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Canada
Equity Research

Category: Upstream Energy

The University of New Brunswick: *Student Investment Fund*

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Note: This report is published for education purposes only

Canadian Natural Resources (CNQ-TSX)

Recommendation	BUY
Prior Recommendation	**None**
Date of Valuation	**11/26/19**
Valuation Price	**$37.03**
Target Price	**$41.85**

Market Portfolio

52 Week Price Range	**$29.29 -$41.26**
Average Daily Volume	**1.5M**
Beta	**1.37**
Div. Yield (Est.)	**4.84**
Shares Outstanding	**1,18B**
Market Capitalization	**$44.02B**
Institutional Holdings	**31.63%**
EV/EBITDA	**6.70x**
Book Value	**$29.38**
Debt to Total Capital	**31%**
ROE (Est)	**8.1**

Source: Bloomberg

"Without a measureless and perpetual uncertainty, the drama of human life would be destroyed."
Winston Churchill

- **Strong operational quarter and Share buybacks:** Beat earnings in Q3 as well as Q2 and Q1. Recently began share buybacks.
- **Recent Merger:** Merger with Devon Canada Corp., merging with Athabasca Oil Sands Project in 2017 and their more recent merger with Devon Canada Corp. in early 2019, CNQ shows no signs of slowing down while pursuing growth.
- **Beat the curve:** Canadian Natural is of course, a victim of the Alberta Curtailment and as a result is limited to their production. How do they respond? Drilling 8 wells in Saskatchewan yielding around 100 barrels per well.
- **Consistent Dividend Yield:** A strong yield of 4.05%; 19 years of consistently increasing dividend yields.
- **Good EV/EBITDA Ratio:** Currently the ratio sits at 6.70x Comps and a LTM value of 6.54x indicating that it may be undervalued.
- **Analysts Recommended:** Of 28 total analysts, 70% (21) recommend buys, 20% recommend holds and the remaining issue sell ratings (Bloomberg).
- **Increase shareholder wealth:** With $2.1 billion returns to shareholders in the first 9 months of the year, CNQ shows strong support of increasing investor wealth.
- **Emissions is their mission:** Reduced corporate emissions by almost a third since 2012; Canadian Oil and Gas is some of the greenest of all countries. Canadian Natural aims to push for Canadian Oil and Gas to be delivered into global markets. 82% of KMI's cash flows are fee based, reducing exposure to potential lower volumes of product. Combined 94% of cash flows are fee based or hedged.

Equity Value per share

		Exit EBITDA Multiple				
	41.85	4.70x	5.70x	6.70x	7.70x	8.70x
	10.7%	$22.47	$28.22	$33.98	$39.73	$45.48
WACC:	8.7%	$25.11	$31.42	$37.73	$44.04	$50.36
	6.7%	$27.99	$34.92	$41.85	$48.77	$55.70
	4.7%	$31.36	$39.00	$46.65	$54.29	$61.93
	2.7%	$35.07	$43.51	$51.94	$60.37	$68.81

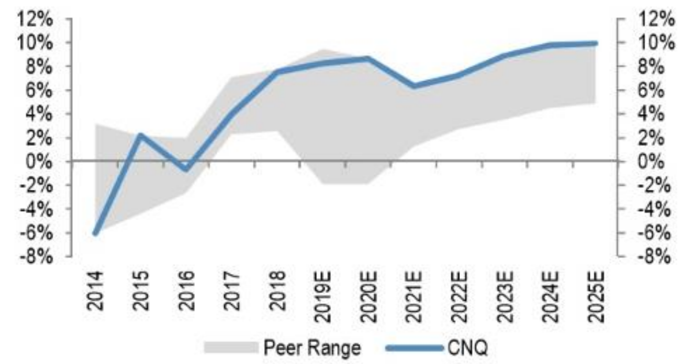
Investment Thesis

Why CNQ? (Pre-Research Hypothesis)

- CNQ merged with the Alberta Oil Sands project in 2017 and following that, around 2 years later merged with Devon Canada in 2019. The company is taking advantage of companies that may be underperforming in the market.
- CNQ offers a ~4% dividend yield; moving forward post mergers should increase the yield long term.
- CNQ has a ~20% profit margin.
- High Market Cap; ~ 40 Billion
- Beta of 1.83; Slightly more than market but also not super risky.
- Beat Earnings two times (Pre Nov 8th)
- Analysts' Recommendations; Of 24, 6 said strong buy, 18 said buy.
- Holders; Vanguard group is heavily invested, CPP is invested, Capital Group is in over 115,000,000 shares on two separate positions (1 and 3)

Figure 12: FCF/EV vs. Peers

FCF / Beginning Enterprise Value



Source: Company reports, Bloomberg, and J.P. Morgan estimates.
Note: Peer group includes CVX, XOM, COP, OXY, CNQ, CVE, HSE, IMO, SU.

Post Research Investment Hypothesis

Though the oil and gas industry are constantly fluctuating and currently sits rather stagnant due to waiting out pipeline progress and carbon tax; CNQ offers some attractive numbers for long term investment. Currently the price sits at $37.21 and the consensus price target sits at $43.91 (Bloomberg). *Based on our model the price is estimated at $41.85, a 13% upside* making the stock **undervalued** and a **Buy**. (Appendix 1). CNQ's FCF is one of the more attractive metrics for investing. CNQ's FCF Yield and FCF/EV is on the upper range in comparison with their peers. (See Graph)

CNQ has recently begun **share buybacks** and has a considerable number of medium-term notes issued. Long term they have **strong FCF estimates** which can be used to help lower debt, return capital to shareholders and keep growing the business. According the JP.Morgan, CNQ has come up with a more **direct and efficient capital allocation strategy** (J.P. Morgan).
Currently the Capital Structure is as follows:

Market Cap: 44 Billion
Secured Bonds/Notes Outstanding: 15 Billion
Senior unsecured loans Outstanding: 6.7 Billion

CNQ's most attractive factor is their high dividend yield (4.1) which is well above the industry average of 2.73 (INFOMART). CNQ has the **lowest 1-year implied volatility** amongst their peers (APA,EOG,NBL,MRO; Bloomberg)
In Comparables, CNQ demonstrates **above average P/E and ROE** (Bloomberg) ; Of the Top 20 Holders by position, 14 of them purchased immediately following Q2 earnings (Bloomberg).

Valuation Methods
Beginning with building a 3-sheet model based on Income statement, Balance sheet and cash flow statement. Historical data was gathered using the **annual** financial statements (10-K) of CNQ and entered manually. In order to ensure accuracy with modelling, the historicals were compared to Bloomberg's. Though it would be ideal to analyze the quarterly results, time did not permit. Each segment was modelled though was not used for estimations as forecasts.

Forecasting
Revenue forecasts were taken from analyst consensus and are the average value (Bloomberg). For forecasting results, a mixed methods approach was use. As much as possible, each line item was forecasted using percent of COGS or Revenue. Any values that were not able to be forecast through this method were either straight-lined or based on growth rate (Industry forecasted growth rate of 2.3%. from IBISWorld).

Cost of capital assumptions were as follows:
- Risk-free rate is set at the Bond yield rate; Beta is taken from Bloomberg and the market risk premium was taken from on annual estimated market risk premiums (Statista). WACC was calculated based on a mixture of historical data and the assumptions.

Sensitivity Analysis

Looking at the sensitivity analysis to our price target, there is a significant upside from the calculated price. The Exit EBITDA Multiple can increase by 2.0x before any negative returns from the current price are expected, but it can only make gains if as Exit EBITDA multiple decreases as does WACC. The WACC has unlimited flexibility at the 1.0x above the current multiple, it can increase by 2.0% and still results in a positive return but at 4% is a negative return. The most downside is if the Exit EBITDA multiple drops to 4.70x. (Appendix 8)

Investment Risks

Having very little diversification from the oil and gas industry; CNQ is very dependent on demand and price of oil and natural gas. **The investment risks of CNQ are the same as the industry investment risks with a few firm specific concerns.**
-Due to their US issued notes, the strengthening of the Canadian dollar would also be detrimental to their performance. Excessive and improper CAPEX spending as well as costs of acquisitions can also be a risk for CNQ.
-Recently, CNQ was bailed out by Government Assistance after a poor year, perhaps in the future the assistance may not be available.
-CNQ has also listed very long-term bonds, with a few in the next decade, they also have 1.3 Trillion in 30 year bonds (2047 Date)

SWOT Analysis

-**Strengths**
Strong market position in the Canada energy sector; This is due to strong natural gas assets, vast land base, developed infrastructure and a deep and diversified inventory of drilling prospects.
Reserve base; Canadian Natural Resources has a strong reserve base of both proved and provable Crude oil, Bitumen, SCO and NGL. This enables a high production capability
3-pronged marketing strategy; To capture access to markets over short, medium and long term (b) Support/participate in new pipelines, and expansions of new pipelines (c) support/participate in activities which add conversion capacity.

-**Weaknesses**
Overdependence on North America depriving CNR of revenues from global higher growth markets. Lower Scale of operations (revenue and employees) as compared to its competitors puts it at a cost disadvantage against them

-**Opportunities**
CNQ Favors acquisitions of other oil and gas companies to strengthen their portfolio. A recent merger with Devon Canada valued at $8 Billion dollars reinforces this. **Synergies from Merger are anticipating around $135 Million (CNQ).** They should also strive to bolster the Fort Mcmurray economy with their Horizon Expansion in the Athabasca Oil Sands. CNQ operates on 4 pillars of capital allocation: *balance sheet strength, returns to shareholders, resource development and opportunistic acquisitions* (CNQ). On Dec 2nd, Canadian Premiers rallied together to plan a budget that helps oil rich provinces; this could be beneficial for CNQ (CBC).

-Threats
Volatile crude oil/natural gas prices are a major threat, and significant decline in their prices can have adverse effect on CNR's financial condition
Intense competition with other Oil & natural gas companies, which are more robust in terms of assets and finances
Failure in timely reserve replacement by CNR can have adverse impact on its future cash flows

Competitors
-CNR's top 4 competitors are: Imperial Oil Limited, Encana Corporation, Chevron Corporation Petro Canada Inc. Currently over half the market share is split between four companies with CNQ operating 16.8% (Appendix 14). Note: This is based on the IBISworld Report pre the Devon merger therefore CNQ may be closer to ~17.0% now.

External Competitors
-Though not a direct competitor and very much external. It should be noted that since 2015, Electric vehicle purchases in Canada have on average doubled year over year and with new federal incentives show no signs of slowing down (Appendix 16).

Business Description

CNQ was founded in 1973 and is a Canadian independent crude oil and natural gas exploration, development and production company. The company also owns two operated pipeline systems, an electricity cogeneration facility, and a 50% interest in North West Redwater Partnership. Canadian Natural Resources has the largest undeveloped land base and is the largest producer of natural gas in the Western Canada.

North American Exploration & Production

The company has a well-established base in the exploration and production of natural gas, crude oil & NGLs and oil sands operation in North America. In North America the gas area of operation can be divided into two major areas: West Natural Region and the East Natural Region. The west natural region includes volatile oil and liquids-rich natural gas areas in Northeast BC and Northwest Alberta while the east natural region includes the shallow, sweet dry natural gas areas in Alberta, Saskatchewan and Manitoba. The major assets owned by CNQ in the North American Crude Oil and NGLS are Heavy Crude Oil, Pelican Lake Crude Oil, Thermal in Situ Oil Sands and Light Crude Oil & NGLS. As of the oil sands operations, the Horizon Oil Sands is the main project that's under implementation under this.

International

Internationally, CNQ operates in the North Sea and Offshore Africa. In the North Sea operations, the company focuses to on managing their infrastructure, platform maintenance and mature basin exploitation. This approach has proved to prolong the life and economic value of their assets. The exact areas of operations in the North Sea where CNQ operates are Ninian, Lyell and Columbia, Banff and Kyle, Tiffany, Toni and Thelma. In offshore Africa, the company maintains operations mostly in Gabon, Ivory Coast, and South Africa. The company has been able to maintain strong relationships with the governments of these countries which has provided some of the highest return on capital projects in the Company Portfolio.

Marketing and Midstream

CNQ's long-term marketing objective is to maximize the realized price of our overall portfolio in all market conditions. CNQ's midstream asset portfolio is comprised of two crude oil pipeline systems, a 50% ownership in an 84-megawatt cogeneration plant at the Company's steam generation facilities at Primrose. CNQ also owns and operates cogeneration plants at Horizon

Shareholder Base

CNQ has a single share structure of common shares only. Common share is listed on both on the NYSE and the TSX.
- Common shareholders possess the right to share in the company's profitability and gains from its stock price appreciation.
- Common shareholders can also influence a company's management by voting to elect the board of directors, who appoint the CEO.
- 71% of the common shares are held by institutional investors while 27% of the common shares outstanding are owned by the general public. Approximately, 2% of the remaining common shares are held by Individuals/Insiders.

Management's Shareholder Value Generating Initiatives

CNQ's executive management consists of 5 professionals with an average tenure of 3 years at the company - members of the management team played roles in navigating the business through the 2008 financial crisis. The company has also taken many initiatives to ensure that shareholders' value is increased. This has been achieved primarily through the following ways:
- **Aiming to be an effective and efficient producer**; CNQ strives to be an effective and efficient producer in every product and basin in which it operates. The company believes that only the effective and efficient producers will continue to generate economic returns throughout all commodity price cycles.
- **Maintaining financial strength;** the company has proved to be very effective in maintaining a strong balance sheet and it manages its liquidity as a core asset. CNQ augments all these plans with a disciplined hedge program which strives to provide adjusted funds flow certainty in the short term.
- **Striving for balance;** CNQ believes that balance between natural gas, heavy crude oil and light crude oil provides some diversification from commodity price risk while also facilitating more options with which to allocate capital to the highest return projects.

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Imperial Oil (IMO-TSX)

Recommendation	Short
Prior Recommendation	None
Date of Valuation	11/22/19
Current Price	$37.21
Target Price	$48.16

Executive Summary:
Imperial Oil is an integrated oil company. Imperial Oil is active in all phases of the petroleum industry in Canada, including the exploration for, and production and sale of, crude oil and natural gas. In Canada, Imperial Oil is a producer of crude oil, natural gas and petroleum refiner and a marketer of petroleum products. Imperial Oil is also a producer of petrochemicals.

Management's Shareholder Value Generating Initiatives
Imperial's management consists of 9 professionals with an average tenure of 8 years at the company – members of the management team played roles in navigating the business through times of hardship in 2009 by teaming up with Exxon Mobil Corp to buy a major Alberta Oil Sands property from ConocoPhillips for $751-million, ending a drought of large deals for bitumen-rich lands that had persisted since the start of the year. Imperial and its deep-pocketed parent, Exxon Mobil, have a history of building up their business in weak markets, having started construction on the $12.9 billion Kearl oil sands project in 2009 when competitors were hampered by the financial crisis.

Investment Recommendation:
We have issued a short-selling position on the company because after preparing the DCF and financial models we came up with a target price of $15 with an estimated upside of -55%. This gave us the implication that the stock is overvalued since it is currently trading at an average value of $33.26.

Investment Thesis:
With the current market being filled with lots of risks, we believe now is the best time to sell this stock before the conditions get any better. Risks such as market risk and forced disclosure of water-related risks give the best explanation for this.
Our Investment thesis is based upon the fact that Imperial Oil is best positioned to capitalize on the impact of volume stabilization amongst its peers. Mainly due to its:

1) Strong industry fundamentals and diversified operations
2) Sound Capital allocation
3) Operational and service excellence
4)

Business and Operational Risks
Recently, the company has been under pressure to disclose its water-related risks to shareholders, yet the company maintains that it is already doing enough to be transparent. This has so far ended up in the shareholders demanding that the company to be more transparent bout its water-related risks form pollution and climate change, as well as lobbying activities and expenditures.

Competitor Analysis
The four main competitors of Imperial Oil are Suncor Energy, Enbridge, Inc., Canadian Natural Resources, Ltd. and TransCanada Corporation. Competition can be easily spotted among the big five integrated companies which have the biggest market cap in comparison to the other companies that are in the industry. The Canadian Association of Petroleum Producers (CAPP) is the voice of Canada's upstream oil and natural gas industry. They are the ones responsible for the growth of this industry and advocate for economic competitiveness and safe, environmentally and socially responsible performance.

Business Description
Imperial Oil was formed in 1880 when 16 refiners in southwestern Ontario created The Imperial Oil Co. Ltd. Standard Oil bought a majority interest in Imperial Oil in 1898. On February 13, 1947, Imperial Oil made a landmark discovery of oil at Leduc that marked the beginning of western Canada's great oil development. ExxonMobil Corp. has a 69.6 percent ownership stake in the company. ExxonMobil Canada was formed in 1999, when Exxon acquired Mobil Canada. ExxonMobil Canada holds interests in the Maritimes and Northeast pipelines and Newfoundland Transshipment Terminal Ltd. Imperial Oil operates eight pipelines and has interests in the Portland/Montreal, TransNorthern and Alberta Products pipelines.

Imperial Upstream:
This division of Suncor is responsible for the exploration & production. Imperial Oil is a leading developer and producer of oil and gas's off Canada's East Coast. Before royalties, Imperial Oil produced about 8,700 total oil-equivalent barrels per day in 2012. Imperial Oil's upstream research efforts support natural resources operations, with a major emphasis on environmental protection and oil sands development. The research center, located at the University of Calgary, is one of the leading oil sands research facilities in the world.
Imperial Downstream:
Imperial Oil operates three refineries in Canada, which have a total distillation capacity of 421,000 barrels per day and a lubricant manufacturing capacity of 9,000 barrels per day. At the end of 2012, the company had a distribution network that included 21 primary terminals, 28 secondary bulk terminals and about 1,770 Esso-branded retail service stations.

Shareholder Base:
IMO has a single share structure of common shares only. Common shares are listed on both the NYSE and the TSX.

- Common shareholders possess the right to share in the company's profitability and gains from its stock price appreciation.
- Common shareholders can also influence a company's management by voting to elect the board of directors, who appoint the CEO.

20% of the common shares are held by institutional investors while about 79% of the common shares outstanding are owned by the general public. Approximately, under 1% of the remaining common shares are held by Individuals/Insiders.

STRENGTHS	**WEAKNESSES**
1. Successful track record of developing new products 2. Strong distribution network 3. Good returns on capital expenditure 4. Highly skilled workforce through successful training and learning programs 5. Strong free cash flow	1. Financial planning is not done properly and efficiently. 2. Limited successful outside core business 3. High attrition rate in work force 4. Need more investment in new technologies 5. The marketing of the products left a lot to be desired.
OPPORTUNITIES 1. New customers from online channels 2. New trends in consumer behavior can open up new market for the Imperial Oil Limited 3. The new technology provides an opportunity to imperial Oil Limited to practice differentiated pricing strategy in the new market 4. The market development will lead to dilution of competitor's advantage and enable Imperial Oil Limited to increase its competitiveness compare to the other competitors.	**THREATS** 1. Liability laws in different countries are different and Imperial Oil Limited may be exposed to various liability claims given change in policies in those markets. 2. No regular supply of innovative product 3. Shortage of skilled workforce in certain global market represents a threat to steady growth of profits for Imperial Oil Limited. 4. Rising pay level especially movements such as $15 an hour and increasing prices in the China can lead to serious pressure on profitability of Imperial Oil Limited.

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Oil & Gas Upstream

Pipeline: Yes? No? Maybe so?

Industry Structure			
Life Cycle Stage	Mature	Regulation level	Heavy
Revenue Volatility	Very High	Technology Change	Low
Capital Intensity	High	Barriers to entry	High
Industry Assistance	Low	Industry Globalization	High
Concentration Level	Medium	Competition Level	High

Key Companies

Competition in this industry is high due to high costs and revenue volatility. Barriers to entry within the industry are also high due to a few dominant players. 53% of the industry is split amongst 5 companies:

- Suncor (18.4%)
- Canadian Natural Resources limited (16.8%)
- Imperial Oil (11.4%)
- ConocoPhilips (3.8%)
- Husky Energy (3.1%)

The remaining 47% is divided amongst smaller companies.

The Basis of Competition

Any external ventures such as green energy projects or other projects that differ from Oil and Gas may be a competitive advantage in lulls in the market. Oil and Gas is strongly dependent on the economics of the industry and therefore any diversified product or service may work as a safety when supply is up, and demand is down.

- The grade of the oil is also a factor on the price of the product sold. Grades range from light to heavy; light crude being the most readily available and attractive. Light crude is easier to refine to gasoline and has a variety of uses downstream.

- Impurities in the oil, or lack thereof play a key roll in pricing oil. The purer, the more its worth.

- Security, ie. The supply and transport costs are also key to basis of competition. A company who can move product faster and more efficient is a stronger competitor than one who can't.

- Globalization is high and upward trend is steady. Having companies and wells in other countries helps diversify from Canadian Oil and Gas and maintain profits. Both demand of imports and exports in Canada have almost doubled since 2005 (Appendix 14).

Products and services segmentation (2019)

Product shares in the market shift depending on the pace of price and the amount of output trends. Currently, Oil sands make up 39% which is the largest portion of products. Second is Natural Gas with 38% and third is Conventional oil with 23%. These are broad labels of the exact products and services offered. Each section has subcategories of products. In Major markets, 86.4% of total markets are exports. A whopping 98% of these exports are to our neighbor to the south and returning as imports is 81% (IBISWorld).

Industry Risks

-*Tensions in Western Canada;* currently, Western Canada is looking to try and separate from the remaining provinces and identify as its own country (CBC, 2019). This is predominantly in Alberta but there is also support for BC.

-*Alberta Curtailment;* Recently, Alberta has decided to keep their curtailment into 2020. The limit will remain at 3.81M barrels per day which is the same amount as December. Exempt from this is new conventional wells and oil and crude-by-rail. This curtailment is

-*Pipeline up in the air;* Currently progress has slowed down on the pipeline out of Alberta. Tensions amongst Alberta and the remainder of Canada may prolong this issue.

-*Carbon Tax;* The carbon tax within Alberta was lifted earlier this year (CBC, 2019). However, in order to meet the Paris Environment regulations, Canada needs to increase their Carbon Tax immensely (CBC, 2019).

-*EV and Government;* Currently, there is increasing support towards consumers purchasing Electric Vehicles (EV), which would affect the overall demand of oil.

-*Trump Twitter Triumph;* Trump and his OPEC tweets, trade war tweets and other controversial topics may affect the price of oil and gas moving forward.

Cost Structure

"For every $1.00 spent on wages, the average industry operator will have to spend $2.75 on capital investment; This Ratio is the most capital intensive of all industries." (IBISWorld)

-The cost structure for this industry is very heavily allocated to a few key areas. Wages are very high due to location, risk and technical nature of the job. Purchases make up most of the cost structure, about a third, this is due to the high CAPEX needed for equipment and new technology. Production costs have been increasing each year from 2014 to 2019. Depreciation costs vary between years but float in the 15-20% range. Marketing costs are little to none, everyone knows what oil is so no need to advertise. Rent is a paltry amount, this is mainly for rental of on-site offices etc. Utilities is also very low. Other makes for a significant portion of over a fifth of costs structure. This includes exploration costs, expensive legal services and finally environment remediation and clean up. See Appendix for exact numbers (Appendix 13)

Long-Term Horizon

-According to IBISWorld research, the long-term horizon is positive for both Natural Gas and Oil; With average growth of 2.3% between 2019-2024 (Appendix 12). Increase in technology used such as improvement in Hydraulic fracturing, horizontal drilling and in situ extraction techniques help drive the need for qualified workers over the next five years (IBISWorld).

Short Term Horizon

-Short-term forecast of the Oil and Gas industry is stagnant with minimal growth; Gas begins to grow slowly in '20 while Oil holds steady till '22-23 before any real progress (Appendix 12)

Industry Drivers

For any financial sector there are specific drivers that are responsible for driving that specific sector to new heights. These factors are not always constant, and they do change as time passes on. With the impact of globalization and technical changes the industry is going through its toughest time. Also, the sensational drop in prices, reflect rampant supply and weak global demand amid concerns over slowing economic growth around the world. The following are the three main drivers that have been outlined for this industry.

Rapid Technological Advancements:

There has been a tremendous increase in technological advancements. which has led to the increasing usage of oilfield equipment in the market. The technological advancements resulted in the adoption of different types of drilling for oil and gas extraction such as horizontal and directional drilling. This in turn has resulted in the increased usage of various types of drilling equipment.

Increasing Exploration of Unconventional Gas Resources

In recent years, the depleting conventional gas sources have resulted in a shift from conventional gas to unconventional sources. This in turn can lead to several challenges in the demand for natural gas across the globe. By shifting focus towards unconventional gas sources, the Oil and Gas Industry can reduce the dependency on conventional gas sources as well as reduce its carbon footprint. The extraction of unconventional gas requires horizontal drilling, which requires different equipment and technology for the extraction of gas from the reservoir.

Cost-Revenue Ratio

Generation of revenue is an important driver that influences the energy industry. Operating cost of a refinery is very huge, and, in many instances, this will affect adversely on offshore operations. Although the revenue generated is high, industry need to adapt itself to the global market. With the ever-increasing demand and dependence on these energy sources, it is hoped that this industry will continue to create revenue to invest in new exploration projects and technology, and the costs would gradually stabilize.

Market Risks

Price Volatility Risk is the main risk for investing in the oil and gas sector. The industry has encountered a great deal of volatility in 2014 and 2015 due to a supply glut of crude oil and natural gas. The high levels of supply have hurt stock prices. The price of crude oil dropped substantially during this time. Oil went from over $107 a barrel in July 2014 to around $42 in March 2015. Natural gas also followed suit going from $4.80 per one million British Thermal Units (mmBtu) in June 2014 to around $2.40 per mmBtu as of October 2105, a drop of around 50%. Natural gas is notorious for being very seasonal and volatile in its price due to greater demand during the winter. This sector is also very vulnerable to lower commodity price, not just for those companies that engage in the exploration and production of oil.

Balance Sheet

Fiscal year (As of December 31)	2017A	2018A	2019E	2020E	2021E
Assets					
Current Assets					
Cash and cash equivalents	$ 137	$ 101	121	124	127
Accounts receivable	2397	1148	1257	1255	1296
Current income taxes receivable	322	0	0	0	0
Inventory	894	955	1059	1058	1092
Prepaids and other	175	176	176	176	176
Investments	893	524	0 -	-	
Current portion of other long-term assets	79	116	98	107	102
	4897	3020	2711	2719	2794
Exploration and evaluation assets	2632	2637	2853	3068	3284
Property, Plant and equipment	65170	64559	65376	66571	62121
Other long-term assets	1168	1343	1246	1139	1037
	$ 73,867	$ 71,559	$ 72,184	$ 73,497	$ 69,234
Liabilities					
Current liabilities					
Accounts payable	$ 775	$ 779	920	919	949
Accrued liabilities	2597	2356	2560	2557	2641
Current income taxes payable	0	151	0	0	0
Current portion of long-term debt	1877	1141	1141	5996	1444
Current portion of other long-term liabilities	1012	335	674	674	674
	6261	4762	5295	10145	5707
Long-term debt	20581	19482	19341	15245	14701
Other long-term liabilities	4397	3890	3217	2543	1870
Deferred income taxes	10975	11451	11213	11213	11213
	42214	39585	39065	39146	33491
SHAREHOLDERS' EQUITY					
Share capital	9109	9323	9822	10321	10820
Retained earnings	22612	22529	23175	23908	24802
Accumulated other comprehensive income (loss)	-68	122	122	122	122
	31653	31974	33119	34351	35744
	$ 73,867	$ 71,559	$ 72,184	$ 73,497	$ 69,234

Appendix 1: CNQ Balance Sheet (Student Estimates)

Income Statement

Fiscal year	2017A	2018A	2019E	2020E	2021E
Fiscal year end date	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021
Growth Rate Projections	58.4%	26.3%	8.7%	-0.1%	3.3%
Revenue (Product Sales less Royalties)	16,651.00	21,027.00	22,851.00	22,817.35	23,566.99
Cost of Goods Sold (Incl D&A)	(14,172.00)	(15,760.00)	(17,127.11)	(17,101.89)	(17,663.75)
Production	(5,675.00)	(6,464.00)	(7,024.72)	(7,014.38)	(7,244.83)
Transportation, blending and feedstock	(3,529.00)	(4,189.00)	(4,552.38)	(4,545.67)	(4,695.02)
Depletion, depreciation and amortization	(5,186.00)	(5,161.00)	(5,608.69)	(5,600.43)	(5,784.43)
Asset retirement obligation accretion	(164.00)	(186.00)	(202.13)	(201.84)	(208.47)
Risk management activities	(35.00)	134.00	145.62	145.41	150.19
Gain on acquisition, disposition and revaluation of properties	379.00	452.00	491.21	490.49	506.60
Loss (gain) from investments	38.00	(346.00)	(376.01)	(375.46)	(387.80)
COGS excluding D&A	(8,986.00)	(10,599.00)	(11,518.42)	(11,501.45)	(11,879.32)
Gross Profit	7,665.00	10,428.00	11,332.58	11,315.90	11,687.67
Other Expenses	334.00	(1,006.00)	(1,412.20)	(1,410.12)	(1,456.45)
Share-based compensation	(134.00)	146.00	(160.27)	(160.03)	(165.29)
Foreign exchange loss (gain)	787.00	(827.00)	(898.74)	(897.42)	(926.90)
Selling, general and administrative (enter as -)	(319.00)	(325.00)	(353.19)	(352.67)	(364.26)
Operating profit (EBIT)	2,145.00	4,261.00	4,311.69	4,305.34	4,446.79
Interest income	97.00	59.00	51.88	48.77	56.92
Interest expense	(728.00)	(798.08)	(675.34)	(653.18)	(601.73)
Net interest	(631.00)	(739.08)	(623.46)	(604.40)	(544.81)
Pretax profit (EBT)	1,514.00	3,521.92	3,688.23	3,700.94	3,901.98
Taxes (Current)	164.00	(374.00)	(398.11)	(403.63)	(424.38)
Deferred Income tax expense (recovery)	(640.00)	557.00	594.13	593.25	612.74
Net income	2,318.00	2,590.92	2,696.00	2,704.06	2,864.86
EBITDA	$7,331.00	$9,422.00	$9,920.39	$9,905.78	$10,231.22
EBITDA Growth	54.71%	22.19%	5.02%	-0.15%	3.18%
EBITDA Margin	44%	45%	43%	43%	43%

Appendix 2: CNQ Income Statement (Student Estimates)

Multiples and Ratios

Fiscal year	2017A	2018A	2019E	2020E	2021E	2022E	2023E	2024E
Fiscal year end date	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024
Enterprise value								
EV/Sales	4.41	3.49	3.21	3.22	3.11	2.98	2.95	2.81
EV/EBITDA	10.01	7.79	7.40	7.41	7.17	6.90	6.84	6.51
EV/EBIT	34.21	17.22	17.02	17.04	16.50	15.98	15.47	14.98
Ratios								
Net Debt	$20,444.00	$19,381.00	$19,219.62	$15,120.83	$ 14,574.21			
Asset turnover (Revenue/Total Assets)	0.23x	0.29x	0.32x	0.31x	0.34x			
Net Profit Margin	13.9%	12.3%	11.8%	11.9%	12.2%			
Return on Assets (ROA)	3.1%	3.6%	3.7%	3.7%	4.1%			
Return on Assets (ROE)	7.3%	8.1%	8.1%	7.9%	8.0%			

	CNQ	2018	7 Year Average
Dividend Yield	3.98	2.73	2.65
ROA	3.1%	0.43	-2.18
ROE	7.3%	-1.49	-0.73

Appendix 3 CNQ Multiples and Ratios (Student Estimates)

Discounted Cash Flow

Fiscal year	2017A	2018A	2019E	2020E	2021E	2022E	2023E	2024E
Fiscal year end date	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024
Revenue	$ 16,651.00	$ 21,027.00	$ 22,851.00	$ 22,817.35	$ 23,566.99	24,608.00	24,851.00	26,094.00
EBITDA	7,331.00	9,422.00	9,920.39	9,905.78	10,231.22	10,628.00	10,733.00	11,270.00
EBIT	2,145.00	4,261.00	4,311.69	4,305.34	4,446.79	4,592.88	4,743.78	4,899.63
Tax Rate		26%	26%	26%	26%	26%	26%	26%
EBIAT (NOPAT)	2,145.00	3,153.14	3,190.65	3,185.95	3,290.62			

Appendix 4 CNQ DCF (Student Estimates)

Cash Flow Statement

Fiscal year	2017A	2018A	2019E	2020E	2021E
Fiscal year end date	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021
Net cash flows from operating activities	7,183	10,121	7,558	7,821	7,998
Cash from financing activities	5,960	(3,255)	(1,513)	(6,768)	(2,898)
Net cash flows from investing activies	(13,102)	(4,814)	(4,943)	(4,943)	(4,943)
Cash					
Beginning of period	-	137	101	121	124

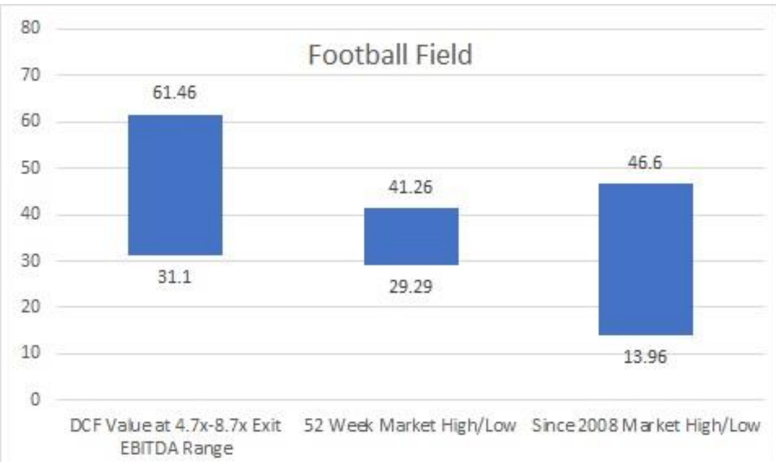
Appendix 5 CNQ Cash Flow Statement Snapshot (Student Estimates)

Exit EBITDA multiple approach	
Terminal year EBITDA	11,270.00
Terminal year EBITDA multiple	6.70x
Terminal value	75,509.00
Present value of terminal value	54,139.86
Present value of stage 1 cash flows	14,063
Enterprise value	68,202.40

Cost of Capital Assumptions	
Cost of Debt	3.5%
Tax Rate	26%
Debt and equivalents	19381
Debt as % of total capital	31.0%
Risk Free rate	1.75%
Beta	1.37
Market Risk Premium	5%
Equity as % of total capital structure	69.0%
Cost of Capital (WACC)	6.74%

Fair Value per share	**Perpetuity**	**EBITDA**
Enterprise Value	165,733	68,202.40
Less: Net Debt	19381	19381
Less: Trapped Cash		
Equity Value	146,352	48,821
Diluted Shares	1,167	1,167
Equity Value per share	125.45	41.85
Market premium/(discount) to fair value	239%	13%

Appendix 6 CNQ Fair Value (Student Estimates)



Appendix 7 CNQ Football Field (Student Estimates)

Equity Value per share

	41.85	Exit EBITDA Multiple 4.70x	5.70x	6.70x	7.70x	8.70x
WACC:	10.7%	$22.47	$28.22	$33.98	$39.73	$45.48
	8.7%	$25.11	$31.42	$37.73	$44.04	$50.36
	6.7%	$27.99	$34.92	$41.85	$48.77	$55.70
	4.7%	$31.36	$39.00	$46.65	$54.29	$61.93
	2.7%	$35.07	$43.51	$51.94	$60.37	$68.81

Appendix 8 CNQ Equity Value Per Share based on Exit EBITDA Multiple (Student Estimates)

Balance Sheet

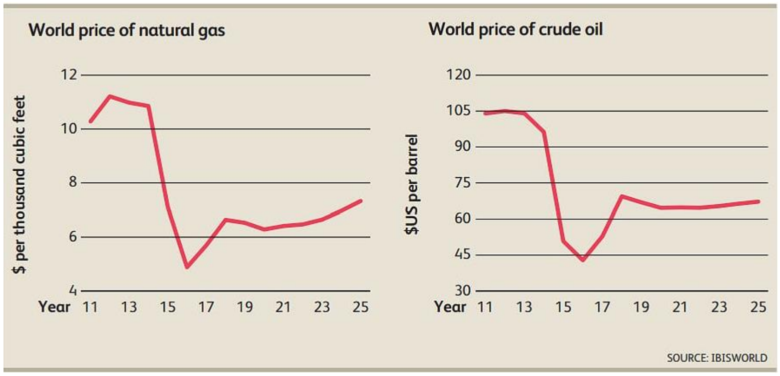
Fiscal year (As of December 31)	2017A	2018A	2019E	2020E	2021E
Assets					
Current Assets					
Cash and cash equivalents	$ 1,195	$ 988	$1,010.00	$1,015.00	$1,013.00
Accounts receivable	2712	2529	$2,310.00	$2,350.00	$2,460.00
Current income taxes receivable	0	0	0.00	0.00	0.00
Inventory	1500	1838	$1,900.00	$1,950.00	$1,840.00
Prepaids and other	0	0	0.00	0.00	0.00
Investments	0	0	0.00	0.00	0.00
Current portion of other long-term assets	0	0	0.00	0.00	0.00
	5407	5355	5,220	5,315	5,313
Goodwill	186	186	190	200	220
Property, Plant and equipment	34473	34225	35,897	36,789	37,895
Investments and other assets	865	857	900	950	890
Other long-term assets	670	833	740	770	800
	$ 41,601	$ 41,456	$ 42,947	$ 44,024	$ 45,118
Liabilities					
Current liabilities					
Accounts payable	$ 3,283	$ 3,275	$ 3,290	$ 3,180	$ 3,170
Accrued liabilities					
Other Current Liabilities	594	413	450	500	670
Current income taxes payable	57	65	80	77	84
Current portion of long-term debt	27	-	30	15	14
Short term debt	175	202	180	200	210
	4136	3955	4030	3972	4148
Provision for Risks and Charges	2989	2630	2700	2850	2900
Long-term debt	5005	4978	5100	4800	4700
Other long-term liabilities	791	313	500	670	470
Deferred income taxes	4245	5091	4987	5986	5741
	17166	16967	17317	18278	17959
SHAREHOLDERS' EQUITY					
Share capital	1536	1446	1500	1550	1600
Retained earnings	24714	24560	24781	24983	25790
Accumulated other comprehensive income (loss)	-1815	-1517	-2000	-2354	-1879
	24435	24489	24281	24179	25511
	$ 41,601	$ 41,456	$ 41,598	$ 42,457	$ 43,470

Appendix 9: IMO Balance Sheet (Student Estimates)

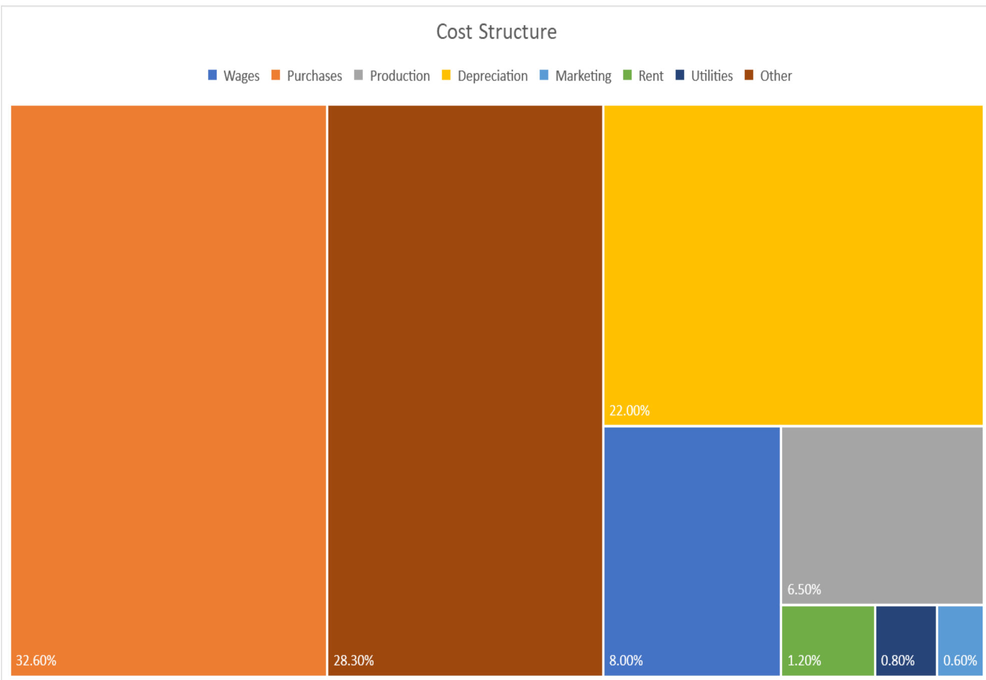
Income Statement

Fiscal year	2017A	2018A	2019E	2020E	2021E
Fiscal year end date	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Growth Rate Projections	17.3%	21.3%	7.8%	1.8%	-1.8%
Revenue (Product Sales less Royalties)	$27,452.00	$33,297.00	$ 35,894.00	$36,542.00	$35,879.00
Cost of Goods Sold (Incl D&A)	$26,198.00	$29,190.00	$31,466.82	$33,897.00	$33,456.00
COGS excluding D&A	$24,026.00	$27,596.00	$29,748.48	$30,247.00	$28,741.00
Depreciation and Amortization	$2,172.00	$1,594.00	$1,718.34	$3,650.00	$4,715.00
Gross Profit	$1,254.00	$4,107.00	$4,427.18	$2,645.00	$2,423.00
Operating profit (EBIT)	$361.00	$3,199.00	$3,448.36	$1,660.74	$1,422.26
Non-operating Income/Expense	$220.00	$53.00	$57.13	$110.00	$30.00
Unusual Expenses	$0.00	$46.00	$49.59	$40.00	$30.00
Non-operating Interest income	$79.00	$81.00	$87.32	$80.00	$50.00
Interest expense	$78.00	$108.00	$116.43	$111.00	$90.00
Gross Interest and other financing expense	$116.00	$136.00	$146.61	$140.00	$130.00
Interest Capitalized	$38.00	$28.00	$30.18	$29.00	$40.00
Net interest	$1.00	$27.00	$29.11	$31.00	$40.00
Pretax profit (EBT)	$582.00	$3,073.00	$3,312.53	$1,699.74	$1,382.26
Taxes (Current)	$58.00	$14.00	$15.09	$18.00	$19.00
Deferred Income tax expense (recovery)	$150.00	$773.00	$833.29	$600.00	$500.00
Net income	$490.00	$2,314.00	$2,494.33	$1,117.74	$901.26
EBITDA	$2,533.00	$4,793.00	$5,166.70	$5,310.74	$6,137.26
EBITDA Growth	91.95%	47.15%	7.23%	2.71%	13.47%
EBITDA Margin	9.23%	14.39%	14.39%	14.53%	17.11%

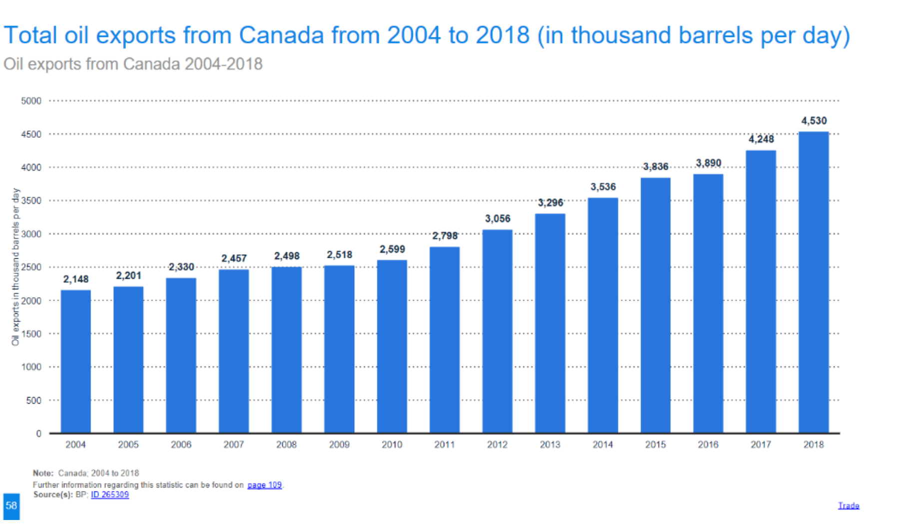
Appendix 10: IMO Income Statement (Student Estimates)



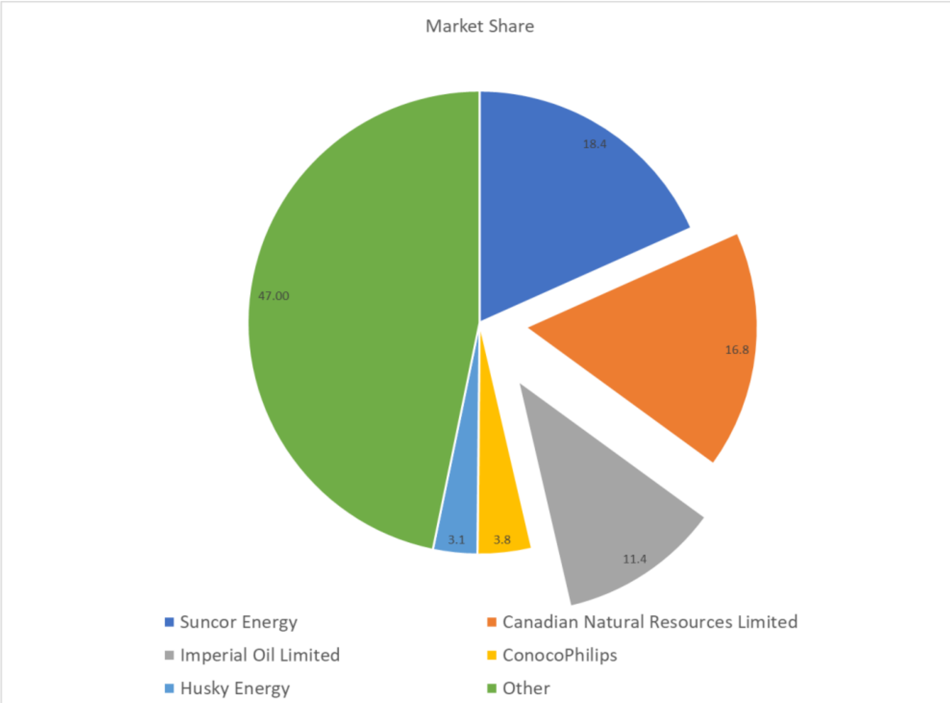
Appendix 11: Current and forecasted price of Natural Gas and Crude Oil
Source: IBISworld



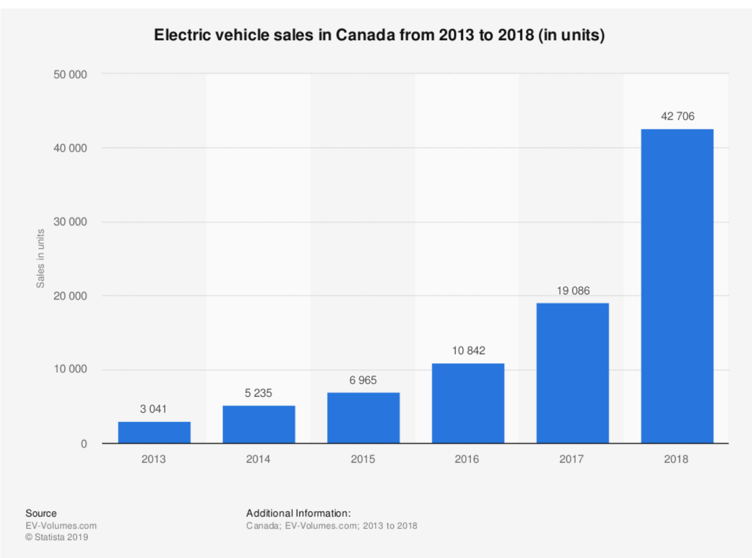
Appendix 13: Distribution of funds in industry



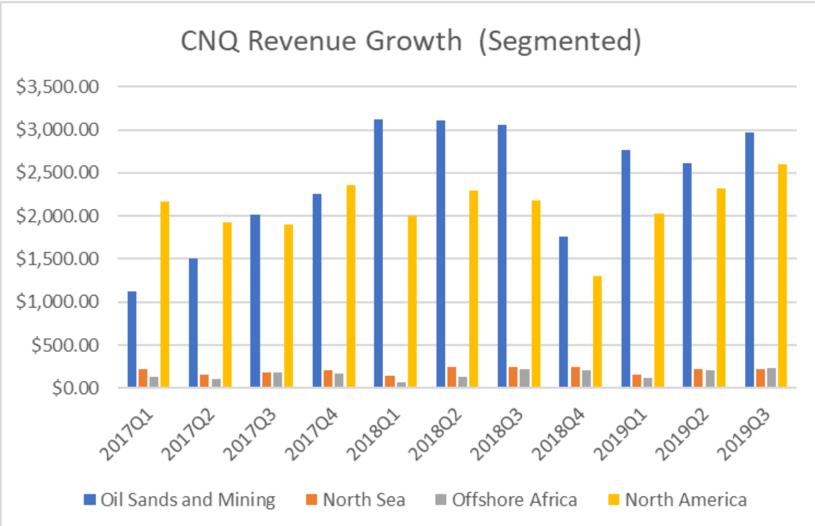
Appendix 14 Total Exports from Canada from 2004-2018



Appendix 15: Market Share (Oil and Gas)



Appendix 16: EV sales in Canada 2013-2018



Appendix 17: CNQ Segmented Revenue Growth

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Disclosures: