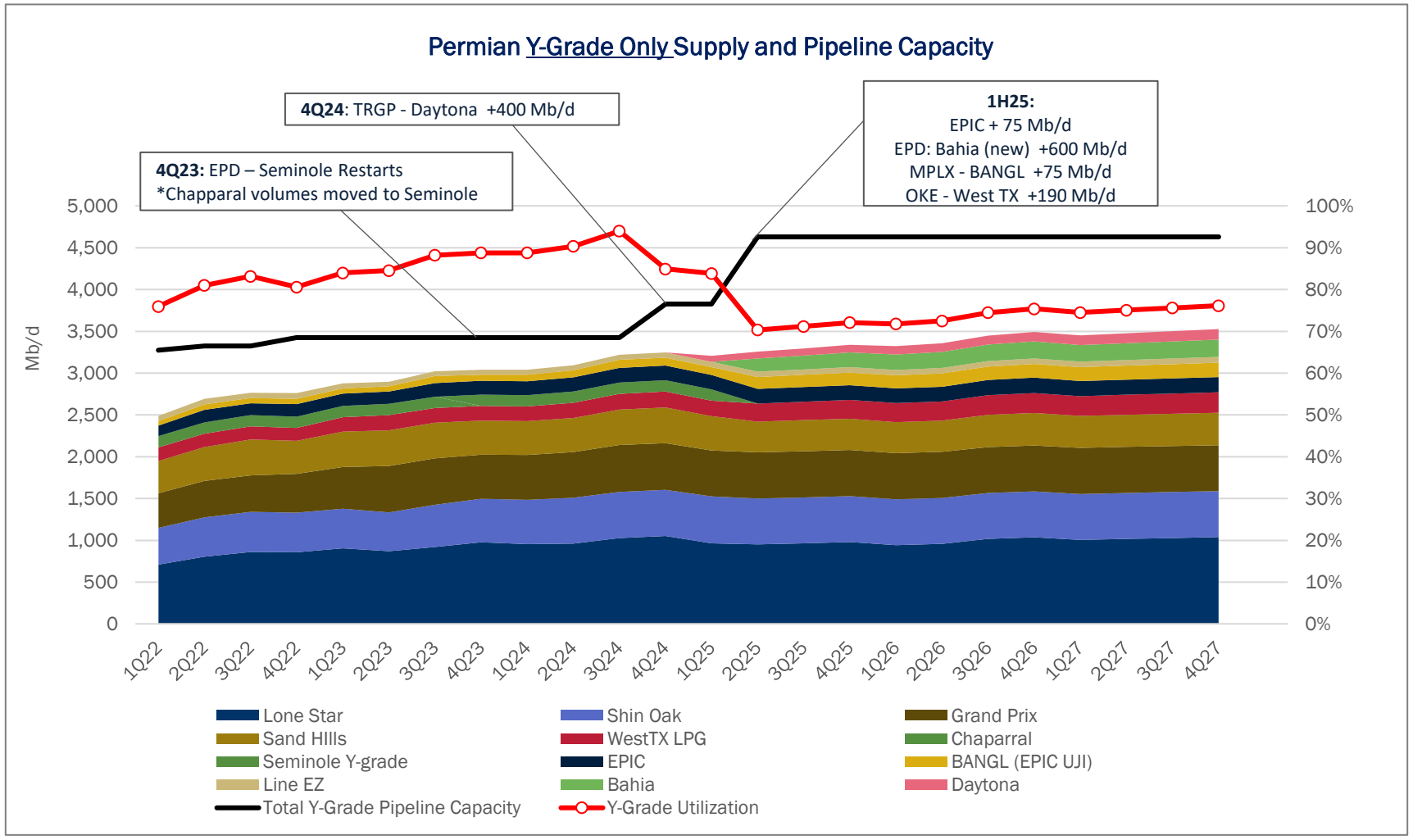


Source: Energy Data Studio: Capex Dashboard

Permian Growth Capital 2023-2025 ($MM)	G&P	LH Pipe	Frac	Export	Total
ET	$1,165	$0	$337	$1,271	$2,773
EPD	1,750	1,600	1,000	2,025	6,375
TRGP	2,468	578	550	150	3,746
OKE	0	520	550	0	1,070
MPLX	375	280	0	0	655
EPIC	0	100	0	0	100
Total	$5,758	$3,078	$2,437	$3,446	$14,719

- The Permian supply basin and the Mt. Belvieu and Houston demand markets is where *$17B+ in growth capital* is being spent from '23 to '25, *across all commodities*. Total midstream growth capital spend in the L48 is almost $30B so those regions drive $0.60 out of every dollar.
- Within the Permian to USGC highway, *$15B* is related to the NGL logistics value chain.
- Midstream companies, primarily the 6 listed in the table, are investing the lion's share of growth capital linking Permian NGL supply to international demand.

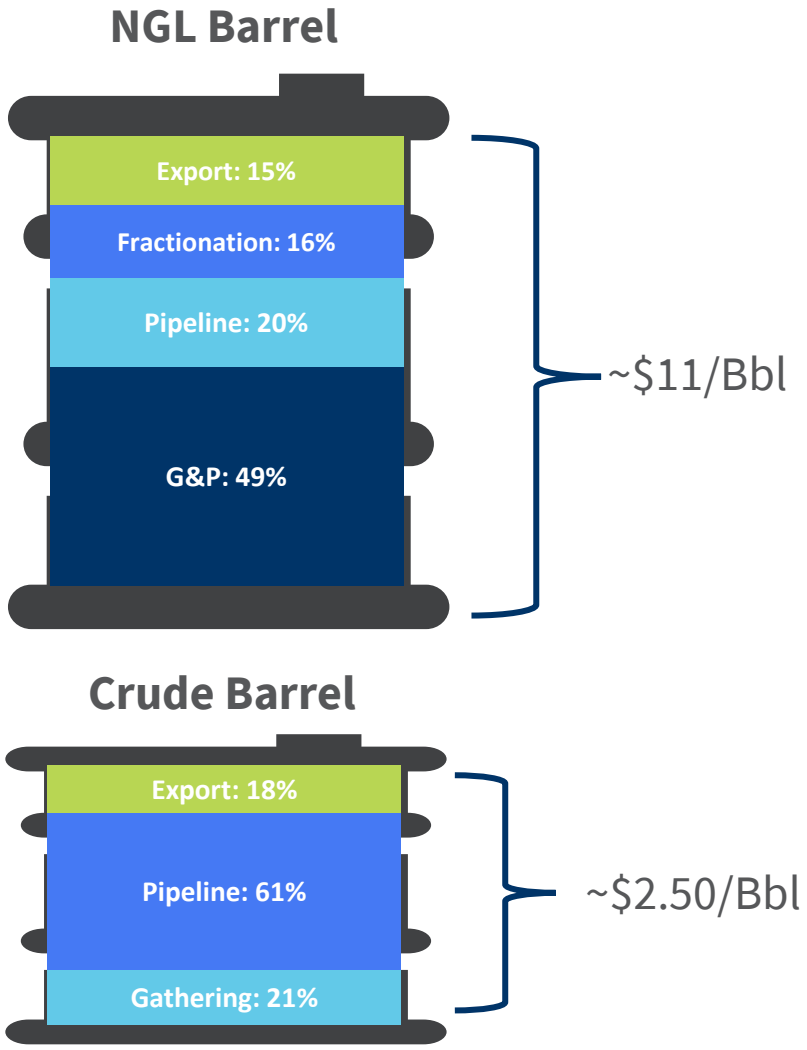
NGL Permian Egress → VACANCY



Source: Energy Data Studio: NGL Network Dashboard

- Midstream companies are acting pre-emptively by spending on NGL pipeline expansions before that capacity is necessary.
- EDA expects NGL production to grow in line with gas production – moderately with a CAGR of 11% from ’23 to ’25.
- At the same time, a combined 1.3 MMb/d of Y-grade capacity will be online by 1H25, leading to aggregate pipeline utilization rates in the low-70% range (see red line graph, utilization on right-hand axis).

Defending Value Chain Economics



- Midstream behemoths are protecting the highly economic NGL value chain. ET, EPD and TRGP, for example, earn almost $5.50 on a per-barrel equivalent basis at their Permian gas processing plants.
- These companies more than double their NGL earnings by sending a gathered/processed gas molecule through their NGL pipelines (~$2.20/bbl), fractionation plants (~$1.80/bbl) and LPG export facilities (~$1.70/bbl).
- In comparison, the crude oil value chain misses out on the refining component; it only collects fee on gathering, long-haul pipe, and export.
- Defending the NGL territory is profitable, even if capital spending precedes higher pipeline utilization. We expect excess pipeline capacity beginning in 2025 will drive T&F market rates lower than legacy tariffs. Even so, it remains lucrative to preemptively secure barrels.

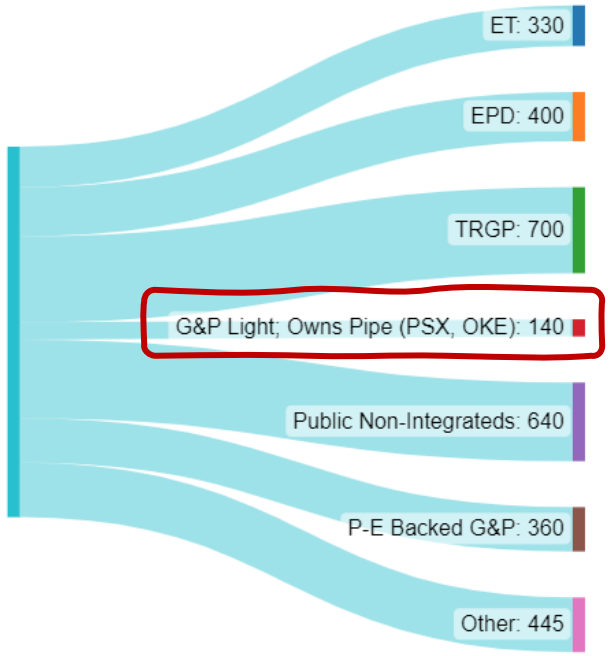
Concentrated Behemoths vs. Fragmentation

Behemoths + Fragmentated Ownership

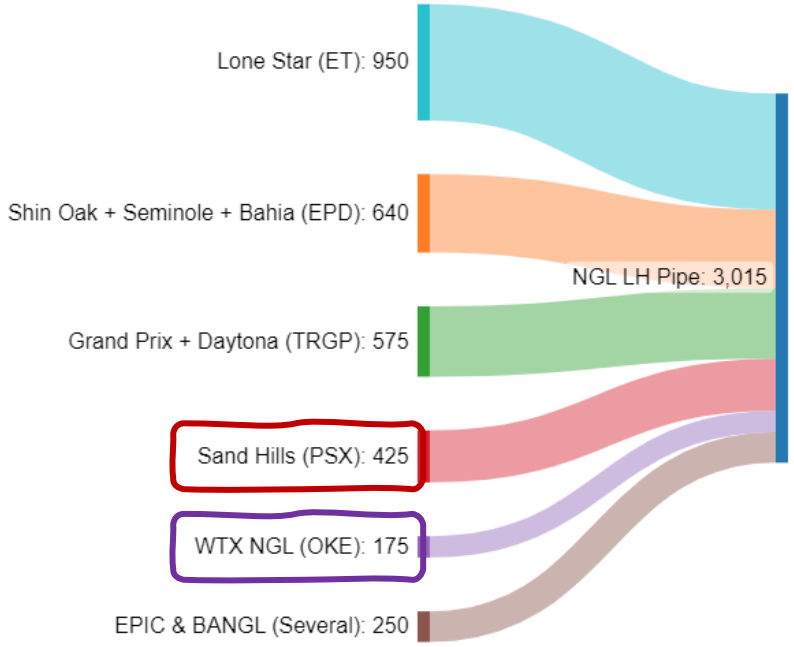
Behemoths + Divided Interests

Behemoths + Divided Interests

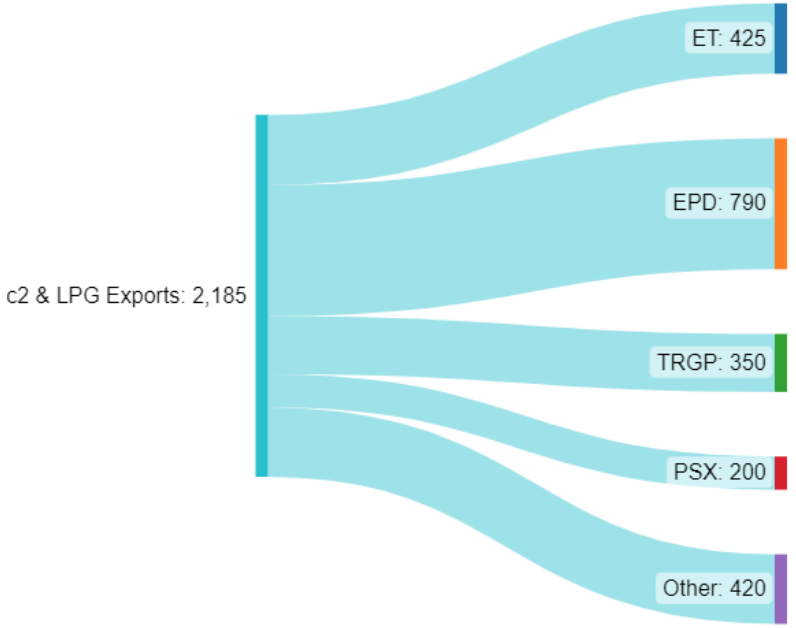
Permian NGL Production = 3,015 Mb/d



25+ owners & 125+ plants

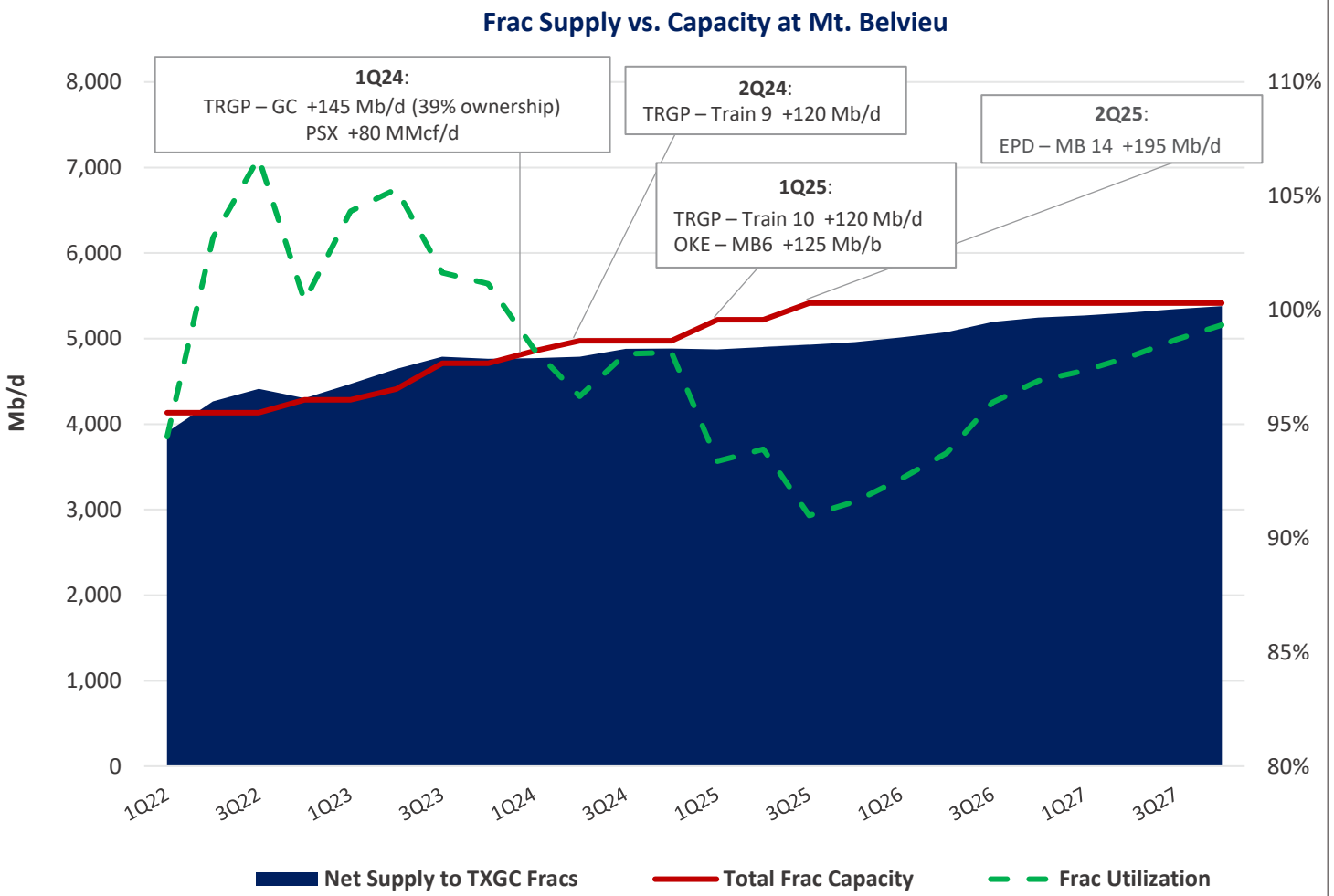


8 owners & 10 pipelines



5 owners

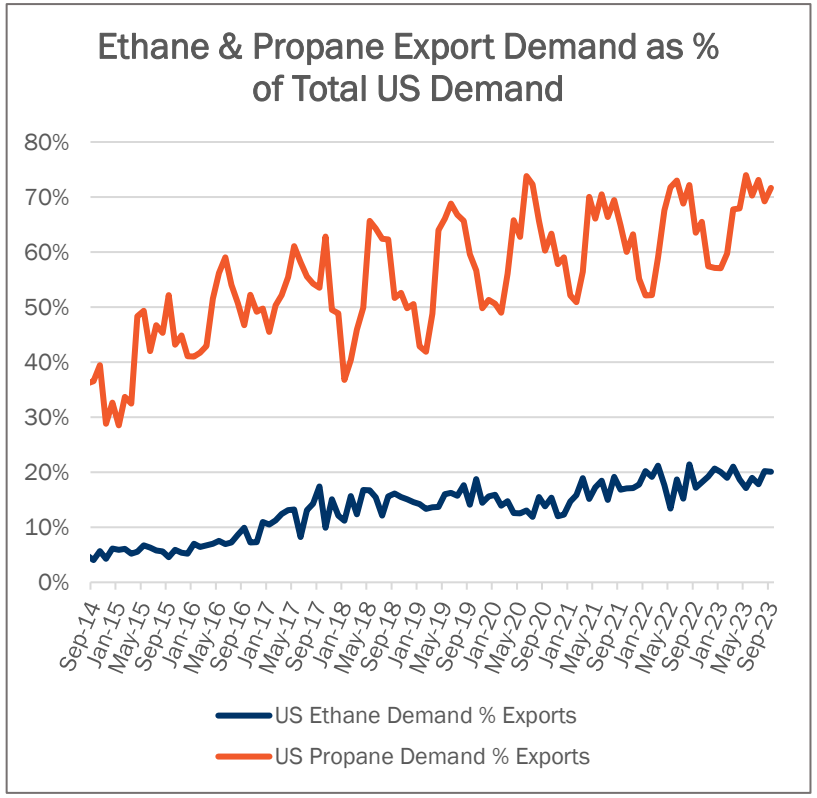
NGL Frac: Is it Worth the Worry?



Source: Energy Data Studio: NGL Network Dashboard

- While NGL pipelines might be light on utilization in early 2025, downstream assets like fractionation trains are running much fuller, which is why the same operators are expanding the tail-end of the value chain along the Gulf Coast.
- Targa, ONEOK and Enterprise have all announced fractionation expansions.
- Targa just expanded its LPG facility, Enterprise and Energy Transfer are expanding their LPG docks, and EPD is also expanding its ethane export facilities.
- EDA expects ET, EPD and TRGP will announce additional fractionation expansion projects in '24 to alleviate utilization rising to the mid- to high- 90s by 2H26. Lead time from project announcement to ISD for fracs is about 1.5 years.

Exports Are Growing the Pie



LPG Expansions	Current Capacity (Mb/d)	Expansions (Mb/d)	Future Capacity (Mb/d)	ISD
TRGP Galena Park	411	33	444	2H23
EPD EHT (ex-PGP)	763	120	883	1H25
ET Nederland	500	250	750	1H25
PSX Freeport	260		260	
ET Marcus Hook	315		315	Not FID'd Yet
Buckeye Corpus Christi	15		15	
ENLC Riverside	15		15	
NGL Chesapeake	15		15	
Petrogas Ferndale	50		50	
EPD Beaumont*	0	360	360	1H26
Total	**2,344**	**763**	**3,107**	

*Flex between 180 Mb/d C2 or 360 Mb/d C3.

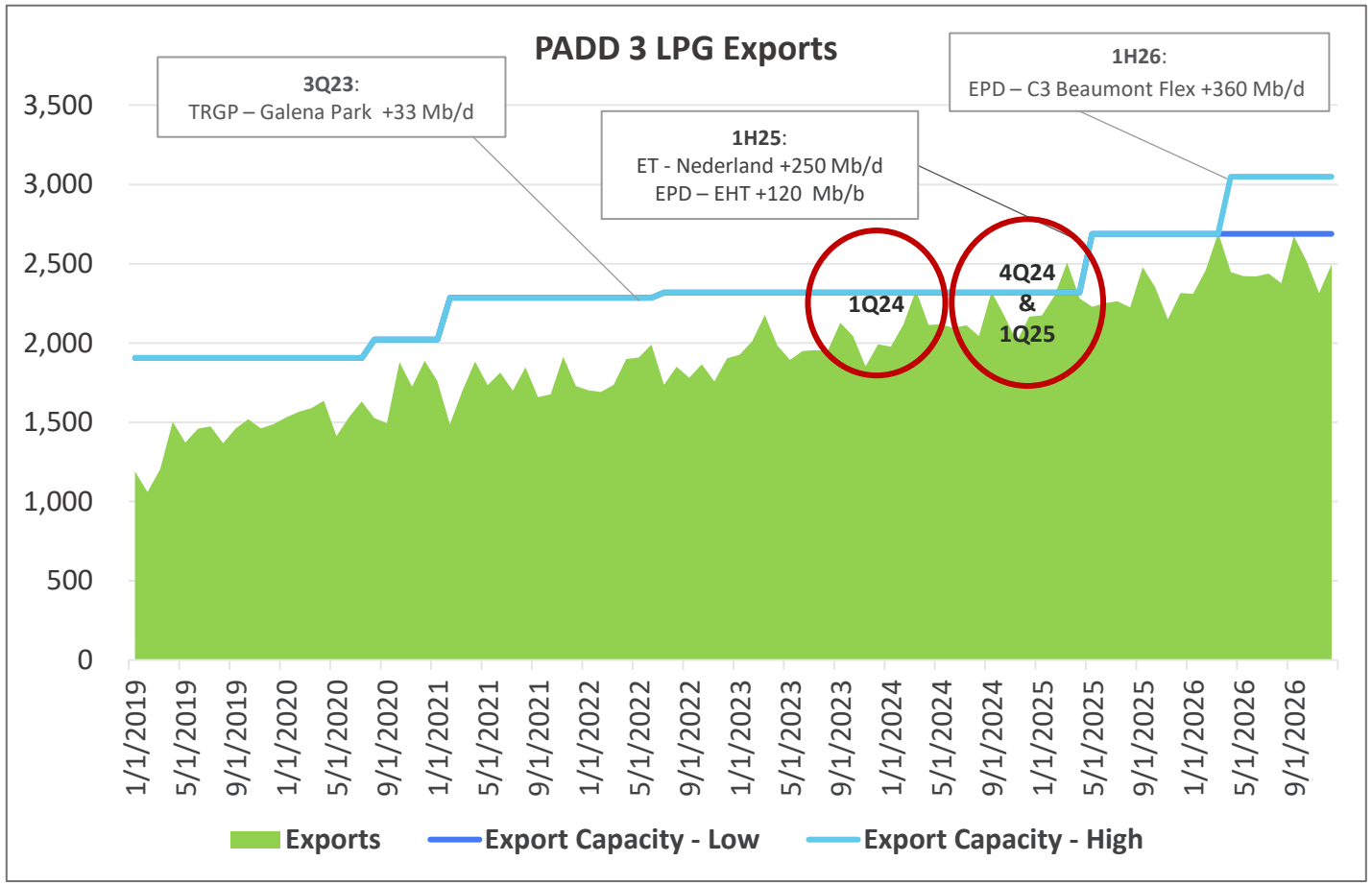
Ethane Expansions	Current Capacity (Mb/d)	Expansions (Mb/d)	Future Capacity (Mb/d)	ISD
EPD Morgan's Point	240	0	240	Not FID'd Yet
EPD Beaumont	0	120	120	2H25
EPD Beaumont Flex*	0	180	180	1H26
ET Marcus Hook**	85	50	135	
ET Orbit	180	0	180	
Total	**505**	**350**	**855**	

*Flex between 180 Mb/d C2 or 360 Mb/d C3.

**Not FID'd.

- Domestic NGL demand growth is slowing — only one ethane cracker is currently FID'd and under construction. However, we expect NGL production to grow by almost 500 Mb/d between 2023-2026. New supply will need to be exported and midstream players will need to ensure there is sufficient infrastructure to balance the market.
- NGL seaborne exports have been dominated by a few key players—EPD, ET, PSX, and TRGP. EPD and ET are the only ones that export ethane. While the investments in G&P will help those companies' pipelines and fractionators compete, the export terminals will be more exposed to the overarching tailwind of higher NGL production.

LPG Exports Facilities



- Several expansions for LPG facilities were announced by TRGP, EPD and ET. LPG capacity *could* reach 3,000+ Mb/d by 2026.
- EPD's Beaumont facility can flex between 360 Mb/d of propane exports and 180 Mb/d of ethane exports
- With domestic demand having plateaued, NGL growth will come from LPG exports on the Gulf Coast to meet demand abroad.
- **LPG exports are certain to get uncomfortably tight in takeaway as early as 1Q24 and during the winter season of '24 & '25.**

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Midstream Company Financials

Consolidation is the Strategy

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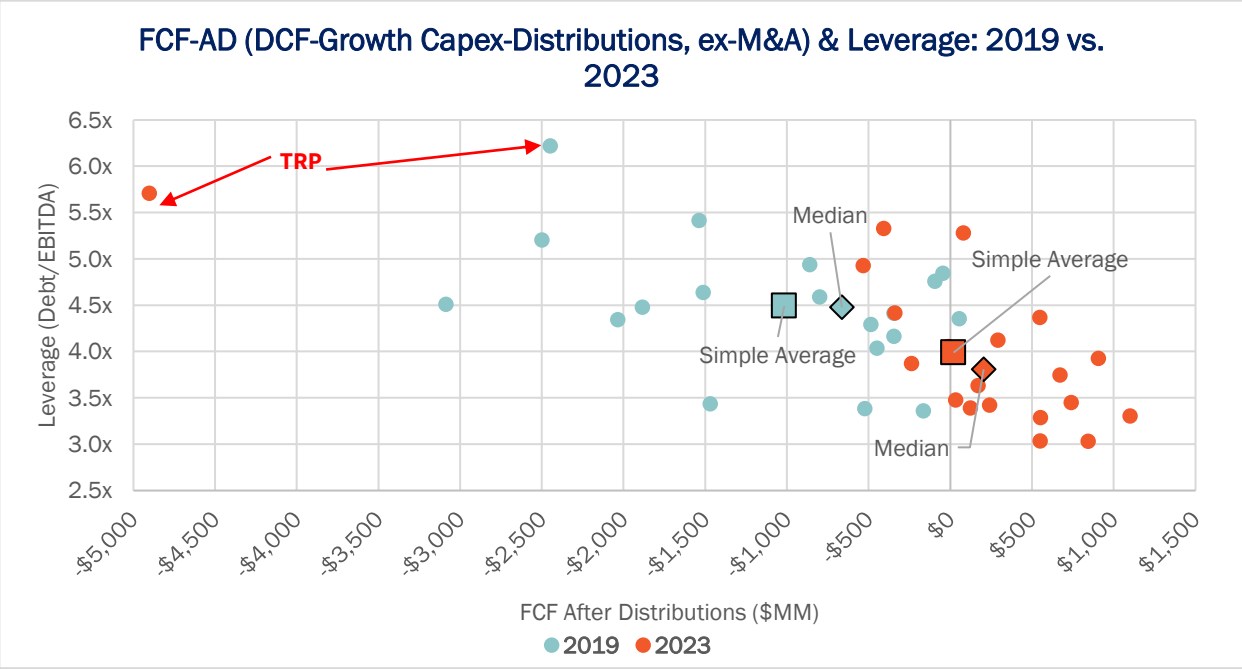
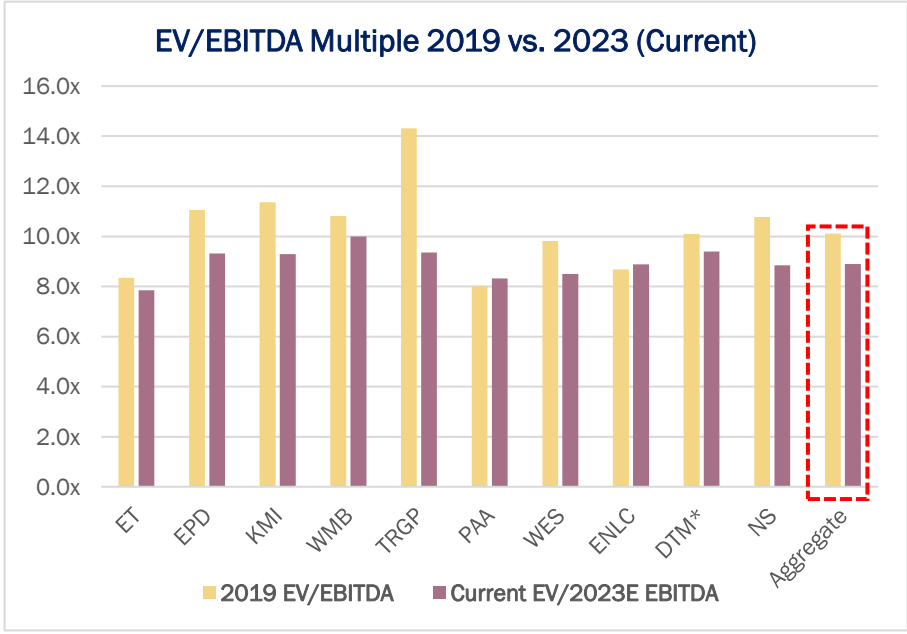
Key Takeaways

More M&A is On the Way: Midstream is ripe for consolidation with positive FCF generation after dividends, low leverage ratios, and a lack of large-scale capital project opportunities.

- Midstreamers need M&A if they want to compete effectively in this lower growth environment. M&A strategies will have three areas of focus: scale, growth, and longer-term value. We have seen these trends in recent transactions and expect them to continue.
    - Scale: Companies that are not heavily focused on scale-driven M&A are more likely to be taken out by those that are. Scale is of utmost importance as the focus shifts from getting a slice of a growing pie to taking market share from other companies. One way of achieving scale is by vertical integration and getting closer to the wellhead (**Targa & Lucid, Enterprise & Navitas**).
    - Growth: Exports are the main engine of growth across crude, gas, and NGLs. Midstreamers need to align their strategies and businesses around export demand growth, and M&A will be key to doing that as greenfield projects become increasingly difficult to build. **Energy Transfer and Enable, Williams and Trace, and Enbridge and Moda** are recent examples.
    - Longer-Term Value: Companies should look to Tier 2 basins as a more cost-effective and longer-term bet on natural gas demand growth. As export demand increases, we expect a call on production from these basins and Midstreamers can stay ahead of the curve by building positions in those regions now. **WMB and KMI** are early movers with the acquisitions of **Cureton** and the **STX pipelines**.
- M&A between public companies will dominate the headlines as G&P focused SMID-caps become limited by short term growth dynamics and large-caps look to backfill vertically integrated strategies.

Midstream is Ripe for M&A





*2021 EV/EBITDA instead of 2019, as DTM was not public in 2019.

- The industry is in a significantly improved financial position. Most companies are on track to generate positive FCF after distributions for FY23, with the median at $205MM vs. -$663MM in 2019. The five companies that are still on track to generate negative FCF after distributions are DTM, ETRN, GEL, KNTK, and TRP, primarily due to high capex backlogs.

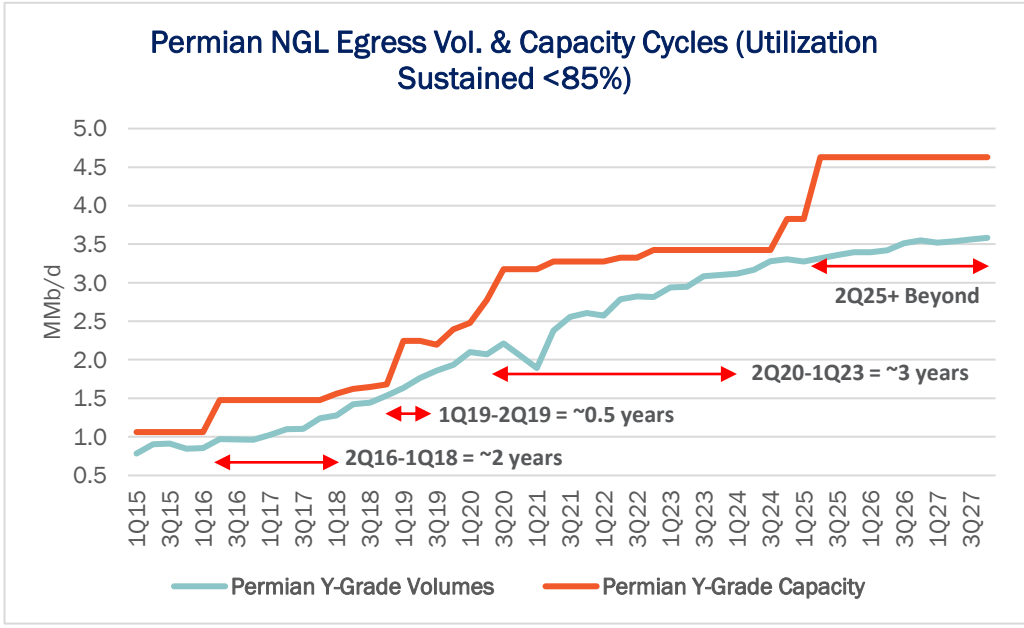
- In addition to FCF generation, leverage ratios have also substantially declined from ~4.5x (median) in 2019 to 3.8x in 2023 and continue to trend down. Balance sheets are healthier than ever within the sector.

- In-line with lower growth expectations and concerns over terminal value post-the 2020 market crash, EV/EBITDA multiples for the companies we are focusing on are a full turn below 2019 levels. Given the improved balanced sheets, more stable production growth vs. 2019, and lower multiples, the focus of capital allocation is ready to move from debt reduction and dividends to M&A.

Recent M&A: Getting Closer to the Wellhead

- Once production growth estimates re-rated in 2020 and infrastructure across basins and commodities was deemed overbuilt, G&P became a way to scale up and secure flows through the rest of the asset base.
- We expect this strategy to be more applicable to the G&P/NGL businesses, given NGL pipes have plant dedications and are less interconnected. However, on the crude side, one could still leverage gathering systems by offering bundled rates.
- Major NGL players like EPD, ET, and TRGP have spent $22.5B on acquiring G&P-focused companies, indicating a shift in strategy from the 2015-2020 period when midstream focused on reducing price and volumetric risk and invested more in contracted, long-haul infrastructure.
- Capacity cycles are increasing as NGL midstreamers have been quick to add capacity, but slower production growth means it will take longer to fill. Pre-2019, utilizations stayed below 85% for only 1-2 years before new capacity was added. Post-2020, it has taken almost 3 years to reach 85% utilization, and we expect it to take many more years to fill the new capacity coming online in 2025.
- During periods of extended overbuilds, vertically integrated NGL players can rely on the strength of their own G&P systems to backfill downstream assets. Non-vertically integrated players will need to compete on T&F rates to fight for 3rd party volumes.

Date Announced	Target	Acquirer	Purchase Price ($MM)	Payment Type	Forward Yr. EBITDA	Est. EV/EBITDA
Aug-23	Crestwood	ET	$7,100	Equity	$890	7.98x
Mar-23	Lotus	ET	$1,450	Cash	$195	7.44x
Jul-22	Lucid	TRGP	$3,550	Cash	$473	7.50x
Jan-22	Navitas	EPD	$3,250	Cash	$489	6.65x
Feb-21	Enable	ET	$7,200	Equity	$960	7.50x
	Aggregate		$22,550		$3,007	7.50x



Does Midstream Need M&A to Grow?

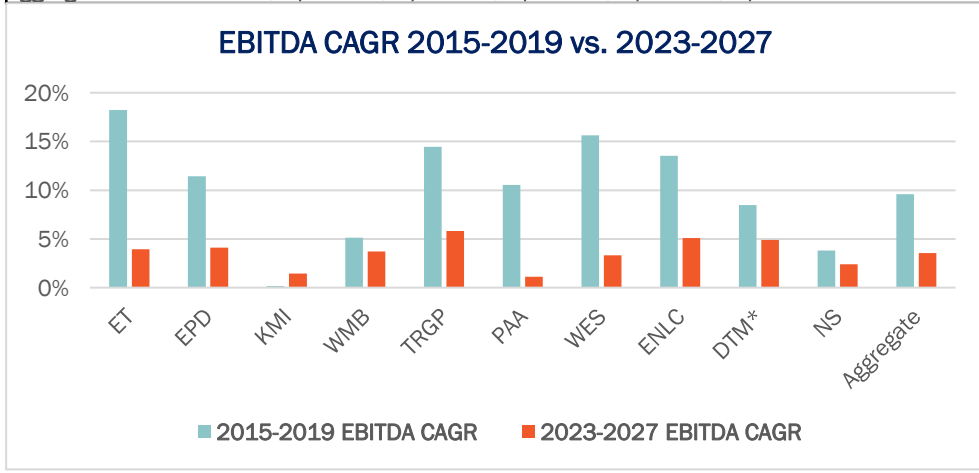
- For the purposes of this analysis, we will focus our large-cap peer group to TRGP, WMB, KMI, EPD, and ET, and our SMID-cap peer group to NS, DTM, ENLC, WES, and PAA.
- At an initial glance, large-caps are not desperate for growth and are outpacing the SMID-cap peer group (3.8% vs. 3.2% EBITDA CAGR 2023-2027). There are pockets of the market that still require significant capital investment like NGLs and LNG export-adjacent natural gas infrastructure, and the large-caps have aligned their strategies around those two areas.
  - EPD, ET, and TRGP continue to add processing, pipeline, fractionation, and export capacity from the Permian to Mont Belvieu.
  - WMB and KMI have been bolting on new expansions to their massive transmission pipeline systems, Transco and Tennessee Gas (TGP), to help supply surging LNG demand.
  - These players have already started to consolidate and strengthen their positions around these two growth areas, and we expect there is more meat on the bone to continue to this strategy.
- SMID-cap growth is not far behind at a 3.2% CAGR. However, we expect liquids-oriented names (PAA, NS) to only have a 1-2% CAGR, with little new places to deploy capital. G&P focused names see more growth, but a large component of that is driven by higher natural gas prices rather than volumes. Holding prices flat to 2023 levels, ENLC and WES's CAGR declines to +3.4% and +2.0%.
- One thing is certain, forecasted 2023-2027 growth rates are substantially lower than the 2015-2019 period of large-scale capital projects and infrastructure buildout that led to significant overbuilds across commodities and basins.

Large Caps

Adj. EBITDA Growth	2023	2024	2025	2026	2027	Growth	CAGR
TRGP	$ 3,570	$ 3,914	$ 4,375	$ 4,443	$ 4,474	14%	5.8%
WMB	$ 6,854	$ 7,016	$ 7,694	$ 7,951	$ 8,167	16%	4.5%
KMI	$ 7,547	$ 7,999	$ 7,877	$ 7,892	$ 7,990	0%	1.4%
EPD	$ 9,311	$ 10,034	$ 10,184	$ 10,620	$ 10,934	9%	4.1%
ET	$ 13,647	$ 14,315	$ 14,977	$ 15,611	$ 15,938	11%	4.0%
Aggregate	$40,928	$43,277	$45,108	$46,516	$47,503	10%	3.8%

SMID Caps

Adj. EBITDA Growth	2023	2024	2025	2026	2027	Growth	CAGR
NS	$ 728	$ 749	$ 756	$ 776	$ 800	7%	2.4%
DTM	$ 931	$ 982	$ 1,027	$ 1,091	$ 1,128	15%	4.9%
ENLC	$ 1,350	$ 1,418	$ 1,498	$ 1,555	$ 1,607	13%	4.4%
WES	$ 2,000	$ 2,216	$ 2,243	$ 2,262	$ 2,367	7%	4.3%
PAA	$ 2,629	$ 2,658	$ 2,644	$ 2,672	$ 2,751	4%	1.1%
Aggregate	$ 7,638	$ 8,024	$ 8,168	$ 8,355	$ 8,653	8%	3.2%

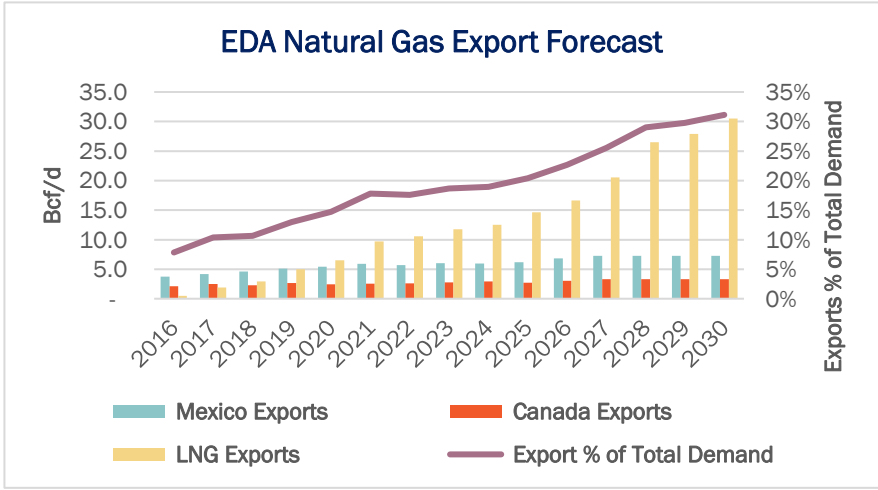


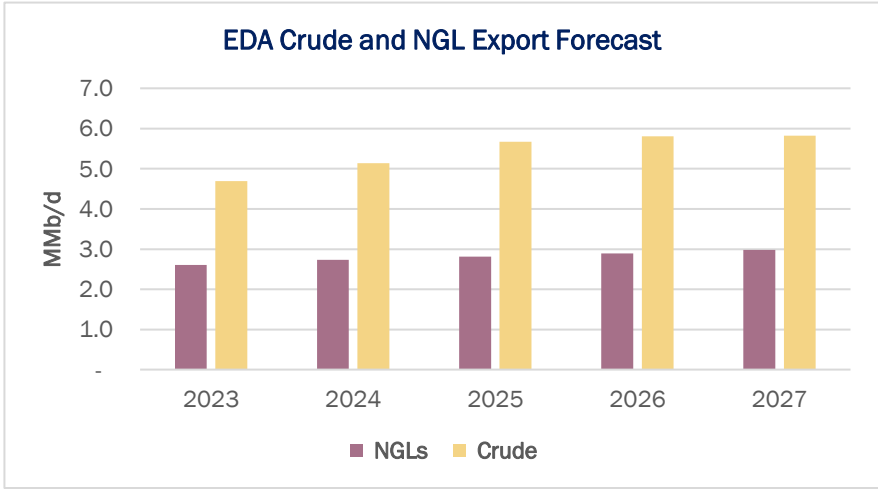
*DTM 2015-2019 EBITDA growth derived from DTE Gas Storage & PL Segment EBITDA.

Recent M&A: Exposure to Exports & Tier 2 Basins

- Export demand, especially for LNG, provides one of the largest growth opportunities for midstream. We expect LNG exports to almost double and exports to Mexico to increase by 1.2 Bcf/d through 2027. We also expect NGL and crude exports to increase by 400 Mb/d and 1.1 MMb/d, respectively.
- More stringent regulations will make greenfield projects that support export demand more challenging, further increasing the appeal of M&A.
- Midstreamers have already started to use M&A to boost their exposure to this tailwind, such as Williams' (WMB) with its acquisition of Trace and ET with its acquisition of ENBL.
- As export demand increases, we expect a call on production from Tier 2 basins. Midstreamers can stay ahead of the curve by targeting acquisitions in those regions, which are at a bargain relative to Permian and Haynesville assets. WMB and KMI are early movers with the acquisitions of Cureton and the STX pipelines.

Date Announced	Target	Acquirer	Purchase Price ($MM)	Payment Type	Forward Yr. EBITDA	Est. EV/EBITDA
Nov-6	NextEra STX Pipelines	KMI	$1,815	Cash	$211	8.60x
Nov-23	Cureton	WMB	$560	Cash	$81	6.91x
Nov-23	Rocky Mtn. Midstream (50%)	WMB	$714	Cash	$101	7.07x
Feb-21	Enable Midstream	ET	$7,200	Equity	$960	7.50x
Dec-22	MountainWest	WMB	$1,500	Cash	$188	8.00x
	Aggregate		$11,789		$1,541	7.65x





Exploring Some Potential Public-Public Tie-Ups

Ranking Matrix (1 = Low, 3 = High)						
Acquirer	Target	Scale	Exports	Tier-2 Exposure	Diversification	Total
PAA	NS	3	3	2	2	10
TRGP	ENLC	3	2	3	1	9
EPD	WES	3	1	2	1	7
KMI	DTM	2	3	1	1	7
ET	PAA	3	2	1	1	7

When hypothesizing potential mergers, we focused on combinations with asset overlap and that can add scale, align volume growth with export demand growth, and increase exposure to Tier 2 basins. We also included increased diversification, though most rated relatively low given the main driver of these tie-ups would be commercial synergies.

PLAINS + NuStar =

- Expand dominance of Crude Gathering in the Permian
- Vertically integrate gathered volumes into PAA Long-haul pipelines
- Gain direct access to an export terminal to boost marketing opportunities and
- Bundle services and diversify into stable refined products pipelines that provide a hedge to supply-driven oil price shocks.
- Est. ~$57MM potential commercial synergies driven by long-haul crude pipelines, exports, and marketing.

TARGA + ENLINK MIDSTREAM =

- ENLC stands out as an acquisition target for multiple parties including EPD and ET.
- ENLC boasts strong G&P systems in the Permian and Anadarko, while providing downstream NGL capabilities in Louisiana.
- Est. ~$500MM potential commercial synergies between NGL pipelines, fractionation, and NGL exports

Enterprise Products Partners L.P. + Western Midstream =

- Consolidate EPD's ownership in key NGL pipes like Front Range and Texas Express
- Add to EPD G&P position in the Permian, where it can eventually divert volumes through its own integrated NGL business.
- Est. ~$200MM potential commercial synergies between NGL pipelines, fractionation, and NGL exports

KINDER MORGAN + DT Midstream =

- More exposure to the growing LNG demand story via DTM's Blue Union gathering system and LEAP pipelines
- Add another major Northeast gas transmission pipeline to its portfolio via DTM's 50% stake in NEXUS.
- Est. ~$75MM potential commercial synergies driven by ArkLaTex gathering and pipeline interconnectivity

ENERGY TRANSFER + PLAINS =

- ET has already been adding scale to its crude business via its acquisition of Lotus Midstream. A combination with PAA would turbocharge those efforts by making them the largest gatherer and transporter of crude in the Permian.
- Est. ~$100MM potential commercial synergies driven by long-haul crude pipelines, marketing, storage, and exports.

See EBITDA exposure by commodity, asset type, and geography for the combined entity with our Company Comparison Dashboard on Energy Data Studio.

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A recording and PDF report will be sent out to attendees tomorrow. We will also have both available on our DLS website page.

In the coming days you will also find executive summaries, key takeaways, and videos from the Directors of each commodity department where you can reach out to them directly with any questions or just to say hi.

You will find links to RSVP for the DLS Roadshow as well as a request a market update from our team on the DLS website page.

Thank you for taking the time to join our East Daley Community. We hope to talk to you soon!

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