

## Contributors:

February 7, 2020

**Michael Scott**  
Portfolio Manager, Natural Resources  
E: [mike@lexingworth.com](mailto:mike@lexingworth.com)

**Peter Zheng**  
Senior Associate, Natural Resources  
E: [peter@lexingworth.com](mailto:peter@lexingworth.com)

# Natural Resources

INDUSTRY OVERVIEW



# Natural Resources Introduction

## UNDERSTANDING THE BASICS

### Types of Tradable Commodities

- Metals – Ex: Gold, Silver, Platinum and Copper
- Energy – Ex: Crude Oil, Heating Oil, Natural Gas
- Livestock and Meat – Ex: Live Cattles
- Agricultural – Ex: Corn, Wheat, Rice

### Ways to Invest in Commodities

#### 1. Futures Contract

- Users – Commercial or institutional users (hedgers). Goal: To reduce the risk of financial loss due to a change in prices
- Users – Speculators. Goal – Hope to profit from anticipated changes in the price of futures contract
- Advantage:
  - Pure play on underlying commodity
  - Leverage allows for large profits if you take the right side
- Disadvantage: High leverage, zero sum

#### 2. Companies who extract/refine commodities

- Advantage:
  - Public information on a company's financial situation is readily available
  - Not zero sum ( $e(r) > 0$ )
- Disadvantage:
  - Not a pure play on commodity prices
  - May be influenced by company-specific factors

#### 3. Exchange Traded Funds

#### 4. Mutual Funds

# Oil & Gas Overview

## SUB-SECTOR ANALYSIS

### Themes

1. Organization of Petroleum Exporting Countries (OPEC) - “Coordinate and unify the petroleum policies of its member countries and ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry. (OPEC)
  - OPEC member countries monitor the market and decide collectively to raise/lower oil production in order to maintain stable prices and supply
2. Commodity Light Heavy Price Differential - Measure of the difference in prices between light product (e.g Gasoline and Diesel) and heavy fuel oil.
  - Key measure of refinery market conditions
  - Refiners have higher profitability when light heavy differential is wide
3. IMO 2020 – In 2016, the International Maritime Organization (IMO) announce that 2020 will be the effective date for reduction of marine fuel sulphur. Under the new regulation, marine fuels with a sulphur content with no more than 0.50%S against the current limit of 3.5%S to reduce sulphur oxide emissions.
  - Heavier oil needs to be refined further and makes lighter blends more valuable



# Oil & Gas Overview cont.

## SUB-SECTOR ANALYSIS

Both Canada and United States combine for 23.27 million barrels per day, roughly 23% shares of total world oil production in 2018 (U.S. Energy Information Administration)

### Upstream

- Operation stages involves preliminary exploration and production
- Exploration and test drilling are important factors
- Ex: Halliburton (HAL), ConocoPhillips (COP)

### Midstream

- Transportation, processing and storing of the resources involved
- Ex: Keystone Pipeline System is owned solely by TransCanada Corporation, Kinder Morgan (KMI)

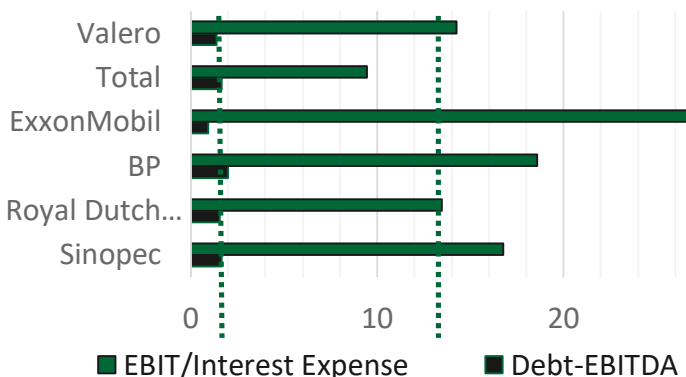
### Downstream

- Conversion of resources into the finished products such as refining crude oil into gasoline, natural gas, etc.
- Downstream entities are close to customers
- Ex: Philips 66 (PSX), HollyFrontier (HFC)

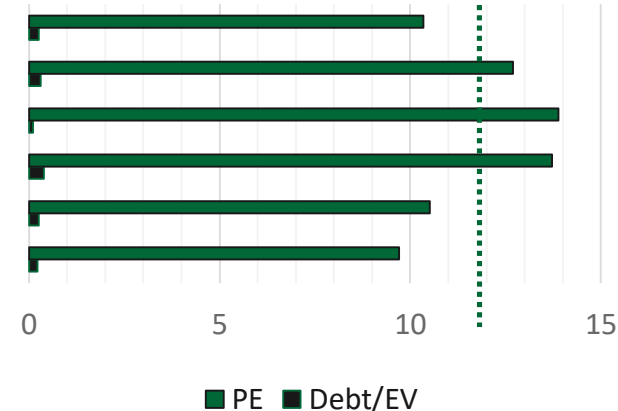
### Integrated

- Combination of upstream, midstream and downstream
- Most large cap companies such as Chevron and Exxon Mobile

**Figure 1: Top 6 O&G Firms Key Ratios**



**Figure 2: Other Key Ratios**



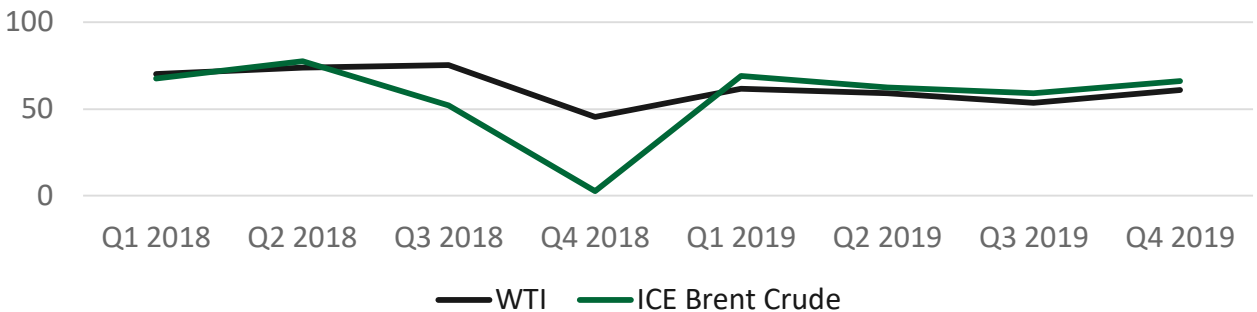
# Oil & Gas Overview cont.

## SUB-SECTOR ANALYSIS

### Common Benchmarks

1. West Texas Intermediate (WTI): Blend of light sweet crude oils produced in America and is ideal for gasoline refining. Often used as an oil benchmark in United States
2. The Intercontinental Exchange (ICE) Brent Crude: Light and sweet is ideal for the refining of diesel fuel and gasoline, from different fields in the North Sea. The index represents “the average price of trading in the BFOE (Brent-Forties-Oseberg-Ekofisk) ‘cash’ or forward (‘BFOE Cash’) market in the relevant delivery months as reported and confirmed by industry media” (The ICE)

**Figure 3: WTI vs ICE Brent Crude**



### Macroeconomic factors and Indicators

Demand for refined products such as oil tends to track the global economy, if the economy begins to slow, the former will likely slow as well. Government policies including changes in interest rates, taxes and regulations affect the cost of inventory storage, borrowing and spending practices, and ultimately raise and lower the price of petroleum products. Indicators also include oil inventories which are a reflection of trends in consumption and production. The Energy Information Administration provides weekly supply estimates of petroleum products.

Variables for Energy Demand	Variables for Energy Supply
Economic growth	Global Political Events
Technological development	OPEC's Actions
Consumer Preferences	Oil Inventory
Government Policies	

# Short-term Oil & Gas Outlook

## SUB-SECTOR ANALYSIS

The spot price of Brent Crude oil averaged \$67/b in December 2019 and hit a high of \$68.91 in January 2020 to start off the decade. Price increased drastically from October to December to partly reflect better than anticipated market expectation for 2020, and with the assistance of the announcement of first phase of a trade deal between China and the United States to be signed in the new year.

In 2019, OPEC saw the exit of Qatar and Ecuador to ring in the new years, bringing total members down to 13 states. OPEC started the year with reduction of output by 1.2 million barrels a day and a further output cut by an extra 500,000 barrels a day in the first quarter of 2020. Risks of oversupply for the first quarter of 2020 due to lowered demand for crude oil and other refined products. The cuts have supported oil prices at around \$50 - \$75 per barrel. Furthermore, events in the Middle East adds volatility and pressure to global oil prices in the short-term.

### 2020 Outlook

1. Uncertainty for fuel markets due to trade and economic headwinds
  - Recession possibility, IMO2020 regulations will change demands and types of crude for compliance
2. Decreasing demand of global oil supply with increasing security
  - Growing Supply from Western Hemisphere producers such as United States, Canada and Brazil have increased the supply of barrels in the market.
  - A presumably lower-demand growth could conclude supply security is robust, also given the 2.9 million barrels of commercial crude oil inventories in OECD countries
3. The Energy Transition
  - Companies should look to reduce emissions from existing infrastructures
  - Sustainability in water use for shale producers

# Metals & Mining Overview

## SUB-SECTOR ANALYSIS

Metals and Mining involves extraction of ore (rocks with mineral content) and coal. The products are often always refined for industrial and commercial use.

### Key Commodities:

- Precious Metals: Gold, Silver, PMG (Platinum, Palladium, Rhodium, etc.)
- Base Metals: Copper, Aluminum, Zinc, Lead, Nickel, Tin

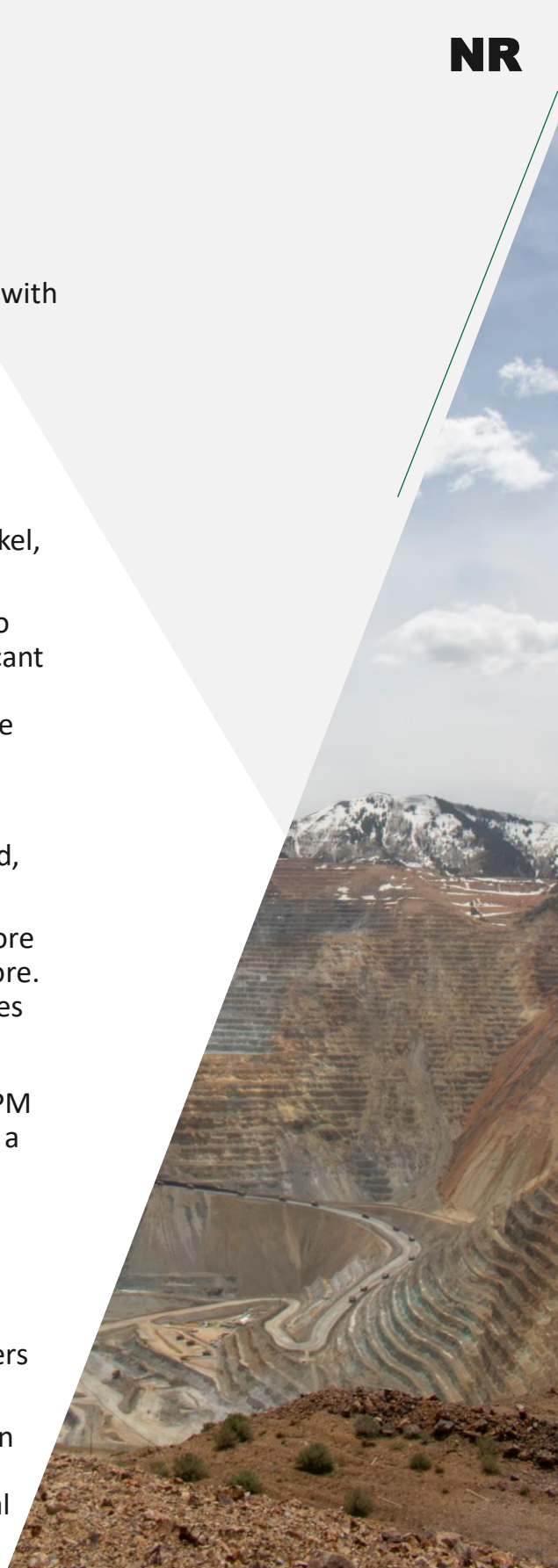
Reserves are often tested by sampling and drilling to observe the composition of the fields before significant work is done. Higher quality ore reserves will have higher composition of the desired mineral within the ore.

### Popular Mining Methods:

- Open Pit Mining – Gigantic craters in the ground, best for low grade, bulk tonnage operations
- Underground Mining – Requires drilling with more difficult engineering, typically for higher grade ore. Cut & fill is a popular method involving explosives

### Valuations of Metals and Mining Companies

- Net Present Value (Typically used instead of CAPM because NPV uses a standard discount rate plus a risk factor), considers:
  - Commodity price over the life of the mine
  - Development costs (cost and fill, room and pillar for underground, etc.)
  - Labour and fuel cost
- EV/EBITDA: Typically used for larger, stable miners with stable cash flows and defined project life
- Price/NAV: Typically used for miner that focus on one or two commodities. Higher P/NAV are perceived by the market to have low operational risk and will often trade at a premium



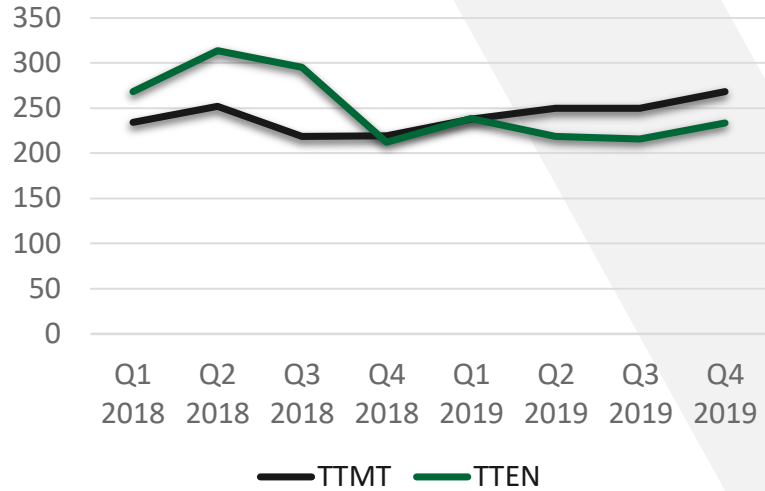
# Metals & Mining Overview cont.

## SUB-SECTOR ANALYSIS

### Common Benchmarks:

1. S&P/TSX Capped Materials Composite Index (GSPTTMT): Includes all 47 constituents of the S&P/TSX Materials Composite Index with relative weighting of each constituent capped at 25%.
2. S&P/TSX Capped Energy Index (TRSPPTEN): Includes all 22 constituents of the S&P/TSX Energy Index with relative weighting of each constituent capped at 25% (Often used for the O&G, energy sector as well)

Figure 4: TTMT vs TTEN



- US-China Trade and Tariff Disputes
- Ongoing Brexit Uncertainty
- Trade Sanctions against Russia, Iran
- Supply Disruptions in India due to mine auctions

### Macro Factors and Indicators

- Supply & Demand
- Global Political Events
- Currencies (most commodities are priced in USD)
- Taxation

Recent global events effecting the sector

Figure 6: Top 6 M&M Companies Key Ratios

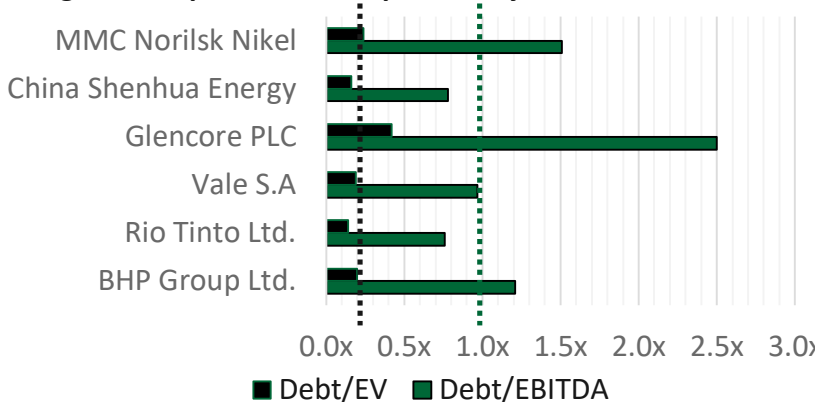
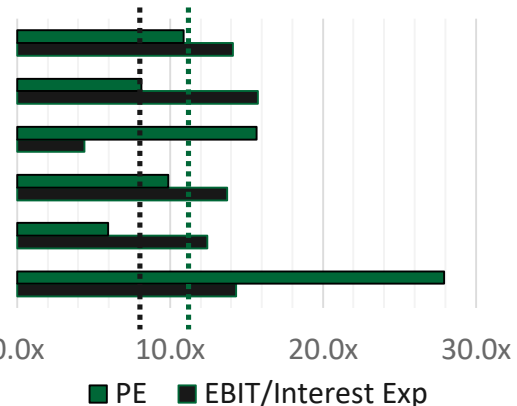


Figure 7: Other Key Ratios





# Short-term Outlook

## Metals & Mining

SUB-SECTOR ANALYSIS

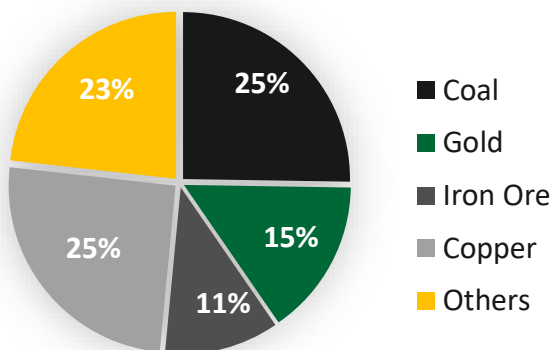
### Sustainable Future:

To keep up with the forever transforming market(change), the mining industry needs to prioritize customer-centric and green strategies enabled by technology in order to gain the trust of current and future stakeholders. Visible and direct measures are required to do so.

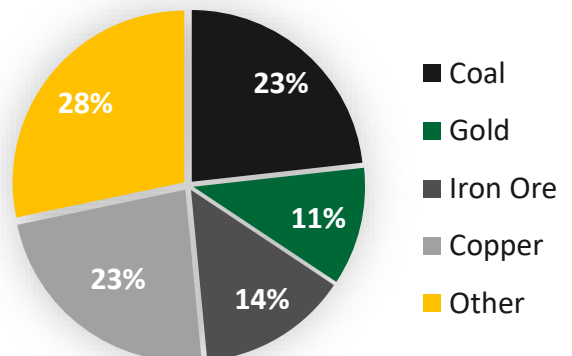
### Has changing consumer sentiment effected the Commodity Mix of the future?

The challenge to provide environmentally friendly products across industries have provided the opportunity for improved technology among others to lower their carbon footprints, but has that reshaped the commodity mix for the industry? From figure 3 below, it compares the 2006 commodity mix based on revenue and the 2018 mix in figure 4 for the top 40 firms in the industry. The weighting share close resemblance as coal & copper retains an almost equivalent weighting. The transformation of new energy sources and alternatives will have to wait as the substantial production volume of the dominant commodities below will dwarf the new energy sources.

**Figure 8: 2006 PWC's Top 40 Revenue-Based Commodity Mix**



**Figure 9: 2018 PWC's Top 40 Revenue-Based Commodity Mix**



# The Future of Natural Resources

OIL & GAS, METALS & MINING

## Market Fundamentals

- Trade disputes and an overall slowdown of economic growth could affect the commodities market. The Conference Board along with many analysts forecasts US real GDP growth to come in at 2.1% in 2020, lower than 2.3% in 2019 and 2.9% in 2018. Globally, there are a number of countries facing economic headwinds including the economic effects of virus pandemics, high debt & weak currencies in Europe, etc.

## Energy Transition Trends

- The energy transition will pose new challenges for companies, driven by changing customer preferences, disruption of long-standing market/company operation structures and value chains. Both O&G and metals & mining sectors will need to find ways to eliminate methane leaks, reduce greenhouse gas emissions, access more environmentally friendly drilling & testing technologies, etc. Investors increasingly view ESG and company's response to climate change as important factors into corporate confidence. The energy transition is a long-term trend but will see it gain momentum in 2020 and for the rest of the decade.





## Sources:

## Software:

Bloomberg Terminal  
Thompson Eikon

## Websites:

- <https://www.pfac.ca/business/industry-overview/>
- <https://www.eia.gov/outlooks/steo/report/prices.php>
- <https://articles2.marketrealist.com/2019/09/an-overview-of-the-us-energy-sector/#>
- <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2020-outlook-ogc.pdf>
- <https://www.pwc.com/gx/en/energy-utilities-mining/publications/pdf/mine-report-2019.pdf>
- <https://www.spglobal.com/marketintelligence/en/news-insights/blog/mining-exploration-insights-metals-and-mining>
- <https://web.tmxmoney.com/indices.php?section=tsxc&index=%5ET00C>
- <https://www.conference-board.org/data/usforecast.cfm>
- <https://www.shell.com/business-customers/marine/imo-2020.html>