



IACPM Energy Webinar

July 2020

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J.P. Morgan Securities LLC

J.P.Morgan

Executive Summary

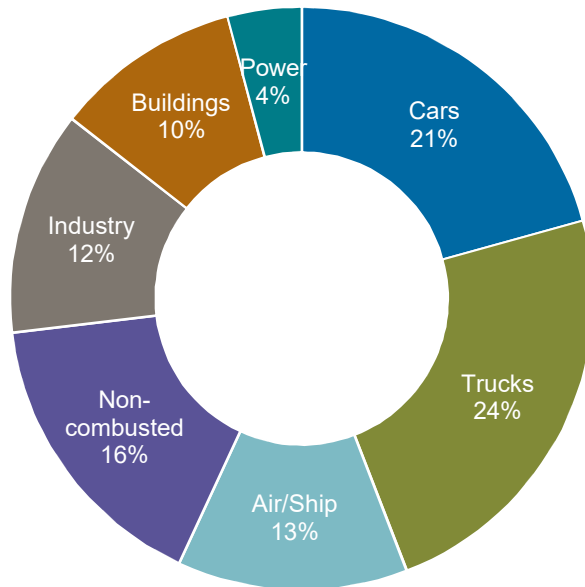
- COVID-19 has led to massive disruptions across the oil patch and related capital markets
 - OPEC+ actions on the supply side have mitigated the demand destruction – but the market has never been as reliant on a potentially fragile cartel
- Oil prices have to remain low for the next year to limit supply and allow the COVID-19 inventory hangover to be worked off
 - Breakeven economics are an art form – but US shale does not work at prices below \$45/bbl
 - Fortunately, OPEC budgets also don't work at these prices
- Exploration and Production gets all the attention, but Midstream and Services are important too
 - Midstream businesses provide critical infrastructure and are viable, thriving businesses
 - The only thing worse than a business with bad economics....is being the Service Provider to a business with bad economics
- US shale has destroyed an extraordinary amount of capital. Equity is largely unavailable, and credit availability is substantially reduced
 - Bank funding is becoming far more dear, and debt capital markets, while open, are at a much wider discount post COVID-19
 - Defaults are likely elevated for the next two years regardless – how elevated is a function of the commodity/OPEC+
 - Spreads are highly bifurcated by ratings, but arguably inline with commodity prices in aggregate

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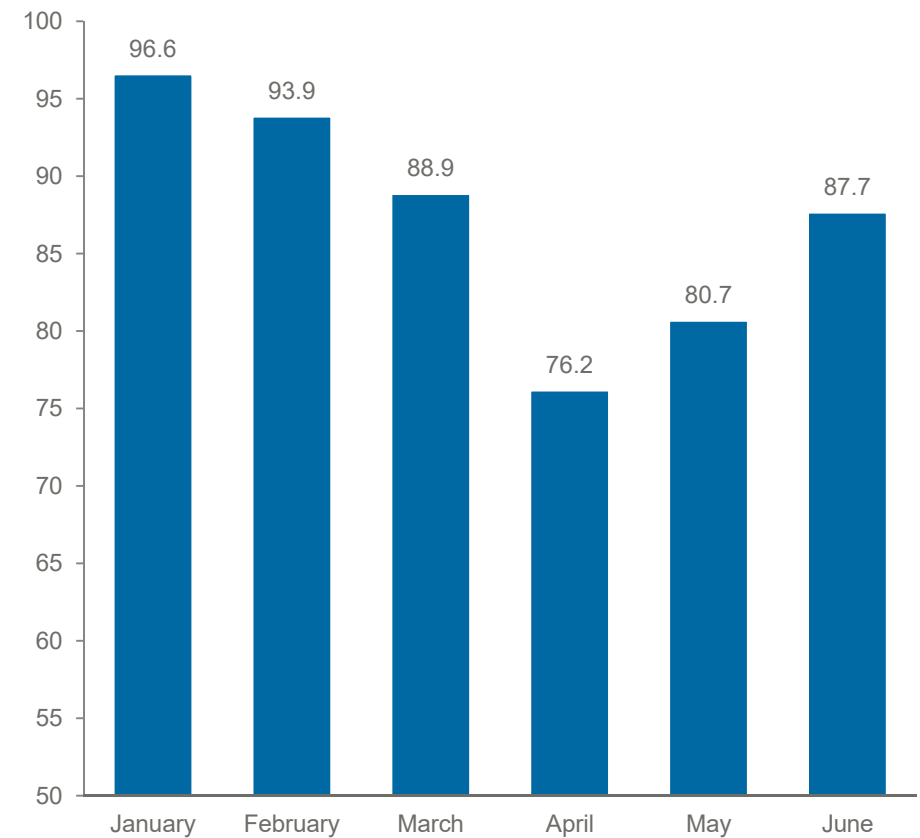
COVID-19 Impact On Demand Has Been Substantial

Oil Consumption By End Market



Source: BP, JPMorgan.

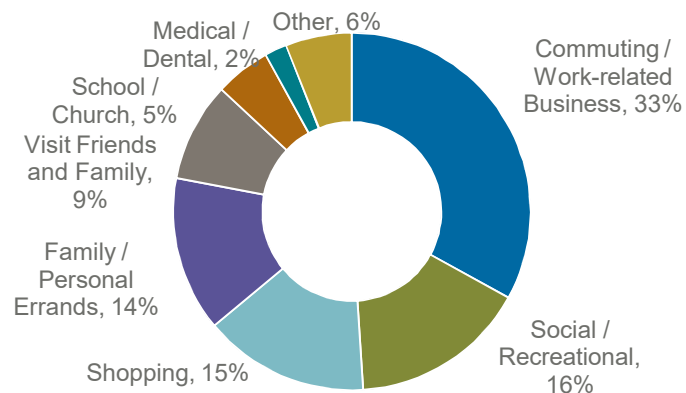
Monthly Global Oil Demand (mbd)



Source: JPMorgan Commodity Strategy.

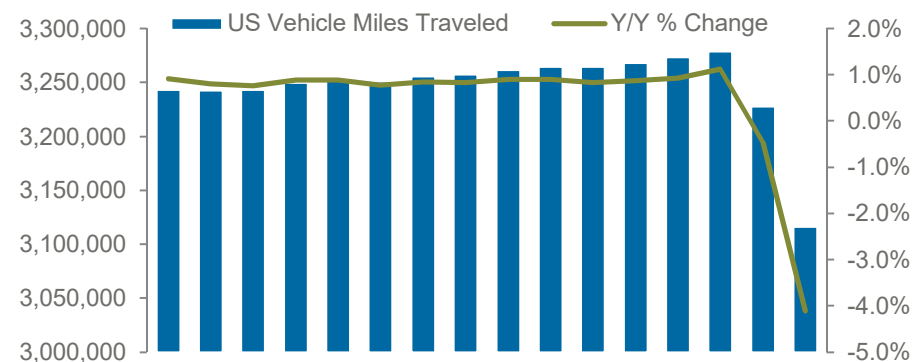
Demand Recovery Occurring, Final Extent Less Clear

US Vehicle Miles Traveled By Activity



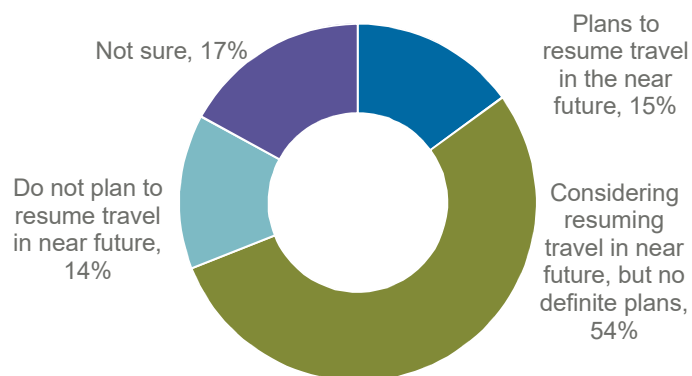
Source: US Department of Transportation, Federal Reserve, J.P. Morgan.

Vehicle Miles Traveled



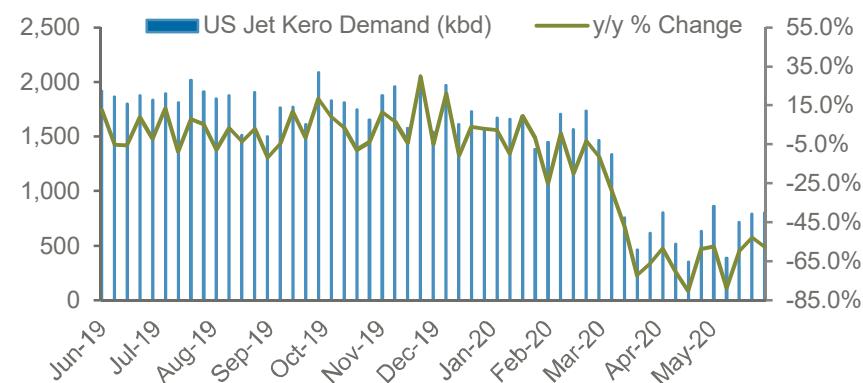
Source: Federal Reserve.

Global Business Travel Survey - Business Travel Plans



Source: Global Business Travel Association. May 2020.

US Jet Kerosene Consumption

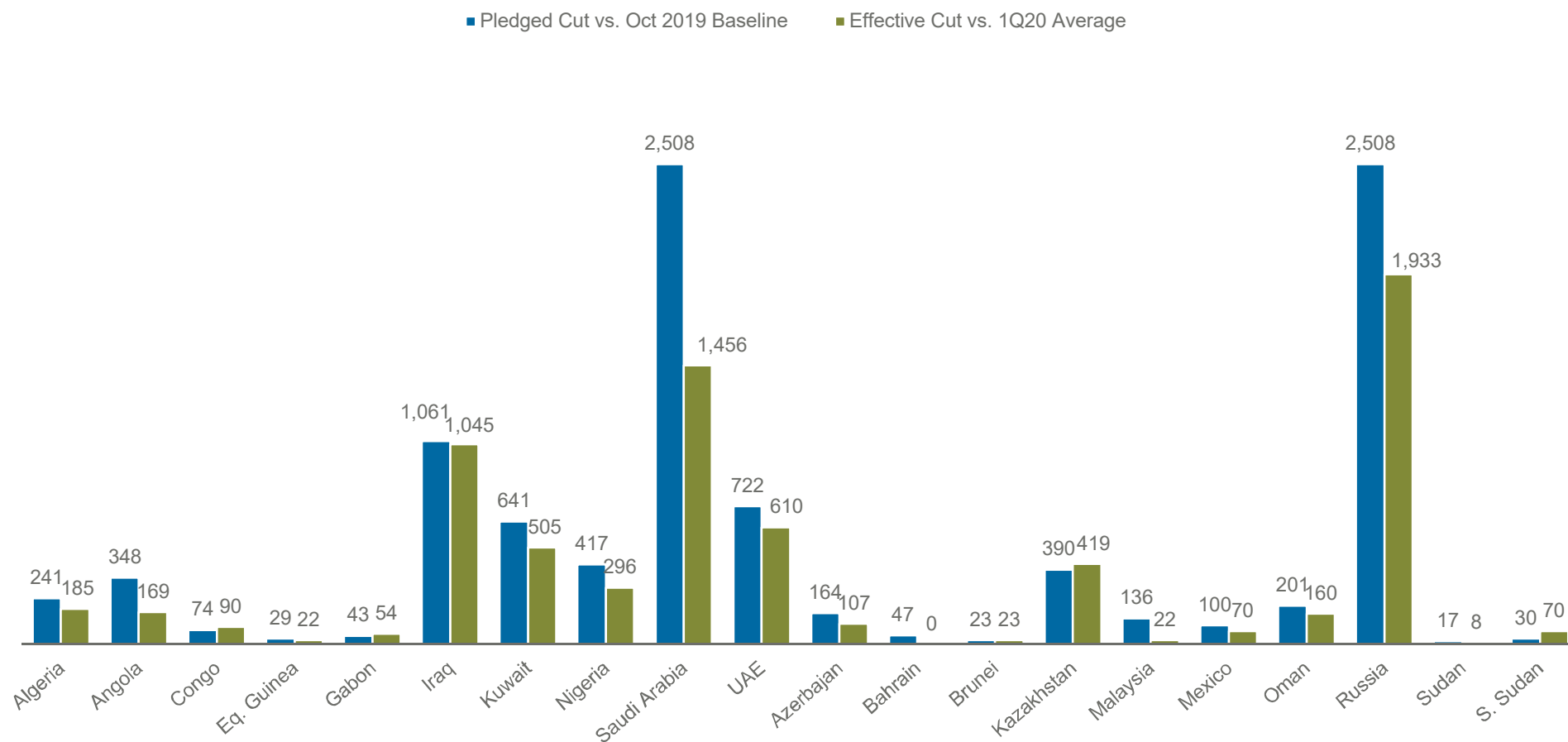


Source: EIA.gov.

OPEC+ Cuts Are Heroic & Unprecedented

Cuts Delivered A 17% Effective Reduction In OPEC+ Oil Supply

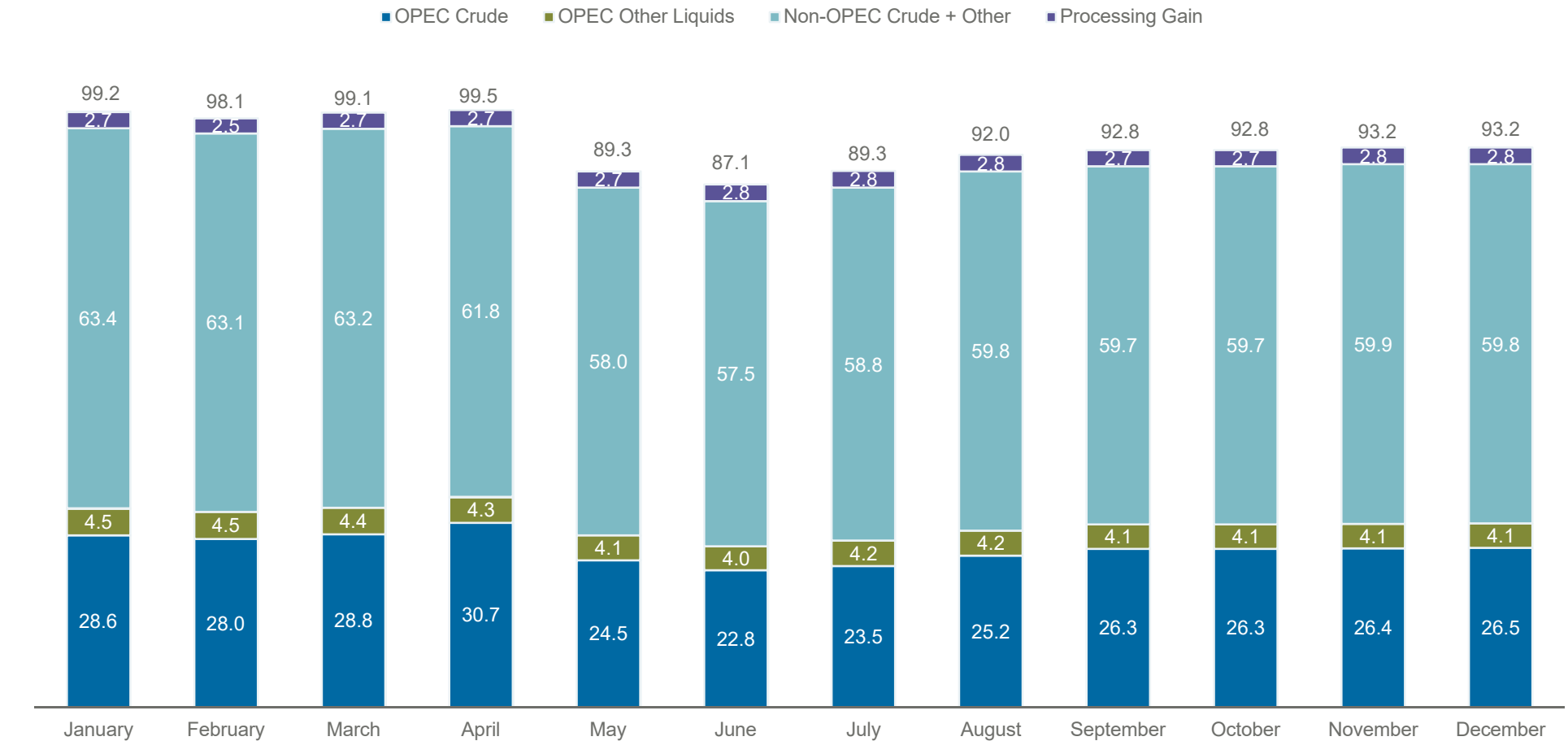
OPEC+ Cuts Summary (kbd)



Source: JPMorgan Commodity Strategy.

Supply Side Intervention By OPEC+ Appears To Have Been Enough (For Now)

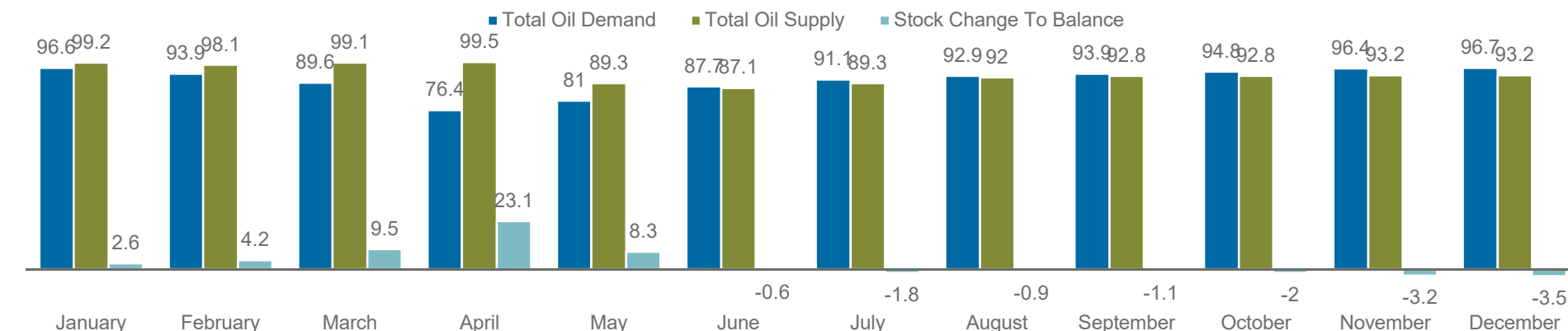
Global Oil Supply



Source: JPMorgan Commodity Strategy.

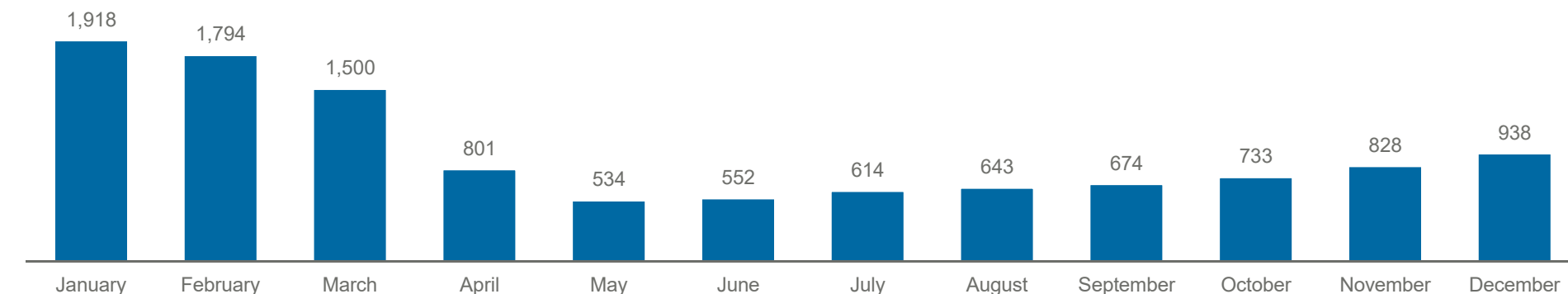
Limited Spare Storage Capacity & Forecast Risk Remains The Cap On Pricing

Global Oil Supply Demand Balances (mbd)



Source: JPMorgan Commodity Strategy.

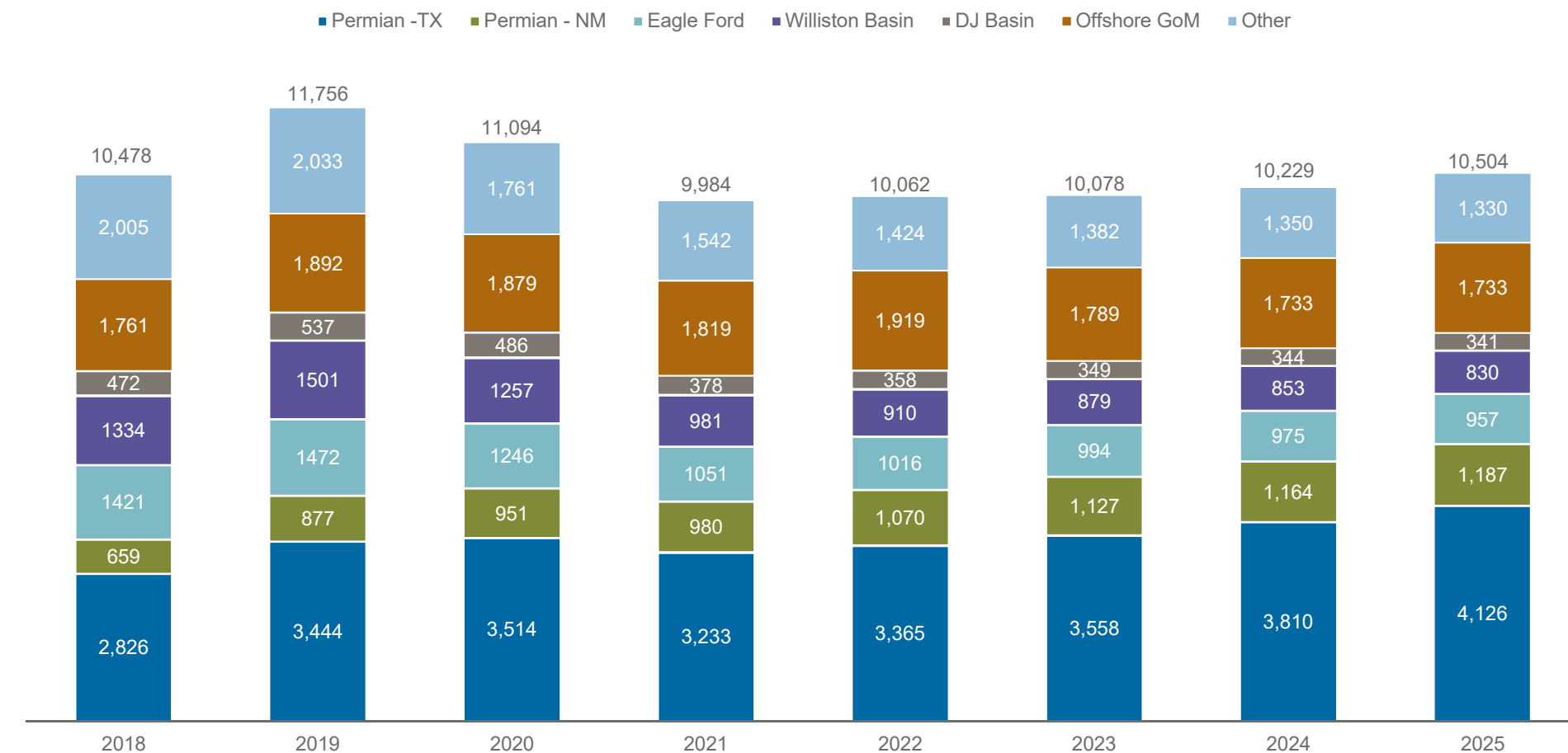
Total Spare Storage Capacity (mb)



Source: JPMorgan Commodity Strategy.

Getting US-Centric For A Moment....Production Declines & Basin Consolidation

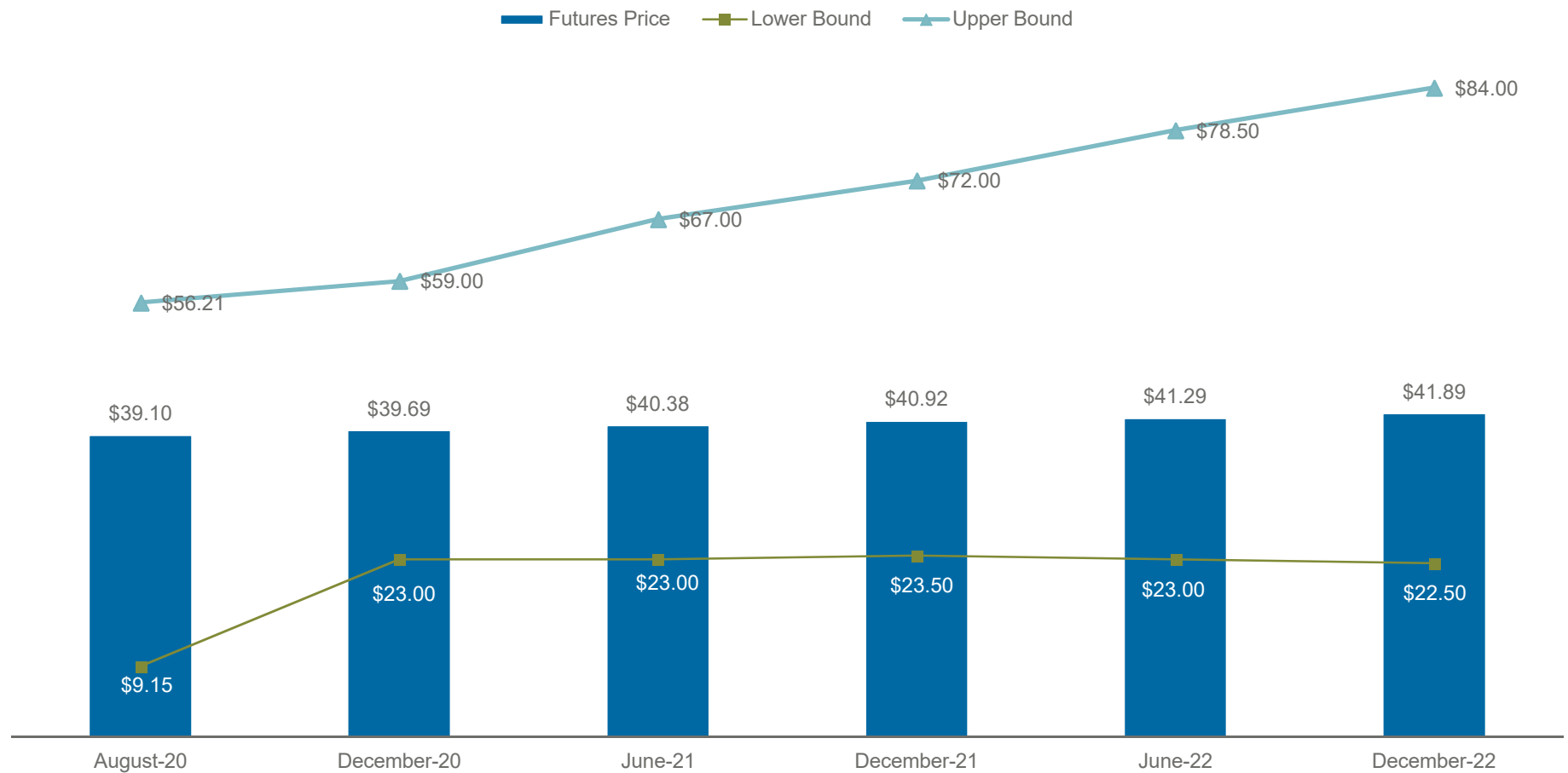
JPM US Oil Production Forecast (mbd)



Source: Enervus, JPMorgan Equity Research estimates.

Creating A Commodity Curve Shape That The Market Shows Zero Confidence In

WTI Futures Curve & Option Implied 90% Confidence Interval



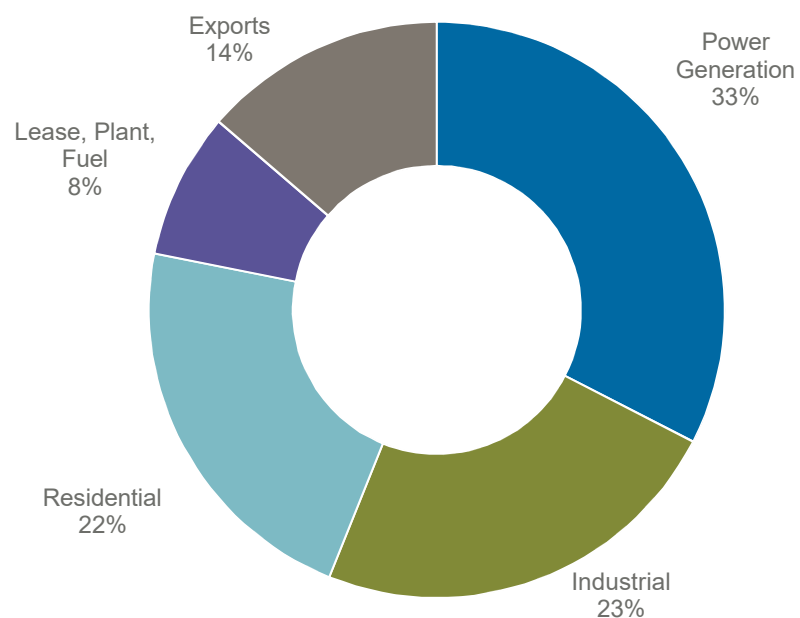
Source: Bloomberg.

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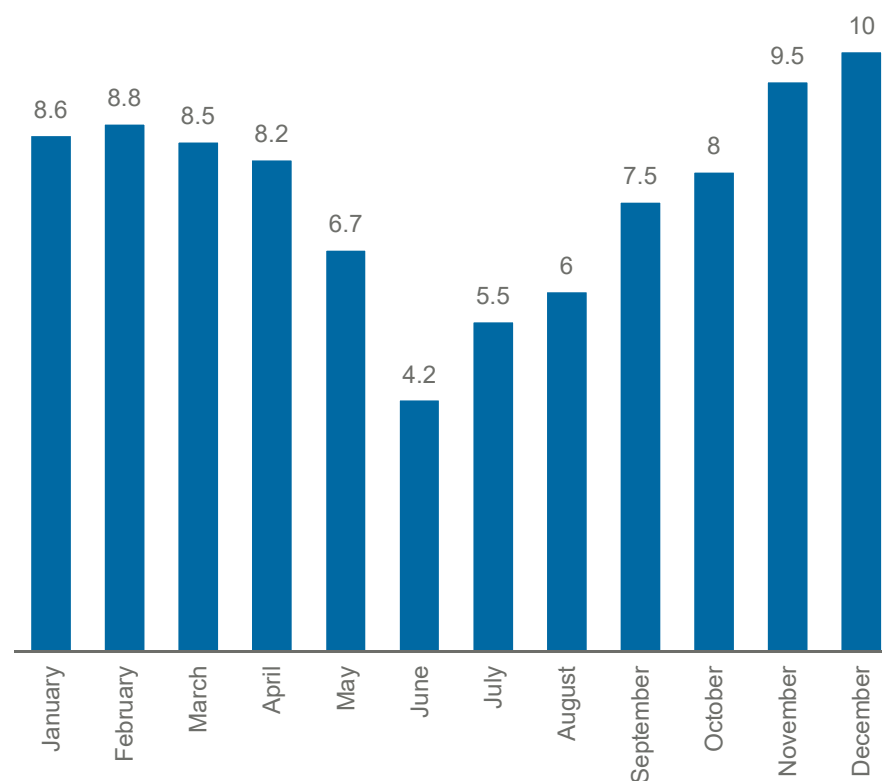
COVID-19 Impact Has Been Modest – Biggest Impact Has Been Lower LNG Exports

US Natural Gas Demand



Source: JPMorgan.

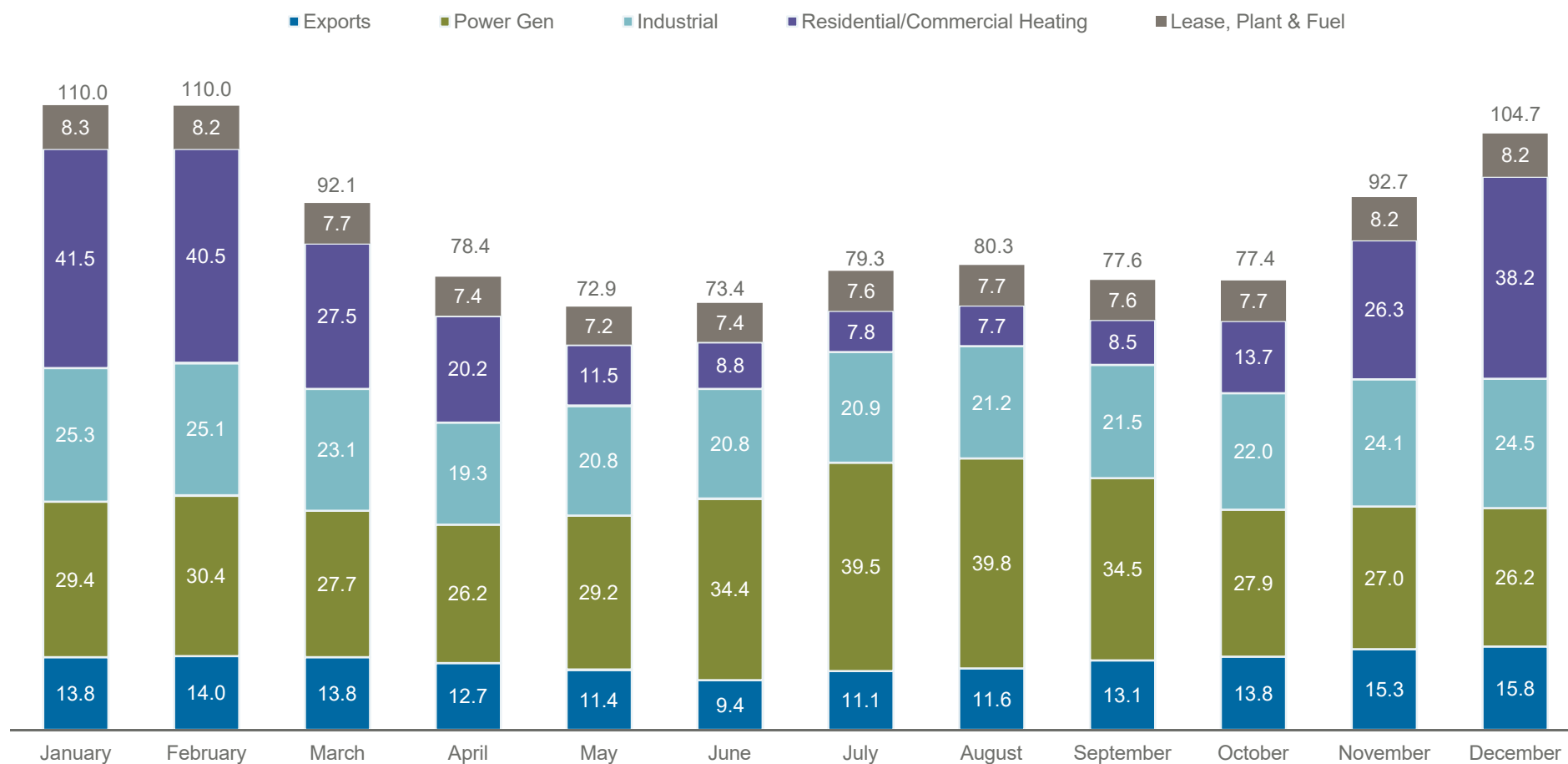
US 2020 LNG Exports



Source: JPMorgan Commodity Strategy.

Total Demand Has Followed Normal Seasonal Patterns

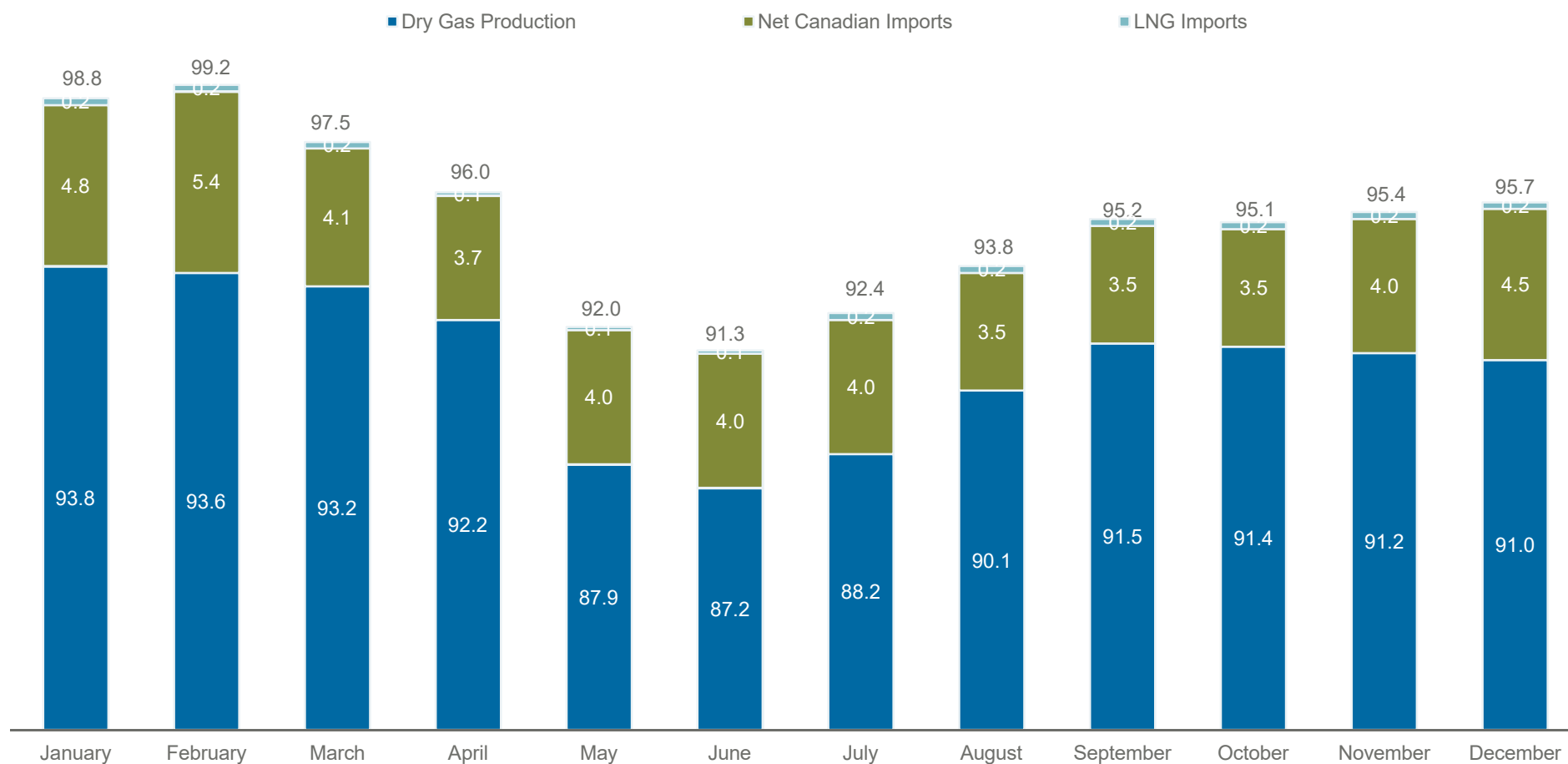
US 2020 Natural Gas Demand (bcf/d)



Source: JPMorgan Commodity Strategy.

Lower Oil Production Has Led To Lower Gas Supply

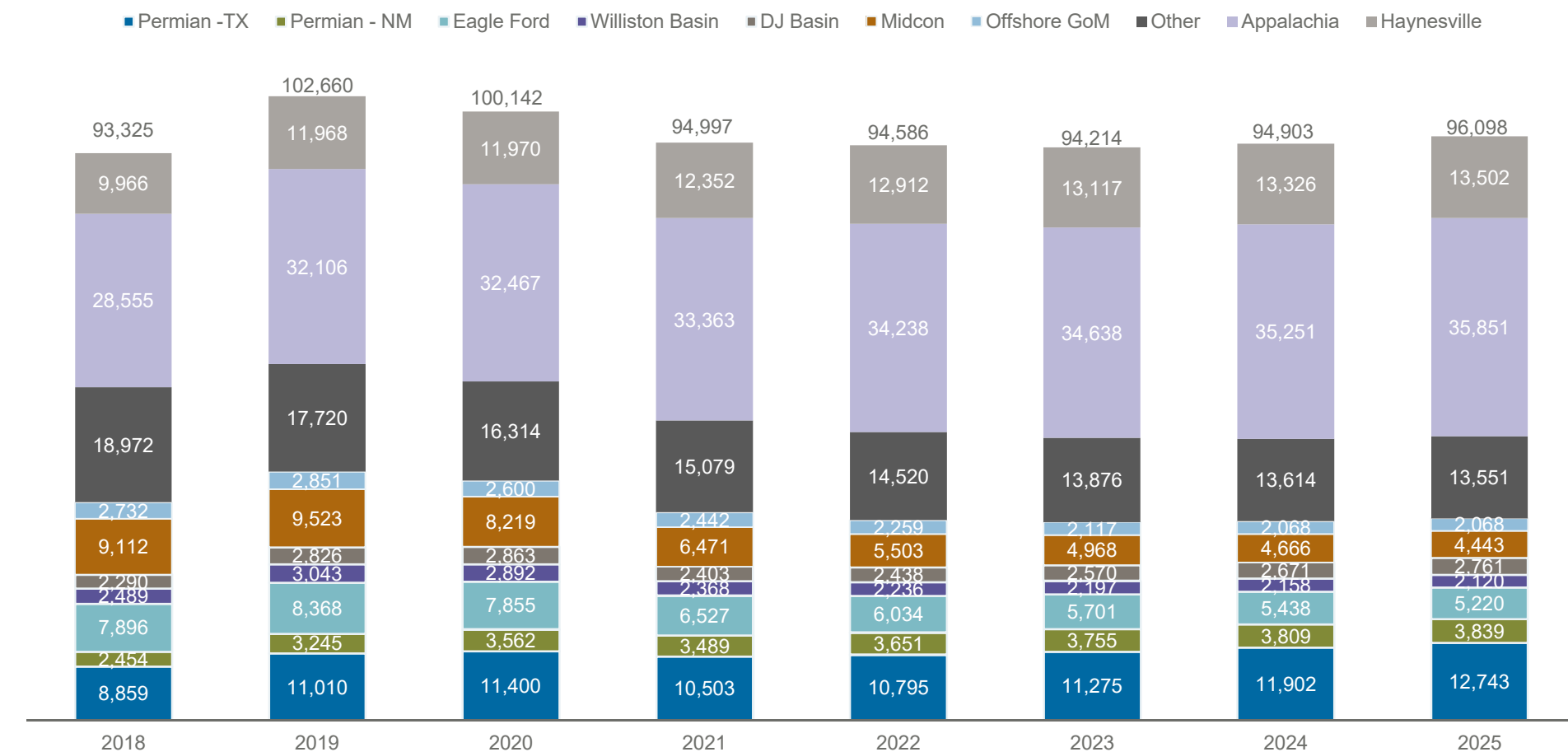
US 2020 Natural Gas Supply (bcf/d)



Source: JPMorgan Commodity Strategy.

On Purpose Gas Supply (Appalachia/Haynesville) Should Be A “Winner” From COVID-19

JPM US Natural Gas Production Forecast (bcf/d)



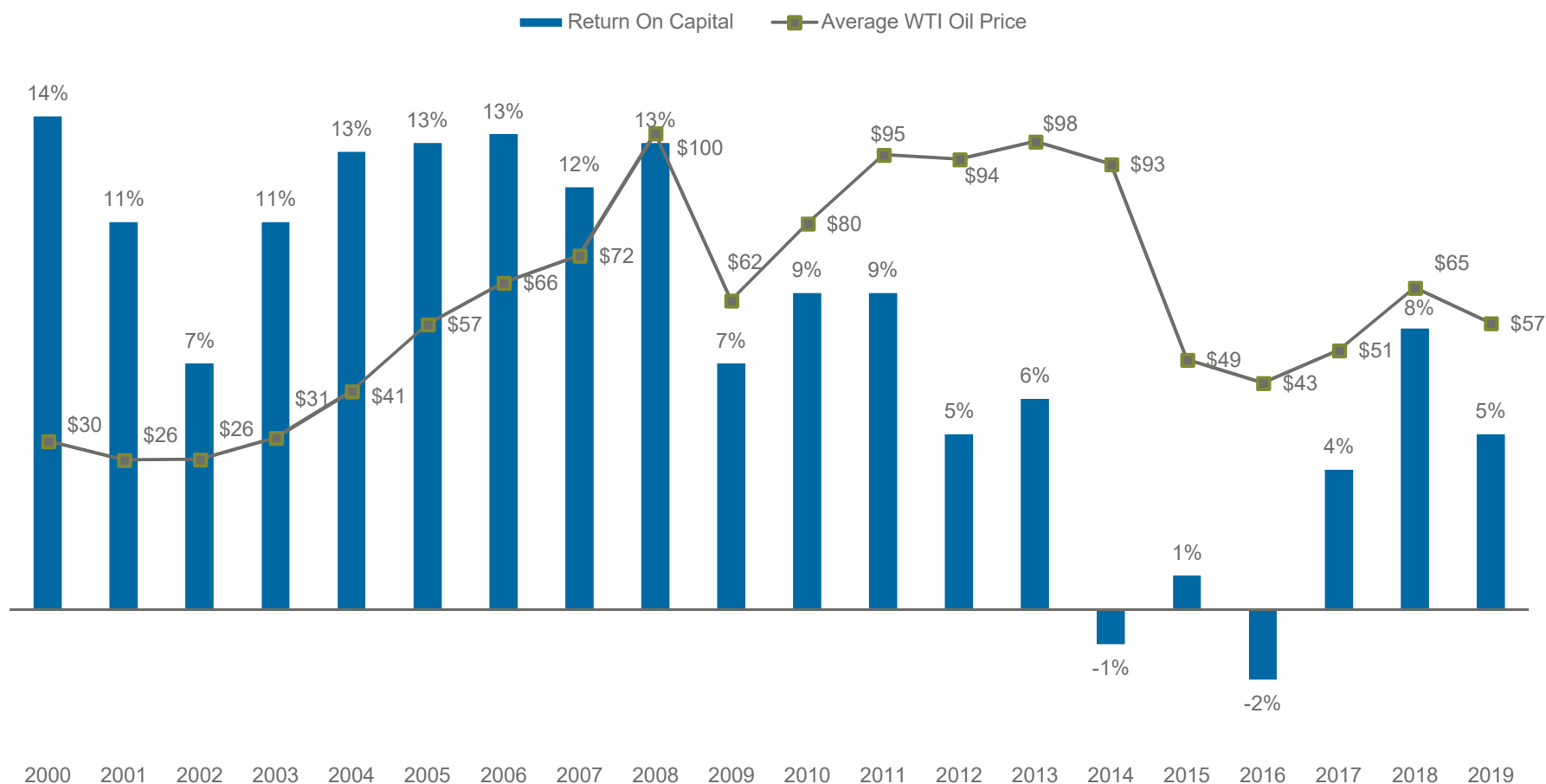
Source: Enervus, JPMorgan Equity Research estimates.

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For The Avoidance Of Doubt, This Has Historically Been A Difficult Business

US E&P Returns On Capital Poor; Not Just Commodity Prices

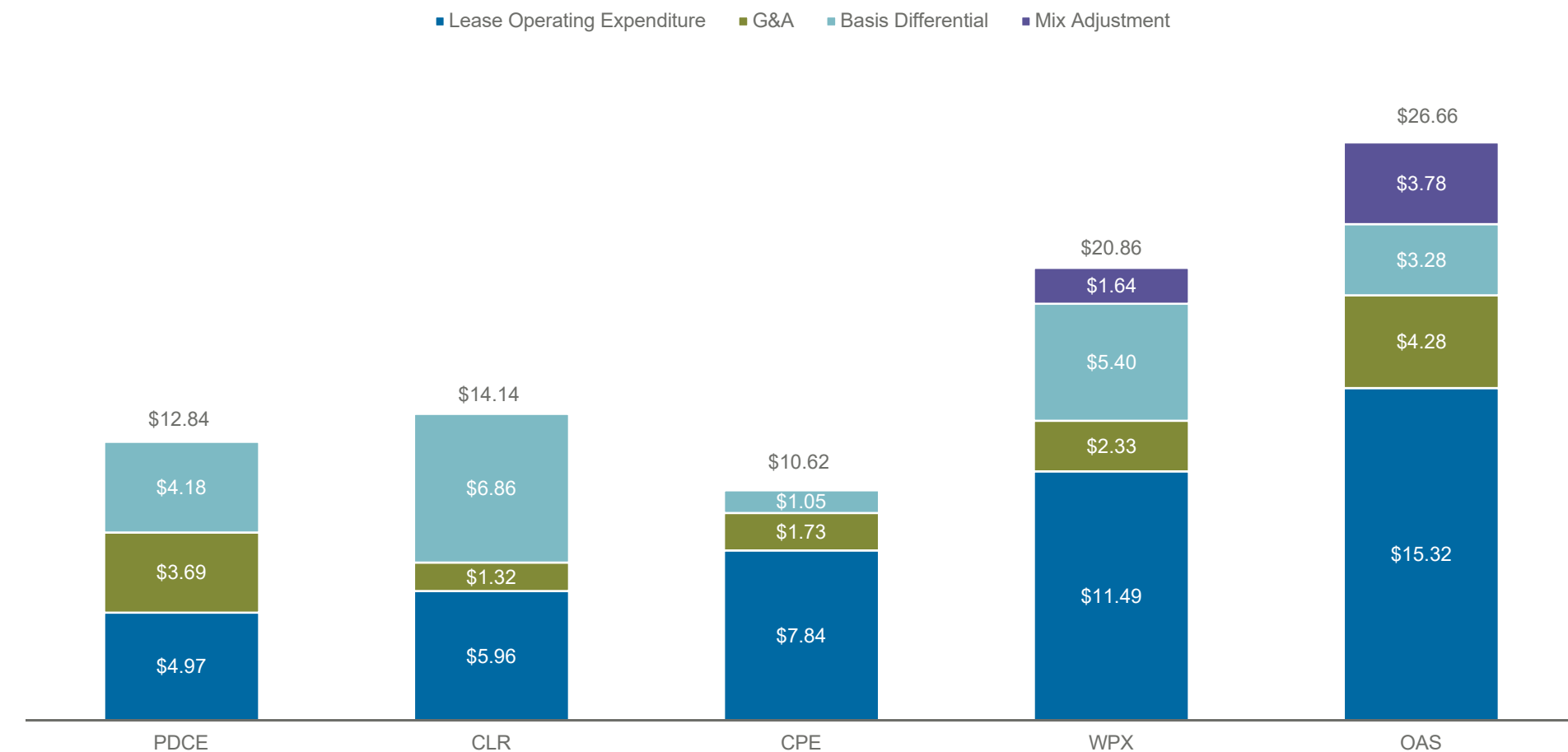


Source: Kimmeridge, JPMorgan, Bloomberg.

Lets Throw Around The Word Breakeven – EBITDA Breakeven

Rapid Depletion Makes EBITDA Breakeven Somewhat Meaningless

EBITDA Breakeven Analysis

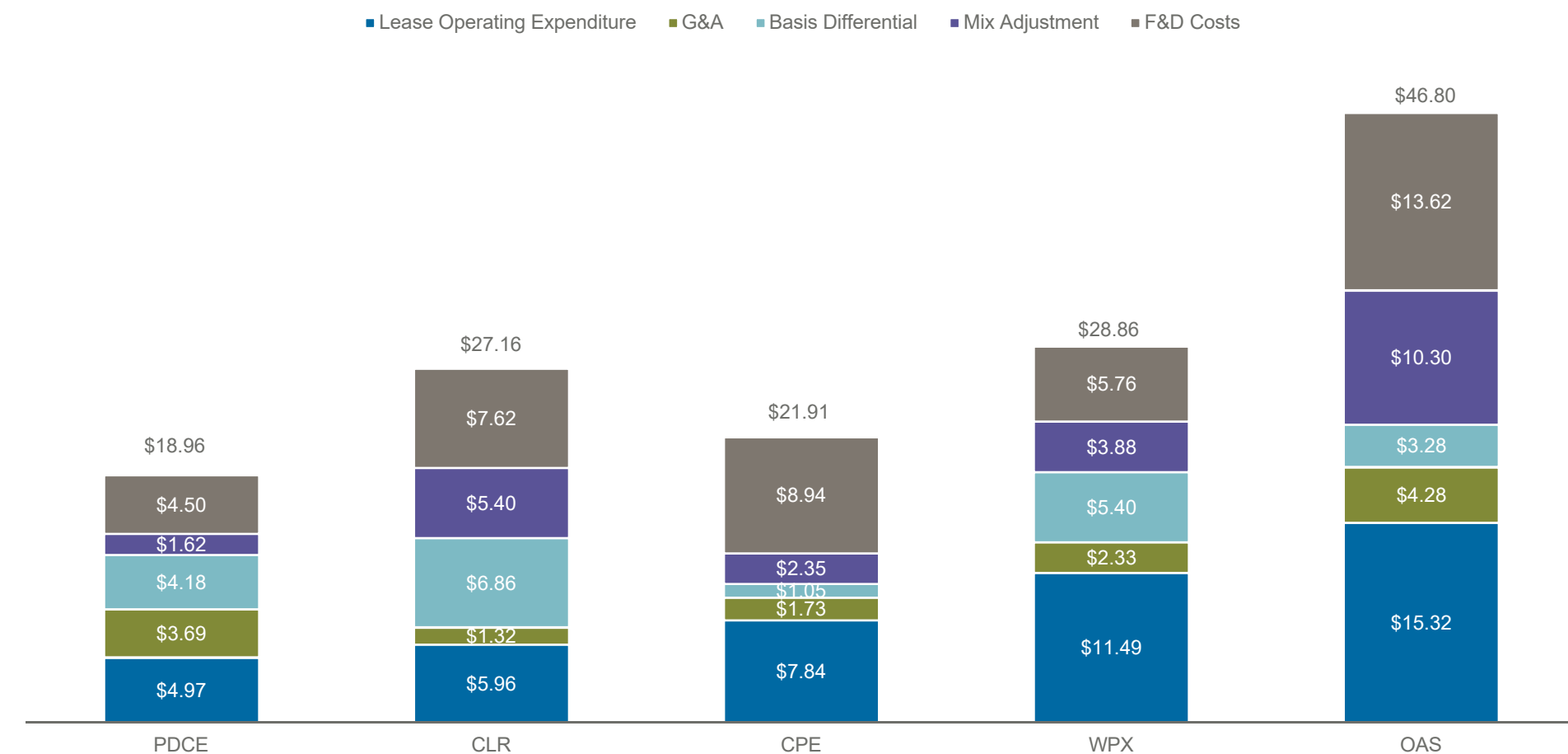


Source: JPMorgan, Company data.

Lets Throw Around The Word Breakeven – Half Cycle Breakeven

Industry Really Likes Half Cycle Breakeven – Ignores Bad Acquisitions, Sometimes Return On Capital

Half Cycle Breakeven Analysis



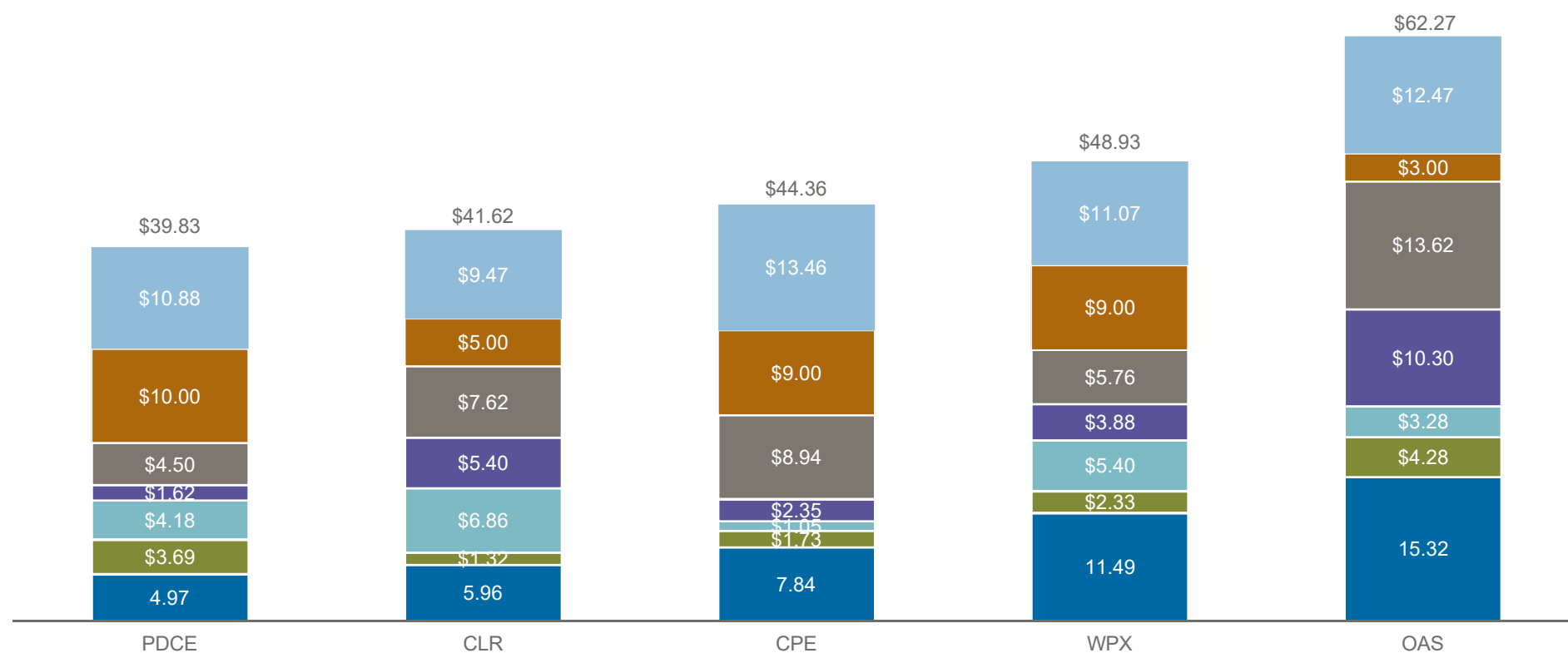
Source: JPMorgan, Company data.

Lets Throw Around The Word Breakeven

Full Cycle Breakeven

Full Cycle Breakeven Analysis With Return On Capital

■ Lease Operating Expenditure ■ G&A ■ Basis Differential ■ Mix Adjustment ■ F&D Costs ■ Acreage Acquisition ■ Return On Capital

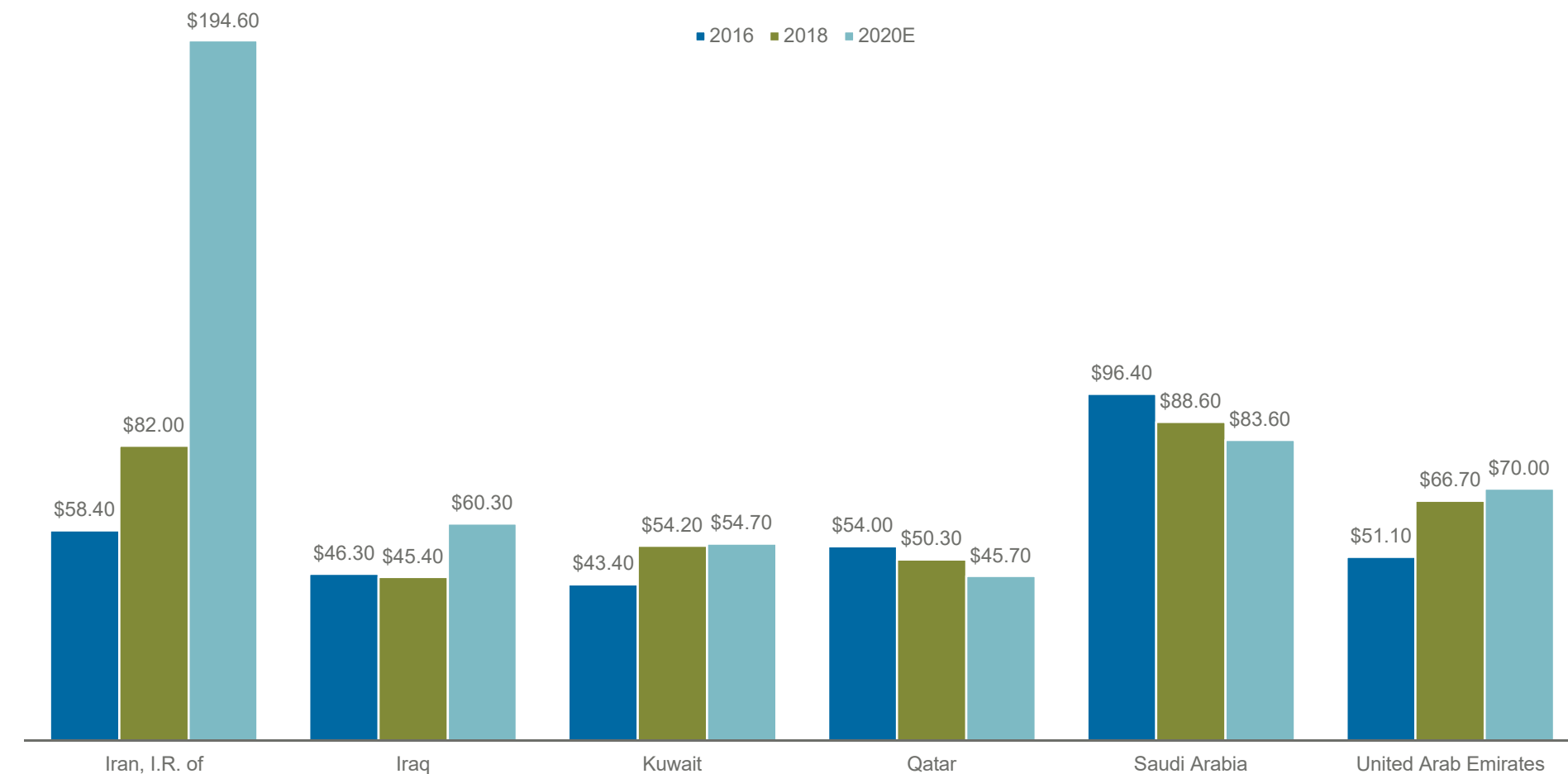


Source: JPMorgan, Company data.

But Those Breakeven Levels Don't Look Bad Long-Term Vs OPEC+

Fiscal Breakeven Levels Are Not Apples To Apples With Company Breakeven Levels...But Tell A Story

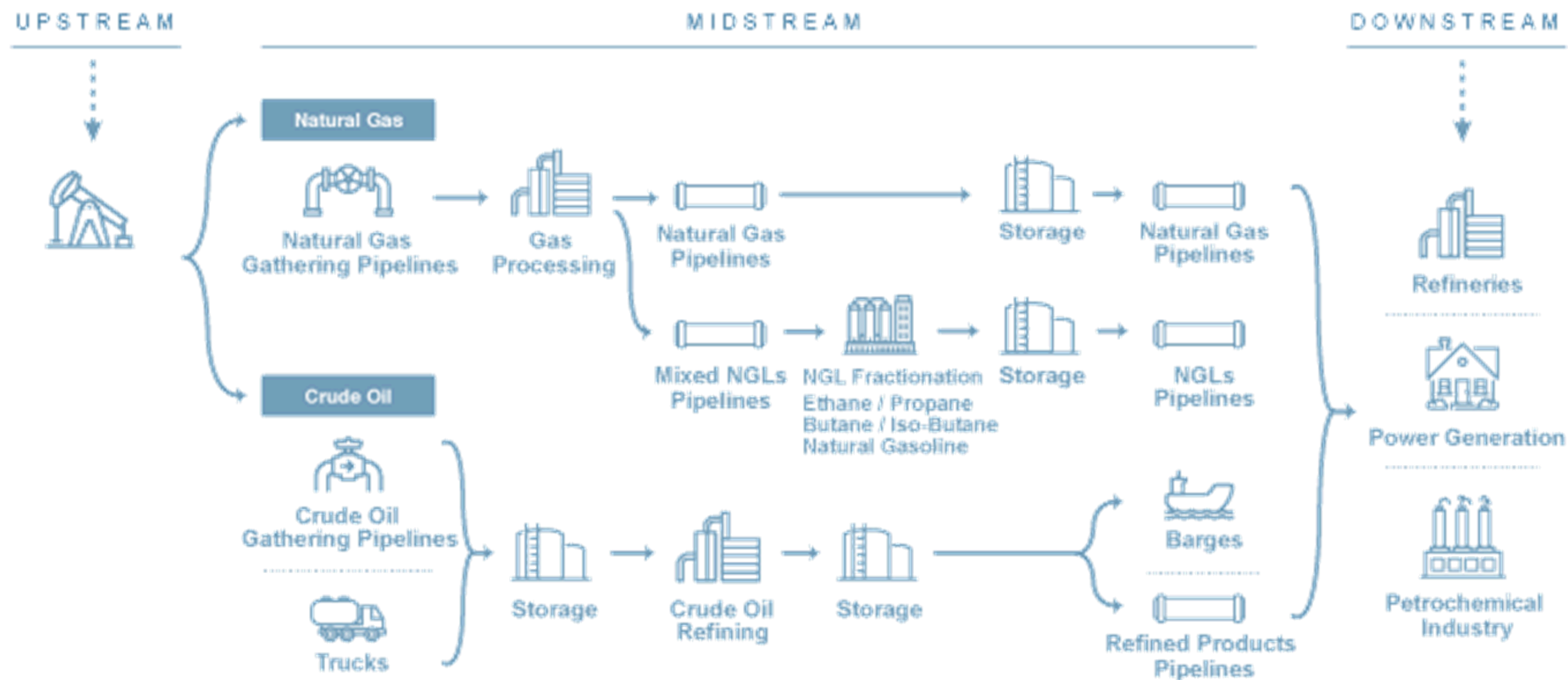
Key OPEC Fiscal Breakeven Levels



Source: IMF. Does not reflect COVID19 costs or austerity measures.

It's Not All E&Ps – Midstream Space Is Large And Complex

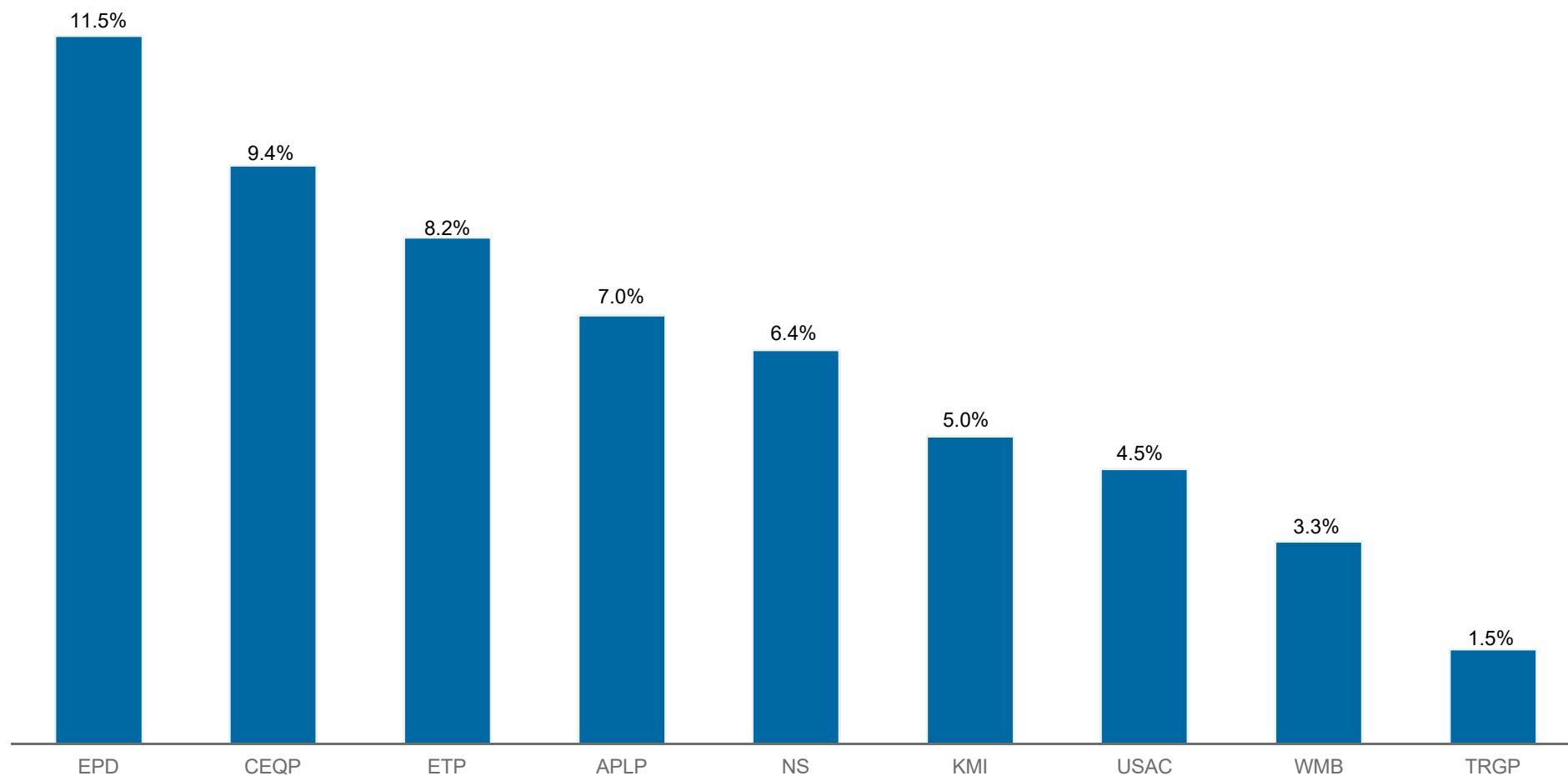
Infrastructure Is Just As Capital Intensive As Upstream, But Substantially Longer-Lived With Less Competition & Better Contracts & Pricing



Source: Cohen and Steers.

It's Not All E&Ps – Midstream Can Be Very Attractive For Capital

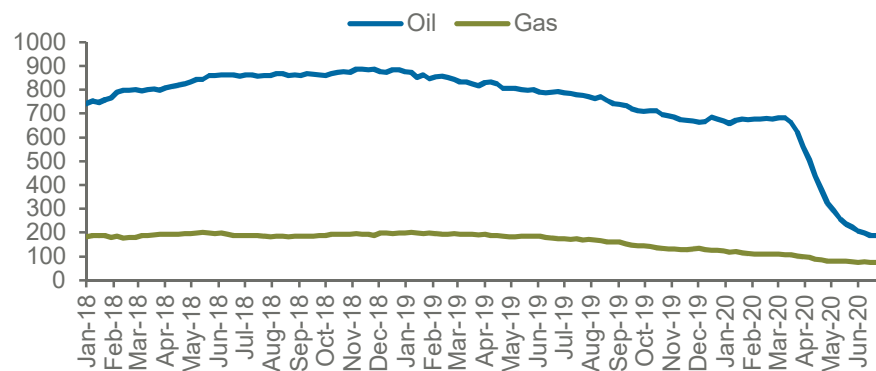
Select Midstream Return on Equity



Source: Bloomberg, JPMorgan.

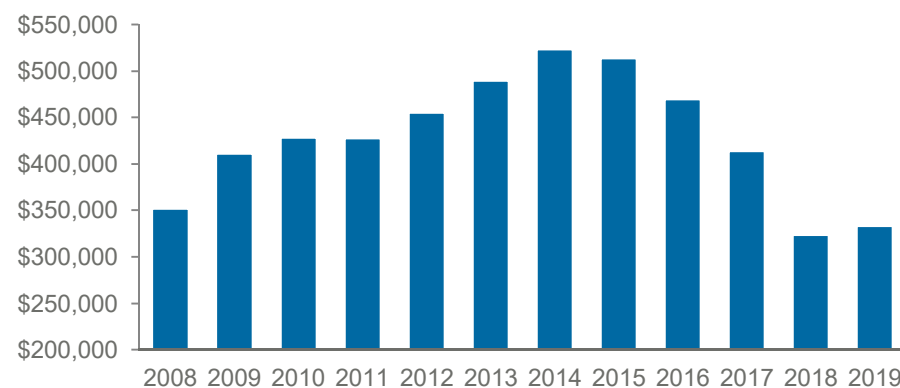
It's Not All E&Ps – Energy Services Make E&P Look Easy

US Rig Count



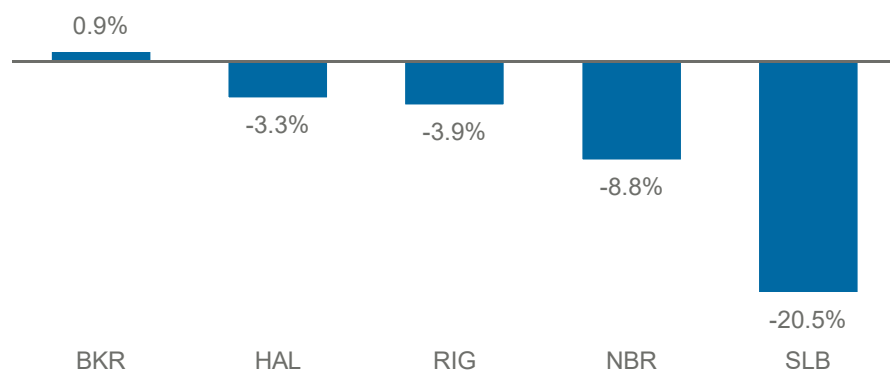
Source: Baker-Hughes, JPMorgan.

Deepwater (4,000ft+) Average Dayrate



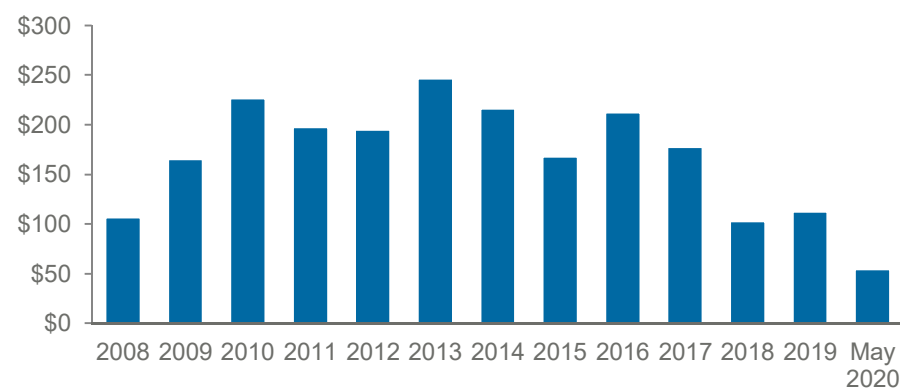
Source: Rigzone.

Services 2019 Return On Capital



Source: Bloomberg, JPMorgan.

S&P500 Services Equity Market Capitalization (\$bn)



Source: Bloomberg, JPMorgan.

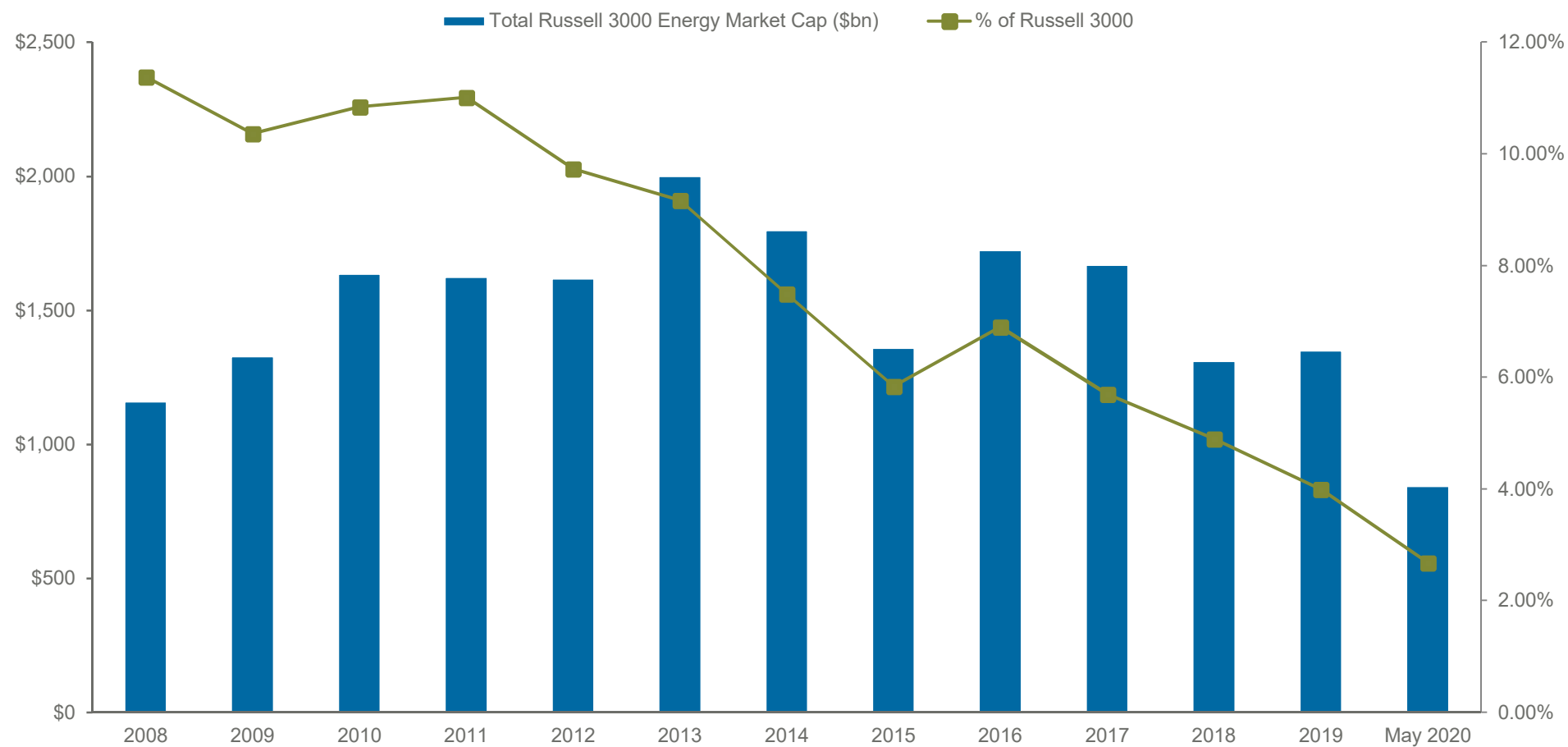
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Equity – There Is None

Energy Equity Has Shrunk from 11% of Total Equity Market To <3%

Russell 3000 Energy Value & Share



Source: Bloomberg, JPMorgan.

Bank Funding Was Ample

The Unrated Portion Of The Exposure Is Perhaps The Biggest Area Of Risk

Total US Bank Energy Exposure

All Energy	Exposure	Drawn Exposure
Exploration & Production	280,235	54,129
Integrated Oils	24,908	521
Oil & Gas Services & Equipment	90,750	29,116
Pipeline	188,273	76,093
Refining & Marketing	68,487	20,598
Total	652,653	180,457

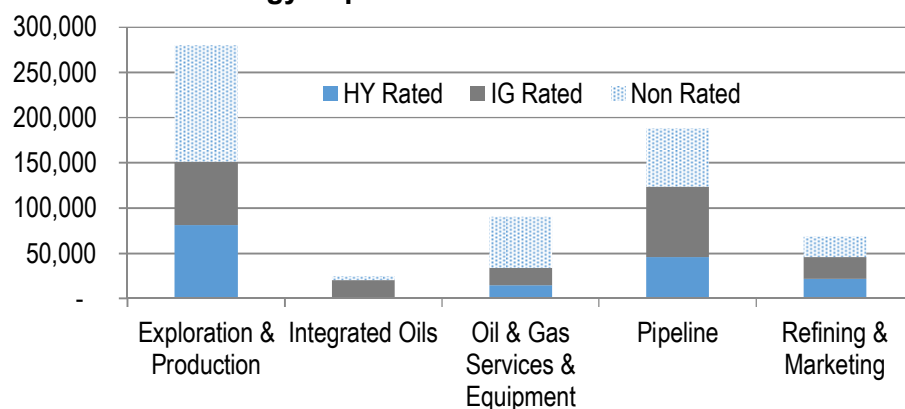
Source: JPMorgan Bank Credit Research.

Total US Bank High Yield Energy Exposure

HY Energy	Exposure	Drawn Exposure
Exploration & Production	80,890	24,952
Integrated Oils	-	-
Oil & Gas Services & Equipment	15,013	4,295
Pipeline	46,310	30,372
Refining & Marketing	21,691	10,789
Total	163,904	70,409

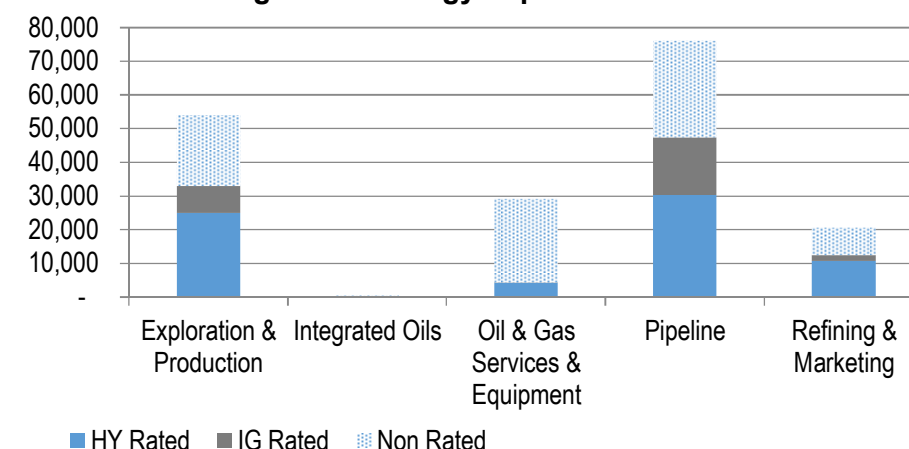
Source: : JPMorgan Bank Credit Research.

Total US Bank Energy Exposure



Source: JPMorgan Bank Credit Research.

Total US Bank High Yield Energy Exposure



Source: JPMorgan Bank Credit Research.

Borrowing Base Loans Are An Important Source Of High Yield Financing

Historically Great Structure, But Sophisticated Companies/Investors Have Taken Advantage

Borrowing Base Mechanics

1. Garbage in, garbage out

- Based on a company's most recent reserve report
- Commonly recalculated twice a year (in the spring and fall)
- The calculation typically uses the company's PDP production decline curve and operating costs (typically sourced from management estimates), as well as the company's PUD production curve and operating and capital costs
- Banks typically haircut PDP reserves modestly (~65% credit) and PUD reserves heavily (~20% credit)
- The entire analysis is discounted at 9%

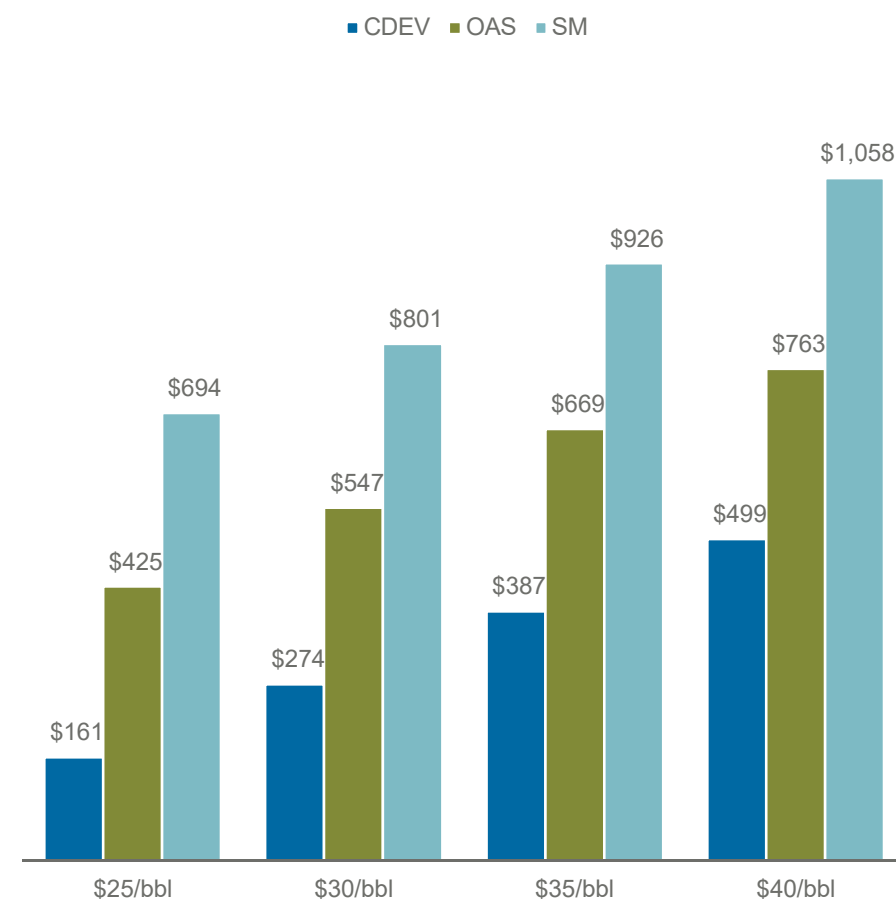
2. The price deck is a source of enormous angst

- Historically, the near-term price deck assumptions are based on a discount to strip pricing, although in times of severe stress banks have sometimes used pricing at a modest premium to strip pricing
- The longer-term price assumption (5yr+) has typically been a "normalized" assumption with less of an anchor to strip pricing

3. Hedging requirements and hedging incentives have been increased

4. Special redeterminations are this great hypothetical feature, which doesn't seem to get used that often

Borrowing Base Scenario Analysis

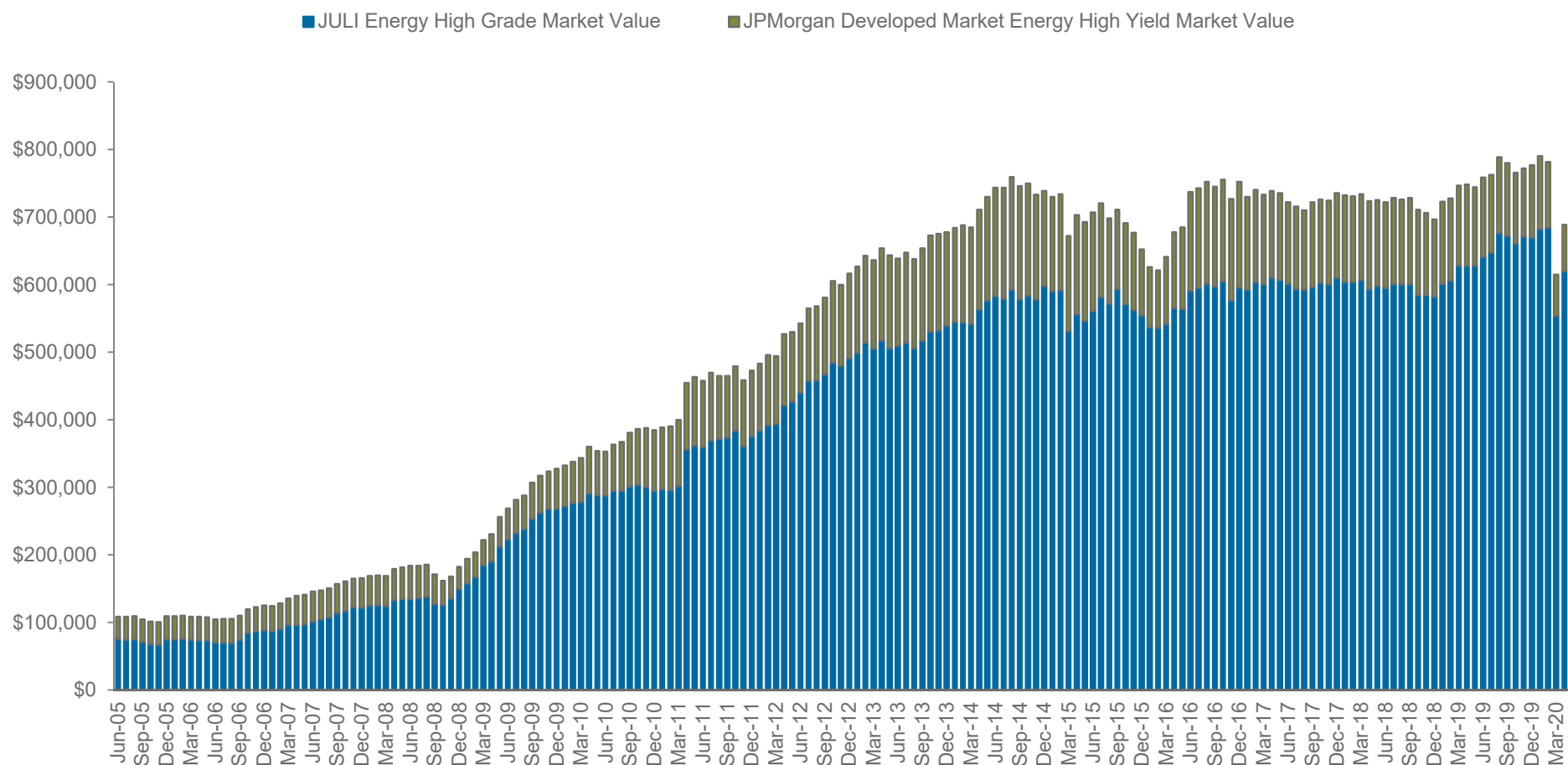


Source: JPMorgan, Company data.

Debt Capital Markets Have Been The Largest Source Of Capital

Corporate Bond Energy Index Value Has Increased At A 12% CAGR For 15 Years

US Corporate Index Market Value

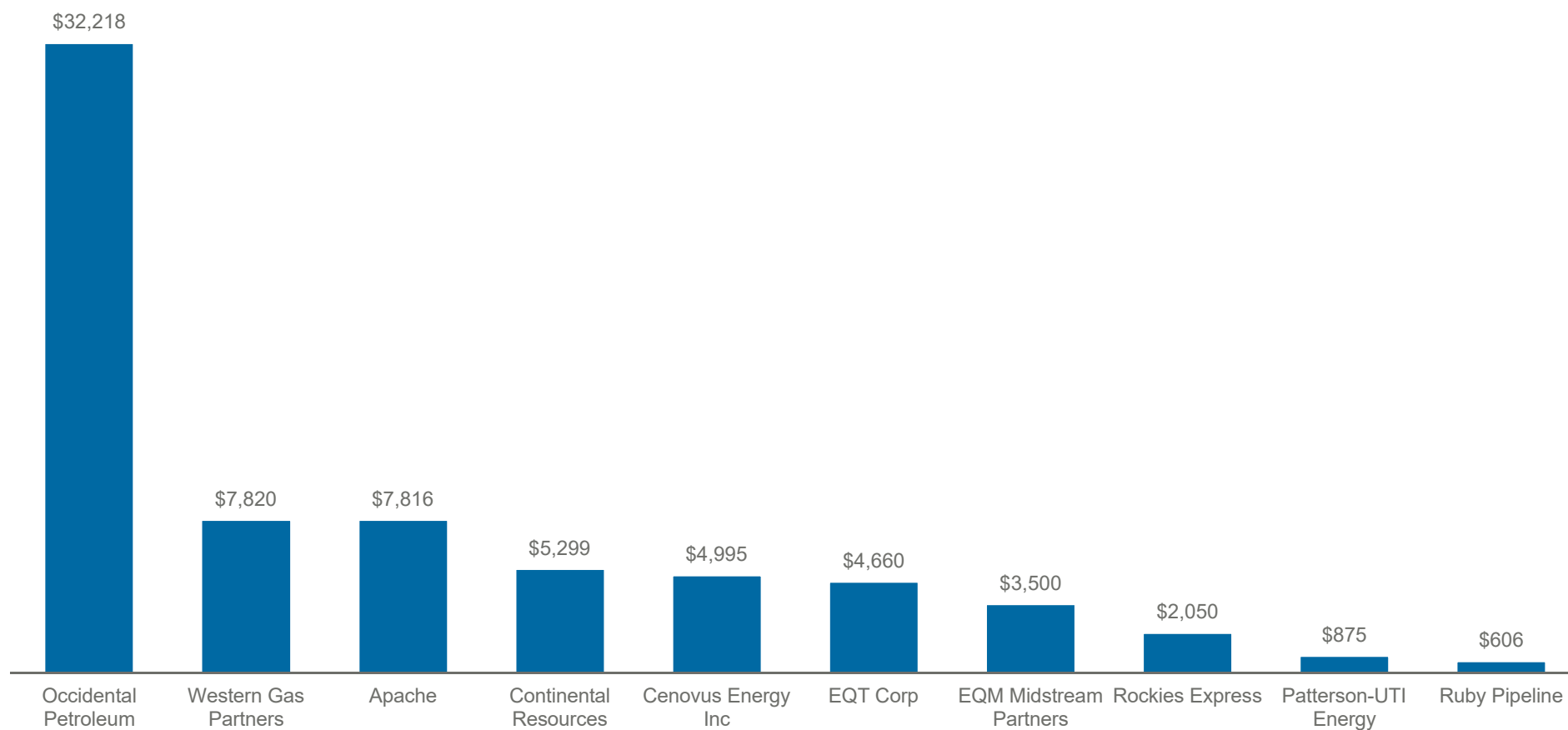


Source: JPMorgan.

....But That Has Not Gone Well

~\$70 Billion Of Energy Fallen Angels In 2020

2020 Energy Fallen Angels

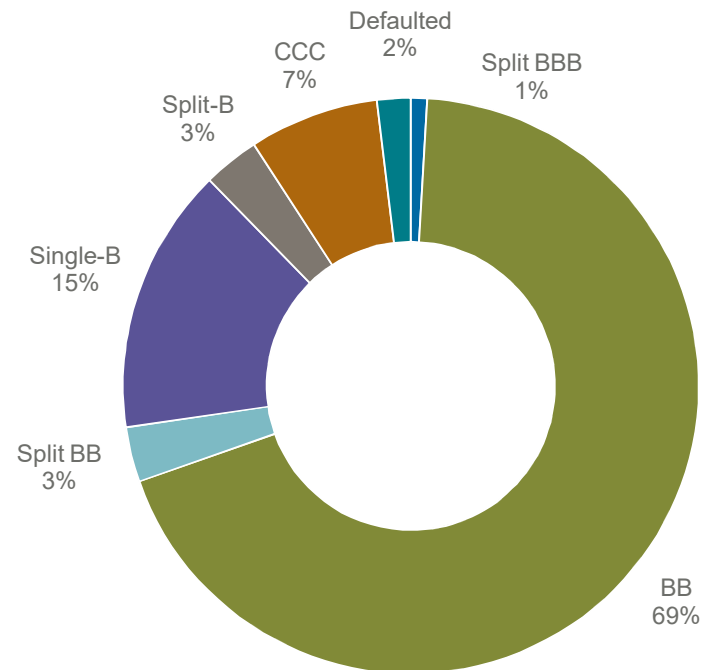


Source: JPMorgan.

Which Have Changed The Ratings Mix & Maturity Profile Of The Energy Market

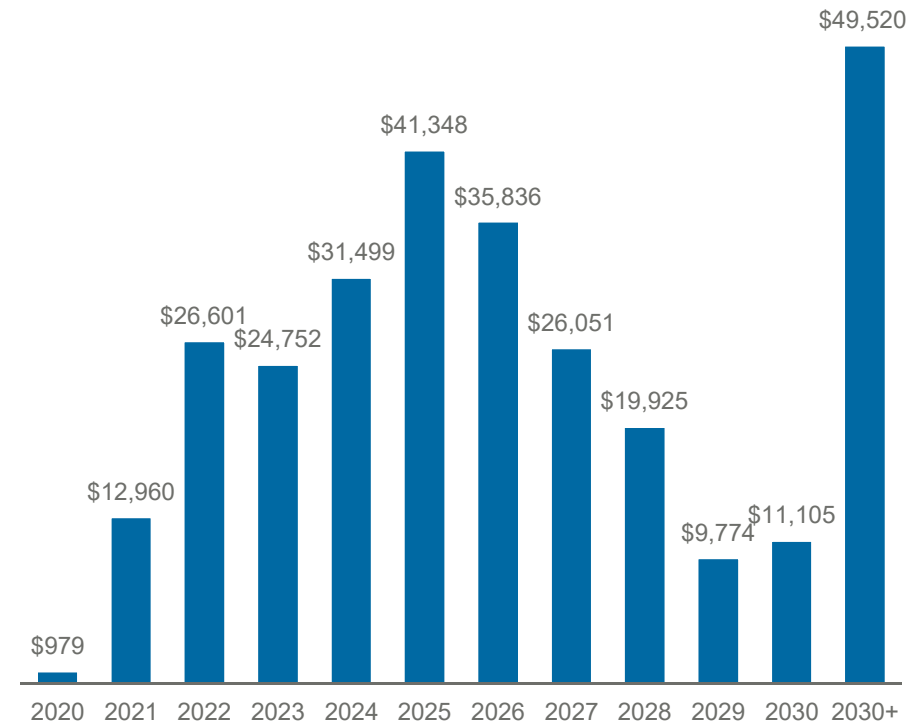
Fallen Angels Increased The BB Mix By Over 2,000bp

High Yield Energy Market Value By Rating



Source: JPMorgan.

High Yield Energy Maturity Profile

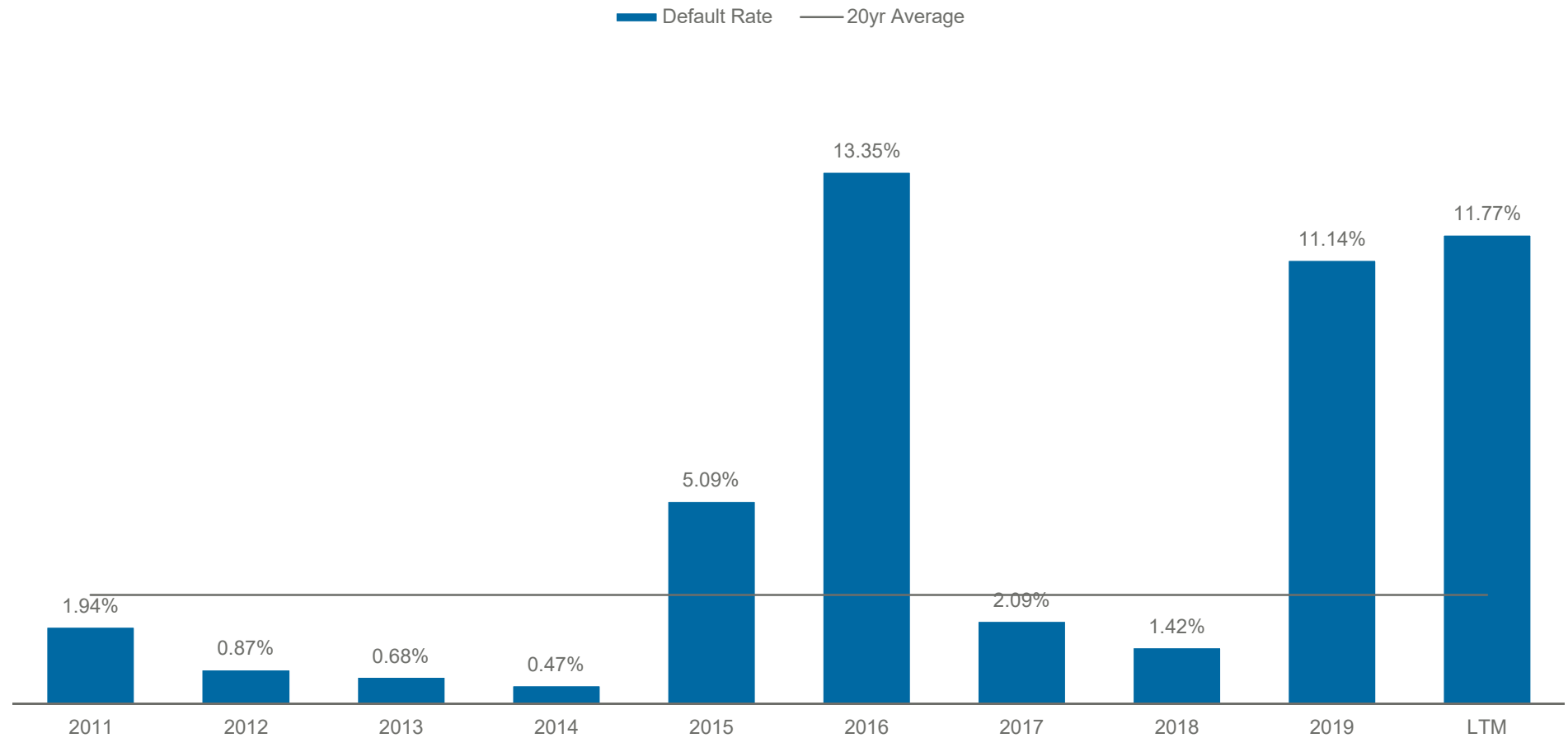


Source: JPMorgan.

Defaults Have Been Elevated And Will Likely Pick Up

Sector Default Rates

High Yield Energy Default Rates

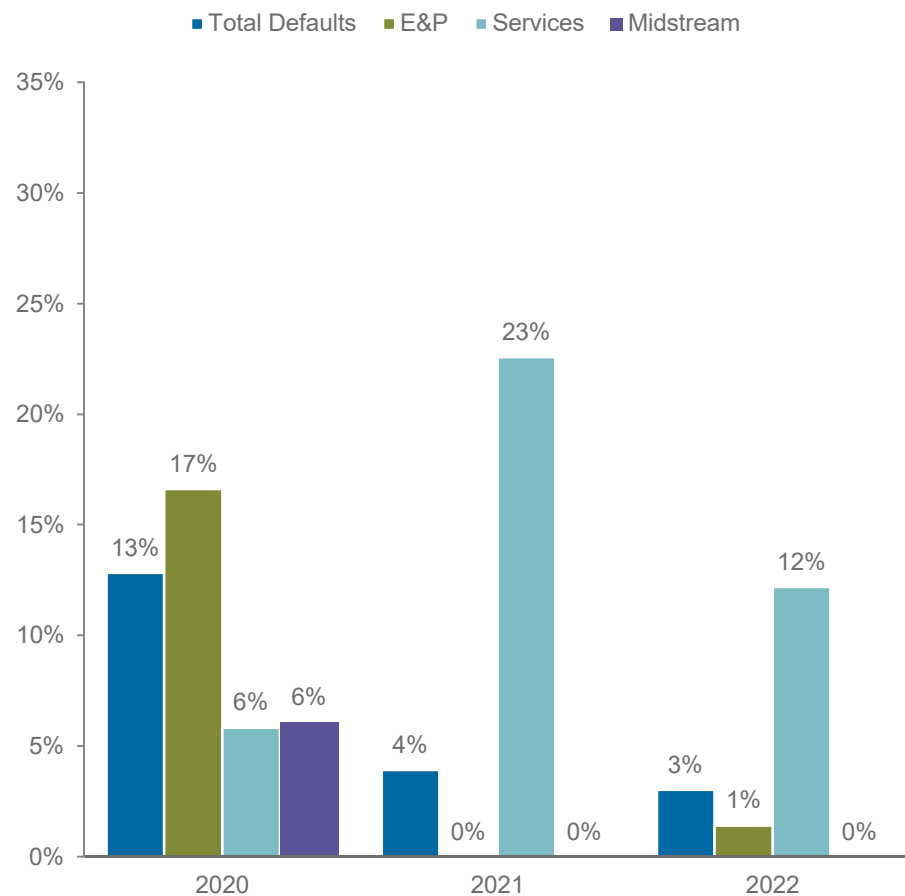


Source: JPMorgan.

Default Rate Likely To Set New Record At Current Commodity Deck

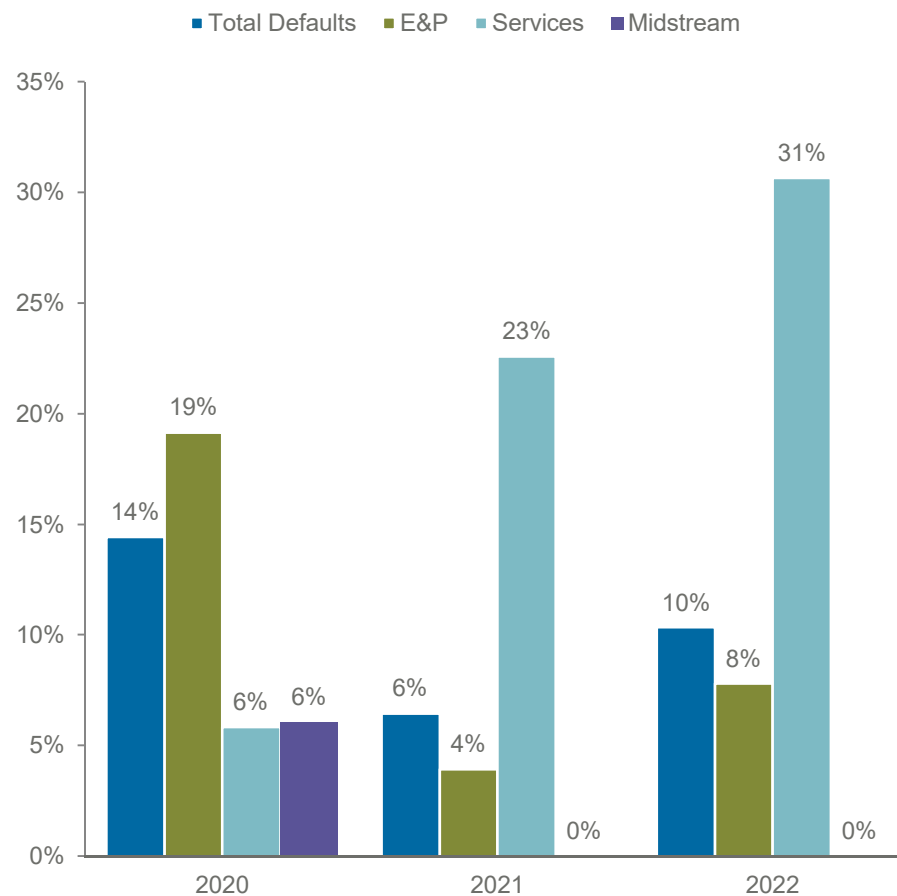
Sector Default Rates

Optimistic Case Sector Default Forecast
\$40/bbl 2H20, \$50bbl 2021-2022



Source: JPMorgan.

Pessimistic Case Sector Default Forecast
\$25/bbl 2H20, \$40bbl 2021-2022



Source: JPMorgan.

Market Appears To Be Pricing In An Intermediate Commodity Outcome

Market Implicitly Pricing In Slightly Too High Midstream Default Rates

What today's High-Yield Bond spread implies for future defaults

Actual spread	Excess spread	Default loss	Recov rate	Default rate	Cumulative Default rate	2.5yr Default rate
726bp	- 326bp	= 400bp /	(100% - 40%)	= 6.7%	32.5%	15.8%

What today's High-Yield Bond spread Ex Energy implies for future defaults

Actual spread	Excess spread	Default loss	Recov rate	Default rate	Cumulative Default rate	2.5yr Default rate
631bp	- 326bp	= 305bp /	(100% - 40%)	= 5.1%	25.7%	12.2%

What today's Energy Sector spread implies for future defaults

Actual spread	Excess spread	Default loss	Recov rate	Default rate	Cumulative Default rate	2.5yr Default rate
1,225bp	- 326bp	= 899bp /	(100% - 20%)	= 11.2%	43.6%	25.8%

What today's Exploration and Production Subsector spread implies for future defaults

Actual spread	Excess spread	Default loss	Recov rate	Default rate	Cumulative Default rate	2.5yr Default rate
1,396bp	- 326bp	= 1070bp /	(100% - 20%)	= 13.4%	56.5%	30.2%

What today's Energy Services Subsector spread implies for future defaults

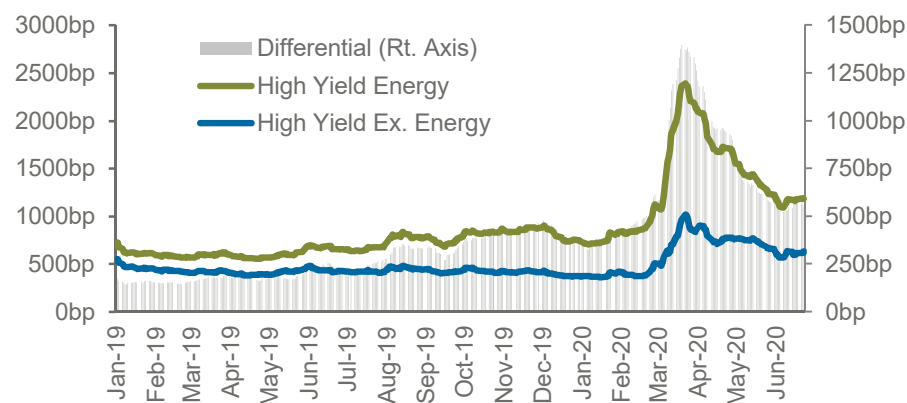
Actual spread	Excess spread	Default loss	Recov rate	Default rate	Cumulative Default rate	2.5yr Default rate
2,238bp	- 326bp	= 1912bp /	(100% - 20%)	= 23.9%	79.5%	49.5%

Source: JPMorgan.

Valuation Are Wildly Bifurcated By Ratings

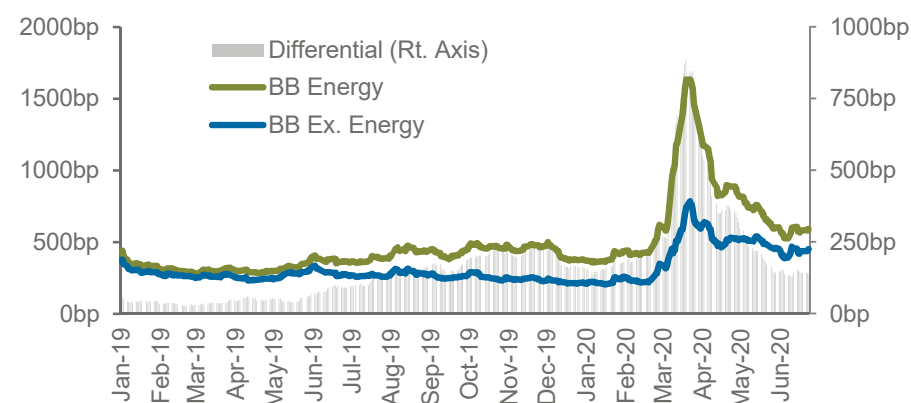
Expect Wider Energy Discounts Than Historical Long-Term

High Yield Energy Relative Value



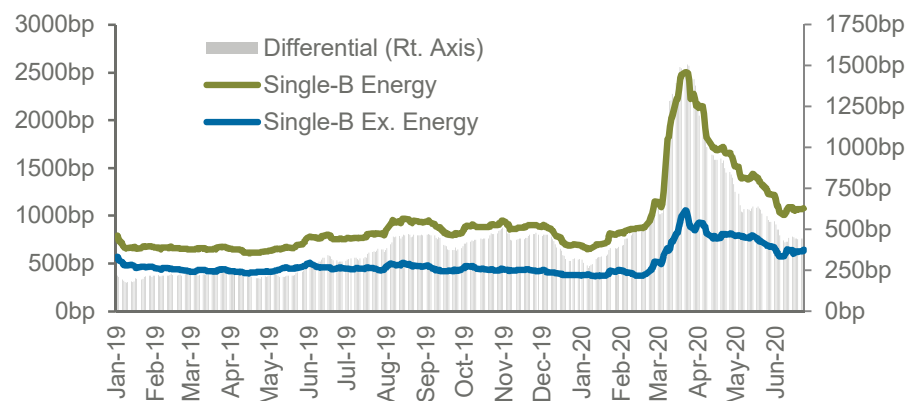
Source: JPMorgan.

BB Energy Relative Value



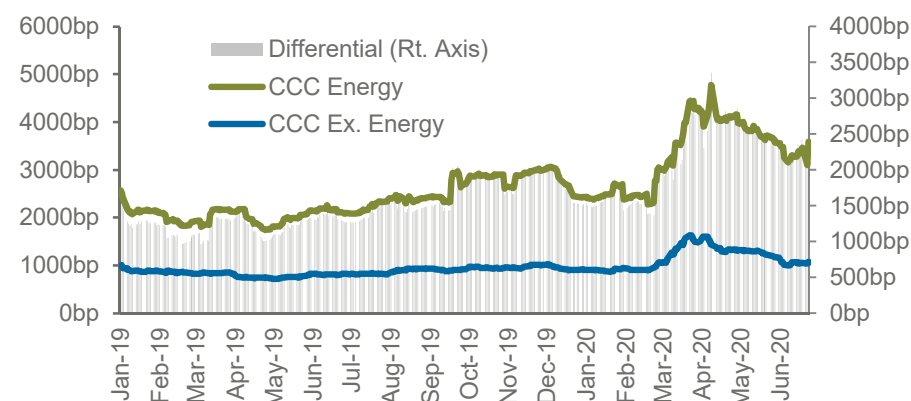
Source: JPMorgan.

Single-B Energy Relative Value



Source: JPMorgan.

CCC Energy Relative Value

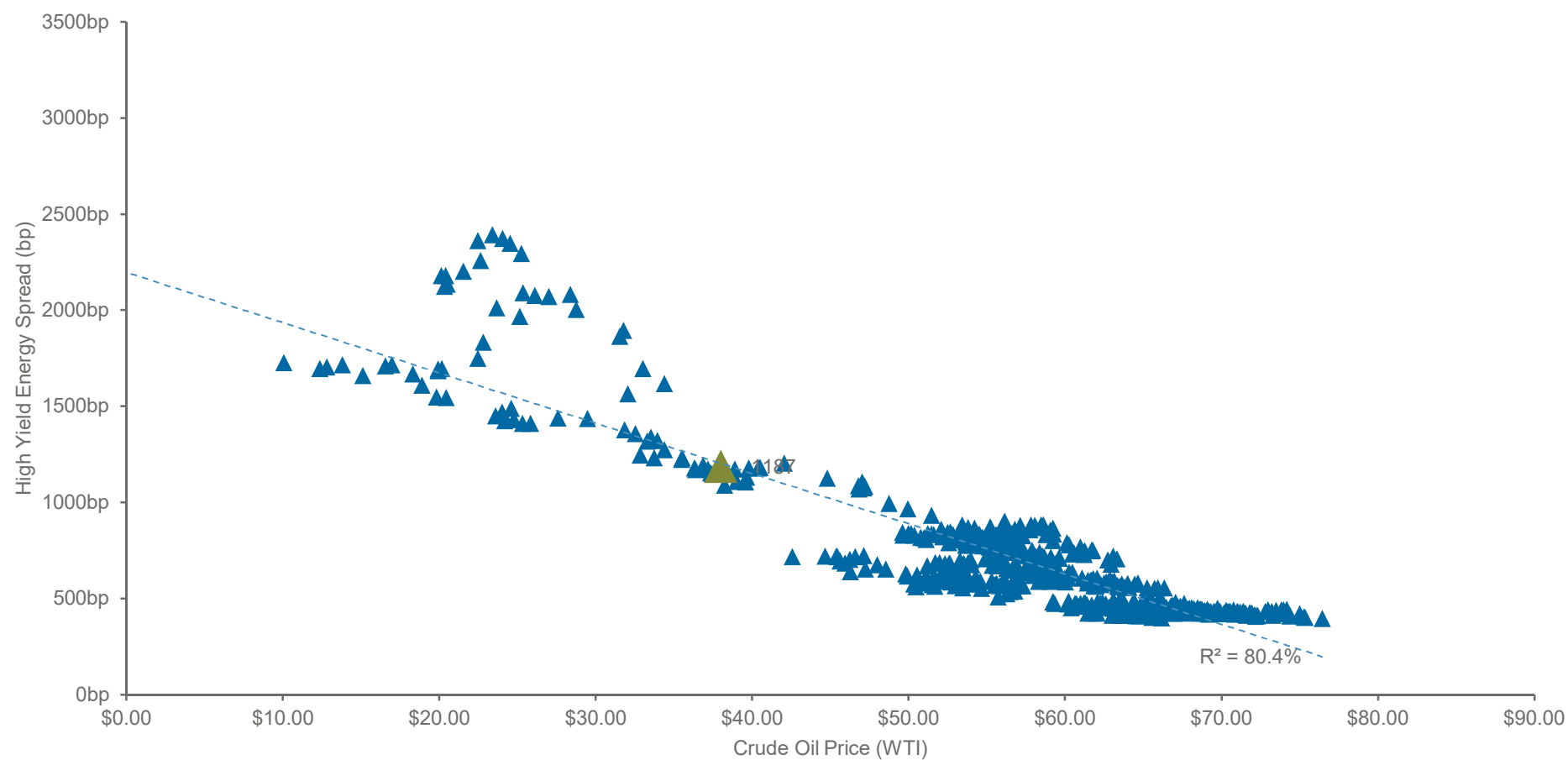


Source: JPMorgan.

Commodity Correlations Have Strengthened In Recent Weeks

Correlations Broke Down Meaningfully In April But Have Recovered

High Yield Energy Spread Vs. Crude Oil Prices – January 2018 - Today



Source: JPMorgan.

Disclosures

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We use the following ratings for bonds (issues) and issuers: Overweight (over the next three months, the recommended risk position is expected to outperform the relevant index, sector, or benchmark); Neutral (over the next three months, the recommended risk position is expected to perform in line with the relevant index, sector, or benchmark); and Underweight (over the next three months, the recommended risk position is expected to underperform the relevant index, sector, or benchmark). J.P. Morgan Emerging Markets Sovereign Research uses Marketweight, which is equivalent to Neutral. NR is Not Rated. In this case, J.P. Morgan has removed the rating for this particular security or issuer because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating no longer should be relied upon. An NR designation is not a recommendation or a rating. NC is Not Covered. An NC designation is not a rating or a recommendation.

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Disclosures

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