



## Despite strong fundamentals dark clouds remain in the E&P industry

We value ConocoPhillips (COP) equity value at \$63 per share, which is 4% above the current market price (November 29, 2019). Therefore, we have a **HOLD recommendation**.

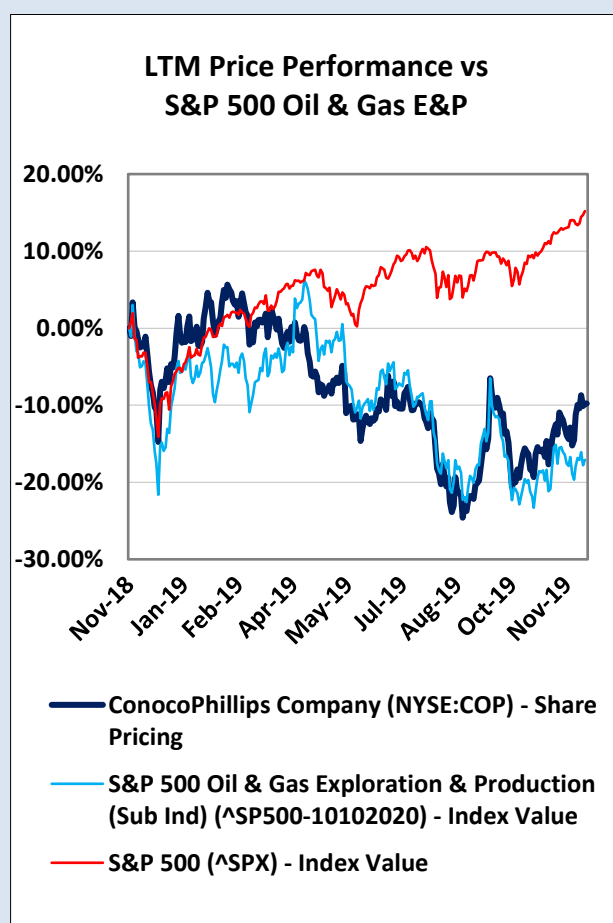
### Investment Thesis

- Strong and sustainable business model with a worldwide diversified portfolio. We expect US shale and Alaska to account for  $\frac{3}{4}$  of the total Capex and to be key long-term growth drivers with average 10% and 5% production growth rates in the 2020-2023 period, respectively.
- Recent strategy to shift into lower-cost unconventional oil (US shale) and to dispose Canadian oil sands and conventional oil assets will improve COGS ratio by 1% per year in the next 5 years.
- However, dark clouds remain in the E&P industry:
  - After a ~30% drop in oil prices in 2018, commodity analysts do not expect a recovery in the next 5 years.
  - We adjusted downwards revenue by ~\$240mm per year starting in 2021 due to a potential fracking ban after the US elections.
  - We rounded up WACC to 8% from 7.5% to reflect the risk of increasing institutional investors committed to cut oil and gas stocks.

### Recommendation: HOLD

#### Key Figures

Price	\$60.3
Price Target	\$63.0
Potential Return	4%
52-Week High/Low	\$60.3/\$59.4
Market Cap.	\$66,209mm
Shares Out.	1,113mm
Dividend Yield	2.8%
LTM Revenue	\$35,483mm
LTM EBITDA	\$14,315mm
LTM EBIT	\$7,885mm
Total Debt/EBITDA	1.1x



**Please see the disclaimer at the back of this report for important information**



## Contents

Company Overview .....	3
Corporate Structure .....	3
Business Operations .....	3
Proved Reserves .....	5
Exploration Expenses .....	5
Industry Recent Developments .....	6
US Federal Fracking Ban Risk .....	6
Revenue Forecast .....	6
Step 1: Commodities Price Forecast .....	6
Step 2: Realized Prices Forecast .....	7
Step 3: Production Forecast .....	9
Step 4: Revenue Calculations .....	12
Valuation .....	13
SELL Recommendation - Investment Thesis .....	13
Unlevered Free Cash Flow .....	14
WACC Calculations .....	15
Oil and Gas Proved Reserves - Present Value .....	16
Implied Equity Value .....	18
Sensitivity Analysis .....	18
Exhibits .....	19
Exhibit 1 - RBC fracking ban analysis .....	19
Important Disclaimer .....	20



## Company Overview

---

### Corporate Structure

ConocoPhillips (“the Company” or “Conoco”) is the world’s largest independent exploration and production (E&P) company, based on proved reserves. Headquartered in Houston, Texas, the Company has operations and activities in 15 countries. The Company has a diverse portfolio which includes resource-rich unconventional oil fields in North America, lower risk conventional assets in North America, Europe, Asia and Australia, oil sands assets in Canada, and an inventory of global conventional and unconventional exploration prospects.

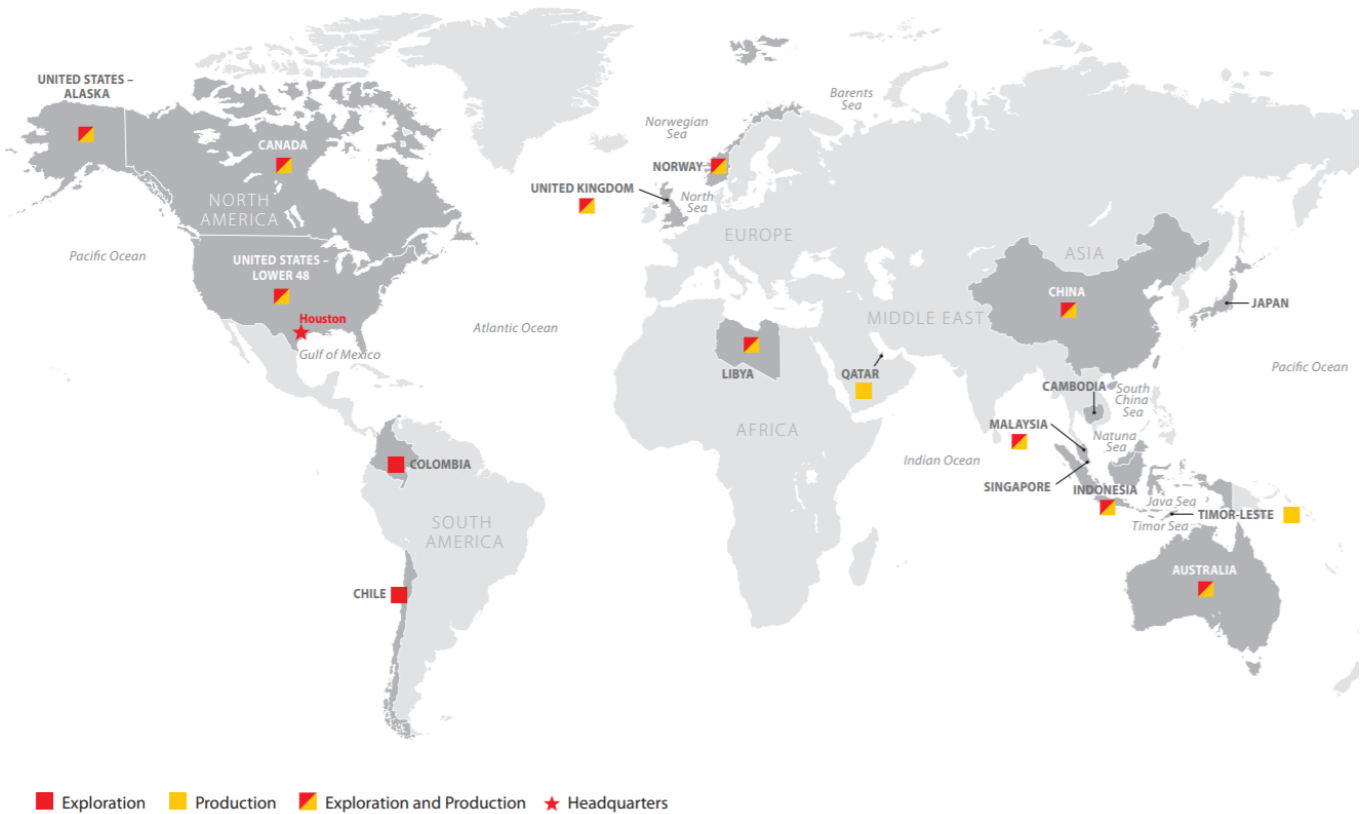
ConocoPhillips was incorporated in 2001 as a result of the merger between Conoco Inc. and Phillips Petroleum Company. In 2012, ConocoPhillips completed the separation of the downstream business into an independent, publicly traded energy company, Phillips 66.

### Business Operations

The Company explores for, produces, transports and markets crude oil, bitumen, and natural gas on a worldwide basis. As of September 2019, Conoco’s operations were producing in the United States, Norway, Canada, Australia, Timor-Leste, Indonesia, Malaysia, Libya, China and Qatar.



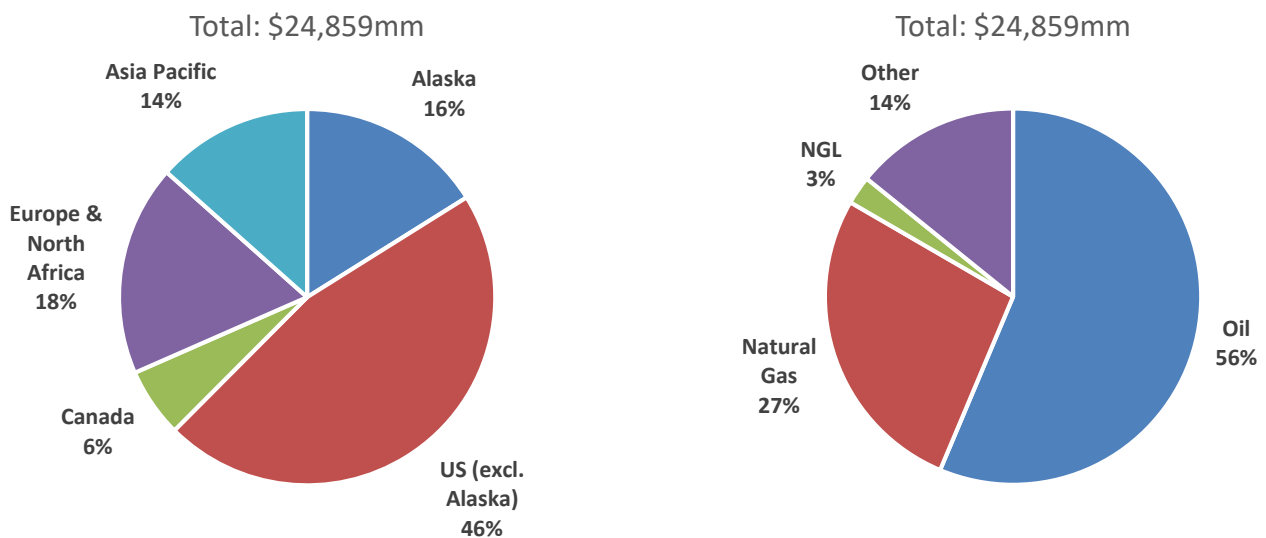
**Figure 1: Worldwide Operations and Locations**



Source: ConocoPhillips Investor Relations Fact Sheet.

Notes: UK operations were sold in April 2019.

**Figure 2: Revenue Breakdown by Commodity and by Region (1Q-3Q 2019)**



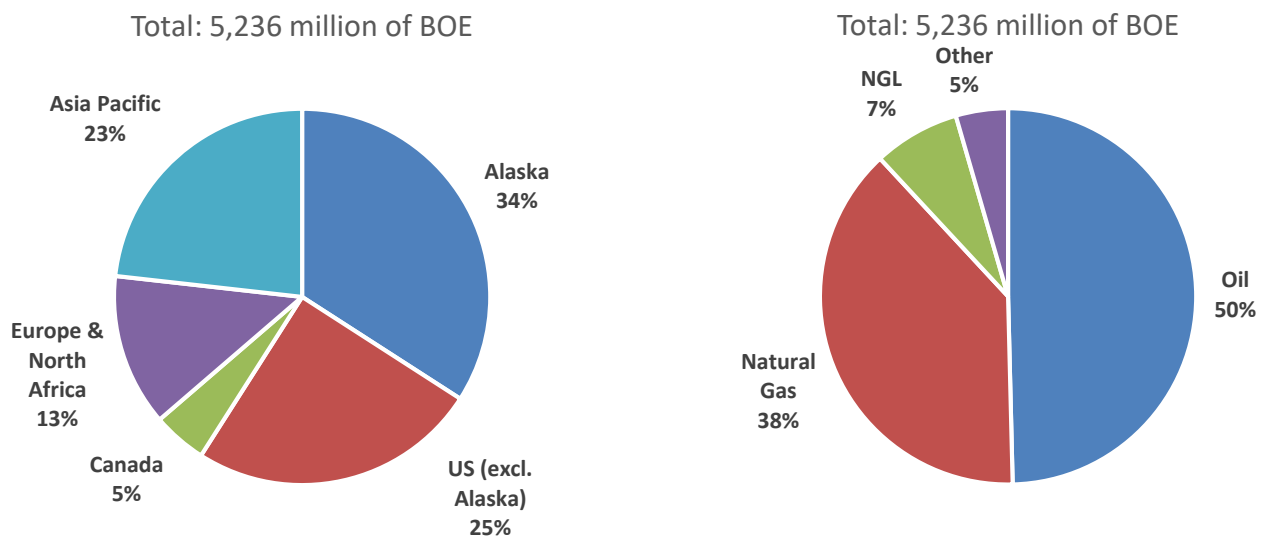
Source: 3Q 2019 Company Report



## Proved Reserves

Approximately 80% of Conoco's proved reserves are located in politically stable countries that belong to the Organization for Economic Cooperation and Development. Natural gas reserves are converted to BOE based on a 6:1 ratio: six thousand cubic feet (MCF) of natural gas converts to one BOE.

**Figure 3: Proved Reserves Breakdown as of December 2018**



Source: 10K 2018 Company Report

## Exploration Expenses

Conoco reduced dramatically its exploration expenses from \$1,912 million (12% of COGS) in 2016 to \$369 million (2% of COGS) in 2018. This happened because of the cancellation of some exploration deepwater projects including Gulf of Mexico and Nova Scotia, and the disposition of its Senegal assets that included exploration.

**Impact on valuation:** The strategy has partially helped Conoco improve its COGS ratio (exploration expenses are embedded in COGS) from 69% in 2016 to 56% in 2018. We expect 2018 levels of exploration to remain constant in the 2020-2023 period given the company is now relying more on purchases to add to its reserves (234 million BOE in 2018 vs 0 in 2016).



## Industry Recent Developments

---

### US Federal Fracking Ban Risk

Conoco's production in the United States uses hydraulic fracturing or "fracking" to pump oil from shale formations. This technique is very controversial due to its environmental impact through water consumption and contamination, methane emissions, noise pollution, among other. Because of this Elizabeth Warren and Bernie Sanders, two of the frontrunners for the Democratic nomination, have promised to ban fracking in case of becoming president. However, the ban would only be applicable in federal lands by executive order. Conoco currently has approximately 4% of its total worldwide output (in terms of Barrels of Oil Equivalent) using fracking exposed to Federal acreage. The rest of the production is on State acreage with friendly fracking regulations. Please see RBC analysis on the fracking ban potential impact on US E&P oil and gas companies in Exhibit 1.

**Impact on valuation:** We first calculated the average probability of the two candidates of winning the presidential election from betting markets bet365 and betway as of November 29, 2019<sup>1</sup> and we got an aggregate probability of 21%. Then we adjusted revenue downwards by ~\$240mm per year for the period 2021-2023 considering the federal exposed production and the US elections' probability.

## Revenue Forecast

---

### Step 1: Commodities Price Forecast

We used Capital IQ consensus for the price per barrel of WTI oil, Brent oil and Natural Gas for the next 5 years. The forecasted prices are based on the average of all available estimates (Figure 2). Regarding NGL prices, given they are highly correlated with the price of Brent oil, NGL prices are calculated as a percentage of the Brent price.

---

<sup>1</sup> <https://www.thelines.com/odds/election/>



**Figure 4: WTI Oil, Brent Oil, and Natural Gas Prices Forecast**

	2016	2017	2018	2019 E	2020 E	2021 E	2022 E	2023 E
<b>Index Prices</b>								
WTI (US\$/Barrel)	\$43.32	\$50.95	\$64.77	\$57.33	\$56.90	\$57.75	\$60.18	\$61.29
Brent (US\$/Barrel)	\$45.04	\$54.82	\$71.53	\$64.64	\$63.56	\$63.79	\$65.20	\$65.78
Natural Gas (US\$/MCF)	\$2.42	\$3.09	\$2.97	\$2.64	\$2.59	\$2.68	\$2.74	\$2.88

Source: Capital IQ

Notes: MCF stands for a thousand cubic feet.

## Step 2: Realized Prices Forecast

As part of our revenue forecast, we adjusted the projected spot prices (Figure 2) in order to get the actual prices realized by the Company after hedging costs and commodity quality differences. To forecast prices by commodity and by region, we calculated the historic realized price ratio: dividing realized price by index price. For the 2019 forecast we used the 2019 first nine months average ratio and for the 2020-2023 period we used a 4-year moving average (Figure 3).



### Figure 5: Realized Prices Forecast

	2016	2017	2018	2019 E	2020 E	2021 E	2022 E	2023 E
<b>Realized Price Ratios (Realized P./Index P.)</b>								
<u>United States (excl. Alaska)</u>								
Oil (US\$/Barrel)	\$37.49	\$47.36	\$62.99	\$55.63	\$53.17	\$54.96	\$57.61	\$58.44
Ratio	87%	93%	97%	97%	93%	95%	96%	95%
NGL (US\$/Barrel)	\$27.30	\$22.20	\$14.34	\$17.03	\$23.44	\$19.74	\$18.62	\$20.18
Ratio	61%	40%	20%	26%	37%	31%	29%	31%
Natural Gas (US\$/MCF)	\$2.20	\$2.73	\$2.82	\$2.19	\$2.31	\$2.38	\$2.44	\$2.52
Ratio	91%	88%	95%	83%	89%	89%	89%	88%
<u>Alaska</u>								
Oil (US\$/Barrel)	\$41.93	\$53.33	\$70.86	\$64.34	\$60.18	\$62.38	\$65.51	\$66.63
Ratio	97%	105%	109%	112%	106%	108%	109%	109%
NGL (US\$/Barrel)	\$27.30	\$22.20	\$14.34	\$17.03	\$23.44	\$19.74	\$18.62	\$20.18
Ratio	61%	40%	20%	26%	37%	31%	29%	31%
Natural Gas (US\$/MCF)	\$5.22	\$2.72	\$2.48	\$3.23	\$3.30	\$2.82	\$3.00	\$3.35
Ratio	216%	88%	84%	122%	127%	105%	110%	116%
<u>Canada</u>								
Oil (US\$/Barrel)	\$35.25	\$43.69	\$48.73	\$55.63	\$48.28	\$49.50	\$51.58	\$54.14
Ratio	81%	86%	75%	97%	85%	86%	86%	88%
NGL (US\$/Barrel)	\$14.82	\$21.51	\$43.70	\$17.03	\$25.36	\$26.56	\$27.54	\$24.69
Ratio	33%	39%	61%	26%	40%	42%	42%	38%
Natural Gas (US\$/MCF)	\$1.49	\$1.93	\$1.00	\$2.19	\$1.56	\$1.60	\$1.62	\$1.89
Ratio	62%	62%	34%	83%	60%	60%	59%	66%
Bitumen (US\$/Barrel)	\$15.27	\$22.66	\$22.29	\$34.11	\$25.29	\$26.32	\$26.89	\$28.79
Ratio	34%	41%	31%	53%	40%	41%	41%	44%
<u>Europe and North Africa</u>								
Oil (US\$/Barrel)	\$43.66	\$54.21	\$70.71	\$65.17	\$62.84	\$63.38	\$64.86	\$65.54
Ratio	97%	99%	99%	101%	99%	99%	99%	100%
NGL (US\$/Barrel)	\$22.62	\$34.07	\$36.87	\$28.65	\$33.09	\$33.50	\$32.67	\$32.73
Ratio	50%	62%	52%	44%	52%	53%	50%	50%
Natural Gas (US\$/MCF)	\$4.71	\$5.70	\$7.65	\$4.98	\$5.34	\$5.61	\$5.90	\$5.90
Ratio	195%	184%	258%	189%	206%	209%	215%	205%
<u>Asia Pacific and Middle East</u>								
Oil (US\$/Barrel)	\$42.47	\$54.43	\$71.14	\$64.28	\$62.37	\$63.20	\$64.56	\$65.07
Ratio	94%	99%	99%	99%	98%	99%	99%	99%
NGL (US\$/Barrel)	\$30.11	\$39.75	\$46.13	\$37.04	\$41.50	\$41.40	\$41.07	\$41.19
Ratio	67%	73%	64%	57%	65%	65%	63%	63%
Natural Gas (US\$/MCF)	\$3.57	\$4.55	\$6.09	\$6.31	\$4.78	\$5.20	\$5.64	\$5.93
Ratio	148%	147%	205%	239%	185%	194%	206%	206%

Source: Capital IQ

Notes: NGL stands for Natural Gas Liquids; MCF stands for thousand cubic feet.





## Step 3: Production Forecast

Conoco produces fossil fuels all over the world, but the Company reports its production by regions: the US excluding Alaska, Alaska, Canada, Europe & North Africa, and Asia Pacific & Middle East. To forecast Conoco production levels, we used different assumptions:

- **Worldwide production 2019:** The numbers are based on the daily average production of the first nine months of 2019. We forecasted a total output of 1,306 thousand barrels of oil equivalent (MBOE) per day, which is aligned with the Company guidance range of 1,300-1,310 MBOE per day.
- **US (excl. Alaska) production 2020-2023:** We forecast 10% production growth in this period given this is Conoco's most dynamic region and is expected to account for more than half of the total Capex in 2020-2023 according to Company's long-term guidance. As the Company executes its new US-focused strategy, in recent years it has been disposing conventional oil assets (non-shale) and investing in unconventional oil (shale). This is mainly because unconventional assets have a shorter cycle, lower production costs and can boost production in the short/medium-term. These factors allow the Company to manage risks more effectively in an industry clouded by uncertainty.
- **Alaska production 2020-2023:** We forecast 5% production growth – in line with the guidance long-term growth – in this period given Alaska is also a main part of their US strategy. Conoco announced it is planning to increase Capex in Alaska from current levels of 19% in 2018 to a long-term level of around 25%. Furthermore, in the third quarter of 2019, the Company completed the acquisition of new acreage in the region for \$100mm, sending a clear message they consider Alaska a core region.
- **Canada production 2020-2023:** We forecast no production growth in this period. Conoco has been disposing assets due to high cost structure from oil sands and discounted prices because of inferior commodity quality. Canada's Capex only represented 7% out of the total in 2018 and we don't expect this level to increase given this region is not considered core to Conoco's strategy.
- **Europe and North Africa production 2020-2023:** We forecast a production decline of 6% in this period. We used the world average decline rate according to the International Energy Agency.<sup>1</sup> Conoco does not consider this a core region; it disposed its UK assets during 2019 and invested only

<sup>1</sup> <http://energyfuse.org/can-oil-industry-continue-lower-decline-rates-mature-fields/>



13% of total Capex in 2018. The forecasted declining production rate is because most of its production comes from very mature assets in Norway that are in the phase of natural declines.

- **Asia Pacific and Middle East production 2020-2023:** We also forecast a production decline of 6% in this period. We used the world average decline rate according to the International Energy Agency.<sup>1</sup> Conoco does not consider this a core region; it disposed its LNG Australia assets during 2019 and invested only 10% of total Capex in 2018. The forecasted declining production rate is due to natural declines.

The following table is a summary of the production forecast for each commodity:

---

<sup>1</sup> <http://energyfuse.org/can-oil-industry-continue-lower-decline-rates-mature-fields/>



### Figure 6: Production Forecast by Commodity

	2016	2017	2018	2019 E	2020 E	2021 E	2022 E	2023 E
<b>Average Production per Day</b>								
<u>United States (excl. Alaska)</u>								
Oil (MBBL)	195	180	229	264	290	319	351	387
<i>Growth</i>		-8%	27%	15%	10%	10%	10%	10%
NGL (MBBL)	88	69	69	80	88	97	106	117
<i>Growth</i>		-22%	0%	16%	10%	10%	10%	10%
Natural Gas (MMCF)	1,219	898	596	604	664	731	804	884
<i>Growth</i>		-26%	-34%	1%	10%	10%	10%	10%
<u>Alaska</u>								
Oil (MBBL)	163	167	171	200	210	221	232	243
<i>Growth</i>		2%	2%	17%	5%	5%	5%	5%
NGL (MBBL)	12	14	14	15	16	17	17	18
<i>Growth</i>		17%	0%	7%	5%	5%	5%	5%
Natural Gas (MMCF)	25	7	6	7	7	8	8	9
<i>Growth</i>		-72%	-14%	17%	5%	5%	5%	5%
<u>Canada</u>								
Oil (MBBL)	7	3	1	1	1	1	1	1
<i>Growth</i>		-57%	-67%	0%	0%	0%	0%	0%
NGL (MBBL)	23	9	1	0	0	0	0	0
<i>Growth</i>		-61%	-89%	-100%	0%	0%	0%	0%
Natural Gas (MMCF)	524	187	12	8	8	8	8	8
<i>Growth</i>		-64%	-94%	-33%	0%	0%	0%	0%
Bitumen (MBBL)	183	122	66	59	59	59	59	59
<i>Growth</i>		-33%	-46%	-11%	0%	0%	0%	0%
<u>Europe and North Africa</u>								
Oil (MBBL)	122	142	149	106	100	94	88	83
<i>Growth</i>		16%	5%	-29%	-6%	-6%	-6%	-6%
NGL (MBBL)	7	8	8	5	5	4	4	4
<i>Growth</i>		14%	0%	-38%	-6%	-6%	-6%	-6%
Natural Gas (MMCF)	460	484	503	393	369	347	326	307
<i>Growth</i>		5%	4%	-22%	-6%	-6%	-6%	-6%
<u>Asia Pacific and Middle East</u>								
Oil (MBBL)	111	107	103	101	95	89	84	79
<i>Growth</i>		-4%	-4%	-2%	-6%	-6%	-6%	-6%
NGL (MBBL)	15	11	10	12	11	11	10	9
<i>Growth</i>		-27%	-9%	20%	-6%	-6%	-6%	-6%
Natural Gas (MMCF)	1,629	1,694	1,657	1,676	1,341	1,260	1,185	1,114
<i>Growth</i>		4%	-2%	1%	-20%	-6%	-6%	-6%
<u>Total</u>								
Oil (MBBL)	598	599	653	672	696	724	756	792
NGL (MBBL)	145	111	102	112	120	128	138	149
Natural Gas (MBOE)	665	564	478	463	412	406	402	400
Bitumen (MBBL)	183	122	66	59	59	59	59	59
<b>TOTAL MBOE</b>	<b>1,591</b>	<b>1,396</b>	<b>1,299</b>	<b>1,306</b>	<b>1,287</b>	<b>1,317</b>	<b>1,355</b>	<b>1,400</b>
<i>Growth</i>		-12%	-7%	1%	-2%	2%	3%	3%

Source: Author calculations

Notes: MBBL stands for thousands of barrels; MMCF stands for millions of cubic feet; MBOE stands for thousands of barrels of oil equivalent.



## Step 4: Revenue Calculations

Conoco reports revenue from three sources: Oil & Gas operations, “Other Revenue”, and “Gains on Dispositions”. Other Revenue includes transportation, marketing, gas processing facilities, among other activities but is mainly a midstream business unit. To forecast the revenue breakdown, we used the following approaches/assumptions:

- **Oil and Gas 2019-2023:** We just multiplied daily average production volumes by the number of days in a year and by the average realized price of each commodity.
- **Other Revenue 2019-2023:** For 2019 we annualized the revenue from the first nine months of 2019 given that seasonality is not an issue for Exploration & Production companies. For 2020-2023 we first calculated historical Other Revenue as a percentage of Oil and Gas revenue and then used a 4-year moving average for the period 2020-2023. Other Revenue is mainly dependent on the performance of the Oil and Gas operations.
- **Gains on Dispositions 2019-2023:** For 2019 we used the number from the first nine months of 2019 given that we do not expect Conoco to dispose more assets in the last quarter of 2019. For 2020-2023 we used a 4-year moving average given that we expect the company to continue to dispose assets from international and conventional assets of the same magnitude (\$1-\$1.5 billion per year).
- **US Fracking Ban Adjustment 2021-2023:** As explained in the “US Federal Fracking Ban Risk” section of this document, in 2021-2023, we expect a downward revenue adjustment of ~\$240 million per year.



**Figure 7: Revenue Calculations**

	2016	2017	2018	2019 E	2020 E	2021 E	2022 E	2023 E
<b>Revenue (\$mm)</b>								
Oil	\$8,918	\$11,346	\$16,226	\$14,969	\$14,713	\$15,672	\$17,004	\$18,029
NGL	\$1,344	\$1,002	\$726	\$805	\$1,115	\$1,031	\$1,040	\$1,185
Natural Gas	\$4,225	\$4,854	\$5,711	\$5,072	\$3,636	\$3,751	\$3,870	\$3,900
Bitumen	\$1,020	\$1,009	\$537	\$735	\$545	\$567	\$579	\$620
(+) Total Oil and Gas	\$15,506	\$18,211	\$23,200	\$21,580	\$20,009	\$21,021	\$22,494	\$23,734
<i>Growth</i>		17%	27%	-7%	-7%	5%	7%	6%
(+) Other Revenue	\$8,239	\$11,667	\$14,291	\$12,433	\$11,826	\$12,738	\$13,435	\$14,065
<i>% of Oil and Gas Revenue</i>	53%	64%	62%	58%	59%	61%	60%	59%
(+) Gains on Dispositions	\$360	\$2,177	\$1,063	\$1,884	\$1,371	\$1,624	\$1,485	\$1,591
<b>Total Revenue</b>	<b>\$24,105</b>	<b>\$32,055</b>	<b>\$38,554</b>	<b>\$35,897</b>	<b>\$33,206</b>	<b>\$35,382</b>	<b>\$37,414</b>	<b>\$39,390</b>
US Fracking Ban Adjustment @21% probability				\$0	\$0	(\$222)	(\$239)	(\$251)
<b>Net Revenue</b>	<b>\$24,105</b>	<b>\$32,055</b>	<b>\$38,554</b>	<b>\$35,897</b>	<b>\$33,206</b>	<b>\$35,160</b>	<b>\$37,175</b>	<b>\$39,139</b>

Source: Author calculations

Notes: \$mm stands for USD millions.

## Valuation

### HOLD Recommendation - Investment Thesis

We value ConocoPhillips (COP) equity value at \$63 per share, which is 4% above the current market price (November 29, 2019). Therefore, we have a **HOLD recommendation**.

- Strong and sustainable business model with a worldwide diversified portfolio. We expect US shale and Alaska to account for ¾ of the total Capex and to be key long-term growth drivers with average 10% and 5% production growth rates in the 2020-2023 period, respectively.
- Recent strategy to shift into lower-cost unconventional oil (US shale) and to dispose Canadian oil sands and conventional oil assets will improve COGS ratio by 1% per year in the next 5 years.
- However, dark clouds remain in the E&P industry:



- After a ~30% drop in oil prices in 2018, commodity analysts do not expect a recovery in the next 5 years.
- We adjusted downwards revenue by ~\$240mm per year starting in 2021 due to a potential fracking ban after the US elections.
- We rounded up WACC to 8% from 7.5% to reflect the risk of increasing institutional investors committed to cut oil and gas stocks.

## Unlevered Free Cash Flow

To forecast Unlevered Free Cash Flow we used the traditional approach by projecting Operating Income (EBIT) and adjusting it with the tax impact, D&A, Capex and changes in Net Working Capital. Our assumptions are the following:

- **COGS:** For 2019 we used the 56% ratio of the nine first months of 2019, which is in line with the 2018 ratio. For 2020-2023 we forecast the COGS ratio to drop by one percent per year to reflect Conoco's strategy of moving away from production with higher cost structures like the oil sands in Canada and the conventional oil fields in the US.
- **SG&A:** For 2019 we used the 9% ratio of the nine first months of 2019, which is in line with the 2018 ratio. For 2020-2023 we forecast the same ratio to remain constant given this was the normal level before the low-oil price environment from the 2014-2016 period.
- **D&A:** For 2019 we used the 17% ratio of the nine first months of 2019, which is in line with the 2018 ratio. For 2020-2023 we forecast the same ratio to remain constant so that over time D&A converges with Capex, which is the natural trend in a mature company like Conoco.
- **Capex:** For 2019 we annualized the Capex of the nine first months of 2019, which is in line with the Company guidance. For 2020-2023 we forecast a constant \$7 billion of Capex per year based on Conoco's latest long-term Capex guidance.



### Figure 8: Unlevered Free Cash Flow

\$mm	FY 2016	FY 2017	FY 2018	FY 2019 Est	FY 2020 Est	FY 2021 Est	FY 2022 Est	FY 2023 Est
<b>Revenue</b>	<b>23,693</b>	<b>29,106</b>	<b>36,417</b>	<b>35,897</b>	<b>33,206</b>	<b>35,160</b>	<b>37,175</b>	<b>39,139</b>
<i>Growth</i>	-20%	23%	25%	-1%	-7%	6%	6%	5%
(-) COGS	16,376	18,446	20,555	20,102	18,263	18,986	19,703	20,352
<i>% of Revenue</i>	69%	63%	56%	56%	55%	54%	53%	52%
<b>Gross Profit</b>	<b>7,317</b>	<b>10,660</b>	<b>15,862</b>	<b>15,795</b>	<b>14,943</b>	<b>16,174</b>	<b>17,472</b>	<b>18,787</b>
(-) SG&A	2,094	2,305	1,851	1,809	1,644	1,709	1,773	1,832
<i>% of Revenue</i>	13%	12%	9%	9%	9%	9%	9%	9%
<b>EBITDA</b>	<b>5,223</b>	<b>8,355</b>	<b>14,011</b>	<b>13,985</b>	<b>13,299</b>	<b>14,465</b>	<b>15,699</b>	<b>16,955</b>
(-) Depreciation & Amortization	9,062	6,845	5,956	6,136	5,645	5,977	6,320	6,654
<i>% of Revenue</i>	38%	24%	16%	17%	17%	17%	17%	17%
<b>EBIT</b>	<b>-3,839</b>	<b>1,510</b>	<b>8,055</b>	<b>7,849</b>	<b>7,654</b>	<b>8,488</b>	<b>9,379</b>	<b>10,301</b>
(-) Taxes	-1,971	-1,822	3,668	2,887	2,815	3,122	3,450	3,789
<b>NOPAT</b>	<b>-1,868</b>	<b>3,332</b>	<b>4,387</b>	<b>4,962</b>	<b>4,839</b>	<b>5,366</b>	<b>5,930</b>	<b>6,513</b>
(+) Depreciation & Amortization	9,062	6,845	5,956	6,136	5,645	5,977	6,320	6,654
(-) Capex	4,869	4,591	6,750	6,721	7,000	7,000	7,000	7,000
(-) Change in NWC		217	-674	0	0	0	0	0
<i>% of Total Assets</i>		0%	-1%	0%	0%	0%	0%	0%
<b>Unlevered Free Cash Flow</b>	<b>2,325</b>	<b>5,369</b>	<b>4,267</b>	<b>4,377</b>	<b>3,484</b>	<b>4,343</b>	<b>5,249</b>	<b>6,166</b>

Source: Author calculations

### WACC Calculations

- **Risk Free Rate:** Most recent yield on the U.S. 10 Year Treasury Note.
- **Market Risk Premium:** Duff and Phelps reported Market Risk Premium.
- **Levered Beta:** 5-year Beta published by Capital IQ.
- **Cost of Debt:** We calculated a weighted average of the Yield-to-Maturity of all the outstanding Notes of the Company.
- **Tax Rate:** We used the 2018 effective tax rate of the Company.
- **Target Capital Structure:** Based on the industry average.
- **WACC result:** We rounded up the WACC to 8% from an original 7.5% to reflect the overall current risk in the Oil and Gas business. The number of institutional investors committed to cutting fossil fuel stocks from their portfolios has risen from 180 in 2014 to more than 1,100 in 2019, as activists turn up the heat on companies over climate change<sup>1</sup>.

<sup>1</sup> <https://www.ft.com/content/4dec2ce0-d0fc-11e9-99a4-b5ded7a7fe3f>



**Figure 9: WACC**

<b>WACC</b>	
Risk Free Rate	1.8%
Market Risk Premium	6.9%
Relevered Beta	1.04
<b>Cost of Equity</b>	<b>8.9%</b>
Pre-tax cost of debt	2.7%
Effective Tax Rate	36.8%
<b>Post-tax Cost of Debt</b>	<b>1.7%</b>
Debt / Total Capitalization	20.0%
Equity / Total Capitalization	80.0%
<b>WACC</b>	<b>8.0%</b>

Source: Author calculations

## Oil and Gas Proved Reserves - Present Value

- **Proved Reserves:** We assume that by 2024 Conoco replaces 100% of its proved reserves to 2018 levels.
- **Commodity prices:** We calculated a rough average of the prices by geography and by volume in 2023.
- **Oilfields decline rate:** We used the world average of 5.7% according to the International Energy Agency.<sup>1</sup>
- **Production cost per BOE:** Based on the most recent production cost per BOE and updated with US long-term inflation of 2%.
- **Present Value of CF:** Cash flows discounted using WACC.

<sup>1</sup> <http://energyfuse.org/can-oil-industry-continue-lower-decline-rates-mature-fields/>





**Figure 10: Oil and Gas Proved Reserves - Present Value**

	Oil			NGL + Bitumen			Natural Gas		
	Reserves	Production	Price	Reserves	Production	Price	Reserves	Production	Price
	MMBBL	MMBBL	\$/BBL	MMBBL	MMBBL	\$/BBL	MMCF	MMCF	\$/MCF
2024	2,600	289	\$60	550	76	\$25	12,150,000	847,277	\$3.0
2025	2,311	273	\$60	474	71	\$25	11,302,723	798,982	\$3.0
2026	2,038	257	\$60	403	67	\$25	10,503,741	753,440	\$3.0
2027	1,781	242	\$60	335	64	\$25	9,750,301	710,494	\$3.0
2028	1,539	229	\$60	272	60	\$25	9,039,807	669,996	\$3.0
2029	1,310	216	\$60	212	57	\$25	8,369,811	631,806	\$3.0
2030	1,094	203	\$60	155	53	\$25	7,738,005	595,793	\$3.0
2031	891	192	\$60	102	50	\$25	7,142,212	561,833	\$3.0
2032	699	181	\$60	52	47	\$25	6,580,379	529,808	\$3.0
2033	518	171	\$60	4	4	\$25	6,050,571	499,609	\$3.0
2034	348	161	\$60	0	0	\$25	5,550,962	471,132	\$3.0
2035	187	152	\$60	0	0	\$25	5,079,830	444,277	\$3.0
2036	35	35	\$60	0	0	\$25	4,635,553	418,953	\$3.0
2037	0	0	\$60	0	0	\$25	4,216,599	395,073	\$3.0
2038	0	0	\$60	0	0	\$25	3,821,527	372,554	\$3.0
2039	0	0	\$60	0	0	\$25	3,448,973	351,318	\$3.0

	Revenue			Total Production	Production Costs	Tax Rate	Cash Flows	PV of CF
	Oil	NGL	Nat. Gas					
	\$mm	\$mm	\$mm	MMBOE	\$/BOE		\$mm	\$mm
2024	\$17,350	\$1,895	\$2,542	511	\$12.4	37%	\$9,755	\$6,147
2025	\$16,361	\$1,787	\$2,397	482	\$12.7	37%	\$9,123	\$5,323
2026	\$15,428	\$1,685	\$2,260	454	\$12.9	37%	\$8,530	\$4,608
2027	\$14,549	\$1,589	\$2,131	429	\$13.2	37%	\$7,974	\$3,989
2028	\$13,720	\$1,498	\$2,010	404	\$13.5	37%	\$7,452	\$3,452
2029	\$12,938	\$1,413	\$1,895	381	\$13.7	37%	\$6,962	\$2,986
2030	\$12,200	\$1,332	\$1,787	359	\$14.0	37%	\$6,503	\$2,582
2031	\$11,505	\$1,256	\$1,685	339	\$14.3	37%	\$6,072	\$2,233
2032	\$10,849	\$1,185	\$1,589	320	\$14.6	37%	\$5,669	\$1,930
2033	\$10,231	\$111	\$1,499	261	\$14.9	37%	\$5,032	\$1,586
2034	\$9,648	\$0	\$1,413	242	\$15.2	37%	\$4,673	\$1,364
2035	\$9,098	\$0	\$1,333	228	\$15.5	37%	\$4,363	\$1,179
2036	\$2,124	\$0	\$1,257	108	\$15.8	37%	\$1,064	\$266
2037	\$0	\$0	\$1,185	68	\$16.1	37%	\$57	\$13
2038	\$0	\$0	\$1,118	64	\$16.4	37%	\$41	\$9
2039	\$0	\$0	\$1,054	61	\$16.7	37%	\$26	\$5

**NPV \$37,673**

Source: Author calculations



## Implied Equity Value

Figure 11: Implied Equity Calculations

Terminal Value		Equity Value	
Midstream EBIT 2023	1,547	Present Value of UFCF	18,543
Exit Multiple	13x	Present Value of Midstream	20,111
<b>Terminal Value</b>	<b>20,111</b>	Present Value of Proved Reserves	37,673
		<b>Enterprise Value</b>	<b>76,327</b>
		Net Debt	5,673
		Minority Interest	93
		<b>Equity Value</b>	<b>70,561</b>
		Shares Outstanding (mm)	1,113
		Price Target	63
		Current Price	60
		<b>Potential Return</b>	<b>4%</b>

Source: Author calculations

## Sensitivity Analysis

Figure 12: Sensitivity Analysis

		WACC				
		7.0%	7.5%	8.0%	8.5%	9.0%
Capex (\$mm) 2020-2023	6,000	16%	13%	9%	6%	4%
	6,500	14%	11%	8%	4%	1%
	7,000	11%	8%	4%	3%	0%
	7,500	9%	6%	3%	0%	-2%
	8,000	6%	3%	1%	-2%	-5%

Source: Author calculations



## Exhibits

### Exhibit 1 - RBC fracking ban analysis

Exhibit 2: Company Composite Score of Federal Exposure (based on 1Q19 production figures)

Composite Score Company	Ticker	Oil Production		Gas Production		Total Production		Permitting		Int'l/Other % EBITDA	Score % Exposure
		b/d	% of Ttl	Mcf/d	% of Ttl	boe/d	% of Ttl	Total	% of Ttl		
Apache Corporation	APA	12,326	10%	41,250	4%	19,202	7%	8	2%	45%	3%
Berry Petroleum	BRY	4,272	17%	3,531	16%	4,860	17%	32	21%	0%	19%
Bonanza Creek	BCEI	766	4%	5,751	11%	1,725	6%	8	9%	0%	8%
BP plc	BP	115,907	30%	208,511	2%	150,659	7%	85	24%	84%	3%
California Resources	CRC	2,213	4%	19,556	6%	5,472	5%	8	5%	0%	5%
Centennial Resources	CDEV	2,082	4%	3,404	2%	2,649	3%	31	16%	0%	10%
Chesapeake Energy	CHK	13,599	7%	64,879	1%	24,412	3%	50	8%	0%	6%
Chevron Corporation	CVX	14,395	6%	106,776	10%	32,191	8%	43	9%	75%	2%
Cimarex Energy	XEC	27,782	25%	170,750	14%	56,240	18%	116	43%	0%	32%
Concho Resources	CXO	49,442	17%	181,698	19%	79,725	17%	89	19%	0%	18%
ConocoPhillips	COP	33,261	7%	98,350	8%	49,653	7%	85	13%	40%	6%
Continental Resources	CLR	39,925	16%	77,046	5%	52,766	10%	34	14%	0%	13%
Devon Energy	DVN	80,292	36%	208,367	11%	115,020	22%	260	43%	0%	35%
Encana Corporation	ECA	17,230	7%	31,646	3%	22,505	6%	12	2%	25%	3%
Eni SpA	E	5,657	18%	25,078	62%	9,837	26%	0	0%	95%	1%
EOG Resources	EOG	91,178	15%	326,317	16%	145,564	15%	277	17%	4%	16%
Equinor	EQNR	72,431	54%	76,400	12%	85,164	35%	1	1%	91%	2%
ExxonMobil	XOM	90,773	26%	262,674	6%	134,552	13%	321	30%	90%	2%
Hess Corporation	HES	52,111	37%	179,615	48%	82,047	40%	20	17%	38%	18%
HighPoint Resources	HPR	2,682	10%	4,694	6%	3,465	9%	41	17%	0%	13%
Marathon Oil	MRO	21,166	8%	36,964	4%	27,327	7%	41	10%	19%	7%
Matador Resources	MTDR	5,734	15%	15,021	9%	8,237	13%	127	48%	0%	31%
Murphy Oil	MUR	104,764	74%	234,954	78%	143,923	75%	0	0%	10%	34%
Noble Energy	NBL	4,181	3%	12,232	2%	6,220	2%	4	1%	35%	1%
Oasis Petroleum	OAS	5,287	5%	9,217	3%	6,823	4%	22	24%	0%	14%
Occidental Petroleum	OXY	170,163	25%	386,740	14%	234,619	21%	297	22%	65%	7%
QEP Resources	QEP	2,677	4%	8,163	5%	4,037	4%	0	0%	0%	2%
SandRidge Energy	SD	314	2%	3,817	2%	950	2%	0	0%	0%	1%
Royal Dutch Shell	RDS	382,607	86%	863,780	100%	526,570	89%	21	16%	90%	5%
Talos Energy	TALO	46,339	98%	94,793	93%	62,138	97%	7	100%	0%	98%
Total S.A.	TOT	101,993	100%	46,067	100%	109,670	100%	0	0%	97%	2%
Ultra Petroleum	UPL	5,953	95%	802,388	94%	139,685	94%	93	62%	0%	78%
W&T Offshore	WTI	27,668	100%	99,864	78%	44,312	90%	0	0%	0%	46%
Whiting Petroleum	WLL	23,991	18%	72,168	20%	36,019	18%	28	23%	0%	21%
WPX Energy	WPX	4,772	4%	30,528	7%	9,860	5%	4	2%	0%	4%
<b>Total U.S.</b>		<b>2,602</b>	<b>23%</b>	<b>9,306</b>	<b>8%</b>	<b>4,153</b>	<b>14%</b>	<b>4,176</b>	<b>12%</b>		<b>15%</b>

Source: RBC Capital Markets estimates, Enverus, IHS, company reports, BLM



## Important Disclaimer

---

### **Please read this section of the document before reading the report.**

This report has been prepared and written by MAM Students at the Yale's School of Management in partial fulfillment of their course requirement. Hence, the report is a professional report as it is intended solely to serve as an example of student's practical research work at the Yale's School of Management. Therefore, it is not intended for investment advice. It is based on publicly available information and may not be a complete analysis of all relevant data. If you use this report for any purpose, you do so at your own risk.

**YALE UNIVERSITY, YALE SCHOOL OF MANAGEMENT AND THE YALE UNIVERSITY'S OFFICERS, FELLOWS, FACULTY, STAFF AND STUDENTS MAKE NO REPRESENTATION OR WARRANTIES, EXPRESS OR IMPLIED ABOUT THE ACCURACY OR SUITABILITY FOR ANY USE OF THESE REPORT AND EXPRESSLY DISCLAIM RESPONSIBILITY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, CAUSED BY USE OF OR RELIANCE ON THESE REPORTS**