Oilfield Services

2024 Outlook: INTL/Offshore OFS shines bright in a dark macro

Price Objective Change

Rising OPEC+ spare capacity has O&G skating on thin ice

After fully rolling back COVID-era production cuts by Aug '22, OPEC+ has brought back production quota cuts, which now stand at ~6.7 MMbpd. This stems from the lackluster global demand & rapid growth in non-OPEC+ (led by US) production. With 4.0 MMbpd of OPEC spare capacity (up from 1.8 MMbpd Aug '22), oil price outlook now hinges on its success in managing the market. We think flattening US L48 growth in '24 would help.

But 20%+ activity decline to flatten US oil growth in 2024

US oil rig/frac count fell 21%/27% from Nov '22/May '23 peak to 4Q23 trough. We think this should bring significant flattening in US L48 oil growth over next ~12 months. We forecast US hz rig count +30 rigs (+25 oil) in 4Q23-4Q24 & +65 rigs (+40 oil) in 4Q24-4Q25. On our rig count forecast, we see US L48 oil production up +/- 100 Mbpd from YE23 to YE24 & +/-150 Mbpd from YE24 to YE25 (vs +1.2 MMbpd from YE22 to YE23).

Global D&C capex growth slows materially as US declines

We are forecasting global D&C capex growth of +3% YoY in '24 with NAM D&C capex -6% YoY and INTL (ex-Russia & Iran) D&C capex +12% YoY. Supported by growing call on US gas activity by YE24 on the back of LNG start-ups in 1H25, we believe NAM activity starts to recover by late-'24 (more so in '25) resulting in NAM D&C spending growth of ~11-12% YoY in '25. On the flip side, we see INTL growth slowing to +/- 9% YoY in '25.

We continue to see INTL better positioned vs NAM in OFS

We think our pivot to INTL/Offshore, first espoused in Jul '22, is still the right strategy in OFS for '24. Our in-depth analysis of key INTL markets in this report suggests upstream spending growth should remain strong through at least '25, in support of Middle East & an increasingly global Offshore growth push. NAM upstream capex, meanwhile, appears to be crowded out by INTL, and weighed down by upstream capital discipline and M&A.

SLB top large-cap pick; WFRD, NOV, FTI top mid-cap picks

We are lowering our 2024E/25E EBITDA across our OFS coverage by 3%/3%, with NAM -levered OFS 2024E/25E EBITDA down 8%/6%. This pulls our DCF-based POs down by 9% on average, partially supported by lower WACCs due to lower interest rates. Our top picks for 2024 are 1) SLB – best-in-class INTL play now at attractive valuation, 2) WFRD – rerating play with cash return catalyst, 3) NOV – FCF inflection and later-cycle margin growth, and 4) FTI – subsea market leader with margin upside. We are cautious on NAM OFS near term but leave our ratings unchanged for now with NAM stocks down 7-15% over past 2 weeks. Besides valuation, we think NAM finds downside support from 1) US activity being near maintenance level, 2) price/capex discipline, & 3) strong cash returns.

In-depth discussion on 10 themes set to drive OFS in '24+

In this 40-page report, we discuss 10 key themes in OFS - 1) disconnect between Middle East OPEC production cuts & surging capex, 2) declining productivity / rising efficiencies in US, 3) INTL capex outlook across key global markets, 4) offshore project pipeline and related OFS opportunity, 5) LNG FID outlook, 6) 2024 cash returns & historical valuation.

Refer to important disclosures on page 45 to 48. Analyst Certification on page 44. Price Objective Basis/Risk on page 41. **12644592**

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Exhibit 1: New vs. Old POs

We are cutting our POs by 9% on average

Ticker	Rating	New PO ($/sh)	Old PO ($/sh)	Price ($/sh)
ACDC	C-2-9	$8.50	$10.50	$7.42
AESI	C-1-9	$20.00	$24.00	$15.78
BKR	C-1-7	$39.00	$39.00	$31.23
CHX	C-1-7	$34.00	$37.50	$26.39
CLB	C-3-7	$17.00	$21.00	$16.10
HAL	C-1-7	$43.00	$47.00	$34.07
HP	C-1-7	$39.00	$48.00	$33.64
FTI	C-1-9	$23.00	$23.00	$18.51
GTLS	C-1-9	$175.00	$175.00	$129.11
LBRT	C-2-7	$19.00	$22.50	$17.14
WFRD	C-1-9	$120.00	$120.00	$89.83
NOV	C-1-7	$24.00	$24.00	$19.09
PTEN	C-2-7	$14.50	$16.00	$10.34
RIG	C-3-9	$5.50	$6.00	$5.70
SLB	C-1-7	$62.00	$66.00	$48.45
WHD	C-2-7	$40.00	$47.00	$40.30

Source: BofA Global Research. For detail of changes to POs, see page 38.

O&G/ OFS/ D&C= Oil & Gas / Oilfield Services / Drilling & Completion

OPEC / WACC = Organization of the Petroleum Exporting Countries / Weighted Average Cost of Capital

L48 / Hz = Lower 48 / Horizontal

MMbpd / Mbpd = Million barrels per day / thousand barrels per day

INTL / NAM / LNG = International / North America/ Liquefied Natural Gas

LNG / FID = Liquified Natural Gas / Final Investment Decision

M&A = Merger & Acquisition

FCF / DCF = Free Cash Flow / Discounted Cash Flow

NOV / SLB / WFRD / FTI = NOV Inc. / SLB / Weatherford / TechnipFMC

Contents

Key Charts in OFS for 2024 3

OFS Macro Framework 4

Drilling & Completion (D&C) Capex Assumptions 4

Investment Summary 6

A look back at 2023: A disappointing year for OFS stocks after two spectacular years in 2021 and 2022 6

S&P 500 Energy weighting fell through 2H23 & now <4% 7

Key Themes for 2024 8

[1.] OPEC – Investing for Growth but Shrinking for Pricing 8

[2.] Offshore breakevens now as competitive as US Shale 9

[3.] Better fundamentals and market structure in Subsea 11

[4.] US shale productivity declines but still rising efficiency 13

[5.] Nascent NAM recovery stalls until probably late 2024 19

[6.] INTL / Offshore still fundamentally more attractive 23

[7.] Floater S/D air pocket amidst a pause in new contracts 32

[8.] NAM LNG contracting slows, total FIDs likely flat YoY 34

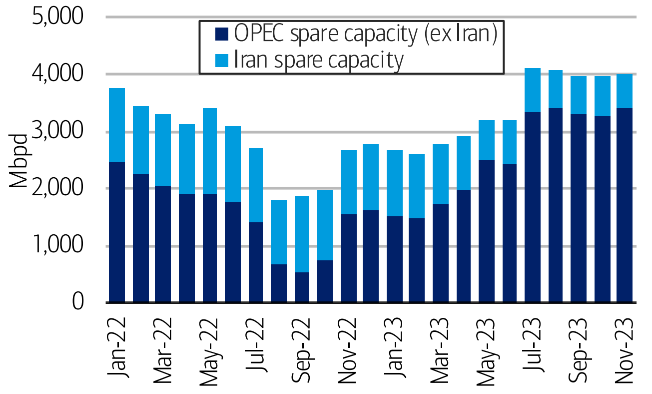
[9.] US Land tops OFS in returning cash to shareholders 35

[10.] Year 4 in “multi-year” recovery=multiple compression 37

Abbreviations 40

Key Charts in OFS for 2024

Exhibit 2: OPEC Spare Capacity, Jan 2022 – Nov 2023
OPEC spare capacity is now sitting at 4.0 MMbpd vs 1.8 MMbpd in Aug '22



Source: OPEC, IEA, EIA, BofA Global Research

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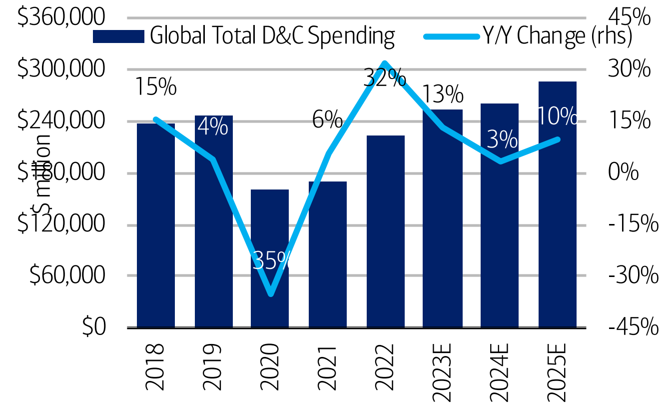
Exhibit 3: Global D&C Spending, 2018 – 2025E
We see global D&C spending increasing 3%/10% YoY in 2024E/25E



Source: Spears and Associates, Baker Hughes, Rystad, BofA Global Research

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Exhibit 4: S&P 500 Sector Performance in 2023 and over 2016-2022
Energy was the second worst performing sector in the S&P 500 in 2023

	2023	2022	2021	2020	2019	2018	2017	2016
Energy	-29%	78%	21%	-54%	-21%	-14%	-23%	14%
Utilities	-34%	18%	-13%	-19%	-7%	7%	-11%	3%
Materials	-14%	5%	-2%	2%	-7%	-10%	2%	5%
Financials	-14%	7%	6%	-20%	0%	-8%	1%	11%
Industrials	-8%	12%	-7%	-7%	-2%	-9%	-1%	7%
Consumer Staples	-26%	16%	-11%	-9%	-5%	-5%	-9%	-7%
Consumer Discret.	17%	-18%	-3%	16%	-3%	6%	2%	-5%
Comm. Services	30%	-21%	-6%	6%	2%	-10%	-25%	8%
Comm. Equipment	-7%	-2%	21%	-19%	-18%	18%	4%	6%
Info Tech	32%	-9%	6%	26%	19%	5%	17%	2%
Real Estate	-16%	-9%	16%	-21%	-4%	1%	-12%	-10%
Healthcare	-24%	16%	-3%	-5%	-10%	11%	1%	-14%

Source: Bloomberg, BofA Global Research

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Exhibit 5: OFS (OIH) Relative Performance vs E&Ps (XOP)
OFS outperformed the E&Ps in 2Q and 3Q of 2023 but underperformed the E&Ps in 1Q and 4Q of 2023

	1Q	2Q	3Q	4Q
2013	-0.8%	3.5%	-3.1%	-2.0%
2014	-0.1%	0.2%	2.2%	2.9%
2015	-14.1%	13.2%	8.4%	4.2%
2016	0.2%	-4.8%	-10.4%	6.2%
2017	2.0%	-4.8%	-1.6%	-9.1%
2018	-3.1%	-12.2%	-4.6%	-5.6%
2019	6.9%	-2.6%	-2.8%	6.8%
2020	-4.4%	-7.0%	-0.5%	18.6%
2021	-14.9%	-4.3%	-10.0%	-5.3%
2022	12.5%	-6.5%	-13.6%	35.0%
2023	-7.4%	1.2%	6.0%	-2.9%

Source: Bloomberg, BofA Global Research

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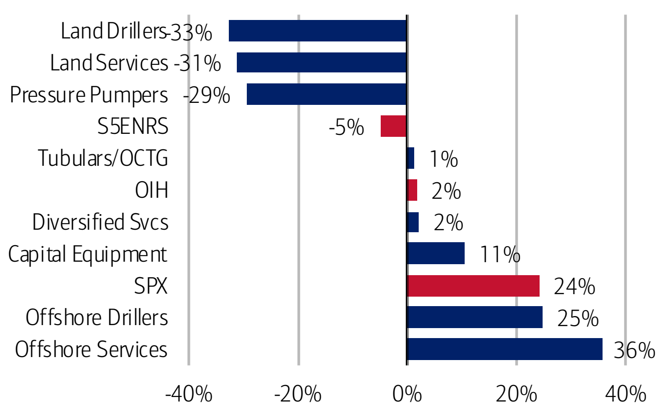
Exhibit 6: OFS Sub-Sector Performance through 2023
Offshore Services, Drillers and Capital Equipment stocks led OFS in 2023



Source: Bloomberg, BofA Global Research

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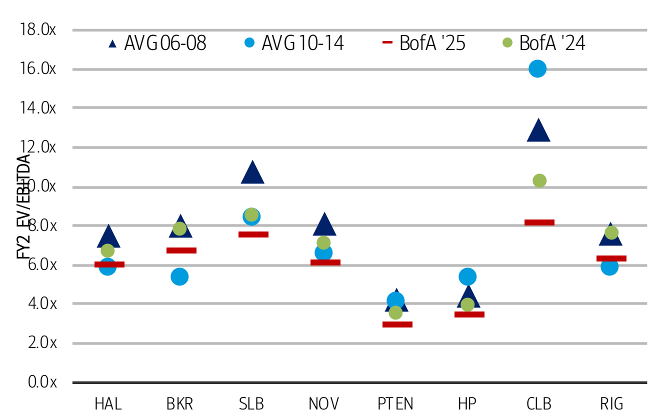
Exhibit 7: OFS EV/FY2 EBITDA Current vs Prior Cycles
SLB and NOV look attractively valued vs history on an EV / FY2 EBITDA basis



Source: BofA Global Research

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OFS Macro Framework

Spot / 12-month strip Brent oil price has fallen 20% / 16% from its Sep '23 recent peak, after having spiked briefly in second half of October on Hamas-linked tensions and is now sitting at $77 / $75 per barrel. The decline is primarily attributable to softening oil supply/demand fundamentals on a mix of slower economic growth and fast-growing US, Guyana, Brazil, and Canadian production. Further, OPEC+'s most recent incremental 2.2 MMbpd voluntary production "cuts", including Russia's 500 Mbpd "cuts", and subsequent Angolan exit from OPEC highlighted the disagreements within the group, sowing doubts amongst investors on the groups' ability to manage global oil balances. The front end of the Brent/WTI futures curve has come down on doubts related to OPEC+'s ability to fully deliver on the 2.2 MMbpd voluntary production "cuts", meanwhile the curve per se remains heavily backwardated as investors foresee medium/long-term oversupply. As we have noted in the past, D&C activity this cycle has significantly decoupled from the short-term oil price gyrations amidst NAM E&P capital discipline and a sustained push from the Middle East and other large NOCs in executing strategic O&G capacity expansion projects. Thus, our D&C spending framework remains less elastic than prior cycles.

Drilling & Completion (D&C) Capex Assumptions

Assuming Brent oil price stays in the $75-$90/bbl range through 2024-25, we forecast global Drilling & Completion (D&C) capex increasing 3% YoY in 2024 and 10% YoY in 2025. Within this global total, we expect North America (NAM) D&C spending to decline 6% YoY in 2024 followed by an 11% YoY increase in 2025. This includes US Total/Land D&C spending -8%/-9% YoY in 2024 and +12%/+13% in 2025. For INTL, we expect D&C spending to increase 11% YoY in 2024 (12% ex-Russia & Iran) and 9% YoY in 2025 (9% ex-Russia & Iran). See Exhibit 8 below for more details on our D&C capex outlook:

Exhibit 8: Land, Offshore, and Global D&C Spending

We see International (ex-Russia & Iran) / NAM D&C spending +12% / -6% YoY in 2024E and +9% / +11% YoY in 2025E

LAND D&C SPENDING ($mm)	2019	2020	2021	2022	2023	2024E	2025E	2019	2020	2021	2022	2023E	2024E	2025E
US	102,966	50,638	62,372	92,634	95,596	87,171	98,212	-6%	-51%	23%	49%	3%	-9%	13%
Canada	10,872	6,292	8,976	14,448	16,460	16,751	17,721	-2%	-42%	43%	61%	14%	2%	6%
NAM Land	113,838	56,930	71,348	107,082	112,057	103,922	115,933	-6%	-50%	25%	50%	5%	-7%	12%
Int'l Land	61,851	50,525	47,830	53,562	60,717	66,043	70,916	7%	-18%	-5%	12%	13%	9%	7%
Global Land	**175,689**	**107,456**	**119,178**	**160,644**	**172,774**	**169,965**	**186,849**	**-2%**	**-39%**	**11%**	**35%**	**8%**	**-2%**	**10%**
Int'l Total, Ex Russia & Iran	49,725	39,115	37,404	42,328	48,948	53,509	57,840	9%	-21%	-4%	13%	16%	9%	8%
OFFSHORE D&C SPENDING ($mm)	**2019**	**2020**	**2021**	**2022**	**2023**	**2024E**	**2025E**	**2019**	**2020**	**2021**	**2022**	**2023E**	**2024E**	**2025E**
US	4,480	2,824	2,524	3,397	4,982	5,627	5,968	14%	-37%	-11%	35%	47%	13%	6%
Canada	1,436	570	344	316	363	417	420	16%	-60%	-40%	-8%	15%	15%	1%
NAM Offshore	5,916	3,394	2,868	3,712	5,345	6,044	6,388	15%	-43%	-16%	29%	44%	13%	6%
Int'l Offshore	65,127	49,068	47,221	58,820	74,445	84,337	92,734	20%	-25%	-4%	25%	27%	13%	10%
Global Offshore	**71,043**	**52,463**	**50,089**	**62,533**	**79,790**	**90,381**	**99,122**	**20%**	**-26%**	**-5%**	**25%**	**28%**	**13%**	**10%**
Int'l Total, Ex Russia & Iran	62,054	46,155	44,473	55,926	71,288	81,015	89,386	21%	-26%	-4%	26%	27%	14%	10%
GLOBAL D&C SPENDING ($mm)	**2019**	**2020**	**2021**	**2022**	**2023**	**2024E**	**2025E**	**2019**	**2020**	**2021**	**2022**	**2023E**	**2024E**	**2025E**
US	107,445	53,463	64,896	96,030	100,579	92,799	104,180	-5%	-50%	21%	48%	5%	-8%	12%
Canada	12,308	6,862	9,320	14,764	16,823	17,168	18,141	-1%	-44%	36%	58%	14%	2%	6%
NAM Total ($mm)	119,754	60,325	74,216	110,794	117,402	109,966	122,321	-5%	-50%	23%	49%	6%	-6%	11%
Int'l Total ($mm)	126,978	99,594	95,052	112,383	135,162	150,380	163,650	14%	-22%	-5%	18%	20%	11%	9%
Global Total	**246,732**	**159,919**	**169,267**	**223,177**	**252,563**	**260,346**	**285,971**	**4%**	**-35%**	**6%**	**32%**	**13%**	**3%**	**10%**
Int'l Total, Ex Russia & Iran	111,779	85,270	81,877	98,254	120,236	134,523	147,226	15%	-24%	-4%	20%	22%	12%	9%

Source: Spears & Associates, Baker Hughes, BofA Global Research

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Exhibit 9: BofA OFS Coverage Valuation Multiples and FCF Yield

Our 2024/2025 estimates vs Consensus

Ticker	BofA P/E Multiples 2024E	BofA P/E Multiples 2025E	Cons P/E Multiples 2024E	Cons P/E Multiples 2025E	BofA EV/EBITDA Multiples 2024E	BofA EV/EBITDA Multiples 2025E	Cons EV/EBITDA Multiples 2024E	Cons EV/EBITDA Multiples 2025E	BofA FCF Yield (Levered) 2024E	BofA FCF Yield (Levered) 2025E
Diversified Services										
BKR	15.6x	12.0x	15.7x	12.6x	7.9x	6.9x	7.9x	6.9x	6.7%	7.8%
HAL	10.3x	8.9x	10.2x	8.8x	6.8x	6.1x	6.8x	6.1x	7.8%	9.3%
SLB	14.3x	12.4x	13.9x	11.6x	8.6x	7.7x	8.7x	7.6x	5.7%	6.8%
WFRD	14.0x	11.5x	13.6x	11.1x	5.5x	5.0x	5.5x	4.9x	8.3%	9.8%
Average	**13.4x**	**11.1x**	**13.4x**	**11.0x**	**7.2x**	**6.4x**	**7.2x**	**6.4x**	**7.1%**	**8.4%**
Land Drillers										
HP	11.1x	8.9x	10.3x	9.1x	4.0x	3.5x	3.9x	3.6x	6.2%	7.9%
PTEN	8.3x	5.6x	8.5x	5.9x	3.5x	3.0x	3.4x	3.0x	15.3%	18.8%
Average	**9.7x**	**7.2x**	**9.4x**	**7.5x**	**3.8x**	**3.3x**	**3.6x**	**3.3x**	**10.7%**	**13.3%**
Offshore Drillers										
RIG	17.8x	7.4x	29.1x	8.9x	7.7x	6.4x	7.9x	6.4x	11.7%	22.0%
Equipment / Capital Light Companies										
CHX	14.8x	11.9x	13.9x	11.6x	7.2x	6.5x	7.0x	6.5x	8.0%	9.2%
CLB	15.4x	10.8x	15.9x	12.3x	10.4x	8.2x	10.5x	8.9x	6.0%	9.8%
FTI	24.0x	9.7x	16.4x	10.3x	7.2x	5.5x	7.3x	5.8x	2.4%	9.4%
NOV	11.5x	9.2x	11.7x	10.0x	7.2x	6.2x	7.5x	6.6x	8.3%	9.3%
GTLS	12.7x	9.9x	11.9x	8.9x	9.4x	8.1x	9.1x	7.8x	7.3%	9.6%
WHD	14.1x	11.6x	12.9x	11.4x	8.2x	6.9x	8.3x	7.5x	7.0%	7.3%
Average	**15.4x**	**10.5x**	**13.8x**	**10.8x**	**8.3x**	**6.9x**	**8.3x**	**7.2x**	**6.5%**	**9.1%**
Pressure Pumping										
LBRT	8.0x	6.9x	5.7x	5.1x	3.1x	2.9x	2.8x	2.7x	16.1%	13.3%
ACDC	18.9x	5.4x	6.5x	4.2x	2.8x	2.4x	2.3x	2.1x	23.9%	31.9%
Average	**NM**	**NM**	**NM**	**NM**	**3.0x**	**2.6x**	**2.5x**	**2.4x**	**20.0%**	**22.6%**
Frac Sand										
AESI	4.6x	2.9x	5.9x	4.0x	4.5x	2.9x	3.6x	2.5x	0.9%	17.8%

Source: Bloomberg, BofA Global Research

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Exhibit 10: Oilfield Services Old/New Estimates

We are cutting 2024E EBITDA by 3.1% and 2025E EBITDA by 2.9% on average for our OFS coverage (excluding GTLS)

	2024							2025						
	EPS			EBITDA ($mm)				EPS			EBITDA ($mm)			
Ticker	New	Old	Cons	New	Old	Cons	New vs Cons	New	Old	Cons	New	Old	Cons	New vs Cons
Diversified Services														
BKR	$2.07	$2.07	$2.05	4,420	4,400	4,426	0%	$2.68	$2.68	$2.56	5,110	5,100	5,114	0%
HAL	$3.41	$3.27	$3.44	5,492	5,535	5,536	-1%	$3.93	$3.87	$3.97	6,095	6,390	6,098	0%
SLB	$3.49	$3.60	$3.60	9,350	9,430	9,326	0%	$4.02	$4.22	$4.30	10,510	10,570	10,571	-1%
WFRD	$6.58	$6.71	$6.77	1,325	1,340	1,343	-1%	$8.04	$8.03	$8.35	1,469	1,485	1,504	-2%
Land Drillers														
HP	$3.06	$3.78	$3.14	829	929	855	-3%	$3.82	$3.63	$3.57	951	920	855	11%
PTEN	$1.23	$1.87	$1.21	1,556	1,792	1,641	-5%	$1.84	$2.43	$1.76	1,815	2,130	1,833	-1%
Offshore Drillers														
RIG	$0.33	$0.35	$0.20	1,457	1,430	1,422	2%	$0.79	$0.74	$0.66	1,750	1,674	1,737	1%
Equipment / Capital Light														
CHX	$1.86	$2.21	$1.98	795	875	817	-3%	$2.31	$2.61	$2.36	890	981	886	0%
CLB	$1.10	$1.25	$1.06	94	99	92	1%	$1.57	$1.68	$1.38	118	121	109	8%
FTI	$0.79	$0.96	$1.16	1,236	1,190	1,216	2%	$1.95	$1.76	$1.84	1,623	1,610	1,548	5%
NOV	$1.75	$1.90	$1.72	1,280	1,230	1,231	4%	$2.17	$2.36	$2.01	1,480	1,480	1,389	7%
WHD	$2.94	$3.80	$3.28	407	443	408	0%	$3.57	$4.41	$3.65	484	505	449	8%
GTLS	$10.49	$10.52	$11.20	1,101	1,101	1,138	-3%	$13.39	$13.39	$14.98	1,280	1,280	1,326	-3%
Pressure Pumping														
LBRT	$2.23	$2.75	$3.09	1,040	1,113	1,174	-11%	$2.59	$2.83	$3.46	1,135	1,150	1,235	-8%
ACDC	$0.42	$0.89	$1.23	695	680	841	-17%	$1.46	$2.16	$1.91	815	910	919	-11%
Frac Sand														
AESI	$3.60	$2.57	$2.76	320	395	402	-20%	$5.75	$3.57	$4.09	486	527	571	-15%

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

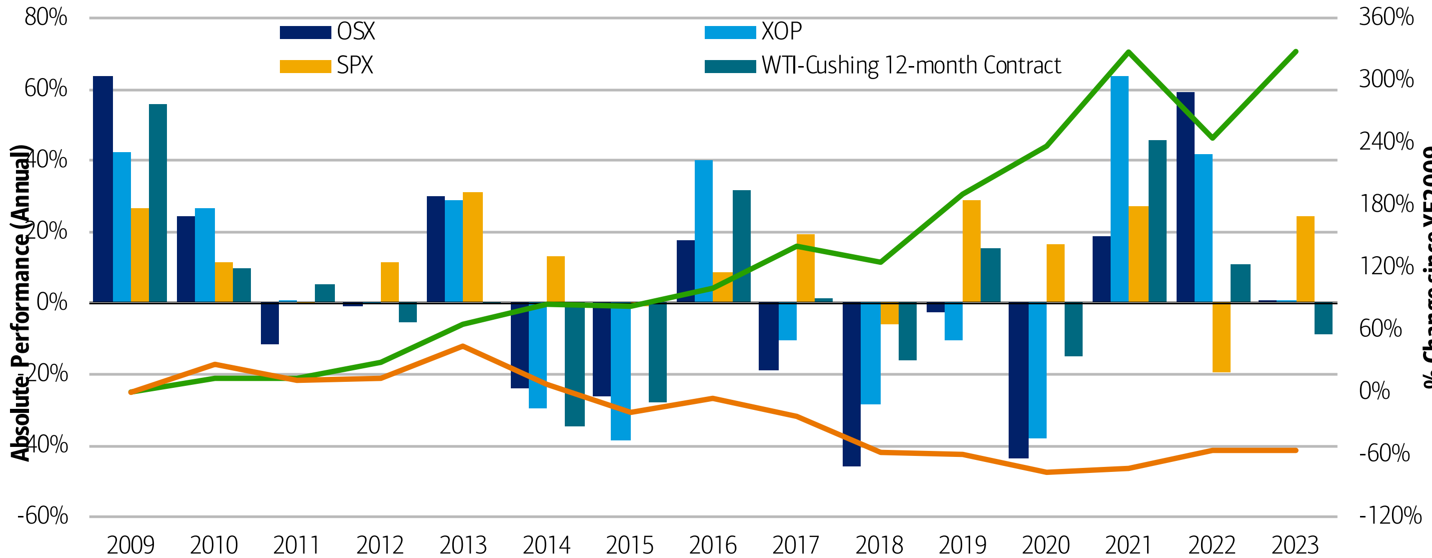
Investment Summary

A look back at 2023: A disappointing year for OFS stocks after two spectacular years in 2021 and 2022

Last year, the oilfield service sector performance was largely weighed down by macro & geopolitical events. Oil priced declined on an exit-to-exit basis in 2023 for the first time since COVID-19 battered 2020. After being the top best performing S&P 500 sector in 2021 and again in 2022, Energy was the 2nd weakest S&P 500 sector in 2023 (better than only the Utilities). Since 2009, the OSX is down 57%, while the S&P500 is up a whopping 328% over the same period. See Exhibit 11.

OSX (Oil Service Sector Index) just about managed to exit 2023 flat, while the broader S&P 500 index outperformed delivering a solid 24% exit-to-exit growth. Similarly, OIH (VanEck Oil Service ETF) was up a modest +2%, XOP (SPRD S&P Oil & Gas Exploration & Production ETF) +1% and XLE (Energy Select Sector SPDR Fund) -4%. Within OFS sub-sectors, Offshore Services, Offshore Drillers and primarily Offshore and INTL-levered Capital Equipment stocks were the top performers, while US Land Contract Drillers, Land Services, and Pressure Pumpers were the worst performers.

Exhibit 11: Annual Stock Performance since 2009 for the OSX, XOP, and S&P 500
Oil & GAS stocks underperformed the S&P 500 after a spectacular 2022



Note: OSX = Philadelphia Stock Exchange Oil Service Sector Index, XOP = SPDR S&P Oil & Gas Exploration & Production ETF, SPX = S&P 500 Index
Source: BofA Global Research, Bloomberg

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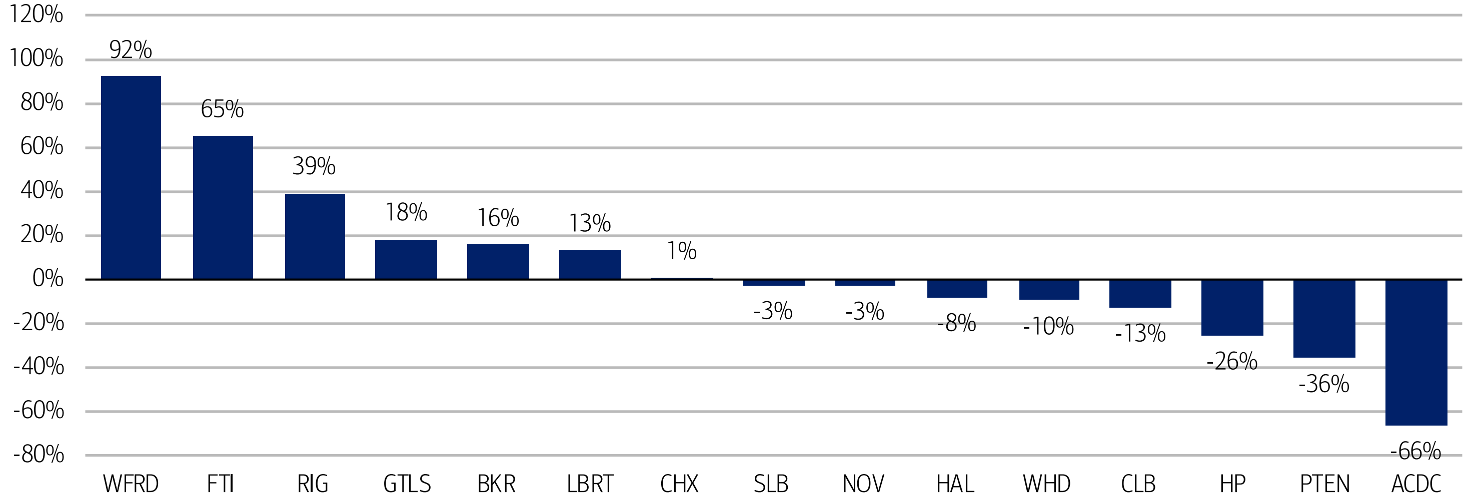
On average, 2023 performance of the 14 OFS stocks in our coverage (ex-GTLS, & AESI, which IPO'd in Mar '23) was flaccid with an average increase of 4.4% between YE22 and YE23, versus the S&P 500 up 24% and the S&P 500 Energy Index -4.8%. Only 6 of these 14 stocks in our coverage delivered positive returns last year. Of note, WFRD and FTI were by far the two best performing stocks with the former up 92% and the latter rising 65%. RIG (+39%), BKR (+16%), LBRT (+13%) and CHX (+1%) also gained on an absolute basis, while the rest of the OFS stocks underperformed with ACDC (-66%) and PTEN (-36%) being the 2 worst performing stocks amongst these 14 OFS stocks. Outside of our core OFS coverage, GTLS had a roller coaster year but still delivered +18% returns in 2023.

Exhibit 12: BofA Oilfield Services Coverage Stock Performance in 2023 (ex-AESI, which IPO'd in March 2023)
WFRD, FTI and RIG were the best performing stocks in our coverage while ACDC and PTEN were the worst performing stocks in our coverage in 2023



Source: Bloomberg

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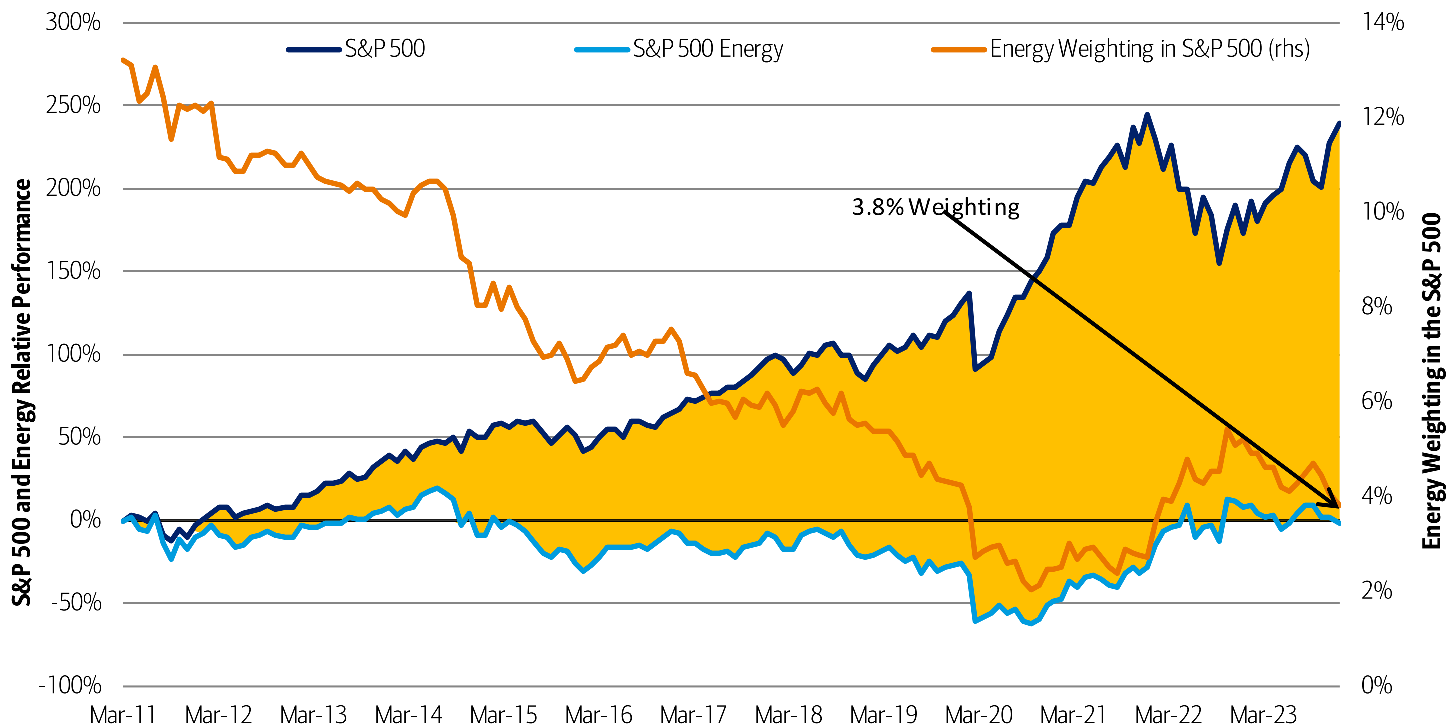
S&P 500 Energy weighting fell through 2H23 & now <4%

Energy weighting in the S&P500 reached 5.2% in Jan 2023 on the back of strong 2022 for the energy sector. Later in the year, with commodity headwinds growing and US rig count falling throughout 2023, even as the broader market strengthened (SPX up 24%), the weighting of energy in the S&P 500 fell to 3.9% at YE23 and now currently stands at 3.8%. For reference, energy weighting troughed at an all-time low of 1.9% in Oct 2020.

Exhibit 13: S&P 500 and Energy Relative Stock Performance
Energy weighting in S&P 500 fell from a peak of 5.2% in Jan' 23 to 3.9% at YE23 and 3.8% as on 1/10/2024



Source: BofA Global Research, Bloomberg

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Key Themes for 2024

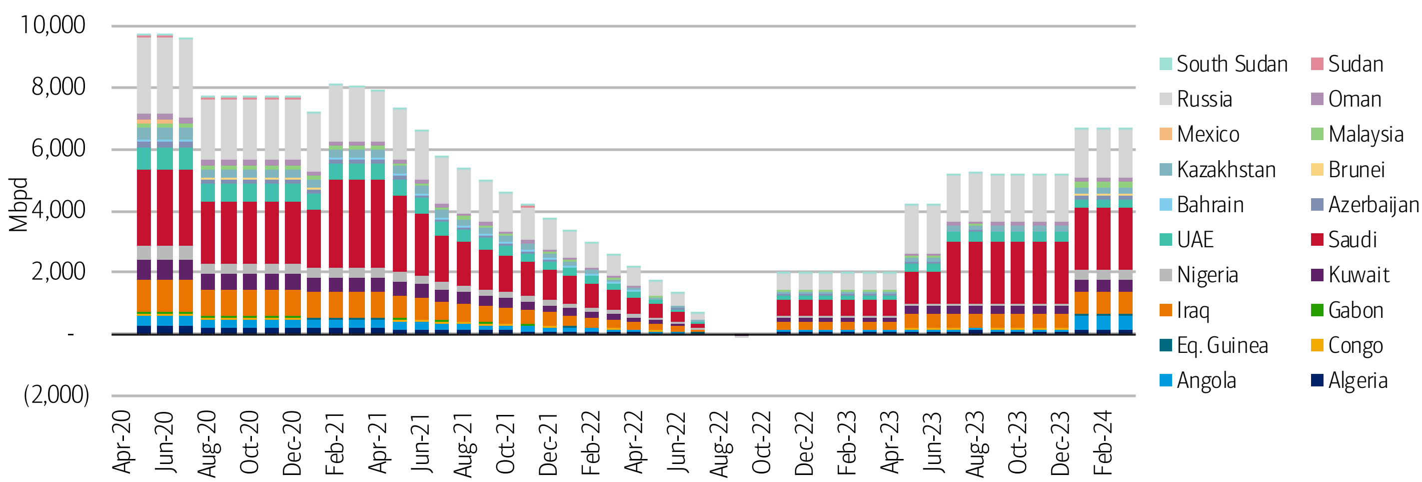
[1.] OPEC – Investing for Growth but Shrinking for Pricing

OPEC/OPEC+ has been proactively managing the global oil markets post the COVID-19 pandemic in 2020. OPEC+ steadily increased production in the early days of the post-COVID recovery and full unwound its COVID-19 era production cuts by Aug '22. After a short lived 100 Mbpd production increase in Sep '22 (vs group's initial Apr '20 baseline), OPEC+ reversed track by withdrawing this small 100 Mbpd cut the following month in Oct '22. This was followed by a large 2 MMbpd production cut in Nov '22, a 2.2 MMbpd cut in May '23, and a 1 MMbpd cut in Jul '23. And then recently in Nov '23, OPEC again announced 1.5 MMbpd voluntary production "cuts". Additionally, Russia announced its own voluntary "cut" of 500 Mbpd for 1Q24, which consists of 300 Mbpd of crude oil and 200 Mbpd of refined products. See Exhibit 14. This comes amidst fast growing non-OPEC+ production, led by strong growth from US shale, plus ongoing growth in Guyana, Brazil and Canada. As a result, OPEC+ crude oil production has declined by almost 7% from Sep '22 to Nov '23. This has resulted in OPEC's market share in the global liquids market declining from >40% in 1H22 to only slightly above 37% in Nov '23. See Exhibit 15. All of this has resulted in OPEC spare capacity to >2x from 1.8 MMbpd in 3Q22 to 4 MMbpd in Nov '23. See Exhibit 16.

On the flip side, core Middle East OPEC countries, led by Saudi Arabia and the UAE have been ramping up spending aggressively to add to their production capacity. In Nov 2020, the de facto OPEC leader, Saudi Arabia, directed its national oil company Saudi Aramco to increase its crude oil maximum sustainable capacity (MSC) by 1 MMbpd. Aramco has been working towards this goal and appears on track to reach its targeted 13 MMbpd maximum sustainable capacity (MSC) goal by 2027. Elsewhere in the Middle East, UAE's ADNOC is working steadfastly to increase its own MSC from 4 MMbpd to 5 MMbpd by 2027. While less well planned than Saudi Arabia and UAE, other core OPEC members in the Middle East in Iraq (+1.2 MMBPD by 2027) and Kuwait (+1 MMBPD by 2040) have also been targeting sizeable upstream capex growth. Our analysis of Woodmac data suggests combined Middle East OPEC (ex-Iran) upstream capex – across Saudi Arabia, UAE, Kuwait and Iraq – from commercially defined projects likely increased 19% in 2022 and 7% in 2023 and is likely to increase another 12% in 2024 and then 4-5% in 2025. Of note, the absolute total upstream spending in these 4 countries is likely to reach an all-time high by 2025. See Exhibit 17. This is in-line with SLB's view that Middle East is set to see record level of upstream investment in the near term, with Saudi's upstream O&G capex in 2023-25 expected to reach nearly $100bn i.e., a 60% increase versus 2020-22.

Exhibit 14: OPEC+ cuts in production quota relative to April 2020 baseline

After successfully winding down post-COVI production cuts by 3Q22, OPEC+ has once again been forced to significantly cut back on production



Source: OPEC, BofA Global Research

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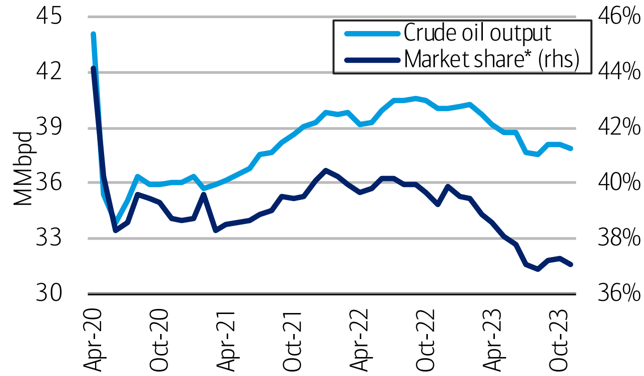
Exhibit 15: OPEC+ crude oil production and market share
OPEC+ production and market share came down significantly through '23



*market share versus global liquids supply
Source: IEA, BofA Global Research

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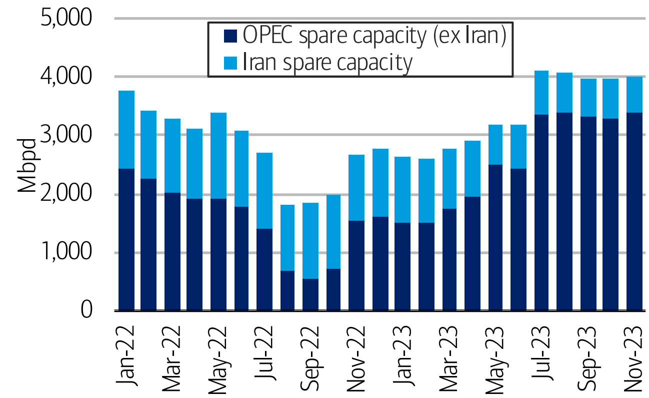
Exhibit 16: OPEC spare capacity – Jan '22 – Nov '23
OPEC spare capacity is now ~4 MMbpd & can keep growing throughout '24



Source: IEA, BofA Global Research

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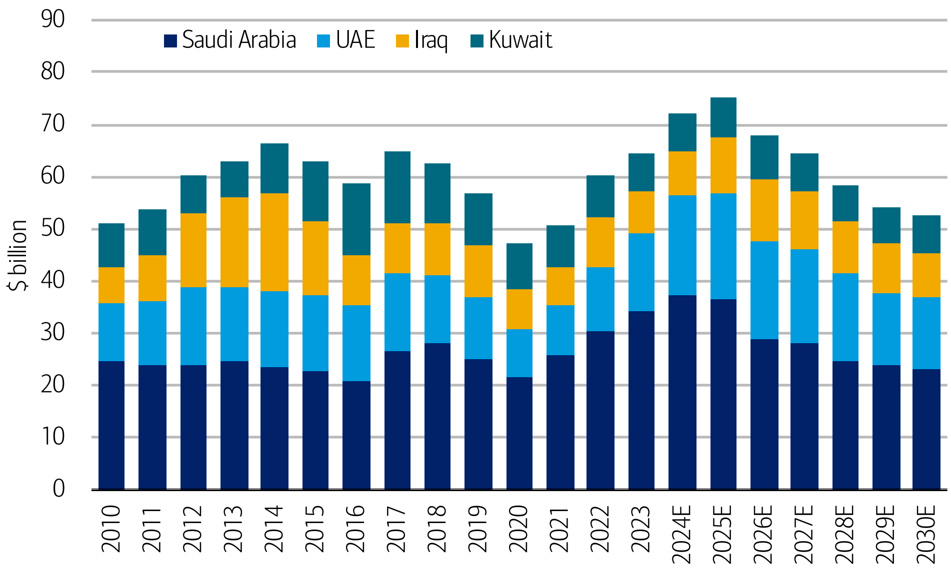
Exhibit 17: Core Middle East OPEC Upstream Capex, 2010-2030E
Core Middle East upstream spending is set to reach an all-time high by 2025, led by Saudi Arabia and UAE



Source: Wood Mackenzie, BofA Global Research

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This contradiction between OPEC and OPEC+ continuing to cut their oil production while spending heavily on oil capacity expansion is concerning for the O&G sector in general. This is especially true given our commodity team's view that OPEC spare capacity could continue to grow throughout 2024 as UAE and Saudi Arabia maintain their investment push. Thus, if crude oil Supply/Demand balance does not improve much through 2024, there is a real chance of OPEC+ returning barrels in an oversupplied market, damaging oil pricing. Even if that doesn't happen, and OPEC+ continues to incrementally take oil production out to support prices, we think this remains an overhang and puts pressure on O&G/OFS equity valuation multiples, even as actual earnings continue to improve for the International / Offshore levered companies (like we are projecting).

[2.] Offshore breakevens now as competitive as US Shale

Breakeven oil prices across all key resource themes have declined over the past decade as the industry has cut wasteful spending & embraced efficiencies. Offshore, particularly deepwater, is now as competitive as tight oil developments in the North America Land market. Of note, supply chain inflation, including oil field equipment and service pricing, has risen over the past +/-2 years and raised average breakevens by close to 7% by late 2023 versus late 2022. For deepwater offshore, breakeven Brent oil price increased approximately 5% YoY to +/- $40/bbl in 2023, which is right in-line with tight oil. See Exhibit 19. Further, carbon intensity of offshore/deepwater developments is arguably the lowest globally across key resource themes. See Exhibit 20. All of this, plus the increased global emphasis on energy security, has resulted in a big increase in offshore project sanctioning in mature as well as new offshore basins across the world.

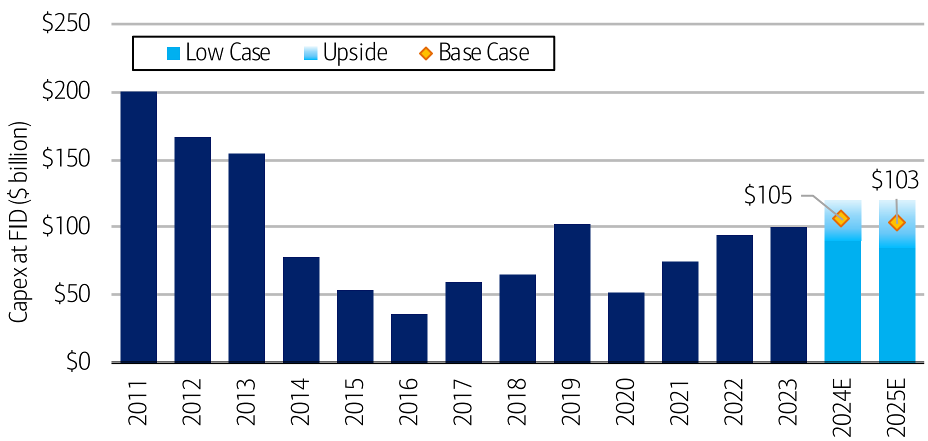
The sizeable decline in offshore breakevens vs prior cycles, in both deepwater and shelf, coupled with a strong pipeline of discovered resources in key offshore basins, allowed for a strong increase in FIDs in 2021-22 in response to a strong recovery in oil demand post-COVID. We believe global offshore capex-at-FID surged +44% YoY in 2021 and another +26% YoY in 2022. We think offshore capex-at-FID likely grew another 6% YoY in 2023 to $100bn. Assuming Brent oil price remains in $75-$90/bbl range, we forecast ~5% YoY growth in offshore capex-at-FID to $105bn in 2024. Note that our '24 forecast includes a low end of $90bn and a high end of $120bn. Current project pipeline suggests offshore capex-at-FID likely comes in at ~$100-$105bn for '25E, assuming Brent holds up in the $75-$90/bbl range. See Exhibit 18.

Key projects included in our 2024 FID list include:

- Safaniya shallow water incremental oil development in Saudi Arabia, operated by Saudi Aramco
- Block 58 deepwater oil development in Suriname, operated by TotalEnergies
- Whiptail (FPSO 6) deepwater oil development in the Stabroek block in Guyana, operated by Exxon
- Manifa Phase 2 shallow water oil redevelopment in Saudi Arabia, operated by Saudi Aramco
- Atapu (P-84) and Sepia (P-85) deepwater oil developments in Brazil, operated by Petrobras
- Upper Zakum shallow water oil expansion project in UAE, operated by ADNOC
- Zama shallow water oil development in Mexico, operated by Pemex

Exhibit 18: Global Offshore Capex-at-FID – 2011-25E

Offshore capex-at-FID increased +/- 6% YoY in '23E and we expect for it to grow another +/-5% YoY in '24E



Source: Rystad, BofA Global Research

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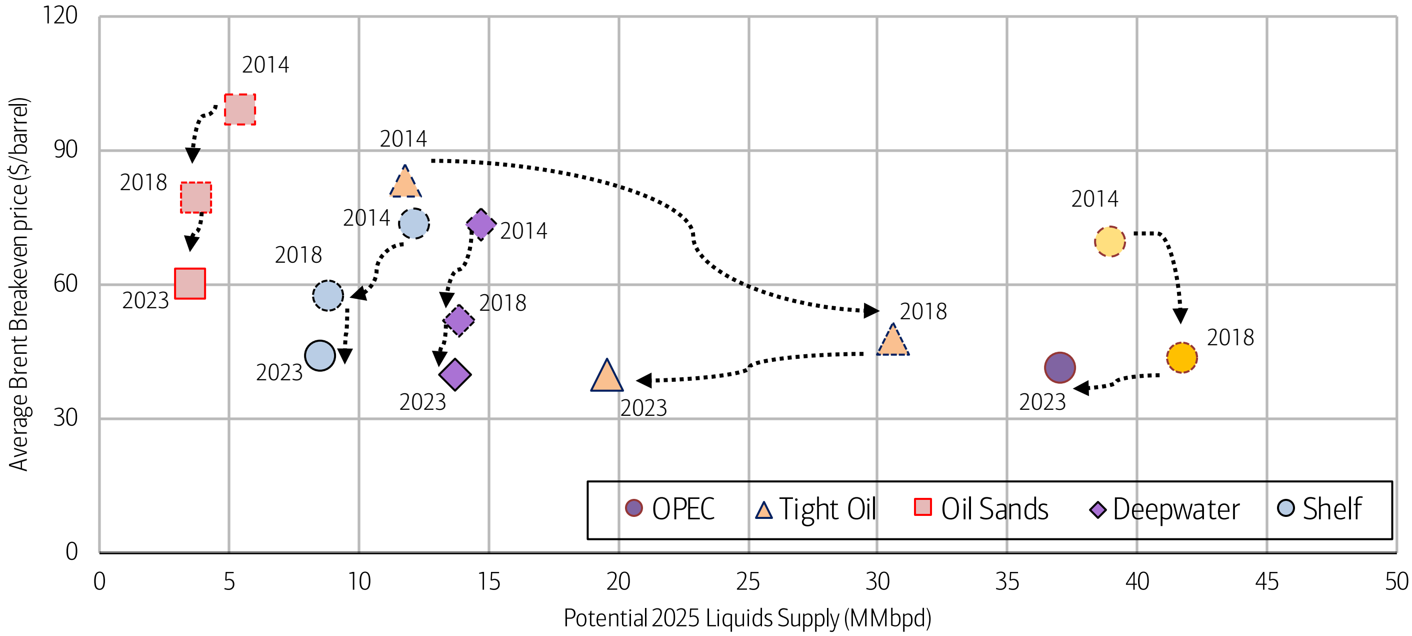
Exhibit 19: Evolution of breakeven oil price for major resource themes globally, 2014-23
Breakeven oil prices across all key resource themes have declined over the past decade with offshore/deepwater now as competitive as NAM tight oil



Source: Rystad

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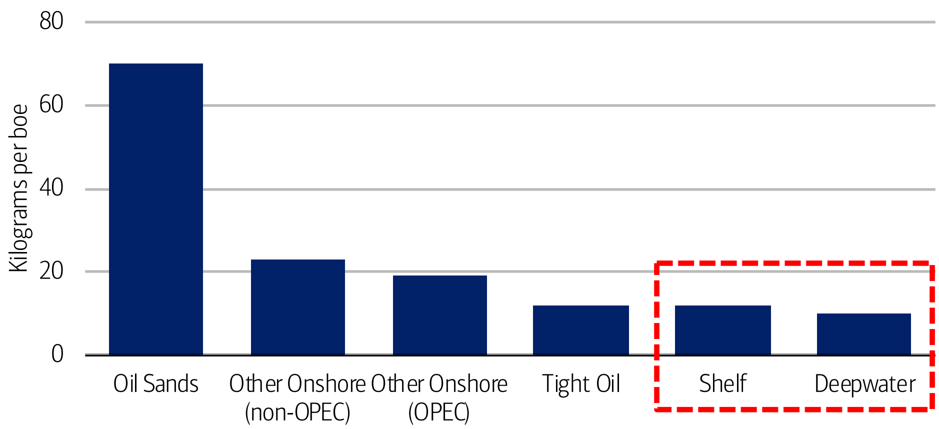
Exhibit 20: Carbon Intensity of Global Oil & Gas Production by Resource Theme
Offshore Oil & Gas production has the lowest carbon intensity amongst key resource themes



Source: Rystad

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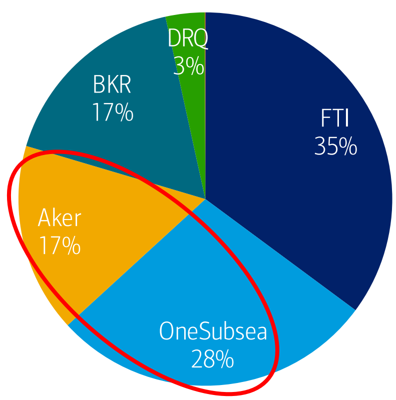
[3.] Better fundamentals and market structure in Subsea

Subsea equipment demand increased quickly in 2021-23 in tandem with rapid increase in global offshore capex-at-FID. Note that long-lead time subsea equipment, including subsea trees, is awarded around FID and starts to show up in OFS company orders almost immediately, benefiting companies like FTI, SLB (OneSubsea) and BKR. As a result, FTI's subsea inbound orders increased 36% YoY in 2022 and another ~43% in 2023E. Similarly, BKR's Subsea & Surface Pressure Systems (SSPS) orders increased 36% YoY in 2022 and another ~31% YoY in 2023E.

Subsea market structure has always been attractive with significant barriers to entry. Of note, the recently completed OneSubsea JV between SLB, Aker Solutions and Subsea 7, coupled with BKR's retrenchment and focus on its best customers/geographies, has now allowed for further market consolidation. Rystad data suggests the top two players – FTI and OneSubsea JV – have won ~80% of global subsea tree awards over the past 10 years (2014-23). See Exhibit 21. Further, subsea market has increasingly moved towards an integrated (SPS + SURF + installation) model with +/- 30% of subsea tree awards in the past 5 years (2019-23) being integrated awards. See Exhibit 22. Thus, we believe recent tightness in subsea supply/demand, coupled with upstream and OFS capex discipline, will drive more Upstream / OFS "preferred provider" relationships across the subsea value chain to help improve efficiency and project execution, i.e., on time and on budget project start-up. This is critical in offsetting inflation and preserving the hard-earned low breakevens and high returns in offshore/deepwater developments.

Exhibit 21: Subsea market has become increasingly concentrated
OneSubsea JV & FTI have won 80% of global subsea tree awards in 2014-23



Source: Rystad, BofA Global Research

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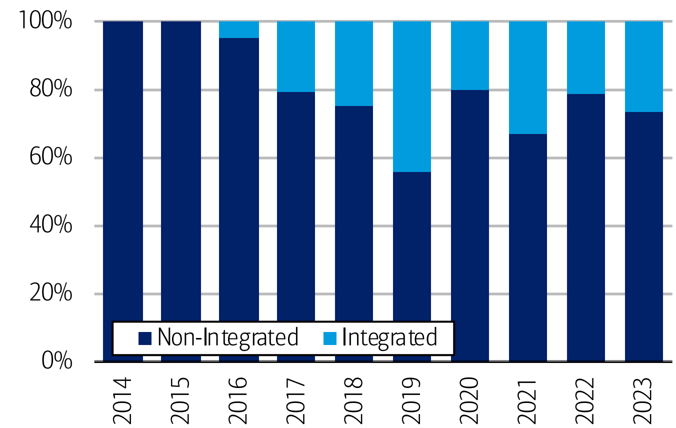
Exhibit 22: Integrated contracts have become large part of the market
Integrated contracts have been 30% of total subsea market over 2019-23



Source: Rystad, BofA Global Research

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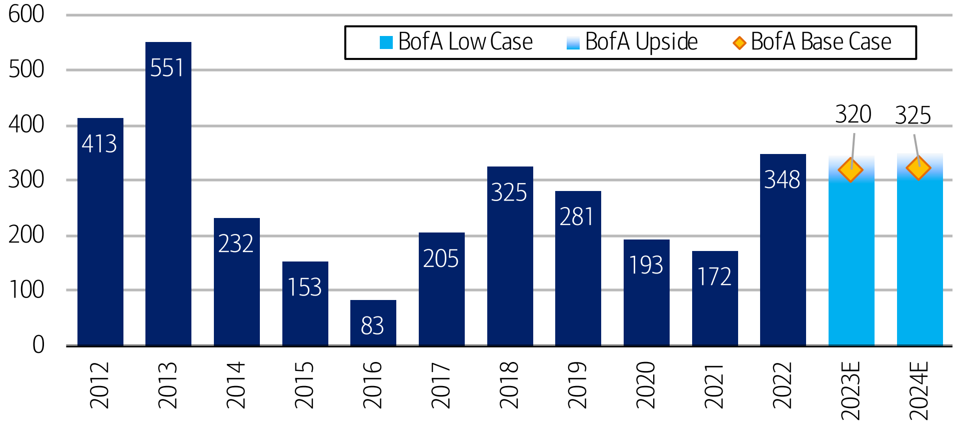
Focusing on Subsea Production System (SPS), we note that subsea tree awards more than doubled YoY to 348 in 2022, per Woodmac. While awaiting the final tally, we think subsea tree awards may have moderated to +/- 320 subsea trees, with a range of 295-345m in 2023. The 50-tree range between the low of 295 and high of 345 represents the likelihood of subsea tree awards being formally announced into Jan and still being booked for 4Q22. Note that much of the YoY moderation in subsea trees awards in 2023 is a function of the surge in subsea tree awards in Norway in late-2022 as projects raced to FID to take advantage of Norwegian government's YE22 tax incentive deadline. Our analysis of the offshore / subsea project pipeline suggests subsea tree awards likely remain in the +/- 320-325 tree range for 2024. See Exhibit 23.

Exhibit 23: Global Subsea Tree Awards – 2012-24E
Subsea tree awards stepped down modestly YoY to +/- 320 trees in '23; we expect +/- 325 tree awards in '24E



Source: Rystad, BofA Global Research

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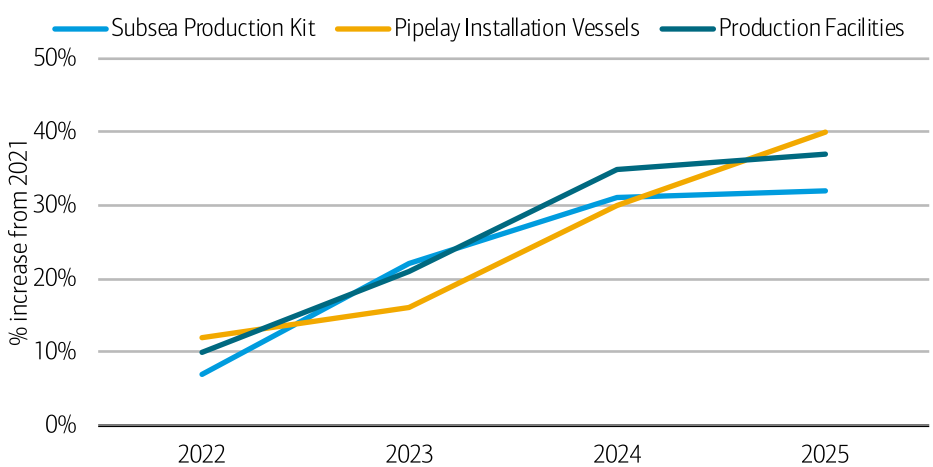
On the supply side, Woodmac estimates that industry capacity for subsea equipment and Tier 1 installation vessels has shrunk by 40% or more from its peak in 2013/14. Almost 8 years of underinvestment in offshore, combined with a strong and broad-based strength in subsea demand, has resulted in a sizeable increase in pricing for offshore / subsea equipment and services over 2022-23. With new offshore project FIDs globally expected to remain strong in 2024, we think subsea pricing can continue to strengthen in 2024. Of note, Woodmac estimates that recent rebound in subsea demand has driven pricing up by 22% in 2021-23. Woodmac anticipates subsea equipment pricing to increase by another +/- 9% YoY in 2024 as demand stays high. See Exhibit 24.

Exhibit 24: Offshore / Subsea pricing index relative to 2021
Offshore has seen substantial inflation with subsea pricing +22% in 2021-23 and likely up +9% YoY in '24



Source: Wood Mackenzie

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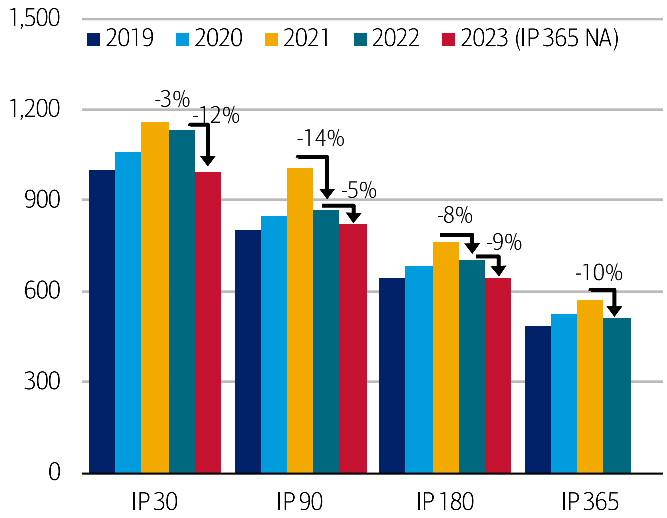
[4.] US shale productivity declines but still rising efficiency

Capital efficiency and well productivity in US shale rose relentlessly since the beginning of US unconventional boom in late-2000s and through to the early 2020s. US shale did more with less, i.e., incremental production per capital dollar spent continued to improve over time. Furthermore, a more competitive and increasingly fragmented OFS industry in the 2010s created fertile ground for competitive service pricing, which further enhanced E&P capital efficiency over the past decade. However, this started to reverse tangibly in 2022, and this reversal continued in 2023 as well costs per lateral foot increased while well productivity started to decline.

Rystad data suggests average US tight oil well productivity on an IP 90 basis declined 14% YoY in 2022 and another 5% YoY in 2023. The same on an IP 180 basis fell 8% YoY in 2022 and 9% YoY in 2023. See Exhibit 25. The decline was even more stark on a per lateral foot basis with average IP 90 / foot in major US tight oil plays down 15% and 10% YoY in 2022 and 2023, respectively. The same on an IP 180 basis declined 11% YoY and 13% YoY in 2022 and 2023, respectively. See Exhibit 26. Thus, the continued growth in average lateral length per well, as shown in Exhibit 27, has served to cushion the true underlying productivity decline in US tight oil plays.

Exhibit 25: Initial productivity in US tight oil basins (average/well)

Initial production per well declined for the second year in a row in 2023



Source: Rystad, BofA Global Research

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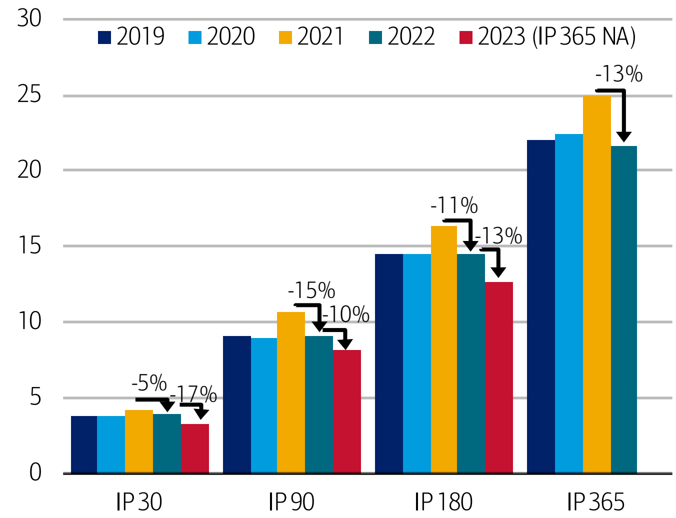
Exhibit 26: Initial productivity in US tight oil basins (ave./lateral foot)

Initial production on lateral foot basis fell even more than on per well basis



Source: Rystad, BofA Global Research

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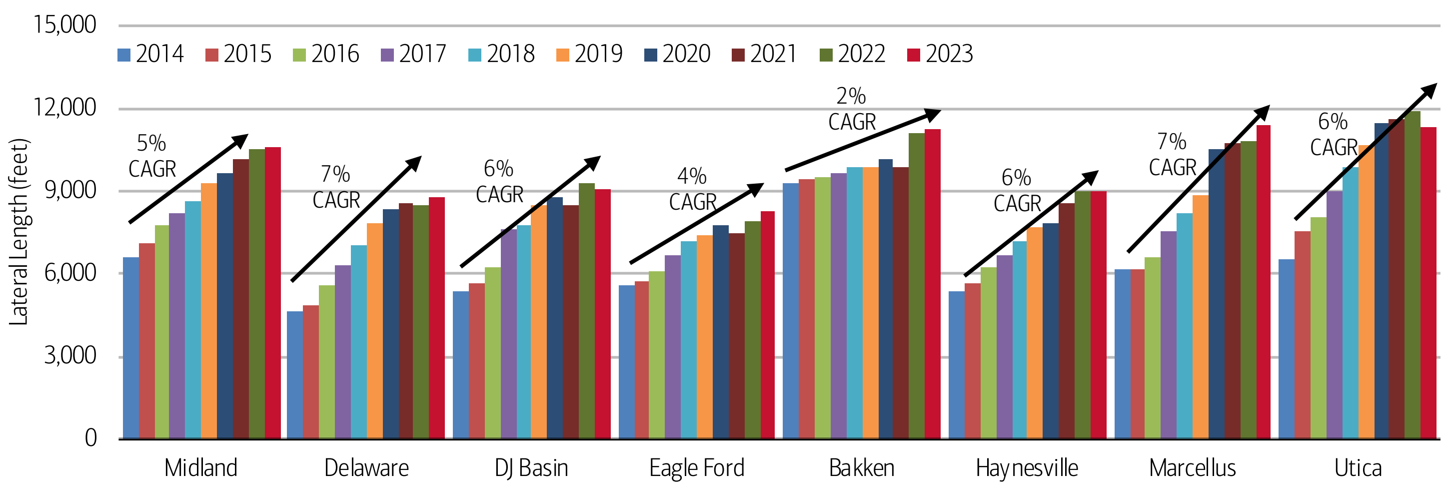
Exhibit 27: Average lateral length per well in key US shale oil and gas basins, 2014-23

Average lateral length in pretty much all key shale oil and gas basins has steadily increased over the years



Source: Rystad, BofA Global Research

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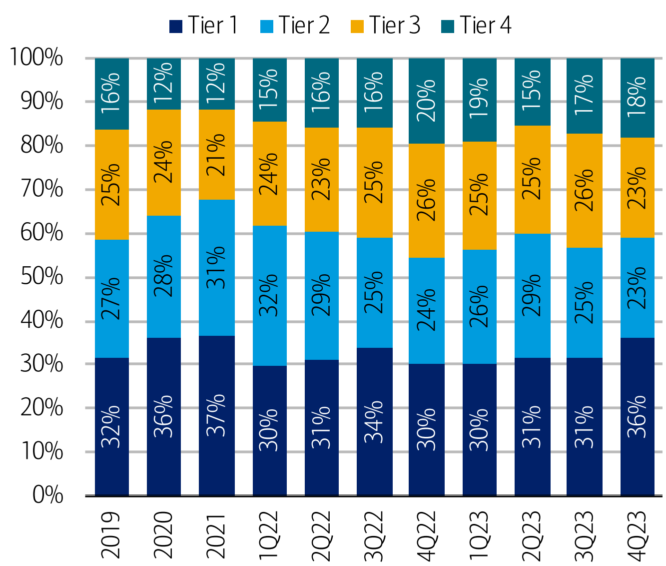
However, we think the real picture for the outlook US tight oil production is less bleak than depicted purely by the metrics for average well (and per lateral foot) production. The recent decline on a per well, and on a per lateral foot, basis is a function of – 1) low-grading of acreage amidst high oil prices, (2) uptick in simultaneous development of stacked benches, referred to as "cube" or "tank" development, (3) lower productivity of the "toe" i.e., far end of longer lateral sections of wells. We discuss these below:

1. ***"Low grading" of acreage:*** As oil prices rose, E&Ps shifted a higher proportion of their development activity into non-core lower tier acreage, thus drilling and completing wells on positions that would otherwise be "uncommercial." See Exhibit 28.
2. ***Stacked "cube" development:*** Most notably in the Permian, E&Ps are pursuing simultaneous development of multiple benches drilling multiple horizontal wells in stacked intervals from one surface location. These are referred to as "cube" developments by operators like XOM and OVV. These "cubes" generally yield lower productivity per well on both a normalized and absolute basis, as frac activity extends across multiple subsurface zones. The idea behind the "cube" is to make up for lower productivity by reduced cost per well and thus effectively generating higher net present value (NPV).
3. ***Longer laterals:*** E&Ps continue to extend lateral lengths seeking to effectively target a larger volume of subsurface formation from the same vertical wellbore, thereby reducing Drilling and Completion (D&C) cost per lateral foot. That said, adding extra footage to the lateral length tends to complicate completion and production process often yielding lower production per foot from the "toe" i.e., far end of the lateral section. So, while longer laterals tend to lower D&C cost per foot, and boosts average production per well, it often serves to reduce the average production per lateral foot.

Exhibit 28: Horizontal wells completed by acreage quality – 2014-23
Mix of Tier 1 acreage in total completions peaked in 2021 and then declined



Source: Rystad

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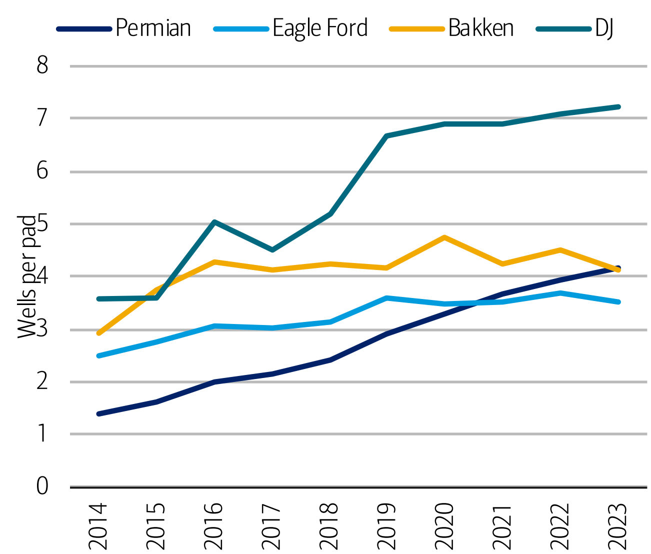
Exhibit 29: Average pad sizes in top US tight oil plays – 2014-23
Average pad sizes have risen quickly in the Permian and the DJ basin



Source: Rystad

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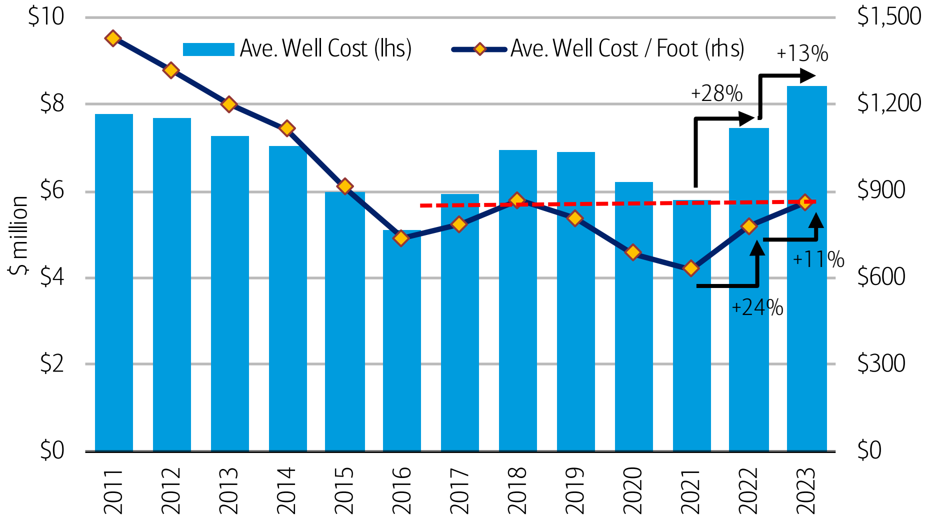
Now let's look at the trends in average well cost, where the main drivers overtime are service and equipment costs, besides lateral length. 2022 witnessed the strongest YoY increase in well costs since the beginning of the US Shale era, with average well cost across key US tight oil and gas basins +28% YoY (+24% on cost per lateral foot basis). This surge in average realized service cost continued into 1H23, moderating some in 2H23, with overall average well cost +13% YoY (+11% on cost per lateral foot basis) for full year 2023. See Exhibit 30. However, as OFS companies would argue, we note that average well cost per lateral foot is still only just about in-line with pre-COVID (2018) level. Said differently, service pricing, in light of the strong efficiencies being generated through OFS companies for E&P companies, should not be seen as prohibitive assuming "fair" distribution of economic rent across the upstream supply chain. Put simply, just like the E&Ps, OFS companies also need healthy returns on their finite life equipment/assets.

Exhibit 30: Average well cost on an absolute and per lateral foot basis in key US shale basins

Average well cost has risen to at least a decade high, but cost per lateral foot remains at/below 2018 level



Source: Rystad, BofA Global Research

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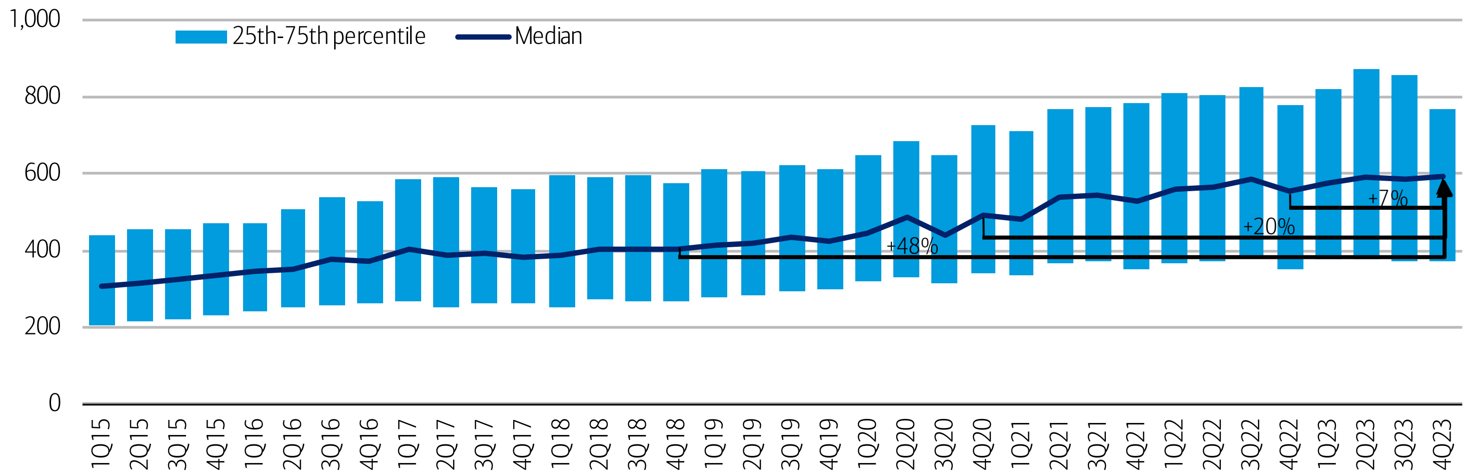
Another key element of the evolution of US tight oil development is the trend of ever-growing Drilling & Completion (D&C) efficiencies. Modern high-spec rigs and frac crews continue to excel at 24-hour non-stop drilling and completion work. Of note, recent gains in D&C efficiency have been modest on the drilling side but have really surprised on the frac side. As depicted in Exhibit 31, median footage drilled per day in 4Q23 was up ~7% vs 4Q22 and ~20% vs 4Q20. On the completions side, frac efficiency has been growing at a surprisingly fast pace recently with the median stimulated lateral foot per day per fleet in 4Q23 increasing an estimated 22% vs 4Q22 & the median proppant lbs. pumped per day per fleet in 4Q23 increasing an estimated 33% vs 4Q22.

Exhibit 31: US Land footage drilled per day– 1Q15-4Q23

Median footage drilled per day per rig in 4Q23 was up ~7% vs 4Q22 and up ~20% vs 4Q20



Source: Rystad

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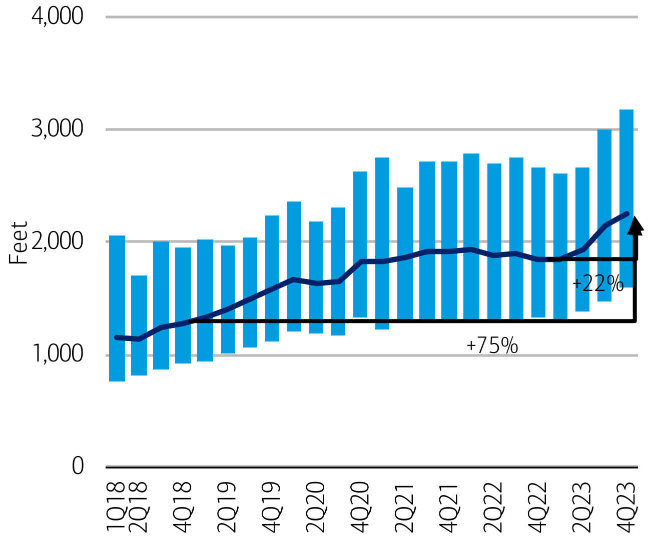
Exhibit 32: US Land lateral feet stimulated per day– 1Q18-4Q23
After being roughly flat in 2021-22, lateral feet stimulated per fleet per day jumped an estimated 22% between 4Q22 and 4Q23



Source: Rystad

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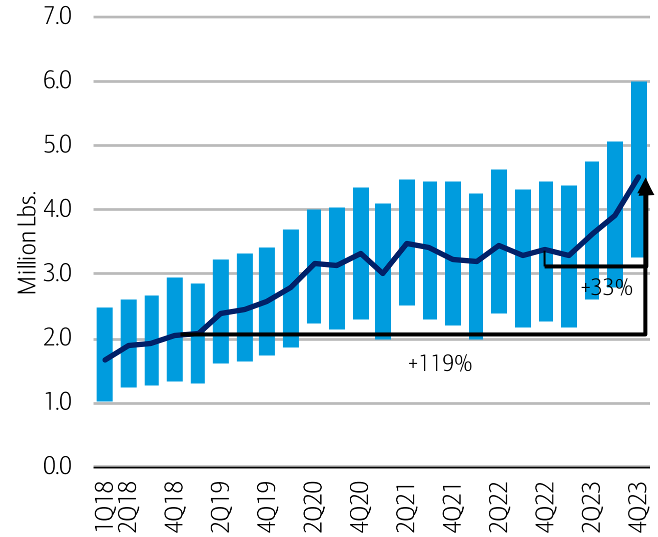
Exhibit 33: US Land proppant lbs. pumped per day – 1Q18-4Q23
After being roughly flat in 2021-22, proppant lbs. pumped per fleet per day jumped an estimated 33% between 4Q22 and 4Q23



Source: Rystad

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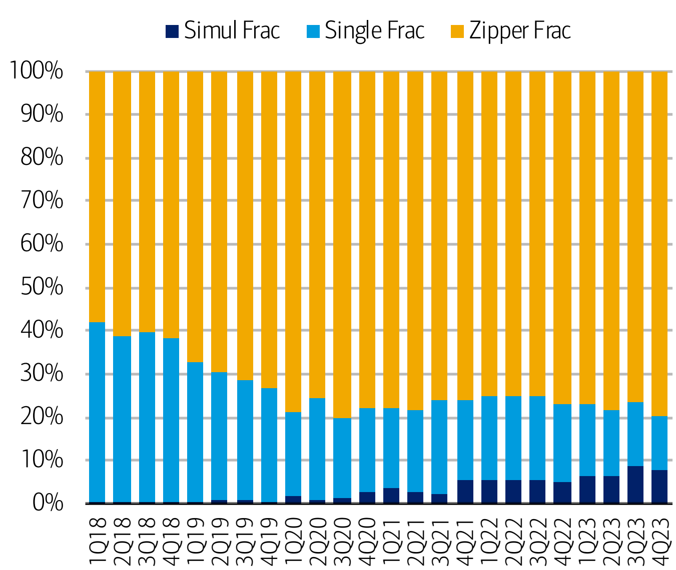
On the frac side, growing adoption of zipper frac and more recently simulfrac has led to a big increase in stimulated lateral feet/day. As shown in Exhibit 34, simulfrac was 7-8% of total frac jobs in 2023, up from 5% in 2022 & almost non-existent in 2018. Similarly, zipper frac was 78% of total frac jobs in 2023, up from 60% in 2018. As shown in Exhibit 35, simulfrac and zipper frac were resulting in an estimated 150% and 33% more stimulated feet per day vs single-well frac, respectively, in 2023. As new well drilling & frac demand has declined through 2023, more equipment (HHP) became available for allocation as additional pumps on location to meet significantly higher HHP demand per simulfrac job, allowing for its growing adoption.

Exhibit 34: US Land Simul-frac & Zipper-frac penetration, 1Q18-4Q23
Simul-frac was 7-8% and Zipper-Frac was ~78% of total frac jobs in 2023



Source: Rystad

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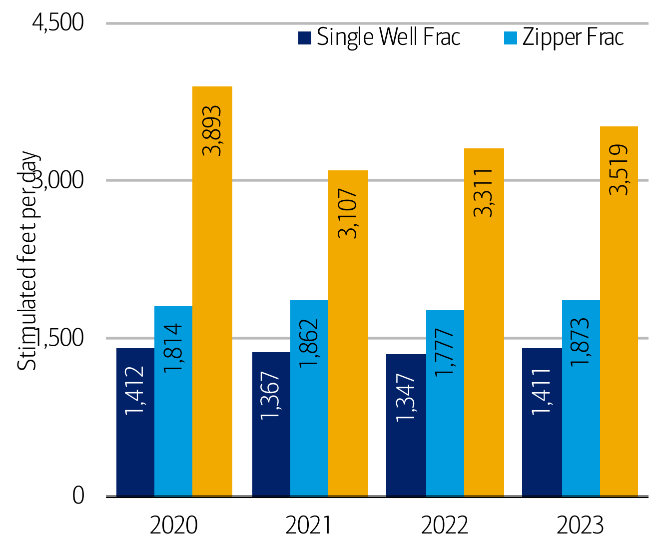
Exhibit 35: US Land stimulated footage/day by frac type, 2020-23
Simul/Zipper-frac = 150%/33% more stimulated feet/day vs single-well frac



Source: Rystad

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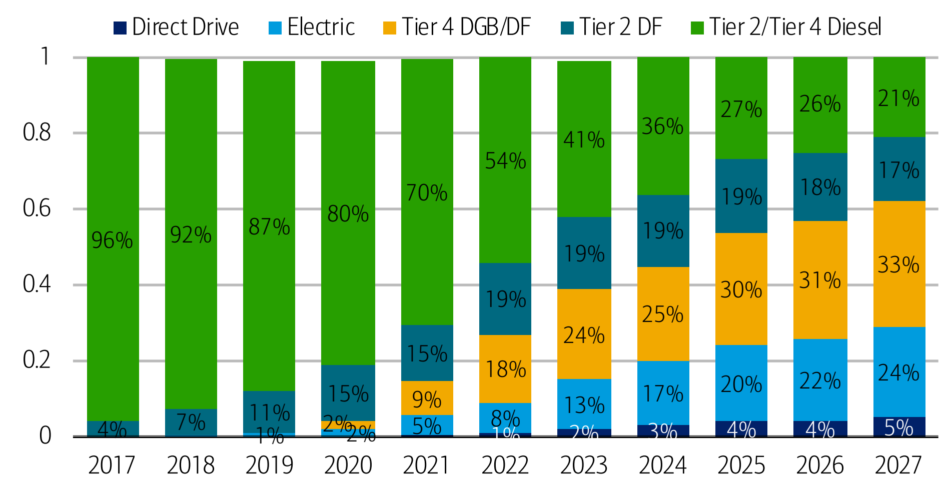
Increasing adoption of newbuild and upgraded next generation natural gas fueled frac equipment is also allowing for increased efficiencies. As an example, HAL noted on its 2Q23 call that its Zeus e-fleets were pumping more than 10% extra hours on average versus its high-performance diesel fleets. As shown in Exhibit 36, electric and direct drive fleets comprised 15% of the total market while Tier 4 / Tier 2 dual-fuel fleets were 24% / 19% of the overall frac market in 2023. Additionally, lesser-known innovations like automated pump swapping and quick connect systems are also allowing for continuous operations boosting surface efficiencies. As an example of the latter, OXY on its 3Q23 call highlighted record continuous pumping time of >88 hours in its Delaware operations. Similarly, CHK on its 1Q23 call highlighted deploying a continuous pumping wellhead technology that enabled it to pump a record 36 consecutive hours on a Haynesville frac.

Exhibit 36: US Land Frac fleet by power type, 2017-23

Next-generation natural gas fired dual-fueled and electric fleets have continued to gain market share



Source: Rystad

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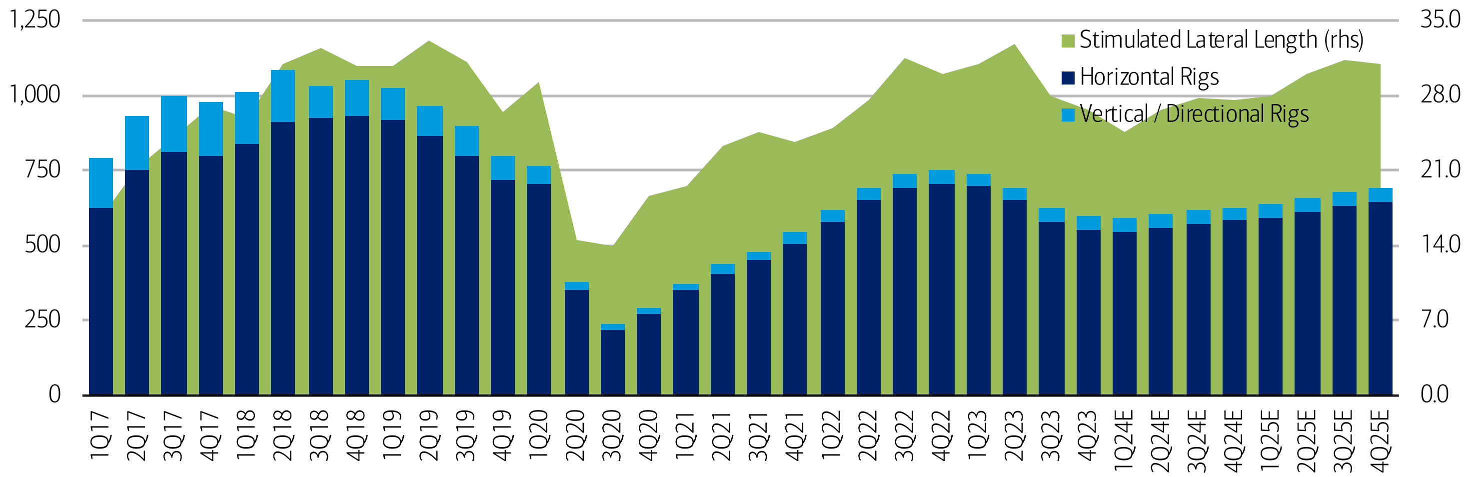
[5.] Nascent NAM recovery stalls until probably late 2024

With recent commodity price volatility, including 12-month WTI strip down to low-$70s per barrel and 12-month Henry Hub natural gas strip falling below $3/mcf in Nov-Dec, we believe US Land D&C activity will remain at or modestly below current level to start 2024. With increasing OPEC+ spare capacity overhang, and new LNG capacity start-up in 1H25, we do not see a meaningful recovery in US Land rig count before late 2024 (really 4Q24). We are forecasting US Land horizontal rig count to trough at 548 rigs in 1Q24, recovering to 582 by 4Q24 and then more meaningfully to 647 by 4Q25. Even in this scenario, 4Q25 US horizontal rig count remains almost 10% below current cycle peak of 714 in late Nov '22. See Exhibit 37.

Exhibit 37: US Land Rig Count and Stimulated Lateral Length, 1Q17-4Q25E

We see US Land rig count bottoming in 1Q24 followed by slow recovery through YE24 followed by modestly accelerated recovery through YE25



Source: Rystad, Baker Hughes, BofA Global Research

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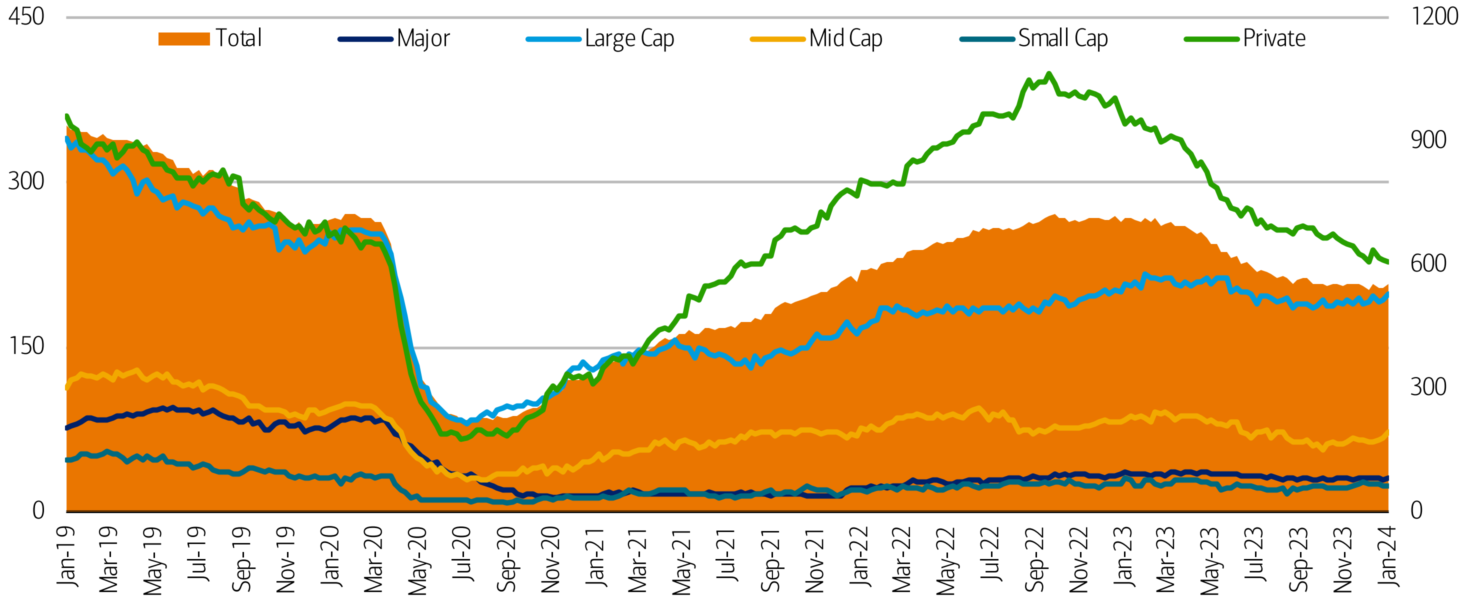
We believe large public E&Ps and Majors likely add ~10-15 oil directed rigs in 1H24. This really serves to only partially offset the rigs dropped by these operators during 2023 in a bid to keep their oil production flat-to-slightly up from YE23 to YE24. However, this is likely offset (or in 1Q24 more than offset) by weaker natural gas directed rig activity. We think private E&P horizontal rig count is likely flattish on the oil side and down modestly on the gas side in the near term. As shown in Exhibit 38, private E&Ps have continued to drop rigs over the past 5 quarters, and we do not expect them to turn around and add any meaningful number of rigs in the near term. Note many of the private E&Ps looking for M&A as an exit option are seeking to preserve their proved undeveloped (PUD) well inventory. Further, volatile commodity prices and still high service costs mean E&Ps do not see any need to ramp up activity.

We believe all of this would reflect in US Land D&C spending falling approximately 9% YoY in 2024, followed by an increase of +13% YoY in y/y in 2025. See Exhibit 39. With our assumption of Canada Land D&C spending up low-single-digit-% YoY, and US Gulf of Mexico and Eastern Canada offshore D&C spending up +/- 13% YoY, we see overall NAM D&C capex -6% YoY in 2024. We see overall NAM D&C capex +11% YoY in 2025. All of this assumes flat-to-modestly lower service pricing going forward in 2024.

We believe our US rig count and D&C capex assumptions would lead to an approximately 50-125 Mbpd increase in US Land oil production between YE23 and YE24, followed by an approximately 75-150 Mbpd increase in US Land oil production between YE24 and YE25. Note that this assumes no increase / decrease in Drilled Uncompleted (DUC) well count going forward. See Exhibit 40.

Exhibit 38: US Land Horizontal Rig Count by Operator Type, Jan '19 – Current

Private E&Ps have continued to drop rigs over the past 5 quarters even as Large-cap public E&Ps have added back some rigs in late-4Q23



Source: Enverus, BofA Global Research

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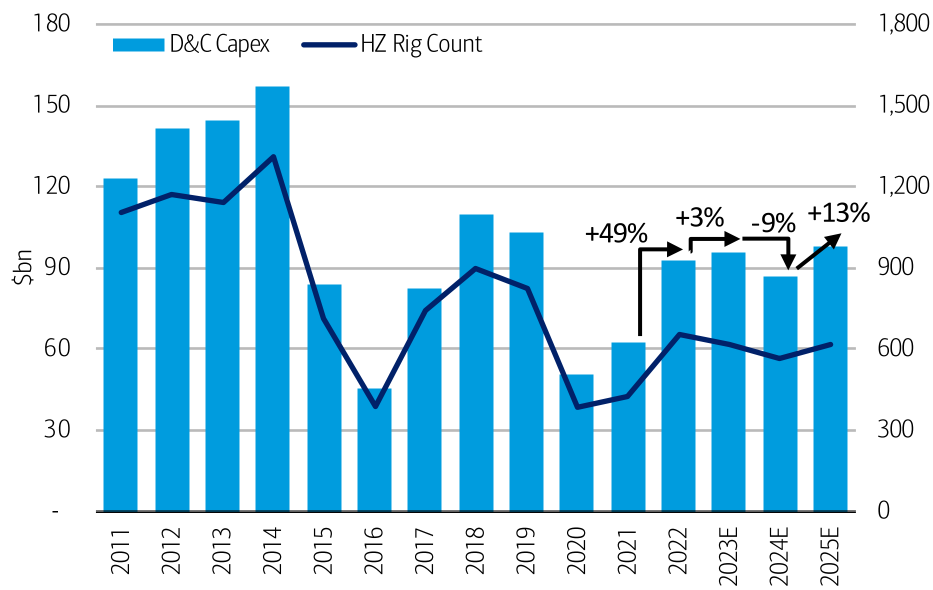
Exhibit 39: US Land Drilling & Completion (D&C) capex, 2011-25E

We see US Land D&C spending falling 9% YoY in 2024 and then growing 13% YoY in 2025



Source: Baker Hughes, Rystad, BofA Global Research estimates

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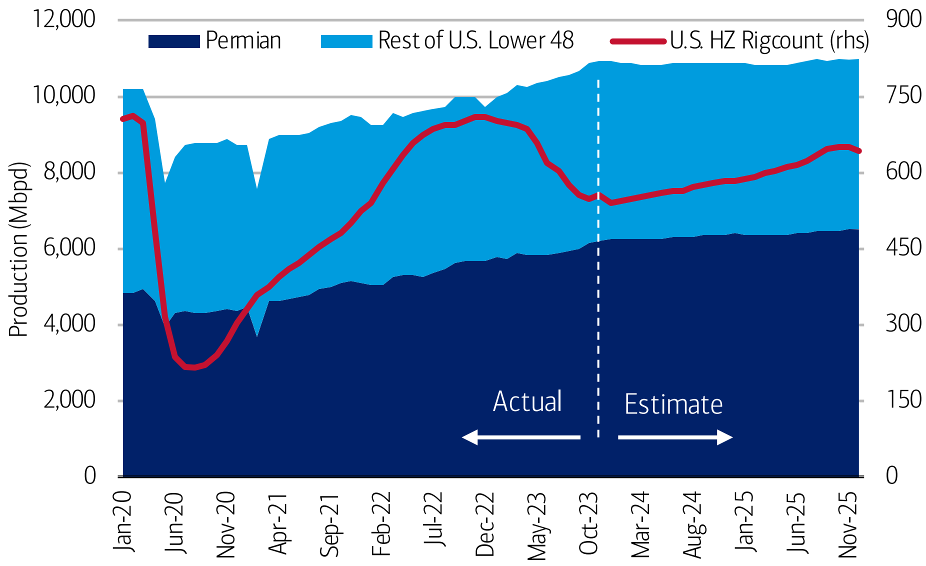
Exhibit 40: US Lower 48 Hz. Rig Count and Crude Oil Production (Mbpd), Jan '20 to Dec '25E
We see US Lower 48 oil production flattening or perhaps growing very modestly in 2024-25



Source: Rystad, BofA Global Research

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Hydraulic Fracturing

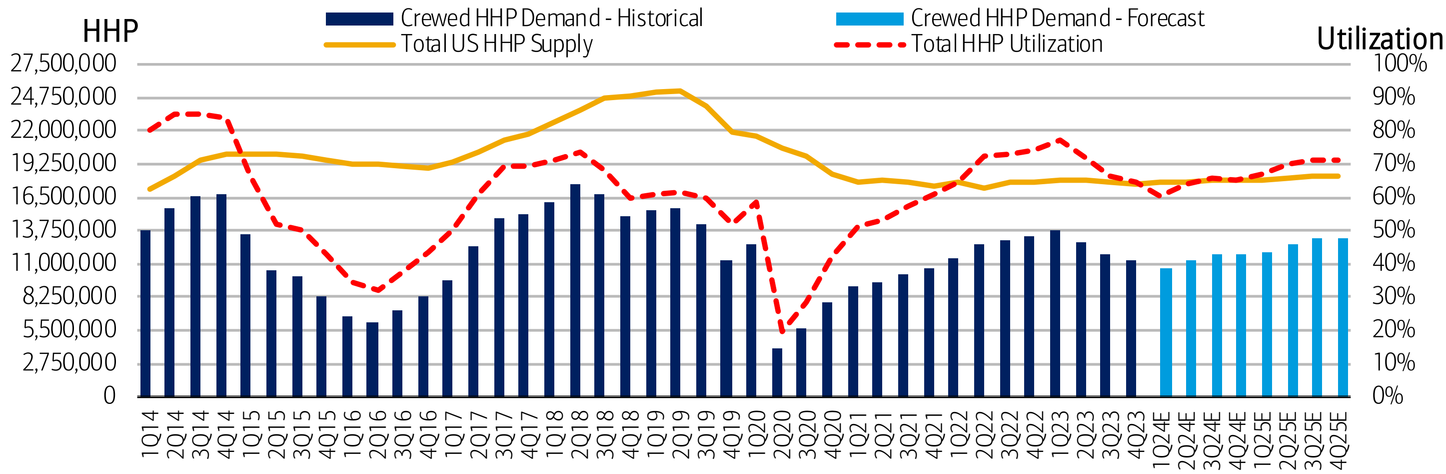
Hydraulic fracturing (frac) activity has fallen from around 295 active fleets at the peak in mid/late-Feb '23 to +/- 220 at YE23. We expect this to recovery slightly seasonally in late-January and February-March and grind higher to around 230 active fleets by 4Q24. On nameplate utilization basis, we think frac utilization has fallen from close to 80% at the peak in 1Q23 to low-60s% at YE23 and we see it recovering to high-60s% by YE24. See Exhibit 41. Note that ~20% of nameplate frac hydraulic horsepower (HHP) capacity is typically out for maintenance, or in rotation, at any given point and thus close to 80% nameplate utilization is effectively full marketed utilization. Put differently, excluding "forced retirements," which is really only voluntary/proactive warm stacking, "marketed frac" utilization has fallen from near 100% in 1Q23 to ~70-75% in 4Q23E and we see it recovering to ~80-85% in 4Q24E. Nearly every fleet idled in 2023 has been diesel, which speaks to the strong E&P preference for next generation natural gas fired fleet.

The weakness in frac utilization YTD has resulted in a significant decline in spot market frac pricing. Rystad data suggests that spot pricing for legacy diesel fleets has declined ~35-40% YTD while the same for dual-fuel fleets is down ~20% YTD. Of note, electric fleets, which are only about 15% of the overall market, have been relatively insulated with spot pricing down only about 5%. This makes sense as 100% natural gas fueled electric fleets provide big fuel savings and operational efficiency, not to mention ESG benefits, for the E&P customers, and are thus in very high demand.

Contract pricing for frac, however have come down a lot less, due to a combination of factors – (1) increasing bidding discipline from large Pressure Pumpers in an increasingly consolidated market, (2) high cost of switching for E&P customers stemming from the strong operational efficiencies being generated by large Pumpers with integrated frac operations, & (3) general lag in spot market pricing flowing through to contract prices. With frac market effectively sold out in 2H22 and early-2023, we think some Pumpers were able to sign 12-month fixed price contracts, which will likely roll over at YE23. To be clear, only a small minority of frac contracts were/are at 12-month pricing reopeners and thus any average realized frac pricing reduction in early 2024 would be relatively modest. We still believe that normalized frac profitability as measured by annualized EBITDA per fleet (excluding consumables and bundling) would likely be at low-$20mm with all in reported annualized EBITDA per fleet likely in the mid-$20mm range (below $30mm+ at the peak in 1H23).

Exhibit 41: US Hydraulic Horsepower Supply and Demand (HHP), 1Q14-4Q25E

US Frac HHP utilization in early-2023 surpassed 2018 level to near 80% and has since declined to low-60% recovering gradually to high-60s% by YE24



Source: Rystad, Baker Hughes, BofA Global Research

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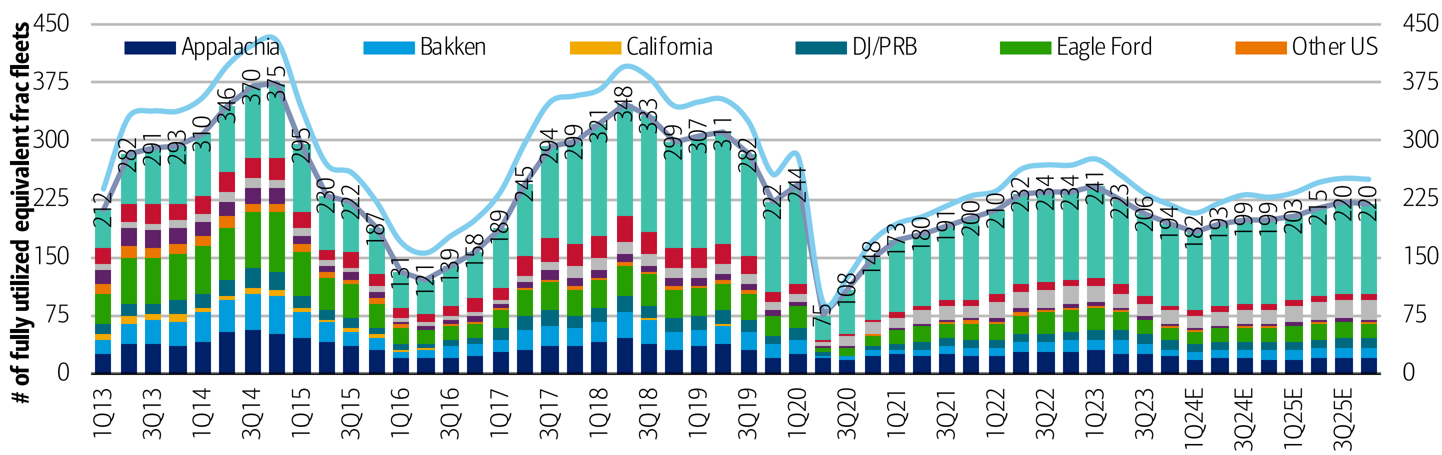
Exhibit 42: US Crewed Frac Fleet Demand – fully utilized equivalent fleets by basin and total active frac fleets

We see active frac fleet demand increase modestly from +/- 220 fleets at YE23 to +/- 230 fleets by 4Q24 and to +/- 250 fleets by 4Q25



Source: Rystad, Baker Hughes, BofA Global Research

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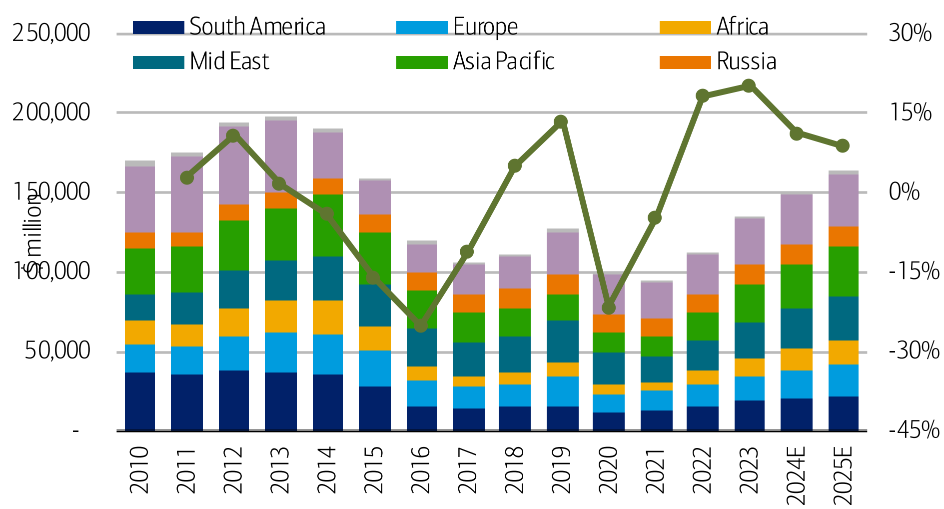
[6.] INTL / Offshore still fundamentally more attractive

After growing at a very strong high-teens-% YoY rate annually for the past two years, we see International (INTL) D&C capex growth slowing down to low-double digit (+/-12%) YoY in 2024 and high-single-digit (+/- 9%) YoY in 2024. The biggest YoY change is likely in Latin America, where growth is set to materially decelerate in countries like Mexico and Argentina, and for spending to modestly decline YoY in Colombia. Despite strong double-digit-% YoY expected growth in offshore-heavy Brazil and Guyana, we now see Latin America D&C capex growing high-single-digit-% YoY in 2024, after having grown about 20% YoY in 2023. Elsewhere, we think YoY growth would be roughly similar in 2024, with Middle East, Asia-Pacific and Europe all set to grow D&C capex +/- 15%. We think recovery is really only just beginning in Africa, and we expect the continent to grow D&C capex +/- 11% YoY in 2024, led by Angola, Algeria and Egypt. See Exhibit 44.

Exhibit 43: International i.e., non-NAM Drilling & Completion (D&C) Capex – 2010-25E
We see International D&C spending in 2025 reaching the highest level since 2014



Source: Spears & Associates, BofA Global Research

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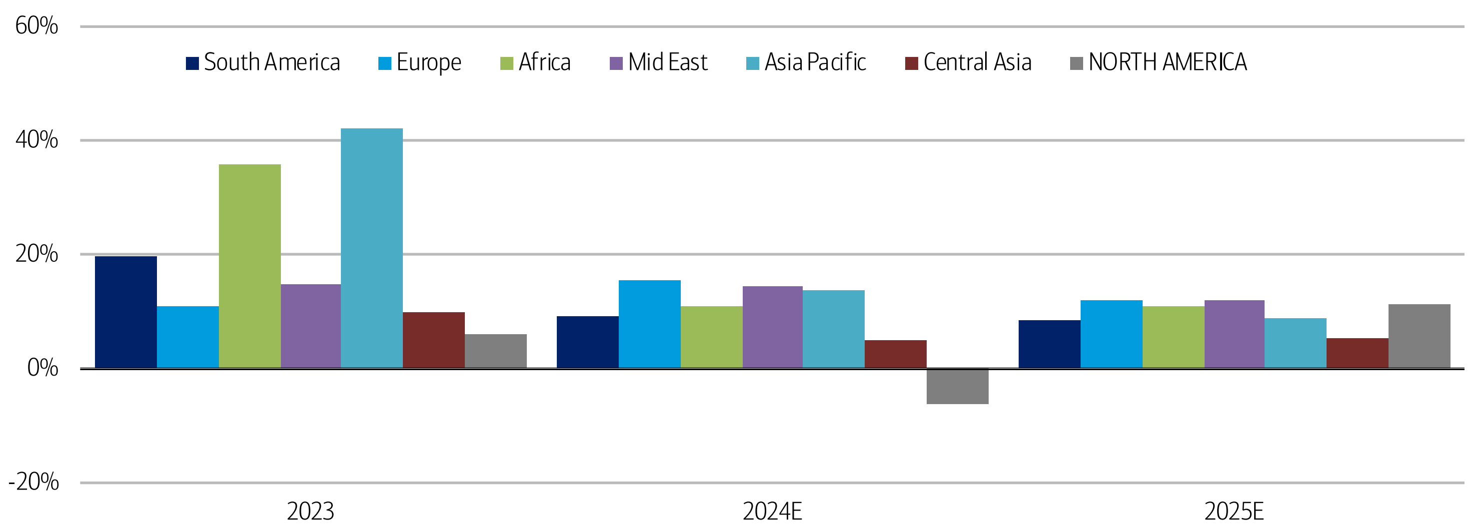
Exhibit 44: Global YoY D&C Capex Growth by Region. 2023-25E
With the exception of NAM (-6%) and South America (+9%), we see close to 15% YoY D&C capex growth in 2023 across most key regions



Source: Spears & Associates, BofA Global Research estimates

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Middle East continues to grow strongly with capacity expansion plans underway

Despite continuing and in fact expanded OPEC+ productions cuts, including the group's most recent 2.2 MMbpd voluntary "cuts" announced in late-Nov '23, we believe core Middle East countries are on track to execute their medium/long-term growth plans. We estimate that Middle East D&C spending increased 15% YoY in 2023 and we believe this likely stays at +15% YoY in 2024 slowing modestly to +12% YoY in 2024. Middle East growth is primarily coming from increased spending in Saudi Arabia, UAE/Abu Dhabi and Qatar, and to a lesser extent in Iraq, Kuwait and Oman. Saudi Arabia and UAE/Abu Dhabi appear to be the farthest along in executing their medium/long-term plans. It is key to note that there is at least another 2-3 year growth runway for D&C spending growth in the Middle East as Saudi Arabia and Abu Dhabi work towards their 2027 oil capacity target and 2030 gas targets. As an example, Saudi Aramco has said that its 2023 capex will be significantly higher than the $40-$50bn in 2022 and then rise potentially through the middle of the decade and then stabilize at/around that level beyond 2025.

(A) Saudi Arabia

Saudi Aramco has not yet announced its guidance for 2024 capex, however, we note that Woodmac is forecasting the company's 2024 upstream capex to grow ~20% YoY in 2024. Note that Aramco's 2023 total capex guidance is at $48bn-$52bn, and the company has said that its capex would keep growing "until the middle of the decade". See Exhibit 45. Further, Aramco has said that around 60% of its capex will be invested in upstream in the near term. For reference, Aramco's upstream capex for 9M23 was $24.1bn, which was up 17.7% versus $20.4bn in 9M22.

Saudi Aramco is working to increase Saudi Arabia's maximum sustainable capacity (MSC) from the current 12 MMbpd to 13 MMbpd by 2027. This growth is set to come entirely from brownfield expansions, including at Dammam, Marjan, Berri, Zuluf and Safaniya. Of these, Safaniya is the only one pending FID. Amidst tight EPC supply chain, and growing OPEC production cuts, Aramco has been delaying key construction contracts for Safaniya for about a year now. We think contract awards need to be made by 1H24 for Safaniya to meet its Ph-1 (350 Mbpd) expansion timeline of 2027. To that effect, we note that trade newspaper *Upstream* reported earlier this month that Aramco is close to finalizing two large EPC awards for two onshore EPC packages worth a combined $4-$5bn, and that multiple other offshore and onshore tenders for the project are in the bidding stage.

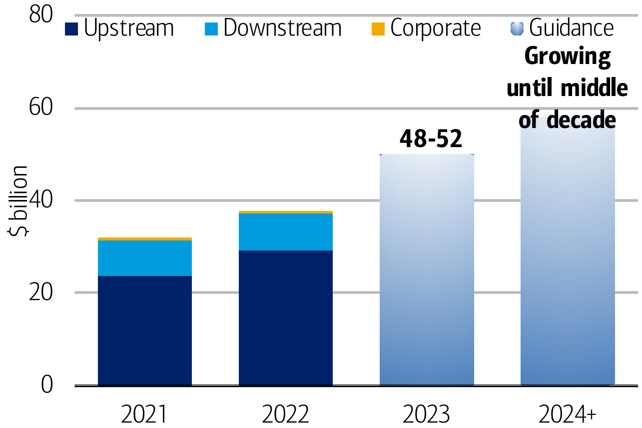
Away from oil, Aramco is seeking to expand its gas production by >50% though 2030 from a mix of conventional and unconventional developments. The latter is primarily in the form of its $110bn+ Jafurah unconventional onshore gas project, which is expected to come on in a phased manner starting in 2025. Overall, Jafurah is expected to produce up to 3.1 bcf/day of gas by 2030 and require expenditures of $75bn+ related to drilling and completion.

(B) UAE

ADNOC has not released its updated 5-year capex plan. Recall that ADNOC's previous 5-year capex plan, announced in Nov 2022, had total spending of $150bn in 2023-27. This was up 18% from its prior 2022-26 5-year plan of $127bn. See Exhibit 47. Note that the $150bn spend is in support of ADNOC's accelerated growth strategy. Recall ADNOC has committed to increase its maximum crude oil production capacity to 5 MMbpd and in Nov '22 it brought forward this target to 2027 from prior 2030. Note the planned oil capacity growth is to come from the expansion of its Upper Zakum, Lower Zakum, Umm Shaif and Belbazem fields. ADNOC is also targeting growing unconventional natural gas production to 1 Bcf/d before 2030, helping the UAE to reach gas self-sufficiency.

While ADNOC does not give annual capex budgets/targets, Woodmac data suggests that its 2023 upstream capex likely increased 20% YoY in 2023 and is set to grow 28% and 6% YoY in 2024 and 2025, respectively. See Exhibit 48.

Exhibit 45: Saudi Aramco 2021-22 Capex and 2023 and 2024+ Guide
Aramco's capex growing meaningfully as it grows its production capacity



Source: Saudi Aramco, BofA Global Research

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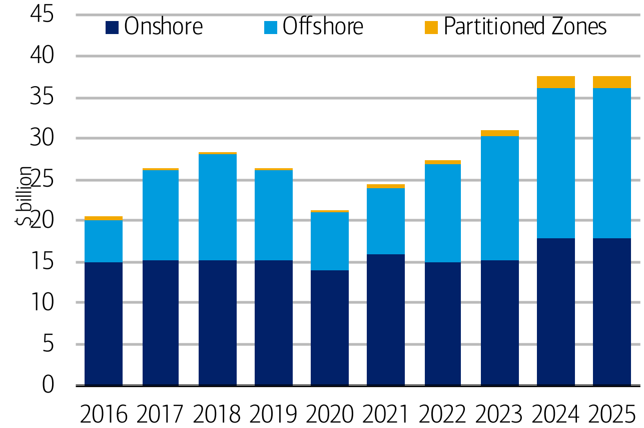
Exhibit 46: Saudi Arabia Upstream Capex by Region, 2016-25E
More spending will go towards offshore projects into 2024 and 2025



Source: Wood Mackenzie, Saudi Aramco, BofA Global Research

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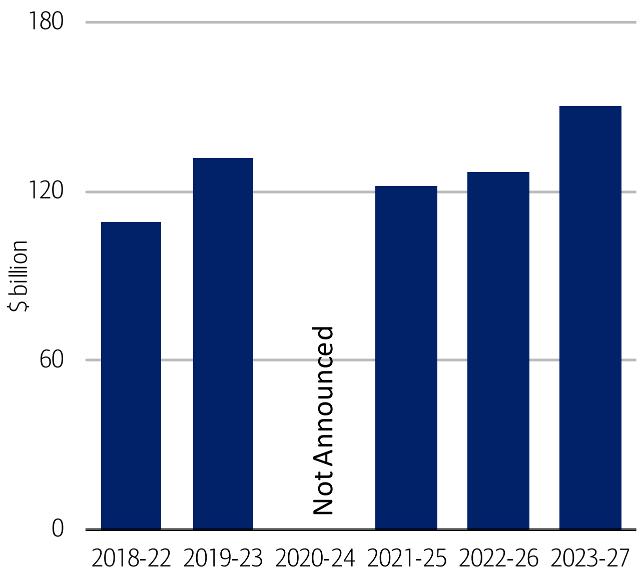
Exhibit 47: ADNOC total capex in 5-year plan periods
ADNOC's planned 5-year 2023-27 capex is up 18% from 2022-26



Source: ADNOC, BofA Global Research

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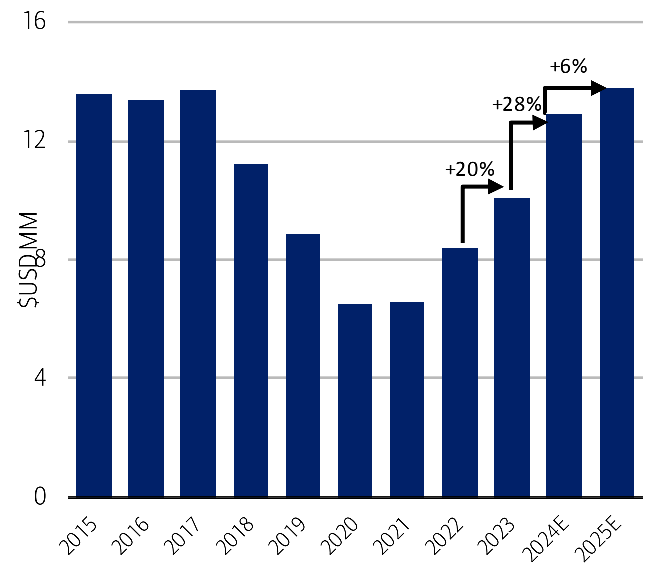
Exhibit 48: ADNOC Upstream Capex Forecast, 2015-2025E
ADNOC upstream capex up 28% and 6% YoY '24/'25, respectively



Source: Wood Mackenzie, BofA Global Research

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Asia Pacific growth primarily driven by NOC-led domestic O&G developments

Key countries in Asia-Pacific, including Malaysia, Indonesia, India and Thailand are pushing for new, primarily gas-led exploration and development projects in support of strong domestic and regional demand growth. We anticipate growth in exploration in South-East and South Asia, with 1) Malaysia finalizing its Malaysia Bid Round 2023 awards and launching its latest 2024 acreage offering, 2) India likely concluding Open Acreage and Licensing Policy (OALP) 9 and kicking off OALP 10 round, and 3) Indonesia continuing with its regular bid rounds, plus a new grid-based block system which is expected to take off in East Java in 2Q24. In terms of new developments, 2023 in Asia-Pacific was relatively FID-light with new project sanctions limited to China and Vietnam. However, several new projects could potentially reach FID in 2024, including Total's Papua LNG, Eni's Maha (and potentially Geng North) and BP's Tangguh UCC.

(A) Malaysia

Petronas 9M23 capex of $7.3bn (72% of which was in upstream and gas divisions) was up 25% YoY from 9M22. FY 2023 capex is expected to be at RM 50bn i.e., approximately $10.75bn. While Petronas has not announced its formal 2024 capex, the company is expected to raise total 2024 spending to +/- RM 60bn i.e., close to $13bn (+20% YoY). For reference, Petronas had said earlier in 2023 that it has planned a capex of $13bn per year over the next five years (2023-2027).

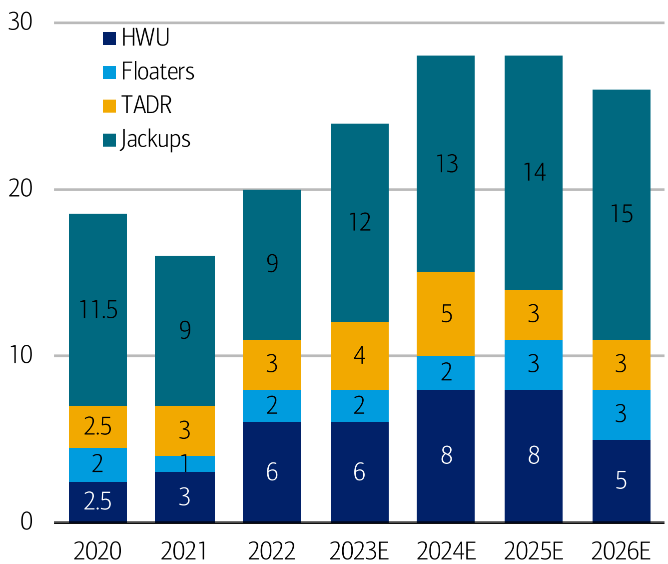
In late-Dec '23. Petronas released its annual 3-year forward activity outlook. The 2024-26 outlook sees Petronas executing on >45 upstream projects in Malaysia, fabricating 4 central processing platforms, constructing 3 onshore facilities and ~1,130 kilometers of pipelines. Petronas is forecasting its rig count to increase 17% YoY to 28 in 2024 versus 24 in 2023. The projected increase in rig count includes +1 jackup rig (12 going to 13), +1 tender assisted drilling rig (2 going to 3) and +2 hydraulic workover units (6 going to 8). Petronas' 2024-2026 outlook includes 99 wells to be drilled under development (+3% YoY), 17 producing wells for workover activities (-19% YoY) and 38 wells for planned P&A activity (+38% YoY). See Exhibit 49 for Petronas' 2020-26E activity trend/forecast.

(B) Thailand

PTTEP released its 2024-2028 investment plan in December, setting a total upstream capex budget of $20.8bn which is 15% above prior 2023-27 plan of $18.1bn. Capex is planned to grow 59% YoY to $4.3bn in 2024 and another 18% YoY to $5.1bn in 2025. This includes pre-sanction and producing projects. See Exhibit 50.

Exploratory drilling capex for 2024 is set at $220mm with PTTEP planning to drill 12 wells in 4 countries: 1 well in Thailand, 1 well in UAE, 2 wells in Oman, and 8 wells in Malaysia.

Exhibit 49: Petronas Malaysia activity outlook, 2020A-2026E
Petronas sees its Malaysia rig count +16% YoY in '24E and -3% YoY in '25E



Note: TADR = tender assist drilling rig, HWU = hydraulic workover unit
Source: Petronas 2024-26 Activity Outlook (released in Dec 2023)

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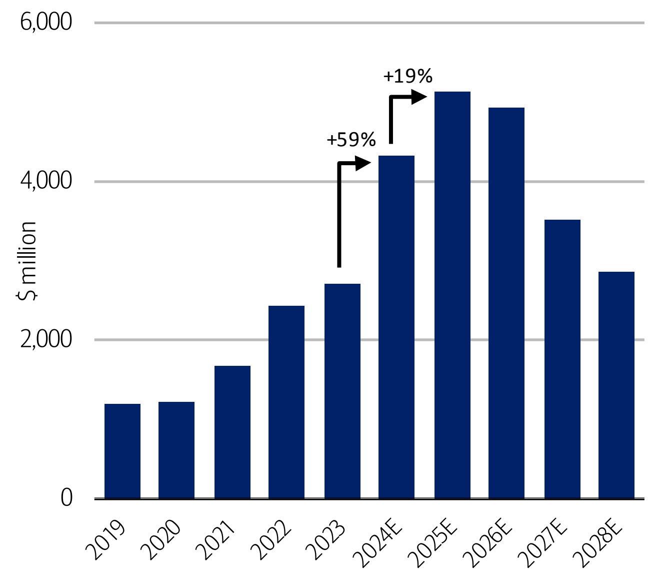
Exhibit 50: PTTEP Five-Year Capex Investment Plan
PTTEP capex +59% YoY in '24E and +19% YoY in '25E



Source: PTTEP, BofA Global Research

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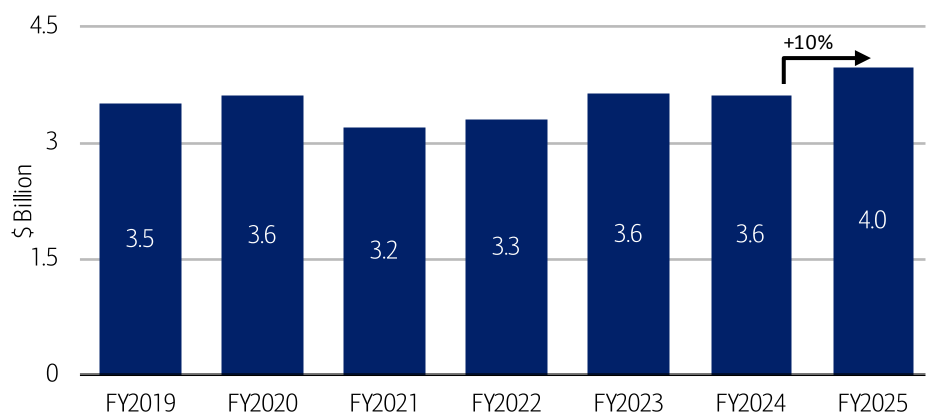
(C) India

India imports >85% of its crude oil demand, hurting its trade deficit and pressuring its domestic currency relative to US$. Indian government is aiming to cut its dependence on imported oil by 10% and is pushing for new deepwater projects to boost domestic production. In recent years, India has undertaken a series of upstream reforms, such as handing out marketing freedom to upstream producers. India now allows operators to sell locally produced crude in the domestic market without any restrictions. As part of its push for new exploration, Indian government has quickly conducted 3 Open Acreage and Licensing Policy (OALP) rounds since May '22 awarding a total of 39 blocks. Earlier this month, India launched the bid process for OALP 9 bid round, which offers 28 O&G blocks with large swathes of offshore acreage that were previously off-limits now on offer. Key changes in OALP 9 revolve around the facilitation of play-based exploration, for example larger blocks and longer, phased exploration periods with no well commitment.

State-owned Oil & Natural Gas Corporation (ONGC) has been at the forefront of India's push to grow domestic oil and gas production. The company won 18 out of the 21 blocks awarded as part of the OALP 6 in May '22, following it up with 3 of the 8 blocks as part of the OALP 7 in Jul '22 and 7 out of the 10 blocks awarded as part of the just concluded OALP 8. ONGC has a capex plan of INR 300bn i.e., ~$3.6bn for FY2024 (Apr' 23–Mar '24) and has said that it will raise this by +/- 10% YoY in FY25 (Apr' 24–Mar '25) to ~$4.0bn. See Exhibit 51. The company also plans to spend INR 100bn i.e., ~$1.2bn in FY25 purely for exploration as a follow up to its recent OALP awards.

ONGC's 3-year plan entails multiple projects worth at least $7.2bn and it plans to tender 18 offshore EPCI projects through the end of 2025. This includes 13 offshore projects worth $3.3bn off India's west coast region and another 5 projects worth $4bn off the east coast. ONGC's flagship east coast asset, KG-DWN-98/2, consists of 3 large but separate schemes, with the company now advancing on the $5bn+ Cluster-2 project, after having put the development of the first and third clusters on the back burner for several years. However, ONGC is now targeting integrated development of Cluster-1 along with nearby GS-29 field, while also preparing a development plan for Cluster-3, which is home to UD-1, India's deepest gas discovery.

Exhibit 51: ONGC Capex 2018-2025E
ONGC's capex is expected to grow 10% YoY in FY 2025



Note: FY = April-March
Source: ONGC, BofA Global Research

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Latin America growth to slow materially amidst growing political uncertainty

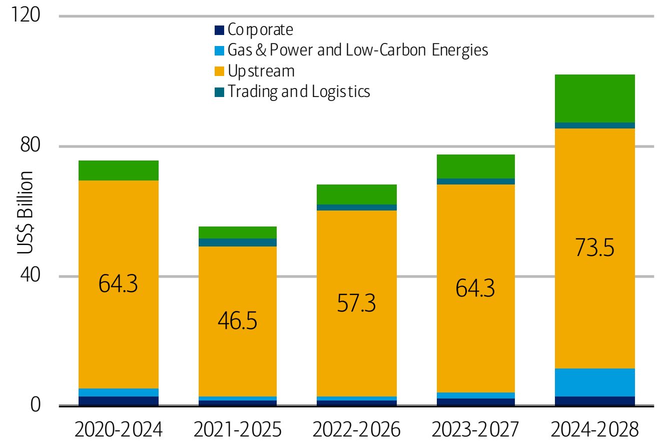
Upstream spending in Latin America will continue to slow and decelerate materially on a full year YoY basis in 2024. We are projecting Latin America 2024 Drilling & Completion (D&C) capex growth to slow to +9% YoY in 2024 versus +20% YoY in 2025. Within this, we expect deepwater growth, led by Brazil, Guyana & to a much lesser extent Caribbean Colombia, to remain strong; however, we see D&C capex growth slowing materially in Mexico and Argentina and absolute D&C capex to potentially decline YoY in Colombia. To make the set-up more complicated, there continues to be material political uncertainty in the region, with a new government recently taking over in Argentina and elections due in Mexico in June 2024.

(A) Brazil

Petrobras announced its 2024-28 strategic plan in November, which contemplates 5-year total capex of $102bn, which is 31% above prior 2023-27 plan of $78bn. The big increase is mainly due to new ventures and reincorporating assets that the previous administration had put up for sale. Much of the focus within the new strategy plan is on upstream and ensuring timely FPSO deployments. Petrobras' 2024-28 plan includes $73bn for Upstream, which is 14% higher than prior 2023-24 plan. See Exhibit 52. Of note, Petrobras's Upstream capex is planned to grow 38% YoY to $15.5bn in 2024 and another 10% YoY to $17.1bn in 2025. See Exhibit 53. Further, 94% of 2024E and 83% of 2025E Upstream capex is already committed.

Petrobras has budgeted $7.5 billion for exploration in 2024-28, which is a 25% increase from the $6bn contemplated in its prior 2023-27 plan. Of this $7.5bn, $3.1bn is for exploration at the Equatorial Margin, which is one of Petrobras' most promising areas for new exploration. The 2024-2028 period will see 50 new exploration wells drilled (25 in the Southeastern basins, 16 in the Equatorial margin, and 9 in other countries) and 14 FPSOs delivered.

Exhibit 52: Five-year corporate budget allocations
Upstream budget allocation up 14%, highest since 2020 plan



Source: Wood Mackenzie, Company Reports

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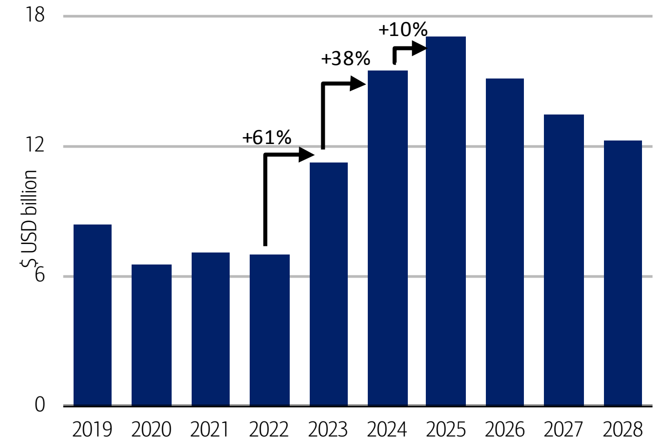
Exhibit 53: 10-year 2019-28 E&P capex
E&P capex +38% into 2024 and +10% into 2025



Source: Company Reports, BofA Global Research

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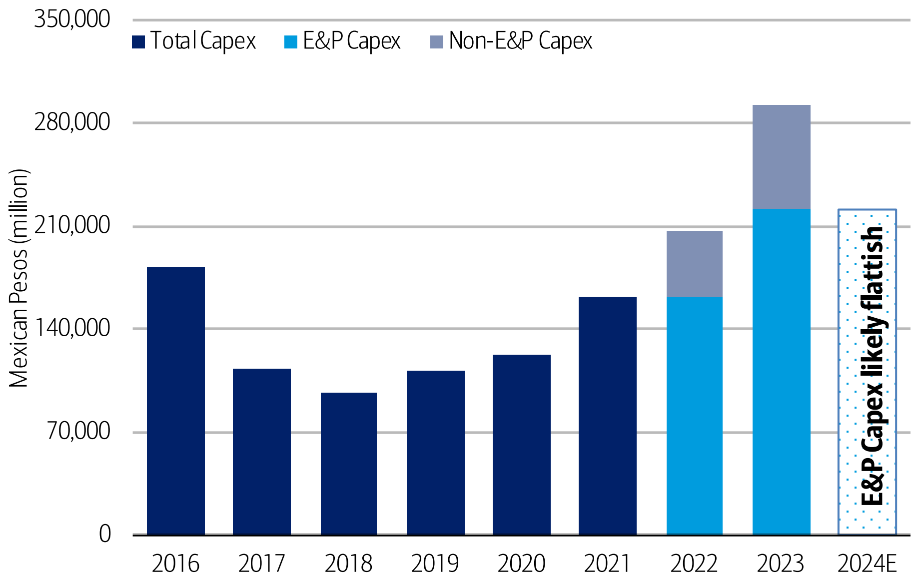
(B) Mexico

Pemex has not formally announced its 2024 capex, but our conversations with industry participants suggests the company's Upstream/E&P spending is likely to be flattish YoY in 2024. Recall that media articles in September, after the announcement of the Mexican government's annual budget, suggested Pemex "budget," which was really the budgetary support from the government to Pemex, was down anywhere from 35-49%. We believe these media reports were grossly misleading. To be clear, Mexico's Ministry of Finance did cut its budgetary allocation to Pemex by 36% YoY. However, Pemex does not depend on government support for its corporate capital spending, rather the injection (this, and several others in the recent past) is supposed to help Pemex pay down near-term debt maturities and renew investor confidence. Following recent $8.5bn government capital injection as part of the current Mexican budget, Fitch in late Dec '23 removed Pemex's Issuer Default Ratings (IDRs) from its negative rating watch and affirmed ratings at 'B+'.

For some more context on the 2023 starting point, we note Pemex's total '23 capex was higher than the normalized run rate in part because of the company's spending on the 340K bpd Dos Bocas refinery, which started up in 2023. Thus, while Pemex's total 2024 capex is likely down YoY, we think upstream capex will be flattish YoY in 2024. Of note, Woodmac's bottoms up project-based data suggests Pemex's upstream capex is likely up as much as 15% YoY in 2024, which seems optimistic to us at this stage. All of that said, we would note that Mexican Pesos appreciated 13% between YE22 and YE23 and thus flat Pemex capex on a Mexican Pesos basis would drive 15% higher US dollar spending.

Exhibit 54: Pemex Total and E&P Capex 2016-2024E

After growing an expected 37% YoY in '23, we see Pemex's upstream E&P capex about flattish YoY in '24



Source: Pemex, BofA Global Research

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(C) Colombia

Colombia's current government, which took charge in August 2022, introduced new tax rules raising average government take from O&G projects, expecting to generate $15bn over 10 years. This worked to hurt corporate O&G cash flows, with Woodmac expecting average corporate net cash flow to drop by 26%. This prompted independent E&Ps to cut activity leading to Colombian active rig count falling 31% between Dec '22 (35 rigs) and Dec '23 (24 rigs), per Baker Hughes data. Further, the Colombian government halted new O&G exploration. While growing signs of looming decline in O&G production in the country appear to have prompted the government to review some of the suspended contracts, there are no signs of it resuming bidding for new upstream contracts.

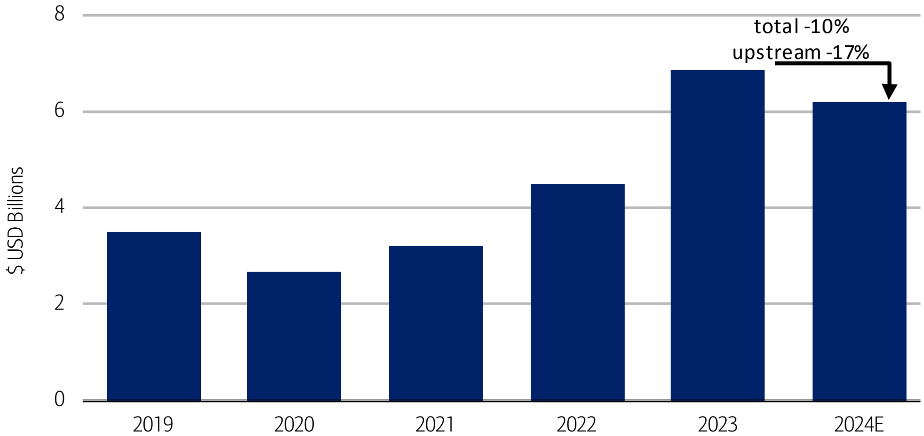
Majority-state owned Ecopetrol continues to be the key operator in Colombia. Of note, Ecopetrol has set 2024 capex at $5.9-$6.9bn, which is down 10% from its 2023 budget. This YoY reduction is driven by the company's focus on efficiencies and expense control. Internationally, Ecopetrol is focusing on ramping up in the Permian basin in the short-term, while targeting larger Brazil investments in the latter half of this decade.

Ecopetrol noted that O&G E&P spending is 62% of its 2024 capex budget. This indicates about $4 billion will go towards O&G/E&P spending in 2024, down ~17% from its 2023 E&P capex of +/- $4.8bn. See Exhibit 55.

Outside of Ecopetrol, Canadian-based Parex and Canacol are the 2 largest Independent E&Ps operating in Colombia. We note that Parex's 2023 capex budget of $450-$475mm is down 10% YoY at the mid-point from $512mm in 2022. Parex will issue formal 2024 guidance later this month, but it has said that its capex is expected to decline again YoY in 2024. Canacol, meanwhile, has a 2023 capex budget of $190-$200mm, which is up 21% YoY at the mid-point from $161mm in 2022. While Canacol will issue formal 2024 guidance later this month, it anticipates lower YoY spending in the Lower Magdalena basin in Colombia, one of its two key focus areas in the country, in 2024.

Exhibit 55: Ecopetrol Capex Budget 2019-2024E

Ecopetrol total and upstream capex in 2024 is expected to be down 10% and 17%, respectively



Source: Ecopetrol, BofA Global Research

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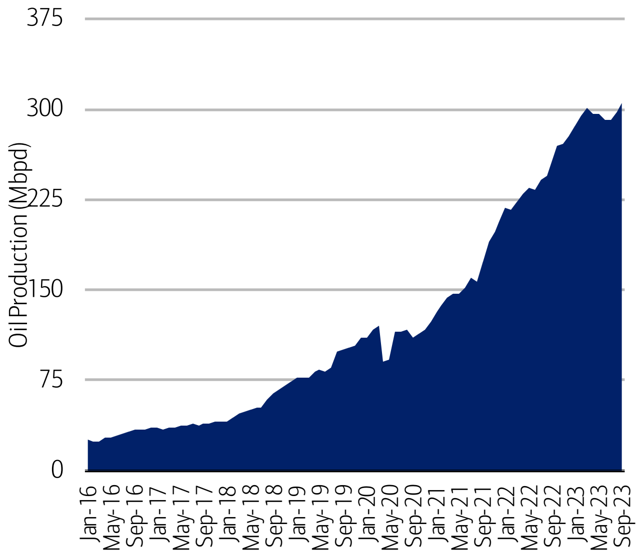
(D) Argentina

A new Argentinian government under President Javier Milei took office in Dec 2023. The country faces significant economic challenges, and the government has promised drastic measures to fix the malaise. Within days of taking over, the government allowed its peso currency to officially devalue by >50% to 801/US dollar (still substantially above parallel Fx rate of over 1,000/US dollar). President Milei has expressed his intent to privatize the state-owned YPF, reaffirming this view after his election victory, however, emphasizing that his administration would have to “rebuild” it before serious efforts at privatization. Big picture, Milei has promised to unshackle Argentina's energy industry from red tape.

Argentina has the world's 2nd largest reserves of shale gas and the 4th largest reserves of shale oil worldwide. Oil and natural gas production from the country’s Vaca Muerta shale formation has risen rapidly, with oil production in the basin having doubled over the past 2-2.5 years. See Exhibit 56. Apart from policy and fiscal uncertainty, one key constraint to realizing the full potential of the Vaca Muerta is the lack of takeaway infrastructure. Oil evacuation capacity in Argentina’s Neuquen province, home to the Vaca Muerta, is currently nearly saturated, but several projects are due to come online in the short term. These include Vaca Muerta Norte, which will help lift exports to Chile, as well as the Oldelval Duplicar and Vaca Muerta Sur pipelines, both of which run to the Atlantic Coast. If these projects materialize as announced, Neuquen should have >1 MMbpd evacuation capacity by 2026. On the gas side, the first stage of the Nestor Kirchner pipeline was commissioned in July 2023, adding 11 MMcmd of gas infrastructure capacity less than 12 months after construction started. The second phase, expected to cost $1.9bn, aims to lift Nestor Kirchner pipeline’s takeaway capacity to 39 MMcmd.

Argentina’s state-owned YPF is at the forefront of developing the country’s prolific Vaca Muerta shale reserves. Of course, the company’s future course of action depends on an updated mandate from the new government, but YPF’s current plans target capex of $5-6bn/year through 2027, with 2024 likely in that range as well. See Exhibit 57. Of note, YPF’s LTM capex in 3Q23 was $5.2bn, which was up 25% YoY. The company’s upstream investment is focused on unconventional assets, primarily in the Vaca Muerta. Roughly 52% of YPF’s total O&G output of ~510 Mboepd is unconventional, with ~230 Mboepd of shale and ~40 Mboepd of tight production. Note that YPF’s medium term targets/5 yr. outlook for upstream include oil production ~2x and natural gas production about +30%.

Exhibit 56: Vaca Muerta crude oil production, Jan '16 – Sep '23
Vaca Muerta oil production has doubled in the last 2-2.5 years



Source: Rystad

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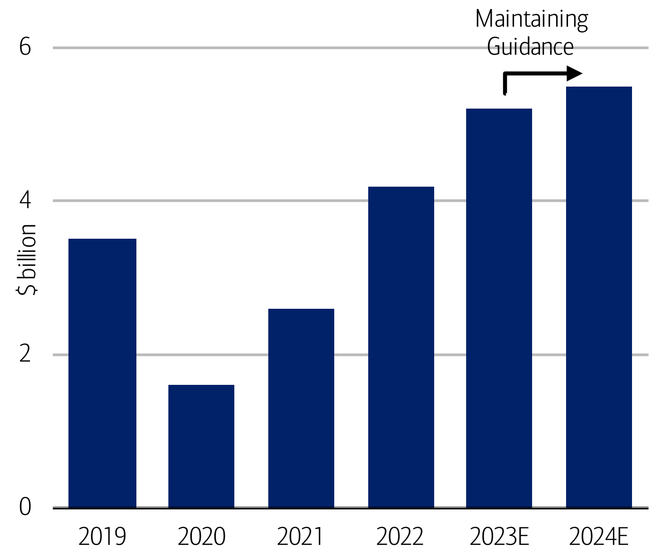
Exhibit 57: YPF Total Capex 2019-2024E
YPF has maintained guidance of $5-6bn/year in capex through 2027



Source: YPF, BofA Global Research

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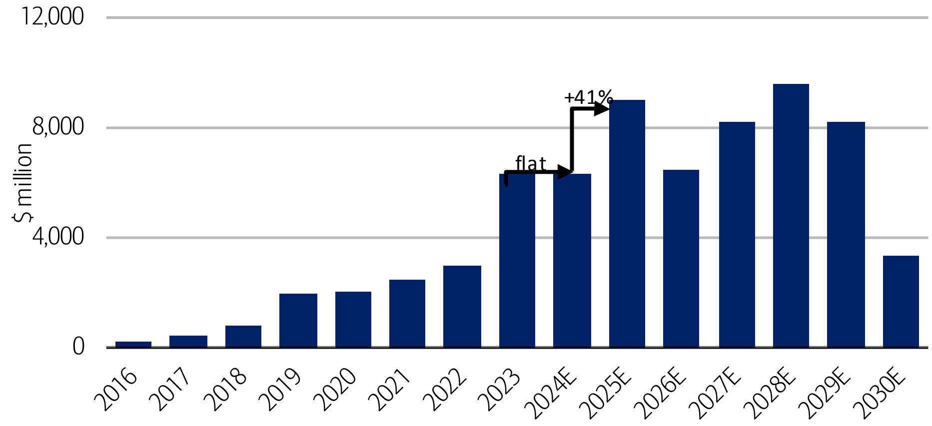
(E) Guyana

Guyana's upstream outlook is linked to Exxon's continued development of its massive successive discoveries in the world class deepwater Stabroek block. Exxon started up its 3rd major development at Payara in Nov '23 with the Prosperity FPSO. It is now ramping up production and expects to reach 220,000 gross bpd over 1H24 with new wells coming online. The company has reached a combined operating production level of >380,000 gross bpd on Liza Phase 1+2 with line of sight to getting to 400,000 gross bpd. Exxon is progressing its fourth (Yellowtail, FID'd in Aug 2022) and fifth (Uaru, FID'd in April 2023) projects with each expected to initially produce ~250,000 bpd. It is currently working with government of Guyana for regulatory approval for a sixth project (Whiptail), with FID expected later this year. Exxon will have a combined gross production capacity of >1.2 MMbpd by YE27 when all six projects/FPSOs come on-line. Note that Exxon has said that discovered resources to date underpin up to 10 FPSOs, suggesting years of strong upstream spending in the country.

Woodmac data suggests Guyana Stabroek block capex likely more than doubled YoY to an estimated $6.3bn in 2023. Note that this is based on Woodmac's estimated project phasing and real spending can move around. Looking forward, Woodmac's data suggests Stabroek capex is likely flattish YoY in 2024 and +41% YoY in 2025. See Exhibit 58. We don't focus too much on the exact numbers as annual capex $ numbers are merely the allocation of estimated total project costs into specific years, which is often tricky. But the overall estimated capex trajectory supports the idea that Guyana upstream spending likely continues to grow very strongly over the next couple of years and can stay strong beyond that as Exxon continues to advance future developments in the prolific block.

Exhibit 58: Guyana Stabroek Block Capex 2016-2030E

Guyana Stabroek capex flat into '24E but up 41% YoY in '25E



Source: Wood Mackenzie, BofA Global Research

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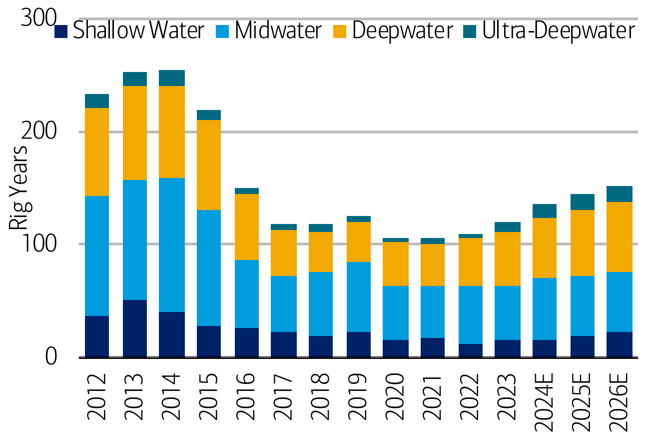
[7.] Floater S/D air pocket amidst a pause in new contracts

The strong increase in offshore FIDs has also reflected in steadily increasing demand for floating offshore rigs. Rystad data suggests there were 120 average floaters on contract in 2023, including 124 contracted floating rigs in Dec '23. Marketed floater utilization was 74% in 2023 (76% in Dec '23). Current offshore pipeline suggests floater demand can grow to 136/145 rigs in 2024E/25E. See Exhibit 59. Note that this demand forecast is based on bottoms up project pipeline and changes in project phasing can move rig demand across time periods. On the supply side, more stranded newbuilds are finding home with the contract drillers, and cold stacked rigs are being reactivated to meet the expected demand. An estimated 10 floaters are expected to enter the market in each of 2024 and 2025, per Rystad. This is likely to result in utilization improving at a slower pace going forward, with marketed utilization growing from 76% in Dec '23 to 79% in 2024 and 81% in 2025. See Exhibit 60.

The robust increase in contracted floater demand over 2021-23, coupled with strong contract driller discipline, has reflected in drillship dayrates now averaging in the high-$400Ks and average semisubmersible dayrates in the mid/high-$300Ks. See Exhibit 63. This increase in dayrates on new fixtures is also accompanied by longer start-up lead times and relatively longer contract duration, which is positive for contract drillers, as well as rig equipment suppliers like NOV. See Exhibit 61. Of note for NOV, longer rig contracts extend visibility of strong FCF for the drillers, allowing them more comfort in buying new/upgraded equipment.

Looking forward, we note that 20%/53% of the expected 2024/25 floater demand is currently uncontracted. This is not too dissimilar to prior years. However, new fixtures seemed to have slowed materially in the later months of 2023, with only 19 floating rig-years' worth of contracts signed in 4Q23, down 41% from 3Q23 and down 53% from 4Q22. We note that some of the 4Q slowdown is seasonal, however, the steep rise in uncontracted floaters through the course of 2024 has many investors questioning the sustainability of recent high-$400Ks dayrate drillship fixtures. At this stage, we do not expect a big reversal in leading edge floater (particularly drillship) dayrates, however, we believe it is increasingly tough for drillship dayrates to sustainably push above $500K threshold, which was considered a given for the industry only a few months ago. Of note, RIG on its 3Q23 call said – "our customers are violently opposed to any day rate that starts with a $5-handle at this point." RIG further said that "$500K has kind of become the new ceiling for our customers, that they don't want to see any of us push through that number and they certainly don't want to be the first to agree to a contract of that day rate."

Exhibit 59: Floating Rig demand by water depth, 2012-26E
Floating rig demand has risen in 2022-23 but remains well below prior peak



Source: Rystad

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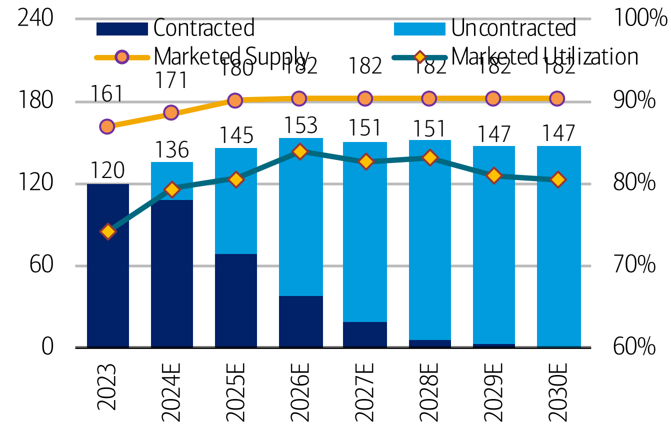
Exhibit 60: Floater Supply/Demand and Marketed Utilization
Floating rig demand growth being met with incremental marketed supply



Source: Rystad

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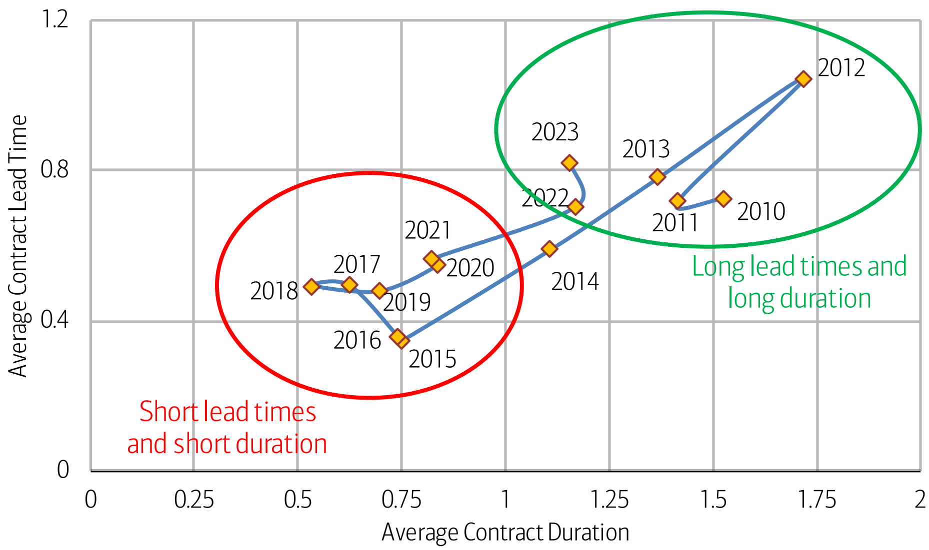
Exhibit 61: Global lead time and contract duration of new floater contracts
Average floater contract duration as well as lead time in 2023 is now the highest since 2014



Source: Rystad

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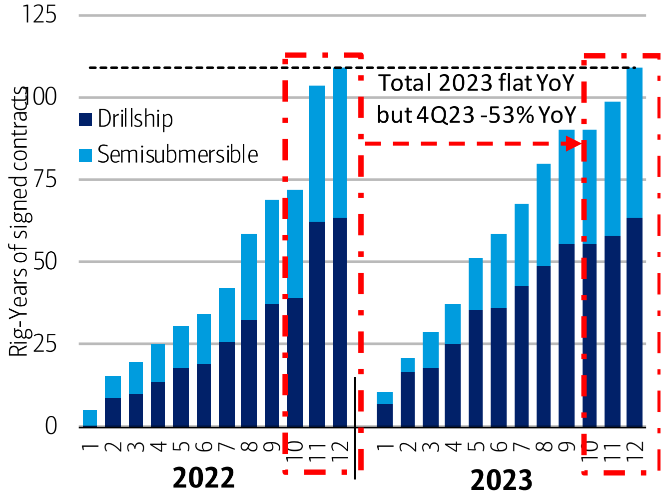
Exhibit 62: Cumulative floater contracts signed in 2023 vs 2022

Annual contracted rig-years were flat YoY in '23 but momentum stalled close to YE with floater rig years contracted in 4Q23 down 53% from 4Q22



Source: Rystad

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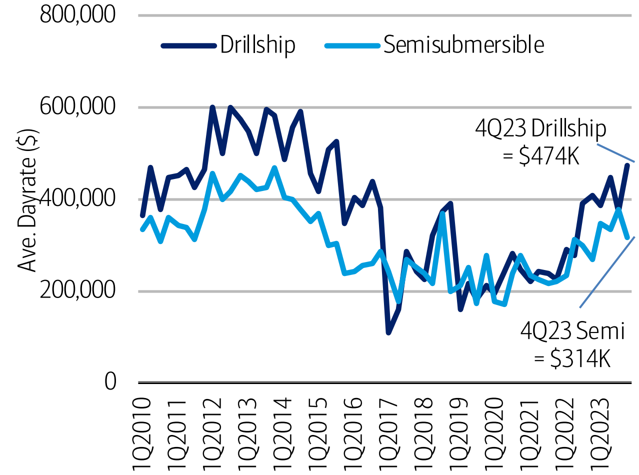
Exhibit 63: Global floater rig rates by fixture date, 1Q10-4Q23

Floater dayrates have risen quickly with drillships now averaging in the high-$400Ks and semisubmersibles now averaging in the mid/upper-$300Ks



Source: Rystad

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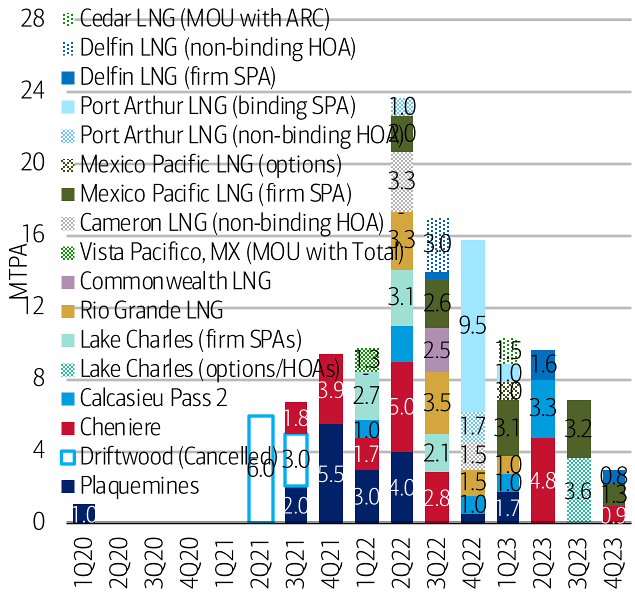
[8.] NAM LNG contracting slows, total FIDs likely flat YoY

LNG emerged as a secular positive theme after the start of the Russia/Ukraine crisis in early 2022. This was/is based on the relatively "green" credentials of natural gas relative to oil (and coal), and its key role in energy security for resource scarce regions, including Europe and East/South Asia. North America, and particularly the US has emerged as the clearest beneficiary of this LNG opportunity due to its – (1) large natural gas resource base, (2) access to financing, (3) stable political/regulatory environment, (4) strategic alignment with Europe, and (5) strong pipeline of pre-FID projects. Outside of NAM/US, Qatar is another key beneficiary, which has locked in project partners for its 32 MTPA North Field East (NFE) expansion (after FID in 2022), and subsequently moved forward on its 16 MTPA North Field South (NFS) project (FID'd in April 2023).

Focusing on NAM, as shown in Exhibit 64, LNG contracting has slowed steadily from its post Russia/Ukraine spike in 2Q22. Our tally shows that only 9.8 MTPA of new US LNG was contracted in 2H23, down from 20 MTPA in 1H23. On a full year basis, 20 MTPA of NAM LNG was contracted in 2023, which is down 70% from the 66.1 MTPA signed up in 2022. This slowdown in contracting, coupled with a rapid increase in cost of debt amidst US Fed tightening, resulted in 55 MTPA worth of global LNG projects reaching FID in 2023, versus early-2023 expectation of 100+ MTPA. Key NAM projects reaching FID in 2023 included Venture Global's (VG) Plaquemines Phase 2, Sempra's Port Arthur Phase 1 and Next Decade's Rio Grande LNG.

Looking forward, we expect 60-65 MTPA worth of global LNG projects to reach FID in 2024. Of this, +/- 32 MTPA is in the US (VG's Calcasieu Pass 2, Commonwealth LNG and Cheniere's midscale Trains 8&9 at Corpus Christi Stage 3), 9 MTPA in Mexico (Mexico Pacific), 3 MTPA in Canada (Cedar LNG) and the remaining 17 MTPA in the Eastern Hemisphere (ADNOC's Ruwais, Total Papua LNG and Eni's Coral Norte). Note this 60-65 MTPA for 2024 includes 2 large projects where key contracts have already been awarded – (1) VG'S Global's Calcasieu Pass, and (2) ADNOC's Ruwais. Beyond out line of sight, we believe some small/FLNG projects may reach FID in Asia and Africa, as smaller regional countries try to monetize their otherwise stranded natural gas reserves. See Exhibit 65 and Exhibit 66.

Exhibit 64: North America LNG Contracting Momentum, 1Q20-Current
LNG contracting has ebbed as the mature LNG projects approach/achieve FID



Source: Wood Mackenzie, Company data, BofA Global Research estimates

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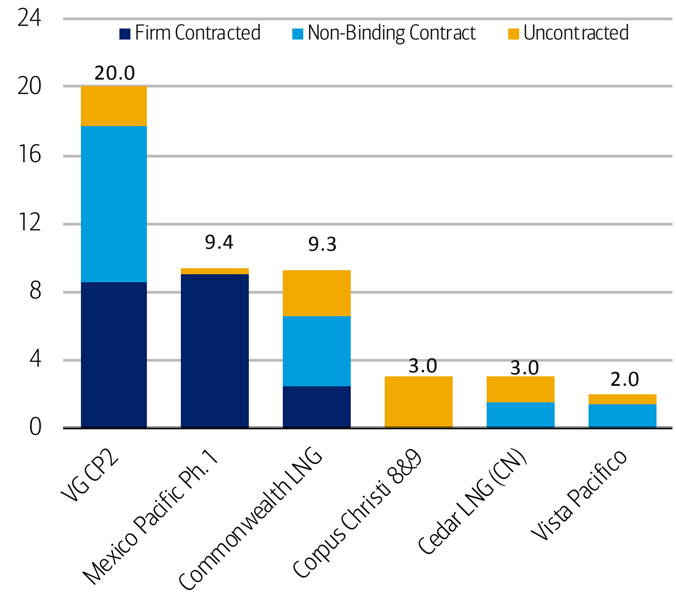
Exhibit 65: Actual and Expected 2023 North America LNG FIDs
20 MTPA has been FID'd YTD and we expect total 44 MTPA to be FID'd in '24



Source: Wood Mackenzie, Company data, BofA Global Research estimates

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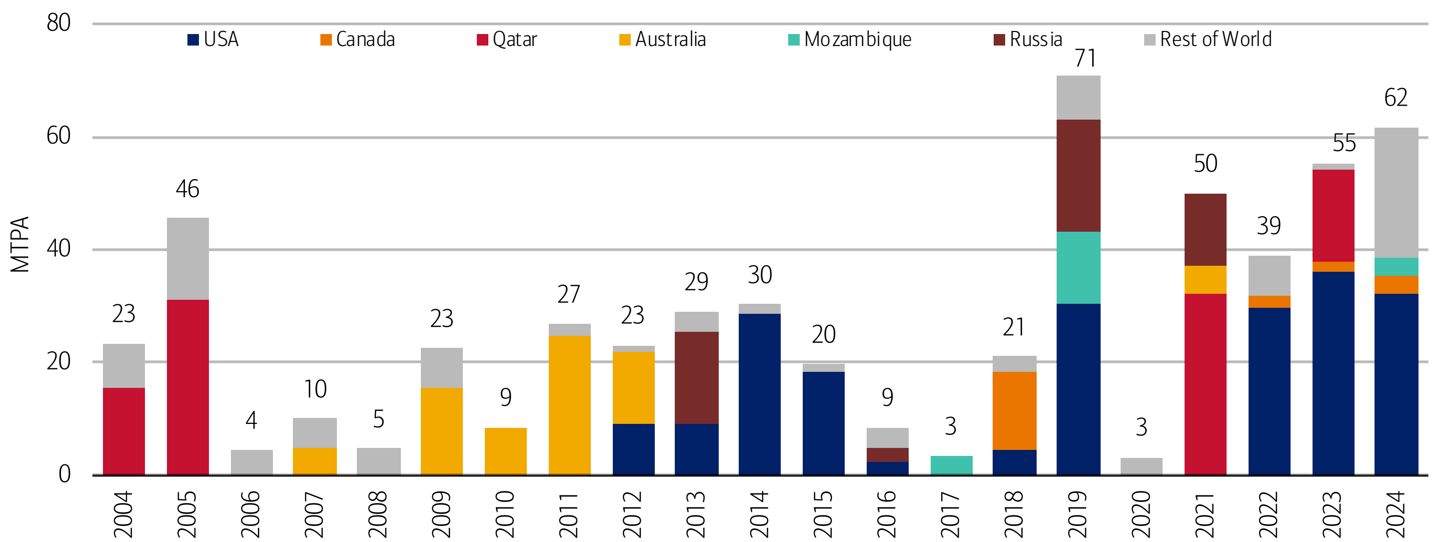
Exhibit 66: Global LNG FIDs from 2004-21 and BofA 2022-2024E
We believe 55 MTPA of LNG projects were FID'd in 2023 and we look for approximately 62 MTPA of new LNG projects to be FID'd in 2024 globally



Source: Wood Mackenzie, Company data, BofA Global Research estimates

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[9.] US Land tops OFS in returning cash to shareholders

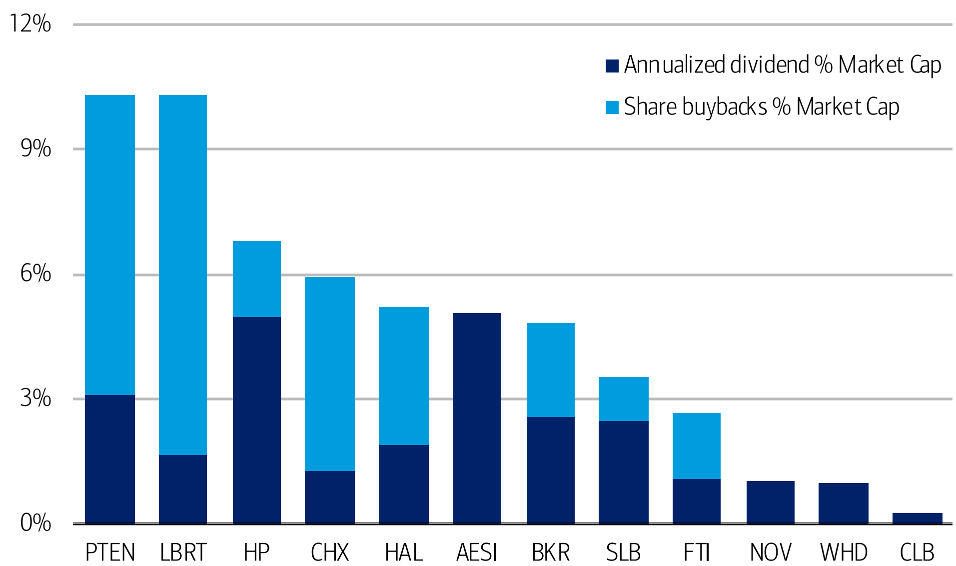
As Oil & Gas continues to mature as an industry, and capital discipline becomes the new norm, investors increasingly look for companies to return more capital to shareholders in the form of cash dividends and share buybacks. After quickly 1) repairing their Balance Sheets, and (2) investing in equipment upgrades & reactivations in the first years (2021-22) of the post-COVID recovery, NAM OFS companies started returning a meaningful amount of cash to shareholders in 2023. While NAM OFS continues to invest in new technology, like electric frac fleets, very strong EBITDA margins and falling working capital requirement (as activity growth stalls/reverses) is yielding strong FCF generation and an ability to return more of it to shareholders. Meanwhile, International & Offshore

OFS, which is in the midst of a strong activity recovery, is investing relatively more in working capital and has lesser cash to return to shareholders. However, large-cap OFS is spending a lot less in capex this cycle versus prior cycles, and SLB (≥50% of FCF), BKR (60-80% of FCF) and HAL (≥50% of FCF) have all promised to return at least half of their FCF to shareholders via dividends and buybacks.

We expect PTEN and LBRT to return the highest cash to shareholders as a % of their market capitalization in 2024. We think both can return +/- 10% of their market-cap to shareholders in 2024. For PTEN, we note that management has committed to return at least 50% of the company's FCF to shareholders. In fact, PTEN returned $108mm to shareholders in 4Q23, of which $75mm was in buybacks, amounting to total annualized cash return (dividend + buybacks) to shareholders of 10% of its YE23 market-cap. LBRT, on the other hand, has not announced a formulaic cash return plan but has a $0.07/share quarterly dividend (1.6% annualized yield) and a $500mm buyback (of which, $211mm was available at the end of 3Q23) plan in place. Note LBRT is taking an opportunistic approach to share buybacks – it repurchased 1.8mm shares at an average price of $16.40 per share in 3Q23, which was meaningfully less than the 5.2mm/4.7mm shares it repurchased at an average price of $14.45/$12.73 in 1Q/2Q23.

After PTEN and LBRT, HP ranks third in expected total cash return to shareholders in 2023. Interestingly, HP ranks first in cash dividend yield with $0.25/share in base dividend and $0.17/share in supplemental dividend for FY24 (FY ends September). HP is followed by CHX and HAL, which have promised to return at least 60% and at least 50%, respectively, of their FCF to shareholders. Note CHX returned 76% of its FCF to shareholders in 9M23 while HAL returned 73% of its 9M23 FCF to shareholders in 9M23. Of the 16 companies in our coverage, GTLS, WFRD and ACDC do not have a shareholder return plan. While GTLS and ACDC are focused on deleveraging, and thus are unlikely to return cash to shareholders in 2024, we think WFRD would be in a position to initiate a dividend by around mid-2024 as it pays down the $249mm outstanding on its total $500mm 6.50% senior secured notes due 2028.

Exhibit 67: BofA 2024E Company Capital Returns as % of Current Market Capitalization
We see US Land OFS companies led by PTEN, LBRT and HP returning the most capital to shareholders



Source: Company reports, Bloomberg, BofA Global Research

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[10.] Year 4 in "multi-year" recovery=multiple compression

Amidst solemn pledges of capital discipline in corporate O&G, and "do what it takes" proactive approach to managing oil price from OPEC+, the current cyclical recovery has been very commonly been characterized as a "multi-year" recovery. For context, 2010s were characterized by the shale revolution in the US, which dramatically increased the volume of short-cycle oil and gas resource available to the market. The "drill baby drill" approach of the 2010s led to US shale flooding the global oil market resulting in two industry downturns – 2015-16 and 2018-19 within a span of 4 years. Just as the US shale industry started to pledged capital discipline in 2019, the world was hit by the COVID-19 pandemic, which presented unprecedented challenges for the industry.

Coming out of COVID-19, the O&G industry even better appreciated the need for capital discipline and avoiding overproduction in a slower oil demand growth environment with a persistent "energy transition" overhang. However, while the public E&Ps have been constraining growth even in the face of strong returns at current oil prices, private E&Ps really accelerated activity in 2022 after the start of the Russia/Ukraine crisis pushed oil prices to well above $100/bbl. However, as oil (and gas) prices came down from those peaks, and service costs quickly increased (and have since roughly stayed there), Private E&Ps at the end of 2022 started pivoting to lower activity, in large part to preserve their proved undeveloped (PUD) inventory for potential M&A. Thus, US rig count fell 21% from its Nov '22 peak to Nov '23 recent trough. Meanwhile, service companies pledged to hold pricing at their late-2022/early-2023 peak level arguing for the need for them to generate healthy returns (following their customers in the pursuit of capital discipline).

Meanwhile, OPEC, led by Saudi Arabia and UAE, and including several other MENA countries, announced their intent to expand production capacity, including for gas, and started ramping up capex spending for strategic long term growth projects (most of that spending looks set to peak around 2025-26 timeframe). The newfound focus on "energy security," and the urgency amongst resource rich developing countries (mostly in Latin America, Africa and to a lesser extent Asia) to monetize their significant hydrocarbon resource base before "energy transition" really starts to hurt global O&G demand, is also leading to significant growth in upstream investment outside of the MENA region.

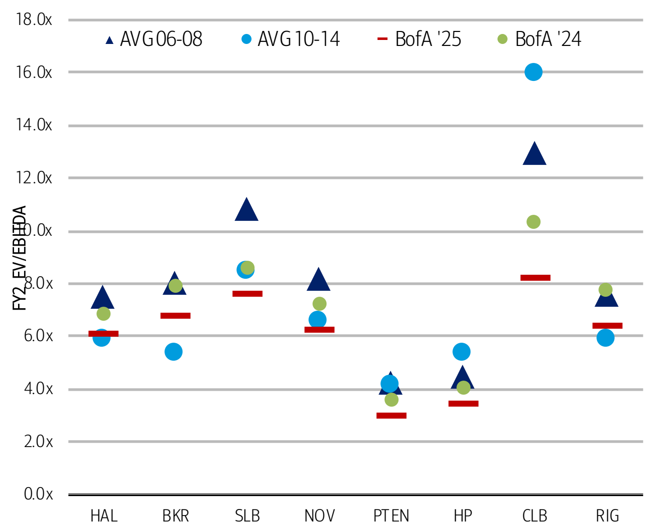
Amidst slowing global oil demand growth, it seems to us now that – (1) NAM/US activity is likely to be range bound over the next 2-3 years, (2) INTL/Offshore growth would start to slow in 2024+ and likely start to peak around the 2025-26 timeframe. All of this assumes US tight oil production growth slows materially through 2024 and the industry avoids a renewed price war between OPEC+ & US shale. For NAM OFS, this means two things – (1) service pricing in US shale is at a peak – it can stay there for some time but is unlikely to move up in a rangebound US activity scenario, (2) increasing E&P focus on efficiencies in an effort to do "more with less" would continue to drive demand for new technologies, keeping capex elevated while hastening retirement of legacy equipment. Both of these suggests NAM OFS is at/near peak earnings, which means below average multiples on forward earnings. Lack of organic growth incentivizes NAM OFS to pursue more M&A, or look for organic growth outside their home NAM markets. As an example of the latter, HP has been investing significant capital to find growth in Int'l markets in the Middle East and Australia; LBRT has also followed HP in moving 1 of its frac fleet to Australia to work for the same customer as HP. Thus, we are likely to see a prolonged period of below average multiples, and high FCF yield for NAM OFS companies.

Even in International and Offshore OFS, where demand continues to grow and revenue and margins are likely to keep expanding at least through 2025 (and likely through 2026), with 2025 now "Forward Year (FY) 2" for many investors, we suspect multiples would start to compress as "peak earnings" conversations start to pick up. That said, we think recent commodity macro malaise and recent sell-off in O&G / OFS stocks has created an attractive entry point in INTL/Offshore-levered OFS, where we see at least 2 (and maybe 3) years of strong earnings growth and FCF expansion. But we would caution investors against putting average FY2 multiples on more likely peak-ish 2025 earnings power.

In summary, despite NAM upstream spending very likely declining in 2024, global D&C capex is now entering its 4th consecutive year of a much touted "multi-year" recovery. While NAM is likely rangebound, the best in International & Offshore is clearly yet to come. But with every passing year, OFS is getting closer to a cyclical peak, especially as strategic multi-year growth projects start to really enter their execution phase in 2024-25. As shown in Exhibit 68, with large majority of OFS stocks trading below prior cycle FY2 multiples, there is room for stocks to move back up as the macro stabilizes, but we do not think stocks necessarily have to go back to trading at 2006-08 average multiples. In other words, recent pullback has created attractive buying opportunity, but multiples likely start to compress, and stocks may struggle to surpass 2023 peaks in 2024.

Exhibit 68: OFS EV/FY2 EBITDA Current vs Prior Cycles

SLB and NOV look attractively valued on an EV / FY2 EBITDA basis

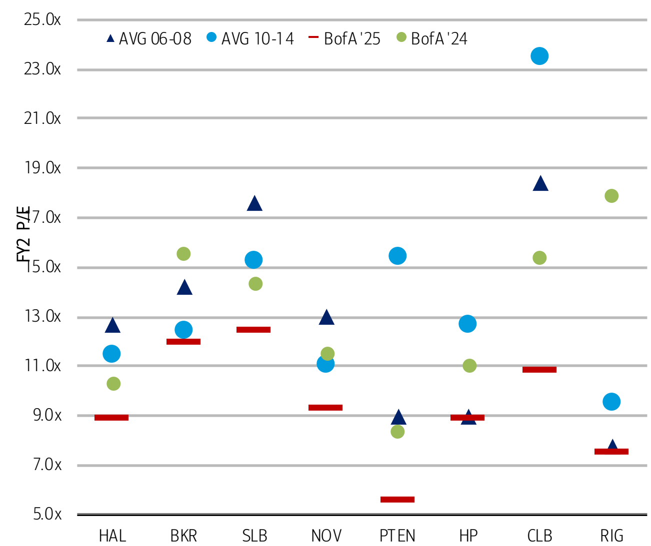


Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 69: OFS FY2 P/E Current vs Prior Cycles

SLB, HAL and PTEN look attractively valued on an FY2 P/E basis



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Explanation for PO changes:

ACDC: We lower our DCF-based PO to $8.50 (from $10.50) on 10% lower EBITDA in 2025E, and modestly lower out year (2026-30) estimates, partially offset by lower WACC on lower risk free rate

AESI: We lower our DCF-based PO to $20 (from $24) on 19%/8% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

CHX: We lower our DCF-based PO to $34.00 (from $37.50) on 9%/9% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

CLB: We lower our DCF-based PO to $17 (from $21) on 5%/3% lower EBITDA in 2024E/25E, and modestly lower out year (2026-30) estimates, partially offset by lower WACC on lower risk free rate.

HAL: We lower our DCF-based PO to $43 (from $47) on 1%/5% lower EBITDA in 2024E/25E, and modestly lower out year (2026-30) estimates, partially offset by lower WACC on lower risk free rate.

HP: We lower our DCF-based PO to $39 (from $48) on 7%/11% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

LBRT: We lower our DCF-based PO to $19.00 (from $22.50) on 7%/1% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

PTEN: We lower our DCF-based PO to $14.50 (from $16.00) on 13%/15% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

RIG: We lower our DCF-based PO to $5.50 (from $6.00) on modestly lower out year (2026-30) estimates, partially offset by lower WACC on lower risk free rate.

SLB: We lower our DCF-based PO to $62 (from $66) on 1%/1% lower EBITDA in 2024E/25E, and modestly lower out year (2026-30) estimates, partially offset by lower WACC on lower risk free rate.

WHD: We lower our DCF-based PO to $40 (from $47) on 8%/4% lower EBITDA in 2024E/25E, partially offset by lower WACC on lower risk free rate.

Abbreviations

ACDC: Profrac
AESI: Atlas Energy Solutions
Bbl: barrel
BCF/d: billion cubic feet per day
BKR: Baker Hughes Co.
Bn: billion
Capex: capital expenditures
CHK: Chesapeake Energy Corporation
CHX: ChampionX Corp
CLB: Core Laboratories
D&C: drilling and completion
DCF: discounted cash flow
DUC: drilled uncompleted
E&P: exploration and production
EBITDA: earnings before interest, depreciation, and appreciation
EPCI: Engineering, Procurement, Construction and Installation
ESG: environmental, social, and governance
FCF: free cash flow
FID: final investment decision
FPSO: Floating Production Storage and Offloading
FTI: TechnipFMC
GTLS: Chart Industries
HAL: Halliburton
HHP: hydraulic horsepower
HP: Helmerich & Payne
Hz: horizontal
IDR: Issuer default rating
Intl: international
LBRT: Liberty Energy
LNG: liquefied natural gas
LTM: last twelve months
M&A: mergers and acquisitions
Mboepd: thousand barrels of oil equivalent per day
Mbpd: thousand barrels per day
Mm: million
MMbpd: million barrels per day
MMcmd: million cubic meters per day
MSC: maximum sustainable capacity
MTPA: million tonnes per annum
NAM: North American
NFE: North Field East
NFS: North Field South
NOC: national oil companies
NOV: NOV Inc.
NPV: net present value
O&G: oil and gas
OALP: Open Acreage and Licensing Policy
OFS: oilfield services
OIH: VanEck Oil Service ETF
ONGC: Oil & Natural Gas Corporation
OSX: Oil service sector index
OVV: Ovintiv
OXY: Occidental Petroleum Corporation
PO: price objective
PTEN: Patterson-UTI Energy
Pud: proved undeveloped
RIG: Transocean
UAE: United Arab Emirates
US L48: United States Lower 48
WACC: weighted average cost of capital
WFRD: Weatherford
WHD: Cactus Wellhead
XLE: Energy Select Sector SPDR Fund
XOM: Exxon Mobil
YE: year end
YoY: year over year
YTD: year to date

Investment Rationale

Weatherford International
We have a Buy rating on WFRD as we see upside from (1) continued revenue & margin expansion led by Int'l markets, (2) Balance Sheet optimization, (3) our expectation of WFRD initiating shareholder distributions in 2H24, and (4) expiration on December 13, 2023 of 7.78mm warrants [$99.96 exercise price] worth 10.5% of current diluted share count

Price objective basis & risk

Atlas Energy Solutions (AESI)
Our PO of $20 is derived from our discounted cash flow valuation, which we believe is a better method to value AESI vs. EV/EBITDA given AESI's many pending growth projects scheduled to come online from 4Q23-4Q24. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, & assume a terminal growth of -3% due to potential disruptions from the energy transition. We use a 11.5% WACC to account for execution risk on AESI's first-of-its-kind "Dune Express" frac sand conveyor.

Downside risks to our price objective are: 1) global macroeconomic weakness, 2) O&G price weakness, 3) low barriers to entry & risk of oversupply in frac sand, 4) potential acceleration in adoption of hyper-local mobile frac sand mines, 5) unforeseen technical & commercial risks related to the Dune Express, leading to cost escalation, significant delays in its in-service date and/or higher than expected opex & maintenance capex.

Baker Hughes Co. (BKR)
Our PO of $39.00 is derived from our discounted cash flow valuation, which we believe is a better method to value BKR than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth rate of -0.5% due to potential disruptions from the energy transition while using a 6.4% WACC.

Risks to our price objective are global economic weakness, weaker O&G prices, reduced upstream capital spending, changes to fiscal & royalty regimes in countries where BKR operates or may operate, geopolitical upheavals, oversupply, technical and operational issues. The company-specific risk is that increasing competition in international markets may permanently result in lower margins, returns and ultimately valuation premium.

Cactus Inc. (WHD)
Our PO of $40.00 is derived from our discounted cash flow valuation, which we believe is a better method to value WHD than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -2% due to potential disruptions from the energy transition while using a 8.2% WACC.

Downside risks to our PO are: 1) weaker O&G prices, 2) increased E&P capital discipline, 3) regulatory risk, as greater restrictions on drilling or fracturing operations would hurt WHD's operations, 4) new entrants & market share loss, 5) technical and operational issues, 6) potential sale of shares from majority holders, 7) global economic weakness.

Upside risks are: 1) O&G price increases ramping E&P capex higher, 2) faster than expected market share gains and non-completions market penetration in Spoolables, (3) faster than expected International expansion in Pressure Control

ChampionX Corp. (CHX)
Our PO of $34.00 is derived from our discounted cash flow valuation, which we believe is a better method to value CHX than EV/EBITDA in these market conditions.We forecast

earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -1% due to potential disruptions from the energy transition while using a 8.1% WACC.

Downside risks to our price objective are 1) global economic weakness, 2) lower O&G prices, 3) slower Int'l growth, 4) market share loss, 5) technical & operational issues.

Chart Industries (GTLS)
Our PO of $175.00 is derived from our discounted cash flow valuation, which we believe is a better method to value GTLS than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we think represents a period of generally growing FCF. After which, we then forecast a terminal growth rate of 2.125% given good growth potential from the energy transition while using a 8.3% weighted average cost of capital (WACC).

Risks to our price objective are global economic weakness, slower LNG demand growth, lower upstream capex for natural gas, changes to regulatory regime in countries where GTLS operates, geopolitical upheaval, oversupply, technical and operational issues. The company-specific risk is that increasing competition in international markets may permanently result in lower margins, returns and ultimately valuation premium.

Core Laboratories (CLB)
Our PO of $17.00 is derived from our discounted cash flow valuation, which we believe is a better method to value CLB than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -2.0% due to potential disruptions from the energy transition while using an 7.6% WACC.

Upside risks are: 1) stronger O&G prices, 2) continued push for energy security opening new greenfield basins for exploration/development, 3) tightening market in perforation products in NAM, 4) cost deflation, 5) stronger global economy.

Halliburton Company (HAL)
Our PO of $43.00 is derived from our discounted cash flow valuation, which we believe is a better method to value HAL than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -2.0% due to potential disruptions from the energy transition while using a 6.8% WACC.

Risks to our price objective are global economic weakness, lower O&G prices, reduced upstream spending, regulatory changes, oversupply and technical and operational issues. Company-specific risk is increasing competition in its markets that may permanently result in lower margins, returns and, ultimately valuation premium.

Helmerich & Payne (HP)
Our PO of $39.00 is derived from our discounted cash flow valuation, which we believe is a better method to value HP than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -3% due to potential disruptions from the energy transition while using a 7.5% WACC.

Downside risks to our price objective are 1) slower than expected recovery in US Land rig count, (2) weaker O&G prices, (3) market share loss, (4) operational challenges, (5) risk to paying its supplemental dividend if O&G price falters, pressuring US rig activity.

Liberty Energy (LBRT)

Our PO of $19 is derived from our discounted cash flow valuation, which we believe is a better method to value LBRT than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -3% due to potential disruptions from the energy transition while using a 7.7% WACC.

Downside risks to our price objective are: 1) lower O&G prices, 2) aggressive pricing from its competitors leading to weaker pricing power, 3) technical & operational issues, 4) new entrants, 5) market share loss, 6) cost inflation from labor/logistical bottlenecks.

Upside risks to our price objective are 1) higher O&G prices, 2) tighter Pressure Pumping S/D balance and higher pricing in 2024, 3) market share gain on new electric fleets, 4) FCF/share accretive acquisitions, 5) cost deflation.

NOV Inc. (NOV)

Our PO of $24.00 is derived from our discounted cash flow valuation, which we believe is a better method to value NOV than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal decline of -2.0% due to potential disruptions from the energy transition while using a 6.5% weighted-average cost of capital.

Downside risks are 1) slower than expected recovery in Int'l & Offshore activity, 2) increased E&P capital discipline, 3) regulatory risk, 4) new entrants and market share loss, 5) technical and operational issues.

Patterson-UTI Energy (PTEN)

Our PO of $14.50 is derived from our discounted cash flow valuation, which we believe is a better method to value PTEN than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -3.0% due to potential disruptions from the energy transition while using an 9.1% WACC.

Downside risks to our price objective are 1) slower than expected recovery in US Land drilling activity, 2) weaker than expected US pressure pumping S/D balance and pricing, 3) management't inability in efficiently integrating recent Nextier & Ulterra acquisitions, 4) lower than the expected $200mm synergy with NEX, 5) higher than expected capex.

ProFrac (ACDC)

Our PO of $8.50 is derived from our discounted cash flow valuation, which we believe is a better method to value PFHC than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth rate of -3% (in-line with Pressure Pumping peers LBRT and NEX) due to potential disruptions from the energy transition while using a 10.3% WACC.

Downside risks to our price objective are 1) lower O&G prices, 2) increased competition from new entrants weakening pricing power, 3) oversupply of existing & potentially new capacity, 4) potential breach of leverage ratio covenant, 5) technical/operational issues.

Upside risks to our price objective are 1) higher O&G prices, 2) higher than expected market discipline from existing competitors preserving pricing power, (4) improvement in FCF generation allowing for faster deleveraging, 5) cost deflation.

SLB (SLB)

Our PO of $62.00 is derived from our discounted cash flow valuation, which we believe is a better method to value SLB than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -1.0% due to potential disruptions from the energy transition while using a 6.3% WACC.

Risks to our price objective are global economic weakness, lower O&G prices, reduced upstream capex, regulatory changes, geopolitical upheaval given a global presence, oversupply, technical and operational issues. The company-specific risk is that increasing competition in international markets may permanently result in lower margins, returns and ultimately valuation premium.

TechnipFMC plc (FTI)

Our PO of $23.00 is derived from our discounted cash flow valuation, which we believe is a better method to value FTI than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -4.0% due to potential disruptions from the energy transition while using a 7.0% WACC.

Downside risks to our price objective are 1) global economic weakness, 2) slower-than-expected O&G demand growth, 3) reduced upstream capex & thus lower subsea awards for FTI, 4) slower than expected operating leverage from adoption of Subsea 2.0/CTO model, 5) IOCs/E&Ps continuing to restrict capex and diverting more of it to energy transition projects, 6) competition, 7) technology evolution, & 8) geopolitical disruptions.

Transocean (RIG)

Our $5.50/share 12-month price objective (PO) is based on DCF analysis that includes a WACC of about 8.0% and terminal decline, starting in 2030, of 4%.

Downside risks to our price objective are: global economic weakness, slower oil and gas demand growth, reduced upstream capital spending, regulatory changes, geopolitical upheaval given a global presence, and overcapacity in the offshore rig market.

Upside risks to our price objective are: an unexpected US shale growth slowdown leads to higher offshore demand, faster oil and gas demand growth than anticipated, increased offshore capital spending, and higher than anticipated offshore dayrates.

Weatherford International (WFRD)

Our PO of $120.00 is derived from our discounted cash flow valuation, which better method to value WFRD than EV/EBITDA in these market conditions. We forecast earnings & cash flow through 2030, which we believe is the limit of market recognition, and then forecast a terminal growth of -2.0% due to potential disruptions from the energy transition while using a 7.3% WACC.

Risks to our price objective are (1) WFRD likely did not invest much in itself since emerging from Ch. 11 bankruptcy in December 2019, and may have to significantly lift spending on organizational infrastructure, potentially hurting profitability and FCF, (2) WFRD may be forced to unwind its Russia business, which was 6% of 9M23 revenue, (3) still high gross debt and related restrictions on shareholder distributions, (4) faster than expected global transition away from O&G hurting demand for WFRD's products, and (5) any near term macroeconomic weakness hurting O&G demand and pricing

Analyst Certification

I, Saurabh Pant, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Oil Services and Equipment Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
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	Atlas Energy Solutions	AESI	AESI US	Saurabh Pant
	Baker Hughes Co.	BKR	BKR US	Saurabh Pant
	ChampionX Corp.	CHX	CHX US	Saurabh Pant
	Chart Industries	GTLS	GTLS US	Saurabh Pant
	Halliburton Company	HAL	HAL US	Saurabh Pant
	Helmerich & Payne	HP	HP US	Saurabh Pant
	NOV Inc.	NOV	NOV US	Saurabh Pant
	Patterson-UTI Energy	PTEN	PTEN US	Saurabh Pant
	SLB	SLB	SLB US	Saurabh Pant
	TechnipFMC plc	FTI	FTI US	Saurabh Pant
	Weatherford International	WFRD	WFRD US	Saurabh Pant
NEUTRAL				
	Liberty Energy	LBRT	LBRT US	Saurabh Pant
	ProFrac	ACDC	ACDC US	Saurabh Pant
UNDERPERFORM				
	Cactus Inc.	WHD	WHD US	Saurabh Pant
	Core Laboratories	CLB	CLB US	Saurabh Pant
	Transocean	RIG	RIG US	Saurabh Pant

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Energy Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	83	61.48%	Buy	64	77.11%
Hold	28	20.74%	Hold	21	75.00%
Sell	24	17.78%	Sell	18	75.00%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

R1 Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster R2
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

R2 Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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