

Large integrated oil and gas producers provide compelling value at current energy prices

Capital discipline driving sustainable high dividends with positive free cashflow and reserve growth

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October 25th 2019

Carlyon AG

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New oil price equilibrium at 50% of 2014 levels has reset management strategies and oil majors now have attractive investment characteristics after 5 years of capex adjustments and severe sector underperformance. Over the same time period, shale output had an unprecedented boom funded by bond issuance. Capital discipline enforced by bond holders has marked the top of supply growth in 2018 and **forward oil and gas hedging by shale operators suggests shale output could contract within 18 months**.

Supply constraint has been driven by an allergic reaction to excessive production coupled with negative free cash-flow by small and medium operators. There is now some likelihood of an offset if energy demand weakness is triggered by a global slowdown. Capital discipline is also driving oil majors to have a more shareholder friendly approach with high and growing dividends, sustainable payout ratios and positive reserve growth whilst generating positive free cash-flow.

Energy weakest performing sector in 5 out of last 6 years

- Oil price reset from \$100 to \$50 per barrel starting mid 2014 on shale boom and OPEC breakdown
- Growth of renewables and alternative energy sources makes investors question 20 year cash-flow models
- Pension funds start underweighting conventional energy on ESG grounds
- Oil price fell 25% in past 12 months on global growth slowdown worries impacting 2019 results

Valuations now compelling at current energy price on basis of cash-flow per share and dividend per share

- Capital discipline of larger players positions producers to grow reserves while maintaining a sustainable FCF outcome
- Return to shareholders with yield of 4.9% with 67% payout ratios and 6% dividend growth p.a. since 2015
- Reserve growth +2.9% p.a. over last four years with an average WTI price of \$53 per barrel
- Oil futures out to 2030 indicate another decade with average \$53 per barrel
- Average reserve life 13.5 years for the oil and gas majors

Energy weakest performing sector in 5 out of last 6 years

Avg. Oil price (\$, WTI)	72.0	100.7	61.8	79.4	95.1	94.2	98.0	93.2	48.9	43.4	50.8	64.9	56.8
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	1H '19
ENRS	34.4%	CONS -15.4%	INFT 61.7%	REAL 32.3%	UTIL 19.9%	FINL 28.8%	COND 43.1%	REAL 30.2%	COND 10.1%	ENRS 27.4%	INFT 38.8%	HLTH 6.5%	INFT 27.1%
MATR	22.5%	HLTH -22.8%	MATR 48.8%	COND 27.7%	CONS 14.0%	COND 23.9%	HLTH 41.5%	UTIL 29.0%	HLTH 6.9%	TELS 23.5%	MATR 23.8%	UTIL 4.1%	COND 21.8%
UTIL	19.4%	UTIL -29.0%	COND 41.3%	INDU 26.7%	HLTH 12.7%	REAL 19.7%	INDU 40.7%	HLTH 25.3%	CONS 6.6%	FINL 22.8%	COND 23.0%	COND 0.8%	INDU 21.4%
INFT	16.3%	TELS -30.5%	REAL 27.1%	MATR 22.2%	REAL 11.4%	TELS 18.3%	FINL 35.6%	INFT 20.1%	INFT 5.9%	INDU 18.9%	FINL 22.2%	INFT -0.3%	REAL 20.4%
CONS	14.2%	COND -33.5%	S&P 26.5%	ENRS 20.5%	TELS 6.3%	HLTH 17.9%	S&P 32.4%	CONS 16.0%	REAL 4.7%	MATR 16.7%	HLTH 22.1%	REAL -2.2%	TELS 19.1%
INDU	12.0%	ENRS -34.9%	INDU 20.9%	TELS 19.0%	COND 6.1%	S&P 16.0%	INFT 28.4%	FINL 15.2%	TELS 3.4%	UTIL 16.3%	S&P 21.8%	S&P -4.4%	S&P 18.5%
TELS	11.9%	S&P -37.0%	HLTH 19.7%	S&P 15.1%	ENRS 4.7%	INDU 15.4%	CONS 26.1%	S&P 13.7%	S&P 1.4%	INFT 13.9%	INDU 21.0%	CONS -8.4%	MATR 17.3%
HLTH	7.2%	INDU -39.9%	FINL 17.2%	CONS 14.1%	INFT 2.4%	MATR 15.0%	MATR 25.8%	INDU 9.8%	FINL -1.5%	S&P 12.0%	CONS 13.5%	TELS -12.5%	FINL 17.2%
S&P	5.5%	REAL -42.3%	CONS 14.9%	FINL 12.1%	S&P 2.1%	INFT 14.8%	ENRS 25.1%	COND 9.7%	INDU -2.5%	COND 6.0%	UTIL 12.1%	FINL -13.0%	CONS 16.2%
COND	-13.2%	INFT -43.1%	ENRS 13.8%	INFT 10.2%	INDU -0.6%	CONS 10.8%	UTIL 13.2%	MATR 6.9%	UTIL -4.8%	CONS 5.4%	REAL 10.9%	INDU -13.3%	UTIL 14.7%
REAL	-17.9%	MATR -45.7%	UTIL 11.9%	UTIL 5.5%	MATR -9.6%	ENRS 4.6%	TELS 11.5%	TELS 3.0%	MATR -8.4%	REAL 3.4%	ENRS -1.0%	MATR -14.7%	ENRS 13.1%
FINL	-18.6%	FINL -55.3%	TELS 8.9%	HLTH 2.9%	FINL -17.1%	UTIL 1.3%	REAL 1.6%	ENRS -7.8%	ENRS -21.1%	HLTH -2.7%	TELS -1.3%	ENRS -18.1%	HLTH 8.1%

Energy

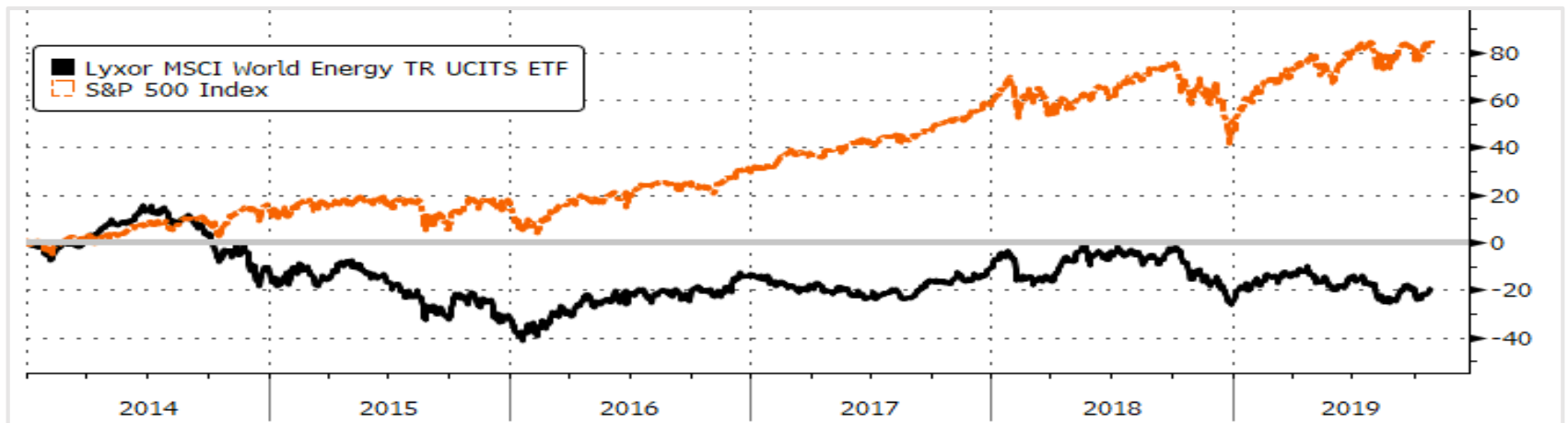
Source: www.novelinvestor.com

- Underperformance of Energy versus S&P 500 in 2014 – 2019 period by annually 11.6%p
- Underperformance of Energy versus MSCI World Value in 2014 – 2019 period by annually 9.9%p
- Correlation of 0.65 versus global equity indices

Major producers generating dividends, sustainable FCF's and growing reserves

World Energy ETF vs S&P 500 index metrics

	Weighted Dividend yield	Compound dividend growth (2015-2018)	Weighted dividend payout ratio	Weighted FCF yield	Dividend yield as a % of FCF yield	Weighted reserve growth (3 years)	Weighted reserve growth (4 years)
Average WTI oil price (\$)						56 USD	53 USD
Lyxor World Energy ETF	4.9%	6.1%	67.2%	6.0%	81.0%	4.7%	2.9%
S&P 500 Index	1.9%	7.4%	48.3%	4.2%	45.2%	n/a	n/a



Source: Bloomberg

MSCI world energy index weights and dividend yields

Name	Ticker	Index weight	Div. yield 2018 (%)
EXXON MOBIL CORP	XOM US Equity	14.0	5.0
CHEVRON CORP	CVX US Equity	10.6	4.1
BP PLC	BP/ LN Equity	6.1	6.5
ROYAL DUTCH SHELL PLC-A SHS	RDSA NA Equity	6.0	6.4
TOTAL SA	FP FP Equity	5.8	5.6
ROYAL DUTCH SHELL PLC-B SHS	RDSB LN Equity	5.1	6.5
ENBRIDGE INC	ENB CN Equity	3.5	6.1
CONOCOPHILLIPS	COP US Equity	3.1	2.2
PHILLIPS 66	PSX US Equity	2.3	3.2
TC ENERGY CORP	TRP CN Equity	2.3	4.3
SUNCOR ENERGY INC	SU CN Equity	2.2	4.1
SCHLUMBERGER LTD	SLB US Equity	2.1	6.4
KINDER MORGAN INC	KMI US Equity	2.0	4.4
MARATHON PETROLEUM CORP	MPC US Equity	2.0	3.3
EOG RESOURCES INC	EOG US Equity	1.9	1.4
ENI SPA	ENI IM Equity	1.9	6.1
OCCIDENTAL PETROLEUM CORP	OXY US Equity	1.8	7.6
VALERO ENERGY CORP	VLO US Equity	1.7	4.1
CANADIAN NATURAL RESOURCES	CNQ CN Equity	1.4	4.4
ONEOK INC	OKE US Equity	1.4	5.0
WILLIAMS COS INC	WMB US Equity	1.3	6.5
REPSOL SA	REP SM Equity	1.1	6.3
PIONEER NATURAL RESOURCES CO	PXD US Equity	1.1	1.4
WOODSIDE PETROLEUM LTD	WPL AU Equity	1.0	5.8
EQUINOR ASA	EQNR NO Equity	0.9	5.0
PEMBINA PIPELINE CORP	PPL CN Equity	0.9	4.9
HESS CORP	HES US Equity	0.9	1.5
HALLIBURTON CO	HAL US Equity	0.8	3.9
JXTG HOLDINGS INC	5020 JP Equity	0.7	4.4
CHENIERE ENERGY INC	LNG US Equity	0.7	-
BAKER HUGHES A GE CO	BHGE US Equity	0.7	3.3
NESTE OYJ	NESTE FH Equity	0.7	2.6
DIAMONDBACK ENERGY INC	FANG US Equity	0.6	0.8
CONCHO RESOURCES INC	CXO US Equity	0.6	0.6
TECHNIPFMC PLC	FTI FP Equity	0.5	2.2
NOBLE ENERGY INC	NBL US Equity	0.5	2.3

Name	Ticker	Index weight	Div. yield 2018 (%)
ORIGIN ENERGY LTD	ORG AU Equity	0.5	3.2
MARATHON OIL CORP	MRO US Equity	0.5	1.8
TARGA RESOURCES CORP	TRGP US Equity	0.4	9.4
SANTOS LTD	STO AU Equity	0.4	2.4
INPEX CORP	1605 JP Equity	0.4	2.8
DEVON ENERGY CORP	DVN US Equity	0.4	1.6
HOLLYFRONTIER CORP	HFC US Equity	0.4	2.5
CENOVUS ENERGY INC	CVE CN Equity	0.4	1.8
NATIONAL OILWELL VARCO INC	NOV US Equity	0.4	1.0
OMV AG	OMV AV Equity	0.4	3.5
APACHE CORP	APA US Equity	0.4	4.9
GALP ENERGIA SGPS SA	GALP PL Equity	0.4	4.9
CABOT OIL & GAS CORP	COG US Equity	0.4	1.8
INTER PIPELINE LTD	IPL CN Equity	0.3	7.7
IMPERIAL OIL LTD	IMO CN Equity	0.3	2.5
OIL SEARCH LTD	OSH AU Equity	0.3	2.8
LUNDIN PETROLEUM AB	LUPE SS Equity	0.3	3.5
IDEMITSU KOSAN CO LTD	5019 JP Equity	0.3	4.2
ENCANA CORP	ECA CN Equity	0.3	1.6
KEYERA CORP	KEY CN Equity	0.2	5.9
TENARIS SA	TEN IM Equity	0.2	3.9
PARSLEY ENERGY INC-CLASS A	PE US Equity	0.2	0.2
CIMAREX ENERGY CO	XEC US Equity	0.2	1.7
CALTEX AUSTRALIA LTD	CTX AU Equity	0.2	3.6
HELMERICH & PAYNE	HP US Equity	0.2	7.7
CAMECO CORP	CCO CN Equity	0.2	0.6
VOPAK	VPK NA Equity	0.2	2.3
PLAINS GP HOLDINGS LP-CL A	PAGP US Equity	0.2	6.6
WORLEYPARSONS LTD	WOR AU Equity	0.1	2.2
AKER BP ASA	AKERBP NO Equity	0.1	6.5
JOHN WOOD GROUP PLC	WG/ LN Equity	0.1	8.2
CONTINENTAL RESOURCES INC/OK	CLR US Equity	0.1	-
PRAIRIESKY ROYALTY LTD	PSK CN Equity	0.1	4.7
HUSKY ENERGY INC	HSE CN Equity	0.1	5.7
VERMILION ENERGY INC	VET CN Equity	0.1	14.0
TOURMALINE OIL CORP	TOU CN Equity	0.1	4.0
WASHINGTON H. SOUL PATTINSON	SOL AU Equity	0.1	2.7

Index constituents ranked by FCF yield

Name	FCF yield
PLAINS GP HOLDINGS LP-CL A	31%
AKER BP ASA	28%
JXTG HOLDINGS INC	20%
CANADIAN NATURAL RESOURCES	14%
HOLLYFRONTIER CORP	14%
SANTOS LTD	12%
PHILLIPS 66	12%
EQUINOR ASA	12%
ROYAL DUTCH SHELL PLC	11%
IDEMITSU KOSAN CO LTD	10%
ENI SPA	10%
OMV AG	10%
JOHN WOOD GROUP PLC	10%
WOODSIDE PETROLEUM LTD	9%
CAMECO CORP	9%
IMPERIAL OIL LTD	9%
CONOCOPHILLIPS	9%
MARATHON PETROLEUM CORP	8%
BAKER HUGHES A GE CO	8%
SUNCOR ENERGY INC	8%
VALERO ENERGY CORP	8%
CHEVRON CORP	8%
LUNDIN PETROLEUM AB	8%
SCHLUMBERGER LTD	7%
CENOVUS ENERGY INC	7%
WASHINGTON H. SOUL PATTINSON	7%
REPSOL SA	7%
NESTE OYJ	6%
KINDER MORGAN INC	6%
ENCANA CORP	6%
EXXON MOBIL CORP	6%
GALP ENERGIA SGPS SA	6%
TOTAL SA	6%
CALTEX AUSTRALIA LTD	5%
ENBRIDGE INC	5%
PEMBINA PIPELINE CORP	5%

Name	FCF yield
BP PLC	5%
HALLIBURTON CO	5%
PRAIRIESKY ROYALTY LTD	5%
WORLEYPARSONS LTD	5%
MARATHON OIL CORP	4%
HUSKY ENERGY INC	4%
OCCIDENTAL PETROLEUM CORP	4%
CONTINENTAL RESOURCES INC/OK	4%
EOG RESOURCES INC	3%
VOPAK	3%
TENARIS SA	2%
CABOT OIL & GAS CORP	2%
ORIGIN ENERGY LTD	2%
INTER PIPELINE LTD	2%
DEVON ENERGY CORP	2%
OIL SEARCH LTD	1%
HELMERICH & PAYNE	1%
VERMILION ENERGY INC	1%
INPEX CORP	0%
ONEOK INC	0%
WILLIAMS COS INC	0%
TECHNIPFMC PLC	0%
TOURMALINE OIL CORP	0%
CONCHO RESOURCES INC	-1%
APACHE CORP	-1%
HESS CORP	-1%
CIMAREX ENERGY CO	-2%
PIONEER NATURAL RESOURCES CO	-2%
KEYERA CORP	-7%
TC ENERGY CORP	-8%
NOBLE ENERGY INC	-10%
CHENIERE ENERGY INC	-11%
PARSLEY ENERGY INC-CLASS A	-18%
DIAMONDBACK ENERGY INC	-19%
TARGA RESOURCES CORP	-24%

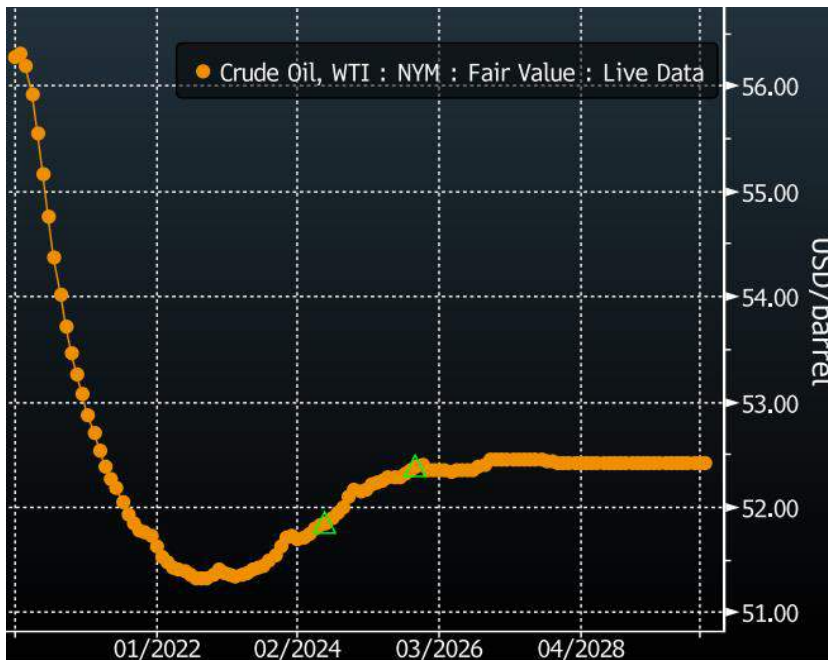
Oil futures out to 2030 indicate another decade with average \$53 per barrel

Opinion Energy sector

With Opec powerless, the market dictates the price of oil

FT, 21 Oct 2019

- When prices are low, the temptation is to increase production in search of revenues, rather than reduce. With renewed plans to sell a stake in Saudi Aramco, the Saudis will be hard pressed to convince investors that dividends are secure if they are forced into another large scale production cut.
- The net result is that we are closer than at any time in the last 50 years to a free open market in oil. The end of the cartel's control should bring prices down.



Reserve growth +2.9% p.a. over last four years with an average WTI price of \$53 per barrel

Source: Bloomberg

Investors starve US shale drillers of capital

Investors starve US shale drillers of capital

Bankruptcies are mounting across the sector, underlining a squeeze on funding

FT, 24 Oct 2019

- With companies more dependent on their own cash flows to fund drilling, some are falling short in developing new reserves that form the collateral for bank lending, said Michael Rose, a banking analyst at Raymond James. “If you can’t raise more money you just run out of steam,” Mr Rose said.
- The tougher financing outlook, along with fading productivity at wells, is translating into lower expectations for US crude oil production growth. Most analysts expect an increase of less than 1m barrels a day next year, compared to 1.6m b/d in 2018.

US shale oil production growth is slowing down

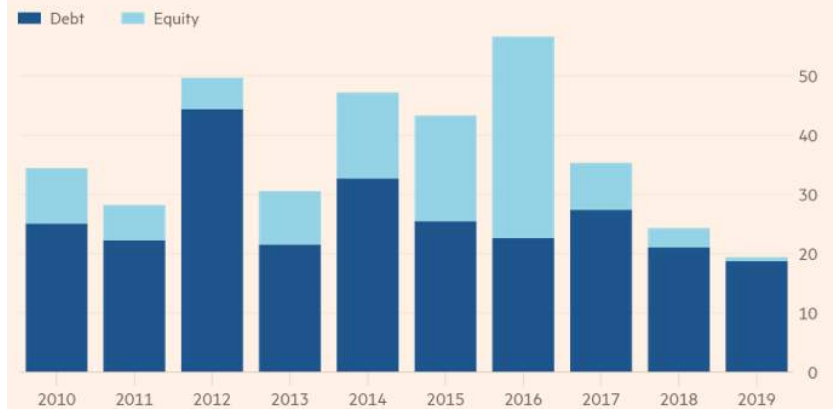
Change from same month one year earlier (%)



Based on total oil production from Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara and Permian regions
Source: EIA
© FT

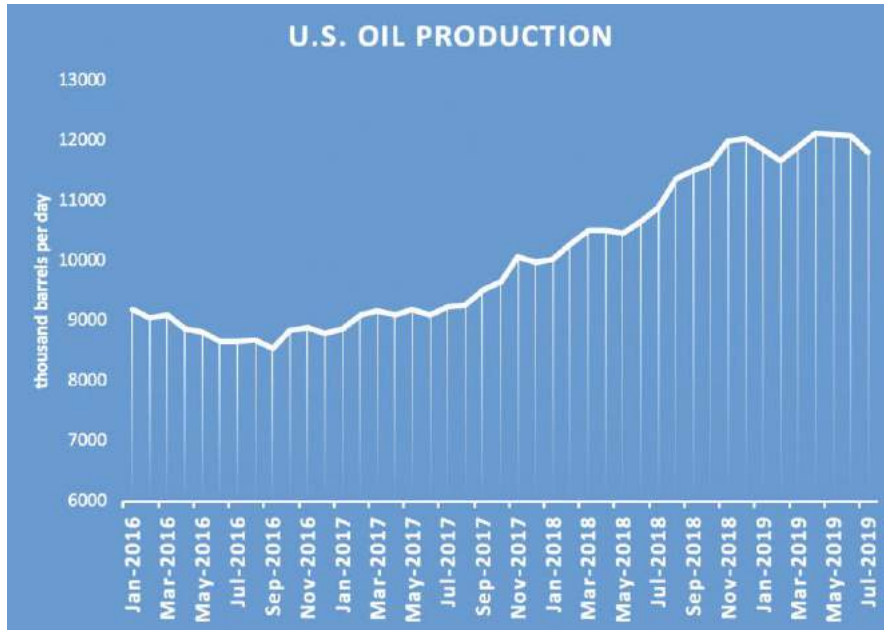
Capital markets grow wary of US oil and gas producers

Issuance by year (\$bn)



2019 encompasses issuance to mid-October
Source: Dealogic
© FT

US oil production tapering off in 2019



Peak Shale: How U.S. Oil Output Went From Explosive to Sluggish

- Skittish investors prefer dividends to funding more drilling
- Even with new pipelines, production growth has barely budged

Even with prices holding steady above \$52 a barrel, oil output was virtually unchanged at 12 million barrels a day in the first seven months, according to the EIA. In weekly data available since July, production has hovered at about 12.4 million barrels per day.

Source: Bloomberg, 14th October 2019

U.S. oil output from seven major shale formations is expected to rise 58,000 barrels per day in November to a record 8.971 million bpd, the U.S. Energy Information Administration said in a monthly forecast on Tuesday.

The largest formation, the Permian Basin of Texas and New Mexico, is expected to add 63,000 bpd to 4.547 million bpd, the tenth consecutive increase. Production declines are forecast in the Eagle Ford and Anadarko basins.

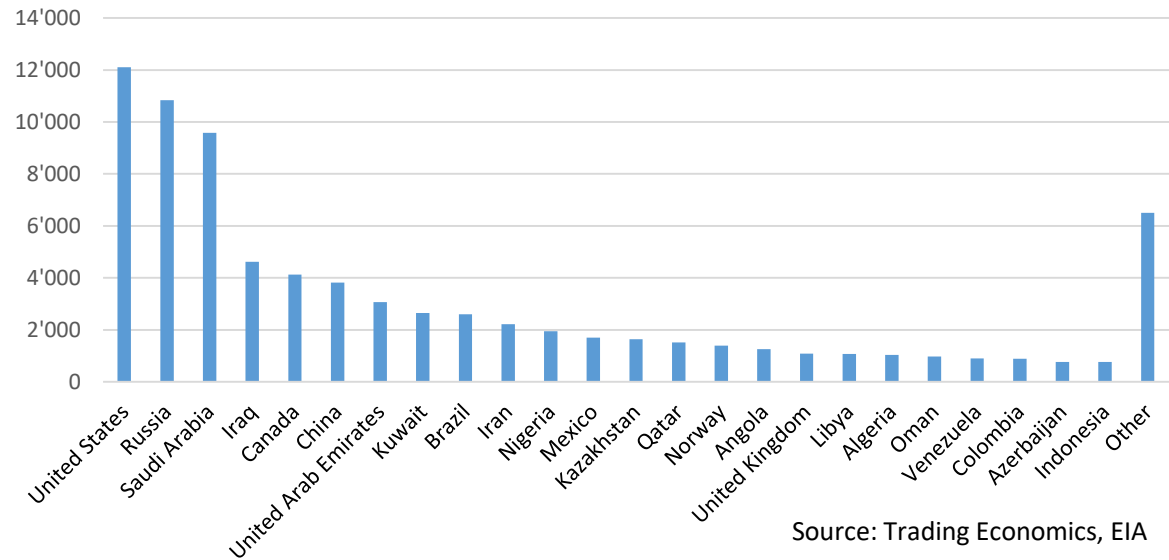
Source: Reuters, October 15 2019

U.S. added equivalent of 98% of total global additions to oil output in 2018

Share of Global Crude Oil Production

United States	15%
Russia	14%
Saudi Arabia	12%
Iraq	6%
Canada	5%
China	5%
United Arab Emirates	4%
Kuwait	3%
Brazil	3%
Iran	3%
Nigeria	2%
Mexico	2%
Kazakhstan	2%
Qatar	2%
Norway	2%
Angola	2%
United Kingdom	1%
Libya	1%
Algeria	1%
Oman	1%
Venezuela	1%

Crude Oil Production (thousands barrels per day)



U.S. Remains the Oil Production Champion

The Review reported a new global oil production record in 2018 of 94.7 million BPD, an increase of 2.22 million BPD over the previous year. The U.S. extended its lead as the world's top oil producer to a record 15.3 million BPD. In addition, the U.S. led all countries in increasing production over the previous year, with a gain of 2.18 million BPD, equal to 98% of the total of global additions.

Source: Forbes Energy, BP Statistical Review of world energy – June 2019

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