ARC Energy Charts

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May 30, 2022

Chart Watch

- 4 Cdn E&P s up over 10% week over week
- 22 EU leaders agree to ban some Russian imports
- 27 Gas exports have fallen in recent weeks
- 33 W. Canada gas stocks below 5 year average
- 37 Oil drilling increases as we exit spring break-up

1. Broad Equity Markets
   Daily Index Values; January 2020 to Present

   Indexed to Jan 2020
   - MSCI Global ESG Index
   - S&P/TSX Composite
   - Dow Jones

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

2. Clean Energy Indices
   Daily Index Values; January 2020 to Present

   Indexed to Jan 2020
   - Wilderhill Clean Energy Index
   - S&P/TSX Renewable Energy & Clean Technology Index

   The performance of global and Canadian clean energy indices are compared against each other.
   Source: Bloomberg, ARC Financial Corp.

3. Oil & Gas Service and Midstream Indices
   Daily Index Values; January 2020 to Present

   Indexed to Jan 2020
   - Philadelphia Service Index
   - PSAC Canadian Index
   - S&P/TSX Oil & Gas Storage & Transportation Index

   The performance of Canadian And US oilfield equities and Canadian midstream equities are compared against each other.
   Source: Bloomberg, Petroleum Services Association of Canada

4. Oil and Gas E&P Indices
   Daily Index Values; January 2020 to Present

   Indexed to Jan 2020
   - Cdn E&P s up 10% week over week as oil prices rise.
   - S&P 500 E&P
   - S&P/TSX E&P Index

   The performance of Canadian and US oil & gas equities are compared against each other.
   Source: Bloomberg, ARC Financial Corp.

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5. **Bloomberg Commodity Index**  
Daily Index Values; January 2020 to Present

BCOM is a widely tracked benchmark for the commodities market. It is composed of 23 exchange-traded contracts on physical commodities.  
*Source: Bloomberg*

6. **5-Yr, 5-Yr Forward Inflation Expectation Rate**  
Daily; January 2020 to Present

This series is a measure of expected inflation (on average) over the five-year period that begins five years from today.  
*Source: Federal Reserve Bank of St. Louis, (FRED) Economic Data*

7. **CO2e Emissions: ICE EUA Futures Contract**  
Daily; January 2020 to Present

EU Allowances (EUA) are carbon credits equivalent to one tonne of CO2 used in the European Union Emissions Trading Scheme (EU ETS).  
*Source: Bloomberg*

8. **Trends in Atmospheric CO2**  
Mauna Loa Weekly Average: January 2020 to Present

The carbon dioxide data on Mauna Loa constitutes the longest record of direct measurements of CO2 in the atmosphere.  
*Source: NOAA*

9. **Texas Electricity: ERCOT North Hub Price**  
Daily and 30-Day Average; January 2020 to Present

ERCOT is the grid operator for 90% of the electricity sold in Texas. The price shown is for the North Hub and is the wholesale price.  
*Source: Bloomberg*

10. **Alberta Electricity: AESO Average Pool Price**  
Daily and 30-Day Average; January 2020 to Present

The Alberta Electric System Operator (AESO) manages and operates the provincial power grid.  
*Source: Bloomberg*
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

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.

Most of Canada’s oil production comes from Alberta; split between oil sands and conventional production.  
Source: Alberta Energy Regulator
17. **US Crude Oil Stocks**
   - Historical Range and Current Year Levels
   - 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

18. **US Petroleum Product Consumption**
   - Top Three Product Categories; Jan 2020 to Present
   - Gasoline, diesel and jet fuel consumption represent the majority of oil use in the US.
   - Source: U.S. Energy Information Administration

19. **US Weekly Crude Oil Production**
   - US Field Production of Crude Oil; 2019 to Present
   - Weekly production is modelled by the EIA. It is less accurate than monthly reported numbers, but is instructive of up to date changes.
   - Source: U.S. Energy Information Administration

20. **US Crude Oil Imports**
   - Weekly Data; 2017 to Present
   - Crude oil imports from Canada are taking market share from overseas imports.
   - Source: U.S. Energy Information Administration

21. **OECD Total Industry Oil Stocks**
   - Monthly; 2012 to Present
   - OECD stock levels can affect crude oil prices.
   - Source: International Energy Agency

22. **OPEC and Russian Oil Production**
   - Monthly; Rolling 60-Month History
   - OPEC’s production levels relative to its sustainable and spare capacity influences global crude prices. Note: scale has been expanded.
   - Source: Bloomberg, Russia Ministry of Energy
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

International natural gas prices strongly impact the economics of proposed LNG projects.

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: Bloomberg
Alberta natural gas demand has grown steadily in recent years, largely driven by new oil sands demand and power generation projects. 
*Source: TransCanada Pipelines*

Domestic US demand fluctuates in the summer and during the winter as weather is an important driver of consumption. 
*Source: Bloomberg*

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

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*

*The EIA reports changes in US natural gas inventories held in underground storage facilities on a weekly basis.* 
*Source: U.S. Energy Information Administration*
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

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

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

Total rig-releases for exploratory and development wells are highlighted in this chart. Rig releases for the current year are shown in red. Source: Daily Oil Bulletin/JWN

Total wells drilled in US Drilling Productivity Report regions are shown. These are the most active onshore US plays. Source: EIA
Canadian Industry Metrics: Historical Data and Forecast

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Price</th>
<th>Edmonton Par</th>
<th>AECO</th>
<th>Conv. Liquids</th>
<th>MBOE/d</th>
<th>Average</th>
<th>Bitumen + Synthetic</th>
<th>MBOE/d @ 6:1</th>
<th>Natural Gas</th>
<th>MBOE/d</th>
<th>Total Volume</th>
<th>Capital Inflow</th>
<th>Reinvestment</th>
<th>CAPEX</th>
<th>Well Split</th>
<th>Drilling Activity</th>
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<td>1,905</td>
<td>1,743</td>
<td>2,327</td>
<td>5,975</td>
<td>111,389</td>
<td>54,655</td>
<td>39,733</td>
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<td>12%</td>
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<td>1,940</td>
<td>2,343</td>
<td>6,306</td>
<td>128,787</td>
<td>54,907</td>
<td>43,956</td>
<td>110,713</td>
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<td>35%</td>
<td>44%</td>
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<td>33%</td>
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<td>14,158</td>
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