

Equity Research
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“Can’t Fight This Feeling” Approaching Energy Cyclical Bottom, Likely Inflection Point



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Thesis: Favor Oily Over Gassy E&Ps in Near Term Despite Gas's "Coiled Spring" Status

Summary

We believe the energy sector is approaching its latest cyclical bottom, despite a potential surplus in oil and, to some extent, natural gas supply, as investors begin to look past the commodity noise. We are relatively bullish on oil and various related stocks as U.S. inventory deterioration causes domestic production to decline, offsetting some of the upcoming incremental OPEC+ barrels. We find ourselves slightly cautious on natural gas and some related stocks nearer term given the potential for increased domestic supply, as new wells continue to improve and baseline production decline moderates. However, we do not deny the potential for medium- to longer-term notable incremental demand from LNG projects and data centers. Our expectations contrast with those of most investors and with the analysts' consensus call, which is extremely cautious on oil and related stocks in both the near and long term. We are cautious on gas and related stocks only in the very near term, and in the medium and long term remain bullish. We are initiating coverage on 11 exploration and production (E&P) companies and recommend that investors begin to take positions in several (we have Outperform ratings over a 12-month period on 10 of 11 companies).

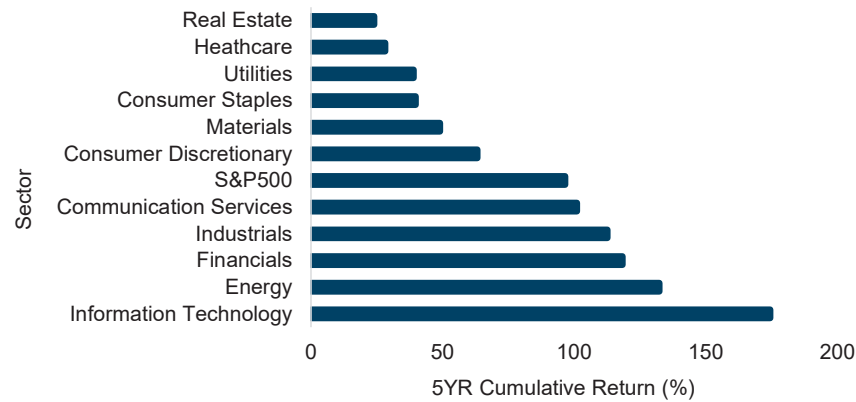
We believe there are four key factors that have improved the energy sector's future potential upside. First, end-use fossil fuel demand remains strong, with AI and data centers, among others, being prominent sources. Second, most energy companies are in a better financial position than ever. Third, operational efficiencies continue to notably increase. Fourth, capital allocation that includes notable shareholder return has become more strategic.

Our proprietary data suggest quality U.S. oil inventory is declining at a quicker pace than expected, while gas inventory appears to be holding up much better with more consistent inventory levels. We believe the concern over future tier-1 inventory, among other things, is resulting in record-high prices paid for oil and natural gas acres.

Attractive Energy Sector

While the energy sector remains out of favor with many investors due to a myriad of factors, we believe there are several reasons why investors should consider adding exposure. Despite energy constituting only 2%-5% of the S&P 500 over the past five years, the energy sector has been one of the top performers during this period.

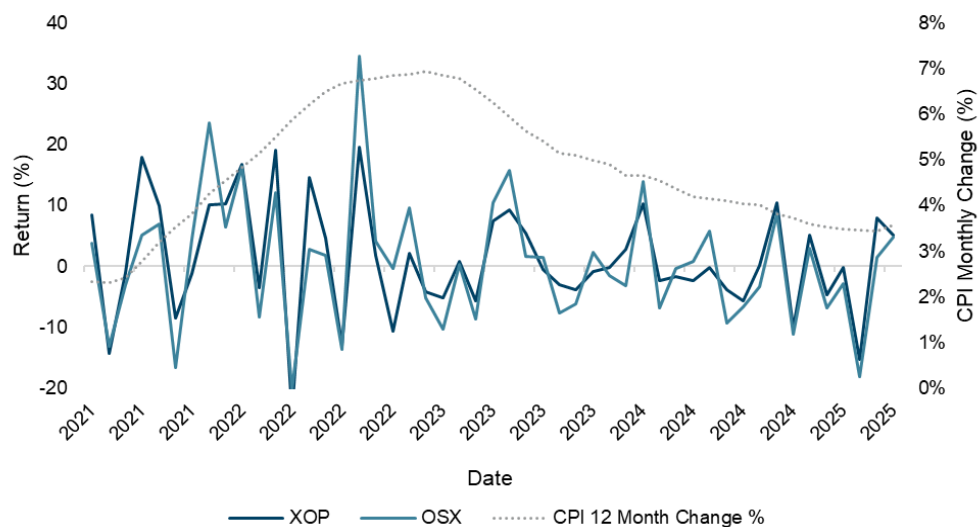
Exhibit 1
Sector 5-Year Cumulative Returns as of 7/23/25



Source: FactSet and William Blair Equity Research

We believe some of the energy group's upside can be attributed to the macro environment during the past five years. The energy group continues to be a relative hedge against inflation, especially when that inflation is driven by rising energy prices themselves. Not surprisingly, the energy sector saw its best annual return over the past five years during 2022, when CPI and other macro inflationary measures were at their uppermost levels, along with the highest oil prices during the same period. There is much discussion to be had about future inflation, as well as future oil prices, but while we do not consider ourselves materially bullish, we believe inflationary pressures could continue in some fashion and oil prices could find some notable support. Further, natural gas remains set for secular demand upside, though we remain slightly cautious in the near term given ample short-term supply coupled with good but not yet great natural gas demand.

Exhibit 2
XOP/OSX vs CPI 12-Month Change



Sources: FactSet and William Blair Equity Research

Exhibit 3
Natural Gas vs Crude Oil Performance (COMB Commodity ETF)



Source: Bloomberg

While future oil prices may not average in the \$90s-\$100s as they did in 2022 and 2023, we believe much of the upstream energy group is in a better position currently than years past. We believe there are numerous drivers of the much-improved company positions.

First, the balance sheets are much better today than in past years, with many E&Ps having leverage well below 1x. The minimal debt enables companies to not only withstand periods of low commodity prices, but also become proactive during these pressure periods by acquiring assets, inventory, and/or production at a likely discounted value.

Second, operational efficiencies continue to improve for many E&Ps, with several companies drilling as many wells in a year today as in the prior year or two but with up to 33% fewer drilling rigs. Similarly, many of these same operators are fracking as many wells annually as they did a year or two ago but with up to a 25% decline in frac spreads. The reduced drilling and completion cycle times allow E&Ps to do more with less.

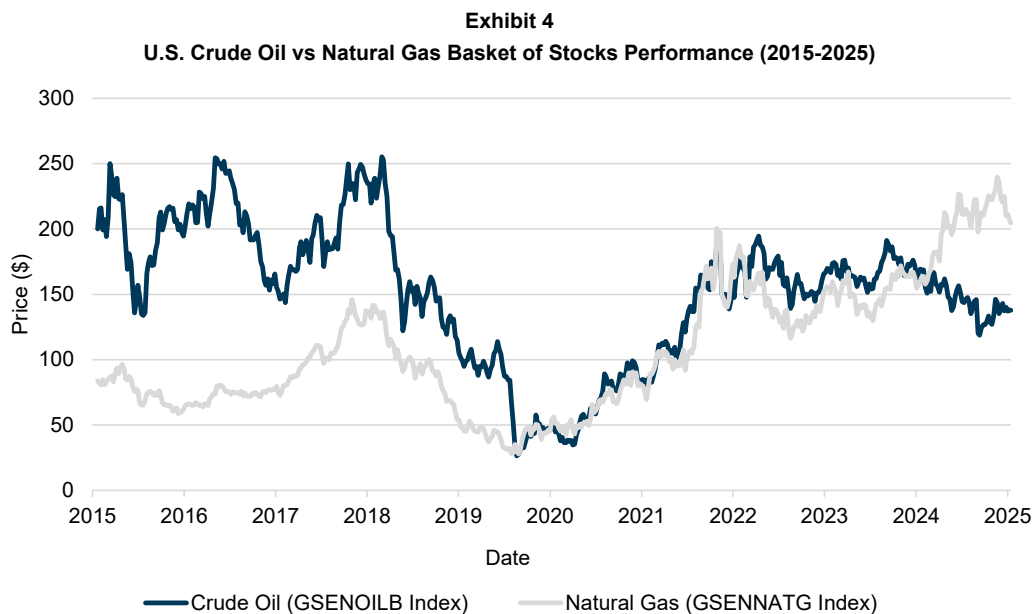
Third, capital allocation has become more strategic. Operators in prior years would often outspend cash flow to materially grow production. Today, the focus is on strong continued financials, stable production, and payouts.

Fourth, shareholder return has notably improved. Many companies today pay out as much as 70% of their discretionary free cash flow. The high payout results in strong dividends, with some yields as high as 10%, and opportunistic stock buybacks that notably improve companies' per-share metrics. As a result of these drivers, many E&Ps are able to create value for investors by improving reserves and their asset base to go along with the continued shareholder returns.

Oily E&Ps Versus Gassy E&Ps

While we are slightly cautious on oil and natural gas prices in the near term due to potential macro overhangs that we will touch on later, we believe investors should soon start adding various oil stocks and select natural gas stocks in anticipation of better mid- to late-2026 commodity prices.

While one size does not fit all, we suggest that several quality oily E&Ps trade near record discounts to various gassy E&Ps. Much of the disparity can be attributed to investors' belief in future secular natural gas demand growth versus potential oil pricing pressure. Though we also anticipate strong future natural gas demand with more moderate oil demand, we believe current stock prices are overestimating the changes. We looked at the oil-weighted Goldman Sachs index (GSENOILB) versus its natural gas-weighted index (GSENNATG) over the past 10 years. We found the spread between the two indices peaked approximately a month ago, though the difference remains material. While we believe natural gas equity could remain relatively stable in the near term after the prior notable selloff, we believe investors could come back into various oily equities if oil prices prove to have found a relative floor.



Sources: Bloomberg

Our 11 Initiations: 10 Outperform and 1 Market Perform

We are initiating coverage on 11 E&Ps with 10 Outperform ratings and 1 Market Perform rating. Much of our enthusiasm for the group is predicated on factors previously discussed, along with various company-specific drivers. Key themes for our group include experienced management with solid track records, ample tier-1 inventory, solid balance sheets, notable shareholder return, and continued catalysts (see [link](#) for our individual initiations).

Exhibit 5
Comparable Company Analysis

Primary Focus	Ticker	Price	Rating	EV/EBITDAX			FCF Yield (% of EV)			Debt/EBITDAX			FCF/Prod (\$MM/MBOEPD)		
				2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
PERMIAN	FANG	\$138.00	O	5.5x	4.9x	3.9x	10%	12%	16%	1.4x	1.0x	0.4x	5.8x	6.2x	7.4x
PERMIAN	HPK	\$7.44	NC	2.7x	3.0x	3.0x	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERMIAN	MTDR	\$46.34	O	3.8x	3.2x	2.5x	9%	13%	19%	1.3x	0.9x	0.4x	3.7x	4.9x	6.2x
PERMIAN	OVV	\$39.24	NC	3.6x	3.5x	3.3x	11%	10%	11%	1.2x	1.1x	0.9x	2.8x	2.5x	2.7x
PERMIAN	PR	\$13.14	O	3.8x	3.3x	2.7x	10%	12%	16%	0.8x	0.5x	0.1x	3.7x	4.0x	4.7x
PERMIAN	REI	\$0.93	NC	3.3x	3.0x	NA	8%	9%	NA	NA	NA	NA	2.6x	2.8x	NA
PERMIAN	REPX	\$27.35	NC	3.0x	3.0x	2.7x	13%	17%	23%	1.3x	0.9x	0.5x	4.0x	4.7x	5.7x
PERMIAN	VTLE	\$14.35	NC	2.1x	2.4x	2.3x	10%	3%	4%	1.6x	1.7x	1.6x	2.0x	0.6x	0.9x
EAGLE FORD	MGY	\$23.36	O	5.0x	4.3x	3.5x	8%	9%	12%	0.1x	-0.2x	-0.5x	3.9x	3.9x	4.5x
MID CON	MNR	\$13.55	O	5.2x	3.5x	3.3x	9%	14%	13%	1.6x	1.0x	1.0x	2.9x	3.2x	3.2x
CALIFORNIA	CRC	\$48.09	NC	4.1x	4.7x	4.5x	13%	10%	8%	0.6x	0.5x	0.5x	5.0x	3.9x	3.1x
BAKKEN	CHRD	\$102.00	NC	2.9x	3.1x	2.7x	11%	10%	13%	0.3x	0.3x	0.2x	2.8x	2.4x	3.1x
BAKKEN	NOG	\$23.72	O	2.9x	3.2x	2.8x	8%	4%	7%	1.4x	1.6x	1.3x	2.9x	1.5x	2.3x
MULTI-BASIN	APA	\$20.63	NC	2.3x	2.5x	2.4x	12%	8%	10%	0.8x	0.8x	0.7x	3.0x	2.2x	2.7x
MULTI-BASIN	CIVI	\$32.27	MP	2.6x	2.5x	2.0x	9%	9%	14%	1.6x	1.5x	1.1x	2.2x	2.1x	3.0x
MULTI-BASIN	CRGY	\$9.38	O	2.9x	2.7x	2.1x	11%	12%	19%	1.6x	1.4x	0.9x	2.5x	2.4x	3.3x
MULTI-BASIN	DVN	\$33.89	O	3.7x	3.1x	2.2x	10%	15%	24%	0.8x	0.4x	-0.2x	3.4x	4.3x	5.6x
MULTI-BASIN	EOG	\$118.51	NC	5.3x	4.8x	4.4x	7%	7%	9%	0.4x	0.3x	0.2x	3.5x	3.4x	3.7x
MULTI-BASIN	MUR	\$22.61	NC	2.9x	2.7x	2.2x	1%	6%	15%	0.8x	0.7x	0.5x	0.2x	1.4x	3.2x
MULTI-BASIN	OXY	\$44.56	NC	5.6x	5.3x	4.9x	6%	6%	7%	1.7x	1.4x	1.1x	2.9x	3.0x	3.5x
MULTI-BASIN	SM	\$25.92	NC	2.4x	2.6x	2.4x	11%	10%	13%	1.0x	0.9x	0.5x	3.0x	2.5x	3.5x
GAS FOCUSED	AR	\$30.70	NC	5.6x	4.3x	4.7x	10%	14%	12%	0.5x	0.0x	-0.2x	1.9x	2.6x	2.3x
GAS FOCUSED	BKV	\$22.25	NC	5.8x	4.0x	4.0x	0%	4%	4%	1.1x	0.4x	NA	0.1x	0.5x	0.5x
GAS FOCUSED	CNX	\$28.65	NC	6.3x	5.7x	4.9x	6%	8%	10%	2.1x	1.8x	1.3x	1.7x	2.2x	2.7x
GAS FOCUSED	CRK	\$15.62	NC	6.5x	5.0x	4.6x	-2%	3%	3%	2.6x	2.0x	1.6x	-0.7x	0.8x	0.8x
GAS FOCUSED	CTRA	\$23.44	NC	4.3x	3.8x	3.7x	10%	13%	14%	0.7x	0.4x	0.3x	2.8x	3.5x	3.8x
GAS FOCUSED	DEC	\$16.20	NC	4.4x	4.4x	5.1x	11%	11%	8%	2.7x	2.4x	2.7x	2.3x	2.3x	1.9x
GAS FOCUSED	EQT	\$52.05	NC	6.8x	5.3x	5.3x	7%	11%	10%	1.3x	0.6x	0.4x	2.4x	3.7x	3.4x
GAS FOCUSED	EXE	\$95.45	NC	5.0x	3.9x	4.1x	8%	13%	12%	0.8x	0.4x	0.2x	1.8x	2.8x	2.6x
GAS FOCUSED	GPOR	\$168.44	O	4.1x	3.0x	1.9x	13%	17%	31%	0.9x	0.3x	-0.4x	2.7x	3.0x	3.8x
GAS FOCUSED	INR	\$13.68	NC	0.9x	0.7x	0.6x	-17%	15%	39%	0.0x	0.1x	0.1x	-1.1x	0.8x	1.8x
GAS FOCUSED	RRC	\$33.19	NC	6.2x	5.0x	5.0x	8%	11%	11%	0.7x	0.3x	0.2x	1.9x	2.5x	2.2x
INTERGRATED	COP	\$94.78	NC	5.4x	5.4x	4.9x	6%	6%	7%	0.7x	0.7x	0.6x	3.3x	3.4x	3.6x
INTERGRATED	CVX	\$155.55	NC	7.0x	6.0x	5.3x	6%	8%	9%	0.8x	0.7x	0.7x	5.0x	5.7x	6.4x
INTERGRATED	XOM	\$109.23	NC	7.2x	6.7x	6.0x	6%	6%	7%	0.4x	0.5x	0.4x	5.9x	6.1x	6.9x
MINERAL	KRP	\$13.62	NC	8.1x	7.8x	7.6x	10%	10%	11%	1.6x	1.3x	1.2x	9.2x	8.8x	8.7x
MINERAL	VNOM	\$37.16	O	12.8x	8.4x	7.0x	7%	10%	12%	1.6x	0.7x	0.2x	11.2x	11.3x	12.3x

Note: O = Outperform; MP = Market Perform; U = Underperform; and NC = Not Covered

Sources: FactSet and William Blair Equity Research

**Exhibit 6
Production Mix**

Primary Focus	Ticker	Price	Rating	2025			2026			2027		
				Oil	NGLs	Gas	Oil	NGLs	Gas	Oil	NGLs	Gas
PERMIAN	FANG	\$143	O	54%	23%	22%	54%	24%	23%	55%	23%	22%
PERMIAN	HPK	\$8	NC	70%	15%	15%	70%	15%	15%	70%	15%	15%
PERMIAN	MTDR	\$48	O	58%	0%	42%	59%	0%	41%	59%	0%	41%
PERMIAN	OVV	\$41	NC	26%	23%	51%	26%	24%	51%	25%	24%	51%
PERMIAN	PR	\$14	O	46%	25%	29%	45%	25%	30%	45%	25%	30%
PERMIAN	REI	\$1	NC	66%	18%	16%	68%	16%	16%	68%	16%	16%
PERMIAN	REPX	\$29	NC	63%	20%	17%	63%	20%	17%	66%	18%	16%
PERMIAN	VTLE	\$16	NC	46%	27%	26%	47%	27%	27%	47%	26%	27%
EAGLE FORD	MGY	\$24	O	41%	28%	31%	40%	28%	32%	39%	28%	33%
MID CON	MNR	\$14	O	21%	20%	59%	17%	14%	69%	18%	13%	69%
CALIFORNIA	CRC	\$50	NC	79%	7%	14%	79%	7%	14%	79%	7%	14%
BAKKEN	CHRD	\$106	NC	56%	18%	26%	56%	18%	26%	56%	18%	26%
BAKKEN	NOG	\$25	O	57%	0%	43%	56%	0%	44%	56%	0%	44%
MULTI-BASIN	APA	\$22	NC	51%	17%	33%	50%	17%	33%	49%	18%	33%
MULTI-BASIN	CIVI	\$34	MP	46%	25%	28%	45%	25%	29%	46%	25%	29%
MULTI-BASIN	CRGY	\$10	O	40%	18%	42%	39%	17%	43%	39%	17%	44%
MULTI-BASIN	DVN	\$35	O	47%	26%	28%	46%	26%	28%	46%	26%	28%
MULTI-BASIN	EOG	\$121	NC	43%	23%	34%	39%	24%	37%	39%	24%	37%
MULTI-BASIN	MUR	\$24	NC	49%	5%	46%	50%	5%	45%	49%	7%	44%
MULTI-BASIN	OXY	\$46	NC	51%	22%	26%	52%	22%	26%	51%	23%	26%
MULTI-BASIN	SM	\$27	NC	54%	13%	33%	53%	13%	33%	54%	13%	33%
GAS FOCUSED	AR	\$31	NC	2%	34%	64%	2%	34%	64%	2%	34%	64%
GAS FOCUSED	BKV	\$23	NC	0%	21%	78%	0%	23%	77%	0%	21%	78%
GAS FOCUSED	CNX	\$29	NC	0%	8%	92%	0%	8%	92%	0%	6%	93%
GAS FOCUSED	CRK	\$15	NC	0%	0%	100%	0%	0%	100%	0%	0%	100%
GAS FOCUSED	CTRA	\$24	NC	21%	16%	63%	22%	17%	62%	22%	16%	62%
GAS FOCUSED	DEC	\$17	NC	11%	15%	75%	11%	15%	74%	7%	25%	67%
GAS FOCUSED	EQT	\$52	NC	0%	5%	94%	0%	6%	94%	0%	5%	95%
GAS FOCUSED	EXE	\$94	NC	1%	6%	92%	1%	7%	92%	1%	7%	92%
GAS FOCUSED	GPOR	\$169	O	4%	6%	90%	5%	7%	88%	4%	10%	86%
GAS FOCUSED	INR	\$14	NC	25%	17%	58%	20%	13%	67%	20%	13%	67%
GAS FOCUSED	RRC	\$33	NC	2%	30%	68%	2%	30%	68%	2%	30%	68%
INTERGRATED	COP	\$97	NC	53%	19%	28%	53%	19%	29%	53%	18%	29%
INTERGRATED	CVX	\$158	NC	61%	0%	39%	65%	-2%	37%	65%	-1%	37%
INTERGRATED	XOM	\$111	NC	70%	0%	30%	70%	0%	29%	71%	0%	30%
MINERAL	KRP	\$14	NC	33%	19%	48%	33%	19%	48%	32%	18%	50%
MINERAL	VNOM	\$39	O	52%	23%	24%	52%	23%	25%	52%	23%	25%

Note: O = Outperform; MP = Market Perform; U = Underperform; and NC = Not Covered

Sources: FactSet and William Blair Equity Research

**Exhibit 7
Short Interest**

Primary Focus	Ticker	Price	Rating	Short Interest			Days To Cover			Current (08/21/25)	
				YE22	YE23	YE24	YE22	YE23	YE24	Short Interest	Days To Cover
PERMIAN	FANG	\$138	O	4%	3%	2%	2.3x	4.4x	2.0x	3%	5.4x
PERMIAN	HPK	\$7	NC	1%	4%	4%	8.5x	12.8x	17.5x	4%	11.6x
PERMIAN	MTDR	\$46	O	7%	8%	6%	7.3x	8.5x	7.1x	6%	3.5x
PERMIAN	OVV	\$39	NC	4%	2%	2%	4.0x	2.8x	1.6x	3%	2.0x
PERMIAN	PR	\$13	O	14%	9%	5%	7.0x	4.1x	4.8x	7%	4.5x
PERMIAN	REI	\$1	NC	11%	7%	6%	8.2x	5.6x	5.7x	5%	3.7x
PERMIAN	REPX	\$27	NC	1%	1%	1%	7.6x	2.9x	2.5x	2%	3.6x
PERMIAN	VTLE	\$14	NC	15%	15%	17%	2.8x	7.1x	7.5x	19%	6.5x
EAGLE FORD	MGY	\$23	O	7%	12%	15%	10.7x	12.4x	13.1x	13%	9.8x
MID CON	MNR	\$14	O	NA	0%	0%	NA	0.0x	0.5x	1%	3.2x
CALIFORNIA	CRC	\$48	NC	5%	7%	4%	6.5x	10.0x	3.9x	4%	2.8x
BAKKEN	CHRD	\$102	NC	3%	4%	3%	4.2x	4.1x	2.1x	5%	4.7x
BAKKEN	NOG	\$24	O	10%	11%	15%	5.6x	8.4x	8.7x	22%	11.6x
MULTI-BASIN	APA	\$21	NC	2%	4%	6%	1.4x	3.3x	3.2x	11%	6.7x
MULTI-BASIN	CIVI	\$32	MP	5%	9%	6%	7.2x	8.6x	3.6x	9%	5.2x
MULTI-BASIN	CRGY	\$9	O	10%	10%	13%	9.7x	12.3x	5.8x	6%	5.2x
MULTI-BASIN	DVN	\$34	O	2%	2%	4%	1.4x	1.6x	1.9x	2%	2.0x
MULTI-BASIN	EOG	\$119	NC	1%	1%	2%	2.3x	2.9x	3.8x	3%	4.6x
MULTI-BASIN	MUR	\$23	NC	4%	4%	6%	5.5x	4.9x	4.9x	13%	8.9x
MULTI-BASIN	OXY	\$45	NC	6%	6%	4%	4.8x	5.5x	2.6x	3%	3.8x
MULTI-BASIN	SM	\$26	NC	5%	6%	9%	3.7x	7.7x	7.0x	9%	5.2x
GAS FOCUSED	AR	\$31	NC	6%	5%	3%	3.1x	3.6x	2.3x	5%	2.4x
GAS FOCUSED	BKV	\$22	NC	NA	NA	3%	NA	NA	3.9x	2%	3.0x
GAS FOCUSED	CNX	\$29	NC	16%	20%	18%	11.2x	14.0x	13.5x	17%	9.6x
GAS FOCUSED	CRK	\$16	NC	8%	8%	8%	5.3x	6.1x	11.4x	6%	6.6x
GAS FOCUSED	CTRA	\$23	NC	4%	3%	3%	3.3x	4.3x	3.1x	4%	3.9x
GAS FOCUSED	DEC	\$16	NC	NA	1%	2%	NA	14.1x	6.4x	3%	5.9x
GAS FOCUSED	EQT	\$52	NC	6%	5%	3%	4.1x	4.8x	2.7x	3%	1.5x
GAS FOCUSED	EXE	\$95	NC	7%	9%	5%	7.5x	9.2x	5.4x	3%	1.7x
GAS FOCUSED	GPOR	\$168	O	4%	4%	5%	6.5x	5.3x	3.3x	6%	4.1x
GAS FOCUSED	INR	\$14	NC	NA	NA	NA	NA	NA	NA	6%	3.1x
GAS FOCUSED	RRC	\$33	NC	5%	7%	7%	3.4x	8.6x	7.5x	6%	4.2x
INTERGRATED	COP	\$95	NC	1%	1%	1%	1.6x	2.7x	1.4x	1%	3.2x
INTERGRATED	CVX	\$156	NC	1%	2%	3%	2.2x	5.2x	5.7x	1%	1.3x
INTERGRATED	XOM	\$109	NC	1%	2%	1%	2.0x	4.6x	2.4x	1%	2.4x
MINERAL	KRP	\$14	NC	2%	1%	2%	2.6x	2.3x	3.5x	1%	2.6x
MINERAL	VNOM	\$37	O	2%	5%	6%	4.0x	3.8x	7.0x	7%	9.2x

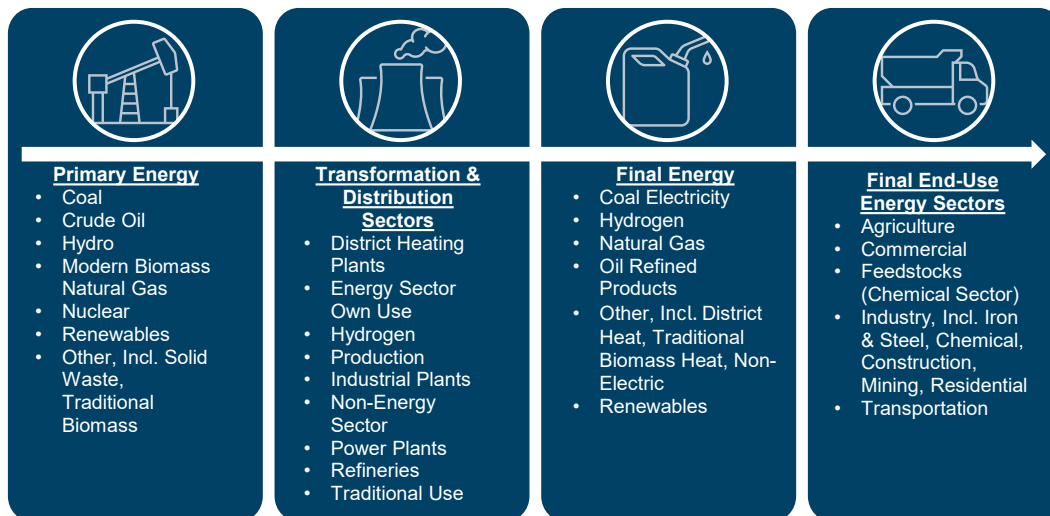
Note: O = Outperform; MP = Market Perform; U = Underperform; and NC = Not Covered

Sources: FactSet and William Blair Equity Research

Primary and Final Energy Mix Fuels End-Users

Global energy consumption continues to be supplied by a mix of fossil fuels and renewables. Our analysis examines both primary or raw energy—the total amount of energy extracted from natural resources to meet the world’s total energy needs—and final energy—the amount of energy consumed by worldwide end-users after accounting for net energy losses.

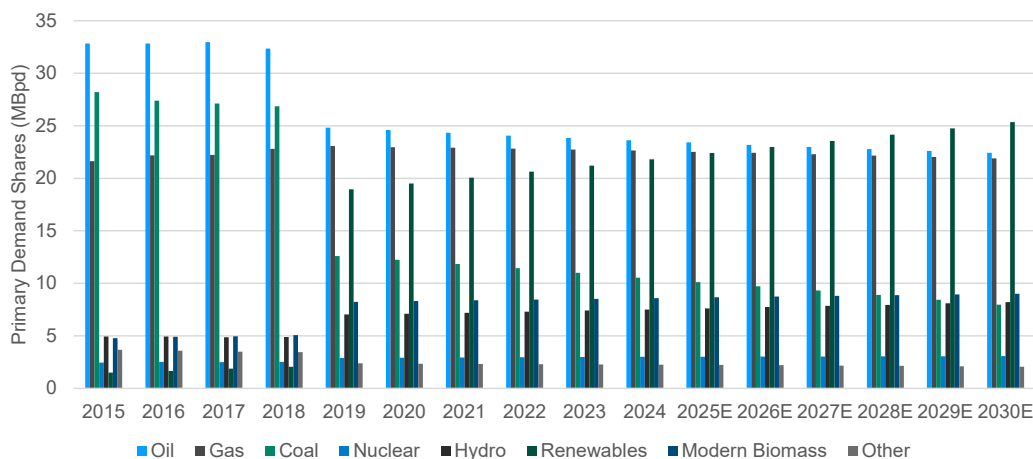
Exhibit 8
Primary Energy Conversion Process



Source: William Blair Equity Research

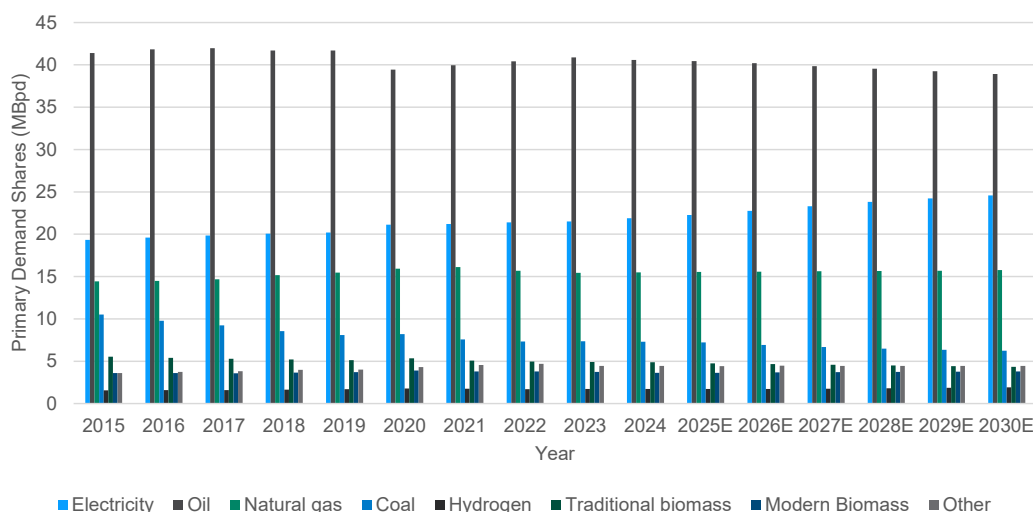
What stands out is the likely material decline of coal demand over the next 10 years and even more sharply over 20 years. Oil demand is also expected to fall, though only by a single-digit percentage over the next decade. In contrast, natural gas and nuclear, key sources of primary energy demand, are expected to see double-digit upside over the next 20 years, while overall electricity demand is displaying material upside over both 10- and 20-year periods.

Exhibit 9
Primary Energy Demand Shares (MBpd) by Energy Source (2015-2030)



Source: EIA and William Blair Equity Research

Exhibit 10
Final Energy Demand Shares (MBpd) by Energy Source (2015-2030)



Source: EIA and William Blair Equity Research

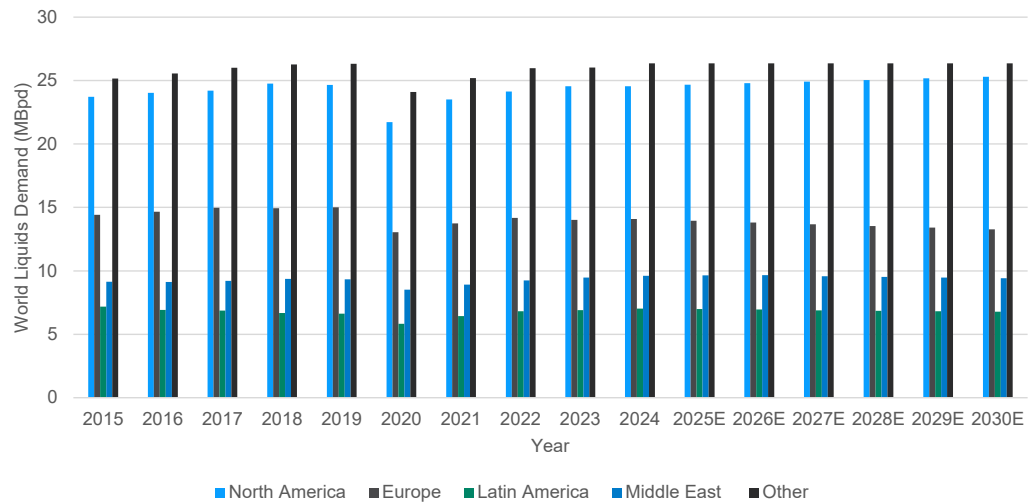
While coal, nuclear, and various renewable sources remain important for future global energy consumption, our focus for the purpose of this discussion will be on oil and natural gas given our initiations on companies in these areas.

World Oil Supply and Demand

For 2025, global oil production is projected by the International Energy Agency (IEA) to exceed demand, leading to a slight oversupply and potentially further pressuring oil prices. Most of the oversupply is driven by OPEC+ production, as the group announced this year that it would bring back the voluntary cuts of 2.2 million Bopd that were implemented in early 2024 and additional UAE capacity in the following increments: 138,000 Bopd in April 2025, 411,000 Bopd in May 2025, 411,000 Bopd in June 2025, 411,000 Bopd in July 2025, 549,000 Bopd in August 2025, and 547,000 Bopd in September 2025.

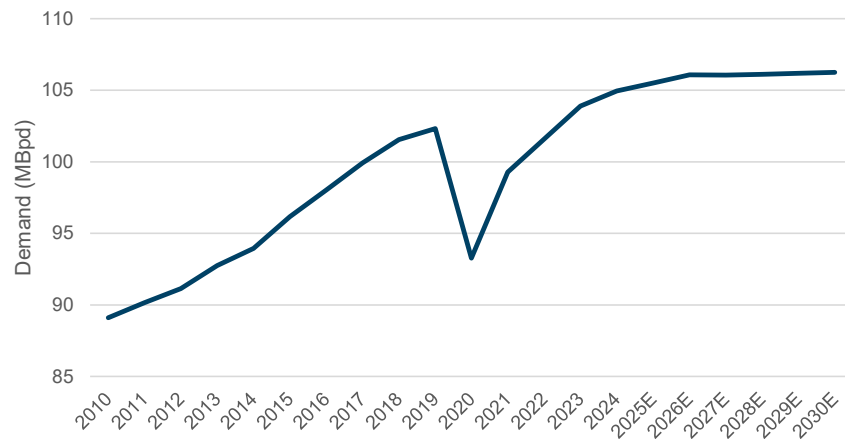
While there is likely to be some oil oversupply late this year given the near-term OPEC+ incremental supply, we believe dynamics should start to unfold so that by mid- to late 2026, the world oil market will be in equilibrium, and by 2027 there could once again be a deficit. We believe a primary driver going forward will be increased consumption, predominantly by non-Organisation for Economic Co-operation and Development (OECD) countries, as we anticipate relatively flattish demand from OECD countries. Further affecting future market equilibrium will be how much or little incremental production comes primarily from non-OPEC+ countries, as these suppliers will continue to have no production quotas. We believe North American supply will be less than many investors currently expect, and we discuss that in a later section.

Exhibit 11
World Liquids Demand (MBpd) by Region (2015-2030)



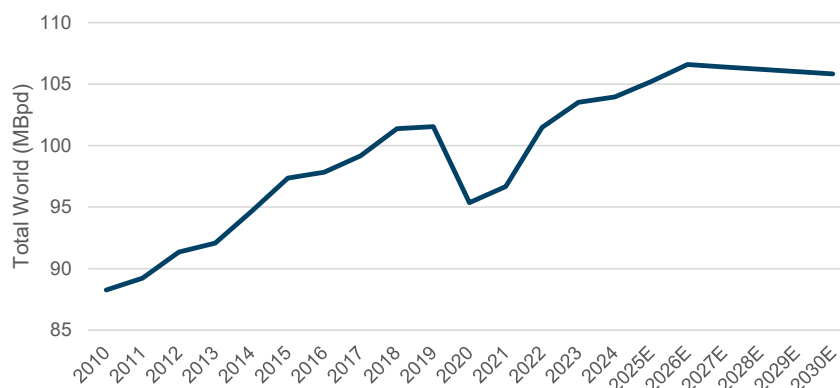
Sources: EIA and William Blair Equity Research

Exhibit 12
Total World Liquids Demand (MBpd) (2010-2030)



Sources: EIA and William Blair Equity Research

Exhibit 13
Total World Liquids Production (MBpd) (2010-2030)



Sources: EIA and William Blair Equity Research

World Natural Gas Supply and Demand

World natural gas supply and demand remains largely in equilibrium, though the quantity of exports and imports continues to change for each country. Not surprisingly, the largest supply and demand change continues to occur in North America, where the U.S. has become a major natural gas exporter as U.S. producers continue to add supply of LNG. Prior to 2017, the U.S. had continuously been a natural gas importer.

China and India remain the major drivers of incremental natural gas demand, along with some recovery in industrial demand. Power generation—both domestically and worldwide to support grid reliability and complement intermittent renewable energy sources—will become an even larger driver, as the expansion of data centers and AI infrastructure will materially lean on natural gas-fired power facilities. Europe’s upcoming heating season will continue to be a notable worldwide demand driver, especially since those countries are still replenishing gas storage levels from the 2024/2025 heating season.

Ongoing material changes in natural gas supply (similar to gas demand) will continue to be heavily influenced by LNG as several new projects come online (discussed in more detail later in this report). Disruptions to Russian piped gas supplies to Europe and potential LNG disruptions continue to cause European supply shortages, in turn leading the countries to lean more heavily on LNG and other sources. Key to overall supply levels will be how disciplined U.S. producers remain given the potential for abundant U.S. natural gas supply.

Exhibit 14
Supply (Bcf) by Region (2015-2030)

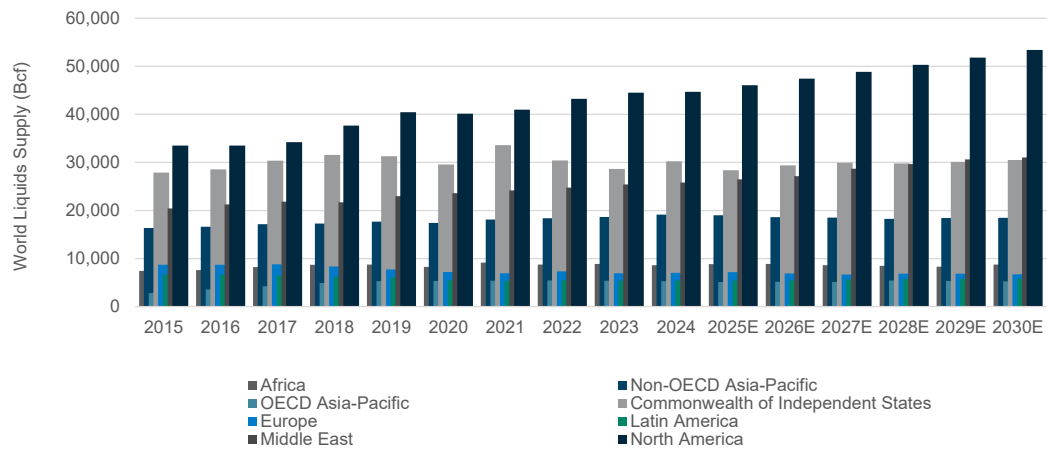


Exhibit 15
Demand (Bcf) by Region (2015-2030)

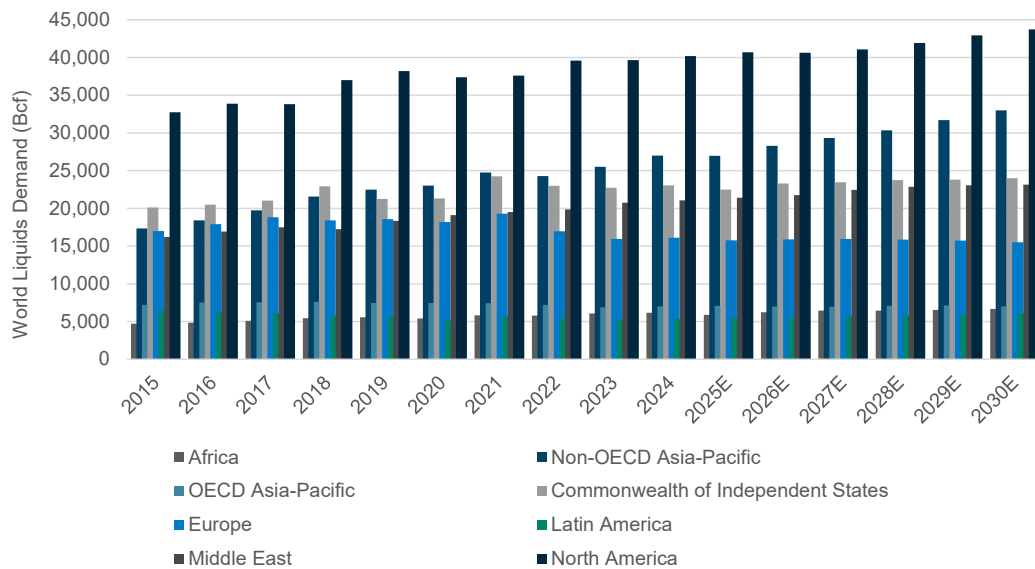
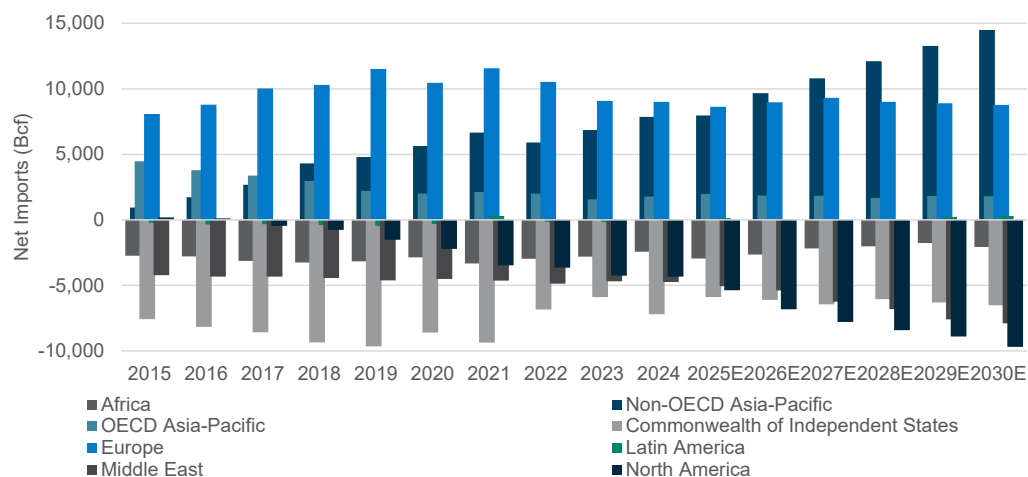


Exhibit 16
Net Import (Bcf) by Region (2015-2030)

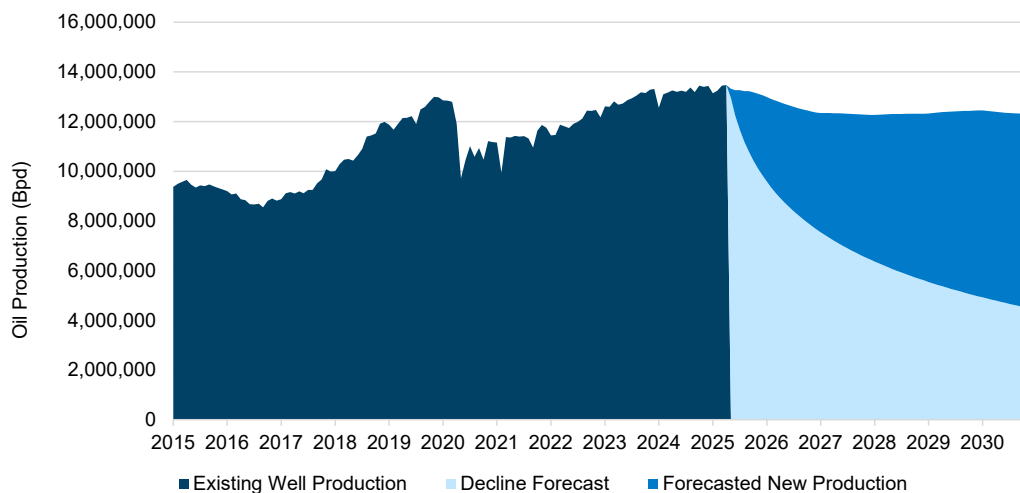


Sources: EIA and William Blair Equity Research

U.S. Oil Production

U.S. oil production levels are currently around 13.3 MMBoepd, near the 13.6 MMBoepd record level reached late last year. We believe most of the production growth seen over the past three years has been a result of drilling and completion efficiencies adding incremental production, as the total number of rigs and frac spreads working has declined in recent months. However, we expect U.S. oil rig counts to begin falling soon, driven by a shortage of new wells and the steep decline rates of existing wells. In fact, we forecast the decline rate of total existing U.S. oil wells to be slightly steeper than the Energy Information Administration (EIA) and other sources are estimating.

Exhibit 17
U.S. Oil Production Historical and Forecasts



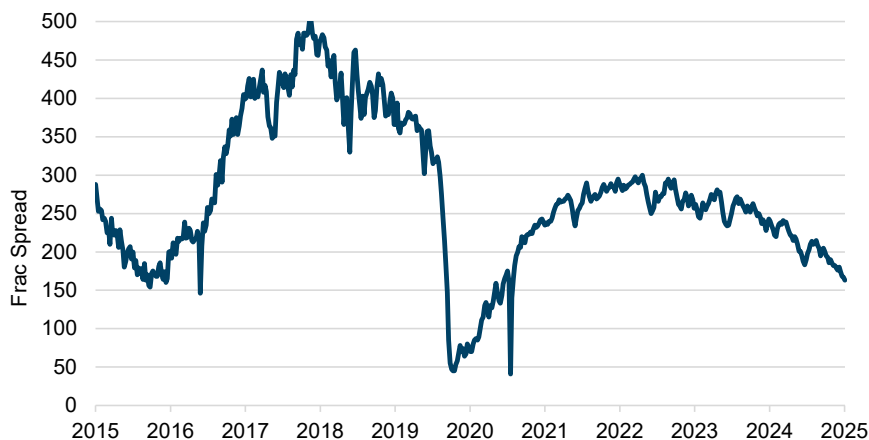
Sources: EIA and William Blair Equity Research

U.S. Oil Rigs/Fracs

The last U.S. oil rig count cyclical peak occurred on November 25, 2022, with the count falling in the majority of weeks since. While the U.S. oil rig count has seen dramatic swings since 2020, the pace of decline has accelerated over the past four months, with the latest count of 412 rigs marking the lowest level since mid-September 2021. Not surprisingly, most of the oil rig count movement continues to be dictated by Permian activity, as 255 of the current 412 oil rigs run in the play. We anticipate the Permian continuing to represent at least 60% of the overall total U.S. oil land rig count.

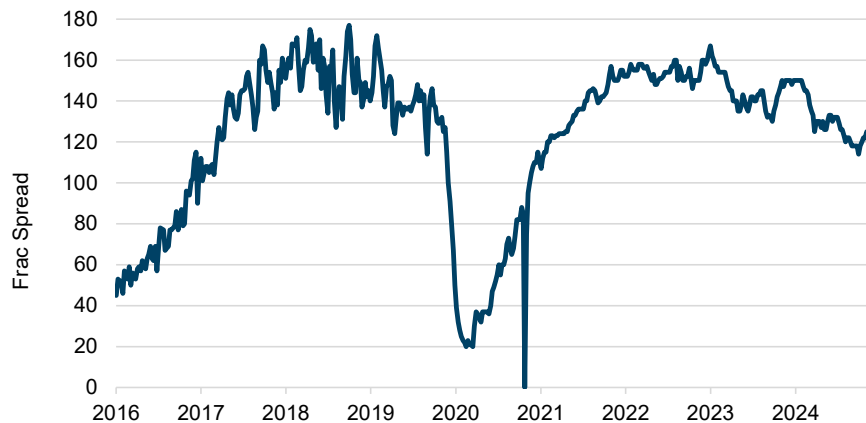
U.S. frac spread activity has roughly mirrored drilling rig movement in recent years, with fracs also last peaking in November 2022, then steadily declining, with a more pronounced fall in recent weeks. We believe U.S. oil supply could start to fall more materially in the coming weeks to months, as there is generally a 3-to-6-month lag experienced between frac count activity and total associated production. Also similar to rig activity, most completion activity is dictated by the Permian, as the play represents nearly 65% of total U.S. frac spreads, not just those focused on oil.

Exhibit 18
U.S. Oil & Gas Exploration and Drilling Frac Spread Count



Sources: Bloomberg and William Blair Equity Research

Exhibit 19
U.S. Oil & Gas Permian Frac Spread Count



Sources: Bloomberg and William Blair Equity Research

Exhibit 20
U.S. Oil & Gas Marcellus Frac Spread Count



Sources: Bloomberg and William Blair Equity Research

U.S. Oil Inventory

Tier-1 U.S. inventory has become relatively scarce, with state lease sale prices for quality acres continuing to see near record levels. The latest such sales were the August 19 New Mexico Land Office sales conducted through sealed bids. Several acres were purchased for greater than \$100,000 per acre, highlighting the premium price continuing to be placed on quality acres despite slightly pressured oil prices.

Exhibit 21
Lease Sale Results

Tract #			S-T-R	Description	High Bidder	\$ Amount	\$/Acre	Acres
001	SR	001	33 - T13S - R33E	N2	Coastal Desert LP	\$ 207,713	\$ 649	320
002	SG	001	36 - T21S - R30E	ALL	Devon Energy Production Company LP	\$ 65,727,361	\$ 102,699	640
003	SG	002	18 - T21S - R31E	LOT(S) 1, 2, 3, 4, E2, E2W2 (ALL)	Federal Abstract Company	\$ 84,175,822	\$ 132,552	635.04
004	SG	003	19 - T21S - R31E	NE4	Devon Energy Production Company LP	\$ 16,240,321	\$ 102,627	160
005	SG	004	36 - T22S - R29E	ALL	Devon Energy Production Company LP	\$ 54,417,281	\$ 85,027	640
006	SG	005	5 - T22S - R31E	S2S2S2	Devon Energy Production Company LP	\$ 8,215,921	\$ 102,699	80
007	SG	006	16 - T23S - R26E	W2NW4	Devon Energy Production Company LP	\$ 2,422,961	\$ 30,287	80
008	SG	007	17 - T23S - R26E	W2SW4, SE4SW4	Devon Energy Production Company LP	\$ 3,634,441	\$ 30,287	120
009	SG	008	35 - T20S - R35E	W2	Ridge Runner Resources Intermediate II, LLC	\$ 10,456,640	\$ 32,677	320
010	SG	009	35 - T20S - R35E	E2	Ridge Runner Resources Intermediate II, LLC	\$ 10,456,640	\$ 32,677	320
Total						\$ 255,955,101		\$ 3,315

Source: New Mexico State Land Office, August 19, 2025

We believe future U.S. oil production will begin to see a greater impact from oil well inventory. Total U.S. oil production is largely predicated on the number of quality wells completed annually. While we believe most operators have had sufficient tier-1 inventory, our analysis suggests this could begin to moderately change, especially if West Texas Intermediate (WTI) oil falls below \$60/bbl and stays there for an extended period. We found there to be little change in the potential total U.S. oil inventory levels as long as WTI is greater than \$65/bbl. However, we conclude that if WTI prices fall close to \$50/bbl, total inventory levels could fall nearly 50% for most operators other than the few largest players. The potential inventory decline was slightly less in the Delaware Basin and notably higher in the Eagle Ford.

Exhibit 22
Remaining Years of Inventory - Midland, Delaware, Eagle Ford Basins

Midland - Remaining Years of Inventory (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	9	18	16	15
EXXON	15	17	14	13
DIAMONDBACK	20	21	18	17
CONOCOPHILLIPS	27	32	27	25
APA CORP	10	19	16	15
OVINTIV	17	20	18	17
OCCIDENTAL	5	9	8	7
CHEVRON	8	11	10	9

*assumes 880' spacing in WC A/B/D & LS

**assumes current rigs drill 24 wells/yr for <\$50 & <\$65, +20% to rigs for <\$80, +30% for <\$95

Delaware - Remaining Years of Inventory (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	13	20	17	16
CONOCOPHILLIPS	24	26	22	20
OCCIDENTAL	11	14	11	10
EOG	10	11	9	8
DEVON	12	12	10	10
PERMIAN RESOURCES	8	11	10	9
EXXON	7	8	7	6
MATADOR RESOURCES	9	11	9	9

*assumes 1,056' spacing in WC A/B & 2/3 BS

**assumes current rigs drill 24 wells/yr for <\$50 & <\$65, +20% to rigs for <\$80, +30% for <\$95

Eagle Ford - Remaining Years of Inventory (7.5'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	9	26	24	22
EOG	18	27	26	24
CONOCOPHILLIPS	14	16	14	13
WILDFIRE ENERGY	25	57	47	44
MAGNOLIA OIL & GAS	19	32	27	25
SM ENERGY	29	38	32	29
VERDUN OIL COMPANY	3	15	14	13
BP	7	10	9	8

*assumes 660' spacing in L/U EF & AC

**assumes current rigs drill 30 wells/yr for <\$50 & <\$65, +20% to rigs for <\$80, +30% for <\$95

Source: Envreus and William Blair Equity Research

Exhibit 23
Remaining Inventory Locations - Midland, Delaware, Eagle Ford Basins

Midland - Locations (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	7250	13733	14865	14873
EXXON	8551	9723	9738	9755
DIAMONDBACK	6342	6622	6884	6884
CONOCOPHILLIPS	1959	2298	2324	2324
APA CORP	941	1813	1844	1844
OVINTIV	1604	1967	2023	2093
OCCIDENTAL	720	1242	1302	1307
CHEVRON	550	812	836	836

*assumes 880' spacing in WC A/B/D & LS

Delaware - Locations (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	13718	20797	21638	21665
CONOCOPHILLIPS	5169	5683	5692	5696
OCCIDENTAL	3576	4239	4259	4259
EOG	2793	3123	3126	3126
DEVON	2850	2955	2969	2969
PERMIAN RESOURCES	1994	2747	2812	2813
EXXON	2035	2361	2385	2386
MATADOR RESOURCES	1573	1842	1857	1857

*assumes 1,056' spacing in WC A/B & 2/3 BS

Eagle Ford - Remaining Inventory Locations (7.5'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	7818	21982	24182	24378
EOG	2712	3988	4701	4726
CONOCOPHILLIPS	2912	3414	3414	3414
WILDFIRE ENERGY	1528	3396	3396	3396
MAGNOLIA OIL & GAS	1158	1914	1958	1958
SM ENERGY	869	1144	1145	1145
VERDUN OIL COMPANY	205	919	1017	1018
BP	630	917	937	937

*assumes 660' spacing in L/U EF & AC

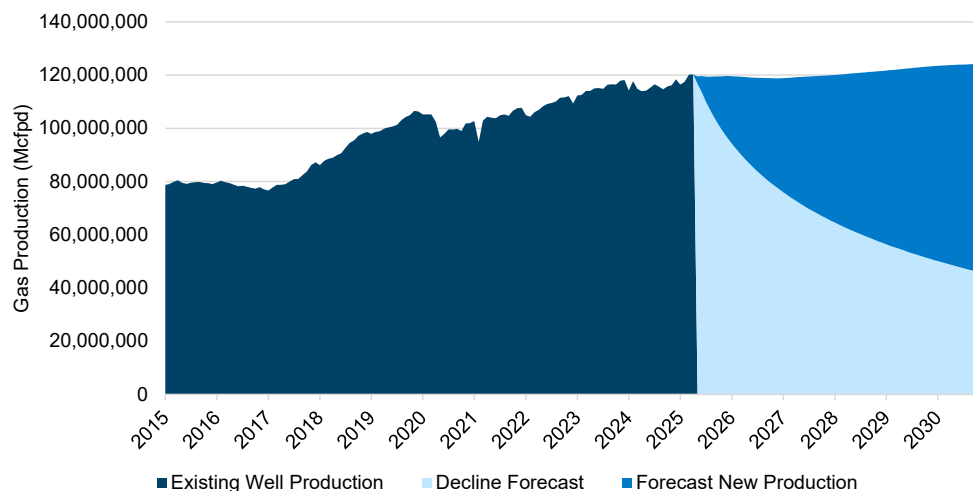
Source: Envreus and William Blair Equity Research

U.S. Natural Gas Production

While U.S. natural gas production hit a record high of 108 BCfepd this month, total supply is likely to continue to climb as associated gas from the Permian and other oily plays ramp up when oil production rebounds, currently limited pipeline takeaway becomes more readily available, and natural gas producers begin to show less capital discipline. In addition, our analysis suggests that the existing U.S. natural gas baseline well decline is likely to remain better than EIA and other agencies forecast. Much of the relatively shallow decline is a result of strong newer gas wells maintaining stable production during the first several months, along with older gas wells demonstrating better-than-expected continued performance. In addition, the year-to-date U.S. natural gas rig count continues to be higher than previously estimated. However, U.S. storage levels could remain relatively normal, as there will be several LNG projects coming on-line in the coming months. While natural gas production may remain muted by falling oil prices, producers' ability to meet

the growing LNG demand should help offset much if not all of the declines. As a result, we forecast the U.S. gas market to fluctuate between a slight surplus (currently the case) and equilibrium well into 2026 depending on the various supply and demand factors previously discussed.

Exhibit 24
U.S. Gas Production Historical and Forecasts



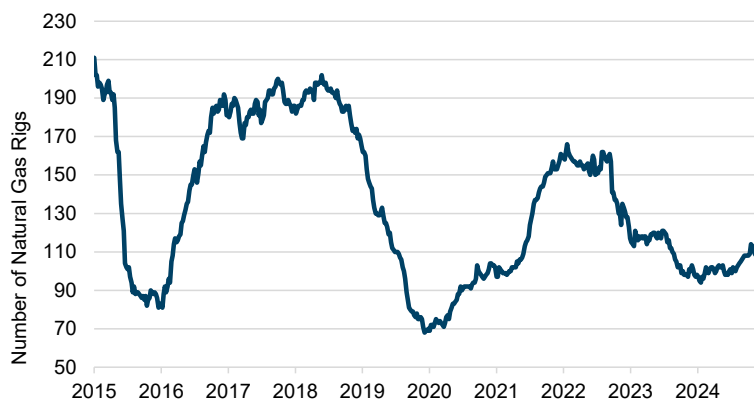
Sources: EIA and William Blair Equity Research

U.S. Natural Gas Rigs/Fracs

The U.S. natural gas rig count mirrored the U.S. oil rig count for the better part of 2020-2024, though the 2025 gas rig count trajectory is notably different from oil's. The U.S. natural gas count has shown a 12% increase in rigs over the past six weeks, while U.S. oil rigs have continued to decline during that period. We believe most of the recent gas versus oil rig difference is a result of natural gas operators preparing for upcoming LNG projects.

There is less variance between U.S. natural gas and oil frac crews. While the data is somewhat limited, it appears the natural gas U.S. frac spread count has not seen the same recent uplift as the gas rig count. We believe the continued pressure on U.S. natural gas spreads is a result of producers not yet having a place for their gas to go until the upcoming LNG projects come on-line.

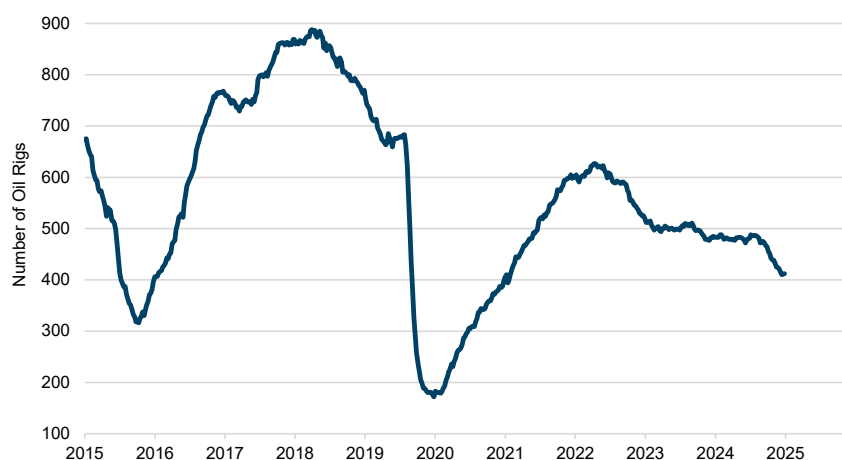
Exhibit 25
U.S. Natural Gas Rotary Rig Count (2015-2025)



Sources: Bloomberg and William Blair Equity Research

Overall rig counts for both natural gas and oil began trending higher in late 2024, following a sharp decline during the post-COVID downturn when commodity prices weakened. This rebound reflects improved pricing fundamentals, stronger demand, and increased capital allocation by exploration and production companies. Natural gas rigs, in particular, are responding to forecasts of growing LNG export capacity and rising power generation demand, with a total count of under 130 rigs in August 2025. On the other hand, oil rigs are supported by steady global consumption and favorable inventory capacity and have an overall higher quantity of rigs totaling around 415 rigs as of August 2025.

Exhibit 26
U.S. Oil Rotary Rig Count (2015-2025)



Sources: Bloomberg and William Blair Equity Research

U.S. Natural Gas Inventory

Unlike oil, we believe future U.S. natural gas production will not be constrained by a shortage of high-quality inventory, assuming prices remain above \$3.25/Mcf—a level likely supported by future LNG trades and data center demand. Much like oil production, natural gas production largely depends on the number of quality wells completed each year. Our analysis indicates that many operators have decades of strong gas inventory at higher prices, and that most gassy E&Ps still have ample inventory even at lower prices around \$3.25/Mcf. However, our analysis shows that economic Marcellus or Midcontinental gassy inventory would decline by more than 70% if natural gas prices fall to \$2.50/Mcf from approximately \$3.25/Mcf. We remain slightly cautious in the near term that prices will rise above \$4/Mcf, as at that price, we believe there would be much less capital discipline. However, we believe a future equilibrium around \$4/Mcf is possible, given likely incremental LNG and data center demand, offset by ample high-quality gas inventory. The key caveat here is that natural gas prices can only reach equilibrium if there is sufficient infrastructure, and that essential pipelines and processing plants are built at an efficient pace.

Exhibit 27
Remaining Years of Inventory - Appalachia and Mid-Con SCOOP Basins

Appalachia - Remaining Years of Inventory (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	12	45	43	42
EXPAND ENERGY	9	43	38	35
EQT	9	46	40	37
EOG	0	15	17	16
ANTERO RESOURCES	9	25	26	24
RANGE RESOURCES	1	16	15	14
COTERRA ENERGY	2	19	17	16
ASCENT RESOURCES LLC	0	17	16	14

*assumes 880' spacing in U/L Marcellus, Utica

**assumes current rigs drill 15 wells/yr for <\$50 & <\$65, +20% to rigs for <\$80, +30% for <\$95

Midcon - Remaining Years of Inventory (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	7	31	36	34
VALIDUS ENERGY II MIDCON LLC	5	46	47	44
MACH NATURAL RESOURCES LP	6	51	69	65
DEVON	30	71	60	55
OVINTIV	4	70	60	56
CONTINENTAL RESOURCES	16	21	17	16
COTERRA ENERGY	4	39	38	35
CAMINO NATURAL RESOURCES	3	15	14	13

*assumes 880' spacing in Woodford/Meramec/Springer/Osage

**assumes current rigs drill 8 wells/yr for <\$50 & <\$65, +20% to rigs for <\$80, +30% for <\$95

Source: Enverus and William Blair Equity Research

Exhibit 28
Remaining Inventory Locations - Appalachia and Midcontinental SCOOP Basins

Appalachia - Remaining Inventory Locations (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	2425	8697	10048	10565
EXPAND ENERGY	651	3218	3438	3443
EQT	537	2736	2859	2873
EOG	11	898	1230	1230
ANTERO RESOURCES	262	754	937	938
RANGE RESOURCES	58	737	819	823
COTERRA ENERGY	49	556	621	623
ASCENT RESOURCES LLC	0	502	562	565

*assumes 880' spacing in U/L Marcellus, Utica

Midcon - Remaining Inventory Locations (10'k)	<\$50/<\$2.50	<\$65/<\$3.25	<\$80/<\$4.00	<\$95/<\$4.75
OTHER OPERATORS	1155	5230	7221	7446
VALIDUS ENERGY II MIDCON LLC	153	1486	1802	1828
MACH NATURAL RESOURCES LP	104	810	1329	1350
DEVON	477	1140	1152	1152
OVINTIV	59	1115	1159	1161
CONTINENTAL RESOURCES	388	495	504	504
COTERRA ENERGY	57	628	726	732
CAMINO NATURAL RESOURCES	102	489	531	541

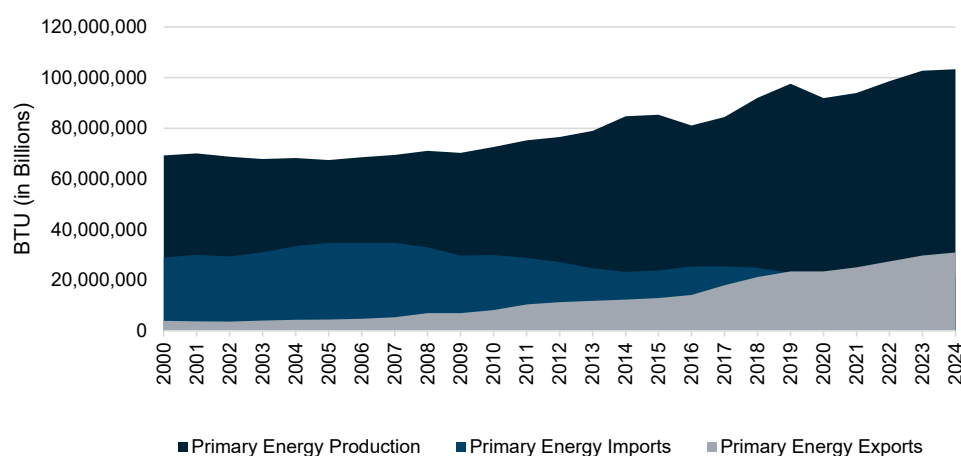
*assumes 880' spacing in Woodford/Meramec/Springer/Osage

Source: Enverus and William Blair Equity Research

U.S. Exports

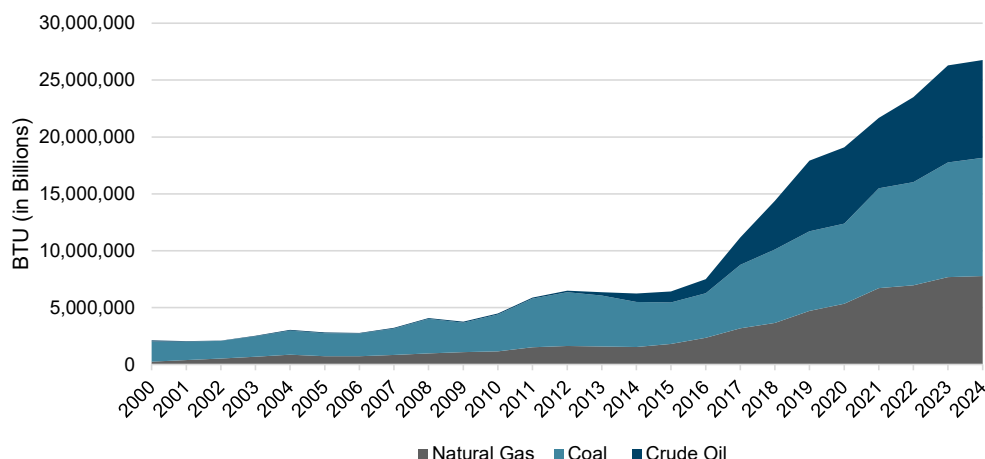
The U.S. hit an oil and refined products (liquids) inflection point nearly six years ago. After decades as a net liquids importer, the U.S. transitioned into an exporter of net oil and refined products around 2017, driven by rising domestic production and increased efficiency gains in refinement and distribution systems. Since this period, we have seen primary energy exports gradually increase. While it is not surprising that crude oil and natural gas exports have climbed during this period, there has also been a moderate increase in U.S. bituminous and metallurgical coal exports despite the commodity's potential pollution. These exports have climbed in recent years, serving destinations such as South America, Asia, and Africa. Steam coal is primarily used for electricity generation, while metallurgical coal is primarily used for steel production. In addition, oil and other refined products exports have continued to rise at a moderate rate in recent years, with destinations including China, South Korea, India, the Netherlands, and Germany. The majority of U.S. oil exports consist of petroleum products –averaging 6.6 million barrels exported daily as of 2024 – and includes products such as jet fuel and gasoline, while most imports are crude oil. Crude oil grades come in different prices and are sought after in certain regions to meet refining needs and product specifications, driving global trade demand. Natural gas exports have seen the largest upside in recent years, largely due to LNG exports targeting Europe and Asia. The U.S. became the world's largest LNG exporter in 2023, though there is also a material amount of domestic natural gas that is exported via pipelines, primarily to Mexico.

Exhibit 29
U.S. Primary Energy Production, Exports, and Imports (2000-2024)



Sources: EIA and William Blair Equity Research

Exhibit 30
U.S. Fuel Energy Exports (2000-2024)



Sources: EIA and William Blair Equity Research

U.S. LNG

In the first half of 2025, U.S. LNG exports averaged 16.2 Bcf/d, surpassing the prior peak export capacity level of 14.1 reached in 2023. European demand for U.S. LNG is 61% higher year-over-year, accounting for about two-thirds of LNG volumes year-to-date given the region's desire to diversify away from Russian gas. Nearly all existing U.S. LNG export capacity is on the U.S. Gulf Coast and all new capacity built in the near term is on the Gulf Coast in Texas and Louisiana.

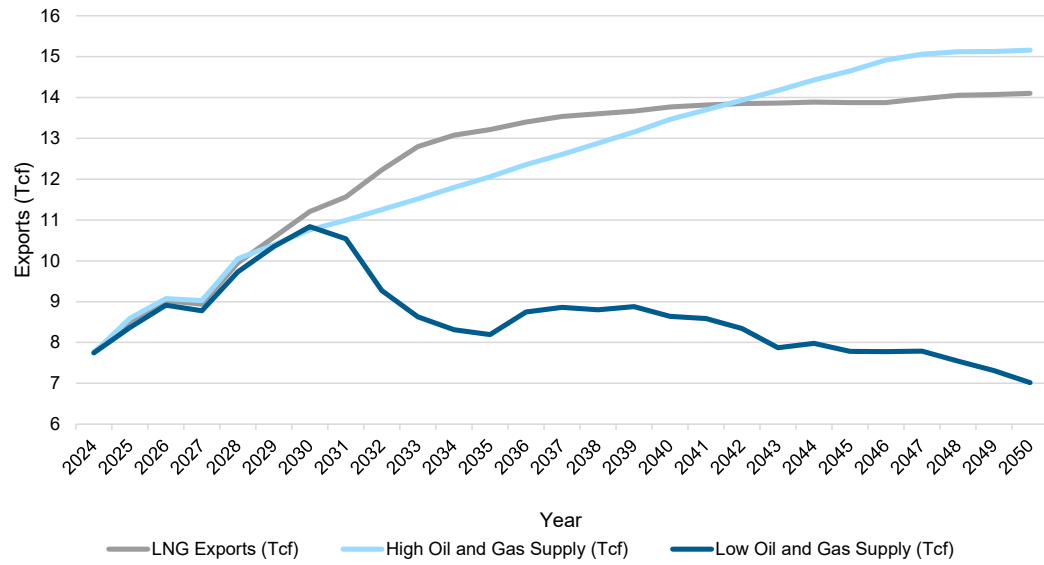
The U.S. is on track to potentially add several Bcf/d of new export capacity in the next four to eight quarters from projects like Plaquemines LNG, Golden Pass, and Corpus Christi Stage 3. These facilities should tighten the supply/demand balance, especially if global storage needs in Europe and Asia remain elevated. Depending on the timing of projects, 2026 U.S. LNG exports will range from about 15.5 Bcf/d to as much as 17.0 Bcf/d.

There are various agency forecasts that suggest natural gas be converted to LNG for exportation could increase capacity by 25 Bcf/d by 2030. Much of the new assumed capacity is a result of five LNG export projects already under construction to enter service by 2028 and account for almost 60% of the projected growth, with the remainder coming from additional LNG export capacity that will be built later—assuming projects remain economical. Most agency estimates assume that LNG exports remain rather flat after the growth through the mid-2030s.

The most recent project was Venture Global's (VG) LNG production from Phase 2 of its Plaquemines terminal, according to Reuters reports. The Louisiana facility is now regularly consuming over 2.6 Bcf/d from regional pipelines while shifting flows on several systems. Plaquemines and Cheniere Energy's (LNG) Corpus Christi Stage 3 expansion are key drivers of LNG demand growth, causing investors to continue holding a bullish stance on natural gas.

The Department of Energy has expedited approval of non-free-trade-agreement export licenses, allowing both CP2 and Woodside Louisiana LNG to make quick final investment decisions (FIDs). There is potential for Commonwealth LNG to follow suit as well, now that the project is nearly fully contracted under binding sales and purchase agreements (SPAs).

Exhibit 31
U.S. Liquefied Natural Gas Exports Forecast (Tcf) (2023-2050)



Sources: EIA and William Blair Equity Research

Exhibit 32
Existing, Under Construction, and Other Large-Scale U.S. LNG at FID

Project	Operator	Location	Peak Name Plate Capacity per Train (Bcf/d)	Project Status	Start of Commercial Operation Service
Sabine Pass, Train 1	Cheniere Energy	LA	0.76	Commercial operation	May-16
Sabine Pass, Train 2	Cheniere Energy	LA	0.76	Commercial operation	Oct-16
Sabine Pass, Train 3	Cheniere Energy	LA	0.76	Commercial operation	Mar-17
Sabine Pass, Train 4	Cheniere Energy	LA	0.76	Commercial operation	Oct-17
Sabine Pass, Train 5	Cheniere Energy	LA	0.76	Commercial operation	Mar-19
Sabine Pass, Train 6	Cheniere Energy	LA	0.76	Commercial operation	Feb-22
Cove Point, Train 1	Berkshire Hathaway BHE GT&S	MD	0.76	Commercial operation	Apr-18
Elba Island, Trains 1-5A	Kinder Morgan	GA	0.18	Commercial operation	Sep-19
Elba Island, Trains 6-10A	Kinder Morgan	GA	0.18	Commercial operation	Aug-20
Corpus Christi, Train 1	Cheniere Energy	TX	0.80	Commercial operation	Mar-19
Corpus Christi, Train 2	Cheniere Energy	TX	0.80	Commercial operation	Aug-19
Corpus Christi, Train 3	Cheniere Energy	TX	0.80	Commercial operation	Mar-21
Cameron, Trains 1B	Sempra LNG	LA	0.66	Commercial operation	Jul-19
Cameron, Trains 2B	Sempra LNG	LA	0.66	Commercial operation	Mar-20
Cameron, Trains 3B	Sempra LNG	LA	0.66	Commercial operation	Aug-20
Freeport, Train 1	Freeport LNG Development, L.P.	TX	0.79	Commercial operation	Nov-19
Freeport, Train 2	Freeport LNG Development, L.P.	TX	0.79	Commercial operation	Jan-20
Freeport, Train 3	Freeport LNG Development, L.P.	TX	0.79	Commercial operation	Apr-20
Calcasieu Pass, Trains 1-9C	Venture Global LNG, Inc.	LA	0.79	Commercial operation	May-22
Calcasieu Pass, Trains 10-18C	Venture Global LNG, Inc.	LA	0.79	Commercial operation	Oct-23
Plaquemines LNG Phase 1, Trains 1-18F	Venture Global LNG	LA	1.58	Commissioning	Dec-24
Plaquemines LNG Phase 2, Trains 19-36F	Venture Global LNG	LA	1.58	Under construction	Sep-25
Corpus Christi Liquefaction Stage 3, Trains 1-7G	Corpus Christi Liquefaction Stage III, LLC	TX	1.51	Commissioning	Feb-25
Golden Pass, Train 1E	Qatar Petroleum, ExxonMobil	TX	0.80	Under construction	1H2026-E
Golden Pass, Train 2E	Qatar Petroleum, ExxonMobil	TX	0.80	Under construction	2H2026-E
Golden Pass, Train 3E	Qatar Petroleum, ExxonMobil	TX	0.80	Under construction	1H2027-E
Port Arthur LNG Phase 1, Trains 1-2	Sempra Energy	TX	1.78	Under construction	2027-E
Rio Grande LNG Phase 1, Train 1	NextDecade Corporation	TX	0.77	Under construction	2027-E
Rio Grande LNG Phase 1, Train 2	NextDecade Corporation	TX	0.77	Under construction	2027-E
Rio Grande LNG Phase 1, Train 3	NextDecade Corporation	TX	0.77	Under construction	2028-E

Source: EIA data as of March 31, 2025, and William Blair Equity Research

Exhibit 33
U.S. Large-Scale Approved LNG facilities (Not Under Construction)

Project name	Operator	Location	Proposed design capacity per train (Bcf/d)	Project status
Cameron LNG Train 4	Cameron LNG, LLC	LA	0.89	Preliminary FEED on a new design of one larger-size train, rather than 2 trains as was initially proposed
Lake Charles LNG	Energy Transfer, LP	LA	0.72	Completed FEED, reviewed EPC tenders, signed a preliminary EPC contract with a consortium led by Technip Energies and KBR, FID targeted for 4Q2025
Lake Charles LNG (additional DOE application)	Energy Transfer, LP	LA	Note A	Completed FEED, reviewed EPC tenders, signed a preliminary EPC contract with a consortium led by Technip Energies and KBR, FID targeted for 4Q2025
Woodside Louisiana LNG (formerly Driftwood LNG)	Woodside Energy	LA	0.73	Completed FEED, awarded EPC contract to Bechtel Energy, issued limited notice to proceed to commence construction, FID targeted for 1Q2025
Freeport LNG Train 4	Freeport LNG	TX	0.67	Completed FEED, awarded EPC contract
Texas LNG	Glenfame Energy Transition, LLC	TX	0.28	Completed FEED, selected engineering, procurement, and construction (EPC) contractor. FID targeted for 2025.
Rio Grande LNG (Phase 2)	NextDecade Corporation	TX	0.72	Completed FEED, awarded EPC contract to Bechtel Energy, FID reached for Phase 1 in July 2023
Gulf LNG	Gulf LNG Liquefaction Company, LLC	MS	0.71	Undergoing FEED
Delfin FLNG	Fairwood Group	Offshore/ Floating (GOM)	0.40	Completed FEED. FID targeted for 2025. Project was granted DOE authorization for a 5-year extension to 2029 to commence operations.
Alaska LNG	Alaska Gasline Development Corporation (AGDC)	AK	0.85	Proposed

Note A: Project sponsors filed two applications to export up to 2.33 Bcf/d of LNG from the Lake Charles liquefaction terminal. Combined proposed liquefaction capacity on two applications does not exceed 2.33 Bcf/d.

Source: EIA data as of March 31, 2025, and William Blair Equity Research

U.S. Electricity

U.S. electricity demand is projected to hit record-high levels this year (and likely again in 2026) driven primarily by the commercial and industrial sectors, specifically data centers and manufacturing demand. The EIA and other agencies project power demand to increase 2%-3% this year to approximately 760,000 MW.

The commercial sector is likely to see the most electricity sales growth this year given continued incremental data center activity. However, industrial consumption, consisting largely of incremental semiconductor and battery manufacturing facilities, and residential sales boosted primarily by electrification of heating, cooling, and cooking are also projected to rise this year. The second-largest driver of power in the U.S. market will be electric vehicles (EVs), with demand potentially increasing by 600% from 2023 to 2030. However, by 2030, total EV power demand is projected to reach slightly over 40% of data center electricity demand.

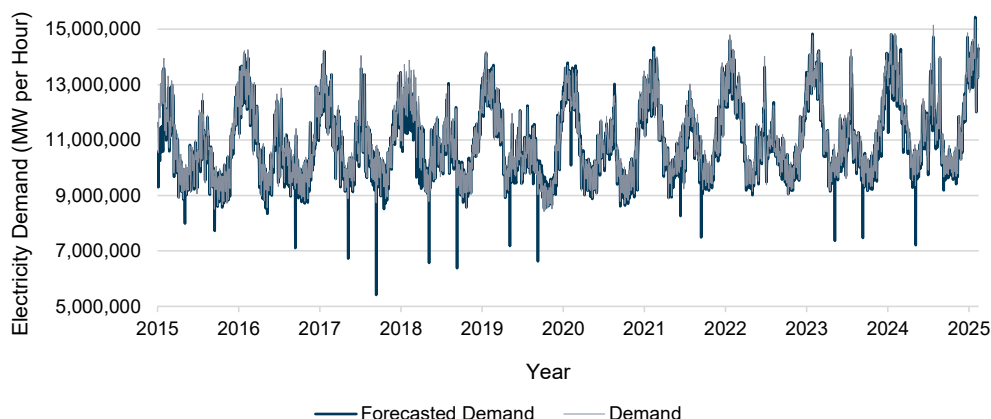
While electricity sales growth is expected to be relatively broad-based, various regions, such as Texas (managed by ERCOT) and the mid-Atlantic (managed by PJM Interconnection), are anticipated to see some of the highest upside. The most active regional transmission operator (RTO) or independent system operator (ISO) this year should be ERCOT, whose grid is projected to grow over 10% in 2025.

While natural gas is expected to remain the dominant fuel source for nearer-term electricity generation, its share of total electricity sales is projected to slightly decline, while the share of renewable energy could offset much of this decrease. The EIA and other agencies suggest natural gas's share of electricity generation could fall as much as 10% next year, to 40% of total electricity generated due to increasing prices. Renewables are expected to offset most of the decline in electricity generation next year, while nuclear and coal electricity generation remain relatively stable.

While total expected annual electricity demand of about 2% sounds relatively low, this growth is equivalent to adding the total electricity demand of California over the next three years, according to the International Energy Agency (IEA). Rather robust annual U.S. economic growth will also be needed for electricity sales to continue their upward trajectory, with the IEA currently projecting GDP to increase just over 2% annually through 2027, so the upward trend could continue.

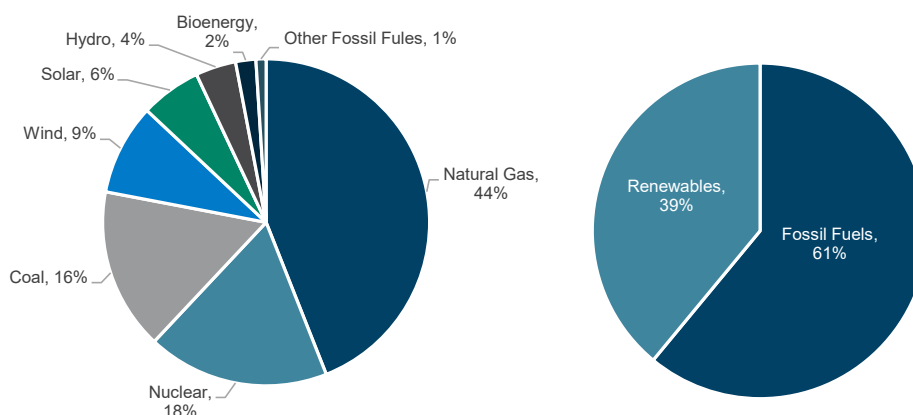
Meeting this increased demand will require significant investments in new electricity generation and grid infrastructure. The IEA suggests that 80 million kilometers of new and refurbished grids will need to be built over the next 15 years, which could prove a daunting task given it has previously taken over 100 years for the world to build a similar amount. Thus, there is likely to be pressure on policy makers and business leaders to try to ensure there is ample grid support.

Exhibit 34
U.S. Daily Electricity Demand for Lower 48 (MW/h) (2015-2025)



Sources: EIA and William Blair Equity Research

Exhibit 35
Electricity Sources as of 2024



Sources: EIA and William Blair Equity Research

Data Centers

Experts predict data center demand could grow by about 10% annually through 2030 with current construction already at a record level. Limited power available remains a key reason for the lack of even more global data center growth in certain core hub markets. Data center demand continues to outpace new supply across both core and emerging hubs. Most data centers are currently powered by electricity, primarily from the traditional electrical grid, with natural gas being the most significant source of electricity for data centers in the U.S., though renewable energy sources, along with coal and nuclear energy, also provide notable power.

While hyperscale data centers account for likely less than 10% of the total number of data centers, hyperscale facilities control over 40% of global data center capacity. However, the capacity of worldwide hyperscale data centers has doubled in the last four years, surpassing 1,000 data centers. Reports suggest 120-130 hyperscale data centers could come online each year over the next decade, with potentially over 400 hyperscale data centers in the pipeline all needing notable power. Generative AI will push operators to increase the scale of new data centers, driving up capacity growth. The U.S. currently accounts for over half of worldwide hyperscale data center capacity at around 5,426 centers as of March 2025, with Europe and China accounting for about two-thirds of the remaining capacity.

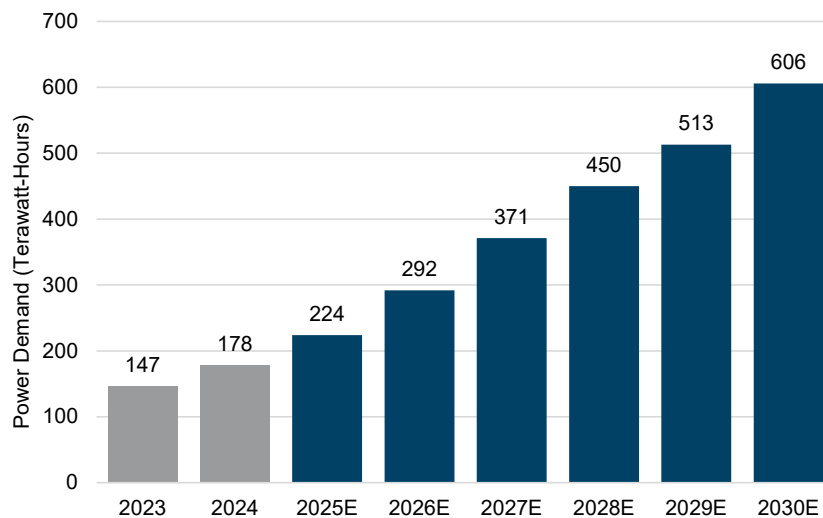
Exhibit 36
Quantity of Data Centers as of March 2025

Country		Data Centers	
United States	5,426	Switzerland	121
Germany	529	Singapore	99
United Kingdom	523	Sweden	95
China	449	Indonesia	84
France	322	New Zealand	83
Australia	314	Belgium	80
Netherlands	298	Austria	68
Russia	251	Malaysia	62
Japan	222	Chile	59
Brazil	196	Ukraine	58
Mexico	173	Ireland	55
Italy	168	Denmark	50
Poland	144	Finland	48
Spain	143	Norway	47
Hong Kong	122	South Korea	43

Sources: EIA and William Blair Equity Research

About 33% of U.S. data center capacity (the most in any one area) is in Northern Virginia, despite plans to try to locate major data centers in a broader geographic area. Markets in North and South Carolina, Wisconsin, and Indiana are expected to see rapid data center capacity growth. Outside the U.S., material capacity is offered in China, Ireland, Germany, the Netherlands, and Australia. It is estimated that the public cloud's market-leading trio—Amazon, Microsoft, and Google—account for about 60% of all hyperscale data center capacity.

Exhibit 37
U.S. Data Center Power Demand (Terawatt-Hours) Actuals and Forecasts 2023-2030

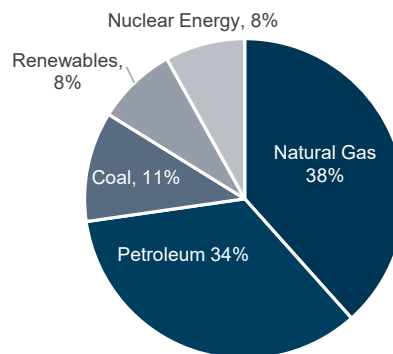


Sources: EIA and William Blair Equity Research

U.S. data center power demand is projected to grow from 147 TWh in 2023 to 606 TWh by 2030, requiring a significant rise in energy production to supply the sharp incline, with consensus projecting approximately 10% annual growth in US data center demand. The market mix is also

shifting, with hyperscalers (large cloud service providers) expanding their share significantly and enterprise-operated data centers declining as a percentage of total demand. This surge displays the growing energy intensity of digital infrastructure and the critical need for expanded power generation capacity.

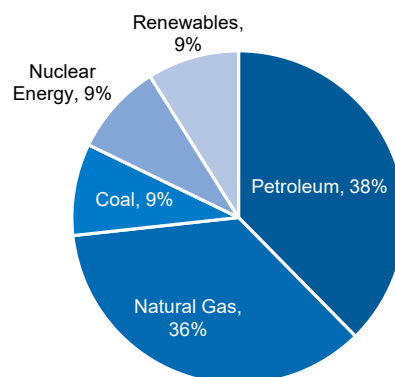
Exhibit 38
U.S. Primary Energy Production



Sources: EIA and William Blair Equity Research

The majority of U.S. primary energy production comes from natural gas, accounting for 38% of total output, followed by petroleum at 34%. This reflects the growing role of natural gas production utilized for power generation, industrial use, and LNG exports. On the other hand, total consumption in the U.S is led by petroleum products, accounting for 38% of the market, reaffirming our bullish view on oil.

Exhibit 39
U.S. Primary Energy Consumption



Sources: EIA and William Blair Equity Research

The prices (as of August 21) of the common stock of other public companies mentioned in this report follow:

Alphabet, Inc. (Outperform)	\$200.62
Amazon.com, Inc. (Outperform)	\$221.95
Cheniere Energy, Inc.	\$240.61
Microsoft Corporation (Outperform)	\$504.24
Venture Global, Inc.	\$12.77
Woodside Energy Group Ltd	\$17.09

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