**Chart Watch**

9. Traders boosted bullish WTI positions last week.
12. OPEC and its partners agreed to extend cuts.
17. US crude stocks drew by 3.4 MMB.
23. November saw some modest AECO gains.

**Broad Equity Markets Year-to-Date**

Indexed to 12 Months Ago

- Shanghai Composite
- S&P/TSX Composite
- Dow Jones

**Performance of Oil and Gas Equities Year-to-Date**

Indexed to 12 Months Ago

- ARC Junior E&P Index
- S&P 500 E&P
- S&P/TSX E&P Index

**Oil & Gas Service Equities Year-to-Date**

Indexed to 12 Months Ago

- Philadelphia Service Index
- PSAC Canadian Index

**Canadian Currency Exchange**

Daily Close Values; Rolling 24-Month History

1. $US/$Cdn
2. $0.90
3. $0.85
4. $0.80
5. $0.75
6. $0.70
7. $0.65

The performance of Canadian oil and gas service equities are plotted in tandem with the corresponding US index.

**Currency**

Indexed to 12 Months Ago

- Philadelphia Service Index
- PSAC Canadian Index

**Performance of Canadian and US oil & gas equities are compared against each other.**

Source: Bloomberg, ARC Financial Corp.

**The DJIA hit a new record high on Friday.**

The index rose 3.8% over November.

**Much of Canada’s oil and gas production is sold in US dollars. As such, the exchange rate significantly impacts corporate revenues and profits.**

Source: Bloomberg.

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North American crude oil prices can sometimes disconnect from global prices depending on regional supply and demand dynamics.

Source: Bloomberg

Canadian heavy crude oil differentials are becoming less volatile with growing access to new markets via pipeline and rail.

Source: Bloomberg

This represents the relative bullishness of money managers on the price of oil in the United States.

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

Prior to the downturn, growing domestic supply was displacing crude oil imports. Crude oil imports for the current year are in blue.
Source: U.S. Energy Information Administration

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. If/when tight oil growth resumes, most export growth should come from crude oil exports.
Source: U.S. Energy Information Administration
US Crude Oil Stocks
Historical Tracks and Current Year Levels

Global 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

US Weekly Refinery Utilization Rates (%)
Historical Tracks and Current Year Levels

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

US Oil Drilling Activity
Baker Hughes Horizontal Oil Rig Counts; 2014 to Present

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

OECD Total Industry Oil Stocks
Americas and Rest of OECD

Source: International Energy Agency

US Motor Gasoline Consumption
Historical Tracks and Current Year Levels

Gasoline consumption accounts for almost half of all oil use in the US. Gasoline consumption for the current year is represented by the blue line.
Source: U.S. Energy Information Administration

Daily NGL Prices as a % of Edmonton Light
Propane & Butane Spot Prices at Edmonton, AB

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

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

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

24 US Natural Gas Futures
Nymex (Henry Hub) 2017 to 2019

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

Source: Bloomberg

26 Canadian Natural Gas Futures
AECO Hub (Bloomberg Estimate) 2017 to 2019

AECO forward prices mimic Henry Hub futures plus a differential

Source: Bloomberg

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

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

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

TransCanada Intra-AB Deliveries; Current Year and Historical Tracks

Alberta natural gas demand has grown steadily in recent years, largely driven by new oil sands projects coming on line.  
*Source: TransCanada Pipelines*

### Western Canadian Natural Gas Storage Levels

Weekly; Current Year and Historic Tracks

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*

### Weekly Canadian Oil and Gas Drilling Activity

Baker Hughes Average Rig Counts; Rolling 24-Month History

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*

### US Gas Drilling Activity

Baker Hughes Horizontal Gas Rig Counts; 2014 to Present

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

### Alberta Crown Land Sales – Excluding Oil Sands

Year-over-Year; Cumulative

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*

### Canadian Cumulative Well Completions

Current Year vs Years Prior

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*
Estimated Capital Flow in the Canadian Oil and Gas Economy for 2017

Industry Revenue, Cash Flow, Reinvestment, Drilling Activity and Production

Canadian Industry Metrics: Historical Data and Forecast

Canadian Industry Metrics

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