Broad market indices are one of the many vital signs measuring the health of the economy. Energy demand is a function of economic health. Source: Bloomberg, ARC Financial Corp.

The performance of Canadian oil and gas service equities are plotted in tandem with the corresponding US index. Source: Bloomberg, Petroleum Services Association of Canada

The comments are no longer included in the charts.
North American crude oil prices can sometimes disconnect from global prices depending on regional supply and demand dynamics.

Source: Bloomberg

The differential should reflect quality differences and transportation costs. Greater discounts can result from infrastructure or refinery outages.

Source: Bloomberg

As pipeline capacity becomes more constricted, shipments of petroleum products (especially crude oil) are expected to rise.

Source: Canadian National Railway, Canadian Pacific Railway

The advancement of drilling and completion methods boosted US crude oil production, prior to the downturn in prices.

Source: Bloomberg, U.S. Energy Information Administration
Most of Canada’s oil production comes from Alberta; split between oil sands and conventional production.

Source: Alberta Energy Regulator

OPEC’s production levels relative to its sustainable and spare capacity influences global crude prices.

Source: Petroleum Intelligence Weekly

Negative numbers indicate a global crude shortfall, while positive numbers indicate an oversupply.

Source: International Energy Agency

This difference between long and short contracts is a proxy for bullishness of money managers on the price of oil in the United States.

Source: Bloomberg, U.S. Commodity Futures Trading Commission

Crude oil imports from Canada are taking market share from overseas imports.

Source: U.S. Energy Information Administration

The US exports more refined products than crude oil. With the rapid growth of tight oil, most export growth should come from crude oil exports.

Source: U.S. Energy Information Administration
US crude oil stock levels can affect crude oil prices. Stock levels for the current year are represented by the blue line. 
Source: U.S. Energy Information Administration

Refinery utilization rates change the supply of refined products, impacting price. Utilization for the current year is blue. 
Source: U.S. Energy Information Administration

Tracking US oil drilling by major play provides insight into the composition of US oil supply and growth trends. 
Source: Baker Hughes

Natural gas liquids have become critical contributors to producer’s cash flow. Prices are influenced by the price of oil as well as local supply and demand. 
Source: Bloomberg, ARC Financial Corp.
23 Near-Month North American Natural Gas Prices
Daily Prices; Rolling 12-Month History

Near-month prices at AECO track Henry Hub prices, the exchange rate and the cost of transportation. Local factors can also affect price.
Source: Bloomberg

24 US Natural Gas Futures
Nymex (Henry Hub) 2018 to 2020

Forward contract prices are plotted against months in the calendar year. Years are distinguished by color and symbol coding.
Source: Bloomberg

25 Ratio of Long to Short Contracts – Henry Hub
Managed Money – Futures and Options

This represents the relative bullishness of money managers on the price of natural gas in the United States.
Source: U.S. Commodity Futures Trading Commission

26 Canadian Natural Gas Futures
AECO Hub (Bloomberg Estimate) 2018 to 2020

AECO forward prices mimic Henry Hub futures plus a differential.
Source: Bloomberg

27 Global Natural Gas Prices
Japanese LNG, UK NBP, Henry Hub; Average Monthly Prices

International natural gas prices strongly impact the economics of proposed LNG projects.
Source: Bloomberg, Japanese Ministry of Economy, Trade and Industry

28 US Coal and Natural Gas Power Generation Cost
Converted to a $/MWh Equivalent

This graph illustrates when it may be economic to begin coal-gas switching in power generation. Average power plant efficiencies are assumed.
Source: Bloomberg
Closing Spot Prices at North American Natural Gas Hubs
Superimposed on Relative Physical Volumes Traded

North America has an integrated natural gas market. Prices are determined by regional supply and demand, and pipeline flows.

Source: Bloomberg

Pipeline Flows Out of Western Canada
Daily; Historical Tracks and Current Year Levels

The ability of gas producers to move gas out of the WCSB to eastern markets and the US is a major factor in local natural gas prices.

Source: Various Pipeline Companies

US Natural Gas Exports – Excluding Canada
Daily; Historical Tracks and Current Year Levels

Between exports to Mexico and LNG shipments, the US is growing as a natural gas exporter. Robust US supply growth has driven this trend.

Source: Bentek
Weekly natural gas demand is directly tied to the weather. The current year is in dark blue.
Source: National Oceanic and Atmospheric Administration

US production started ramping up in late 2007 and continues to grow year over year.
Source: Bentek

Weekly gas storage reports provide a snapshot of supply and demand. Current year changes are represented by the blue line.
Source: U.S. Energy Information Administration
Alberta natural gas demand has grown steadily in recent years, largely driven by new oil sands projects coming on line.

Source: TransCanada Pipelines

Unlike US drilling activity, Canadian rigs are dispatched seasonally. Capital allocation by operators is driven by views of future oil and gas prices.

Source: Baker Hughes

Land prices are an important component of F&D costs. In Alberta, sales of petroleum and natural gas rights are held every two weeks.

Source: Alberta Department of Energy

Canada’s natural gas storage level provides a good metric if the country is well stocked. Abnormally high or low storage can affect the basis.

Source: Bloomberg

Tracking US gas drilling by major play provides insight into the composition of US gas supply and growth trends.

Source: Baker Hughes

Relative year-over-year drilling activity is highlighted in this chart. Cumulative well completions for the current year are shown in blue.

Source: Daily Oil Bulletin/JWN

## Canadian Industry Metrics: Historical Data and Forecast

### Canadian Industry Summary:

- **Average Price Edmonton Par AECO**:
  - 2009: 42.26, 66.42, 3.79
  - 2010: 48.41, 77.55, 3.79
  - 2011: 55.32, 95.24, 3.44
  - 2012: 50.60, 86.38, 2.27
  - 2013: 55.95, 93.47, 3.02
  - 2014: 61.29, 95.07, 4.23
  - 2015: 37.21, 57.63, 2.56
  - 2016: 32.52, 53.09, 2.06
  - 2017: 36.64, 62.42, 2.10
  - 2018: 44.07, 78.84, 1.57

- **Conv. Liquids**:
  - 2009: 1840, 1331, 2.514, 5.683
  - 2010: 1830, 1403, 2.434, 5.668
  - 2011: 1873, 1482, 2.386, 5.740
  - 2012: 1905, 1743, 2.327, 5.975
  - 2013: 2023, 1940, 2.343, 6.306
  - 2014: 2086, 2160, 2.452, 6.698
  - 2015: 1983, 2368, 2.500, 6.851
  - 2016: 1963, 2418, 2.547, 6.929
  - 2017: 1926, 2671, 2.574, 7.172
  - 2018: 1965, 2984, 2.596, 7.546

- **Canadian Industry Statistics**
  - **Estimated Capital Flow in the Canadian Oil and Gas Economy for 2018**:
    - **Oil & Gas Prices**: $44.07 per BOE
    - **E&P Revenue**: $121.3 Billion
    - **Operating Expenditures**: $56.1 Billion
    - **CAPEX**: $43.7 Billion
    - **Reinvestment**: 115,890
    - **Drilling**: 2,547
    - **Volume**: 7.5 Million BOE/day
    - **Reserve Additions**: 7,134 Wells
    - **Rig Util.**: 69%
    - **Drilling Activity**: 22,264
    - **Service Sector Revenue**: 43,165

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